Stora Enso
Annual Report 2023

THE RENEWABLE MATERIALS COMPANY

Contents

About this report

Stora Enso acknowledges the concept of double materiality in its sustainability approach and reporting. The Group's impacts on the environment and people are reported in both the strategy and sustainability reporting section of the report. The most significant financial opportunities and risks related to sustainability topics are highlighted in the section Our strategy.

This Annual Report is not an XHTML document compliant with the ESEF (European Single Electronic Format) regulation.

● Audited

The Sustainability reporting, including EU Taxonomy and Stora Enso as a taxpayer, has been assured by an independent third-party assurance provider with a level of Limited Assurance. A level of Reasonable Assurance has been provided for direct and indirect fossil CO_2e emissions.

Our year 2023

Stora Enso in brief

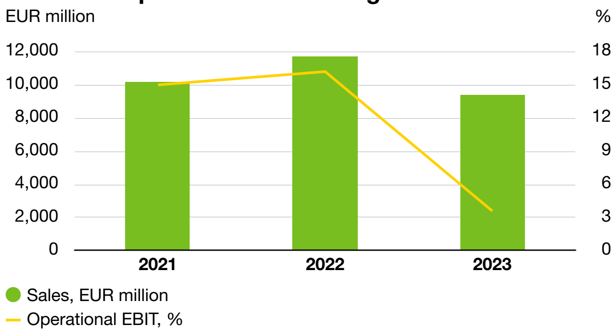
Part of the global bioeconomy, Stora Enso is a business-to-business company and a leading provider of renewable products in packaging, biomaterials, and wooden construction, and one of the largest private forest owners in the world. Sustainability is integral in Stora Enso's business strategy, it is at the core of what we do.

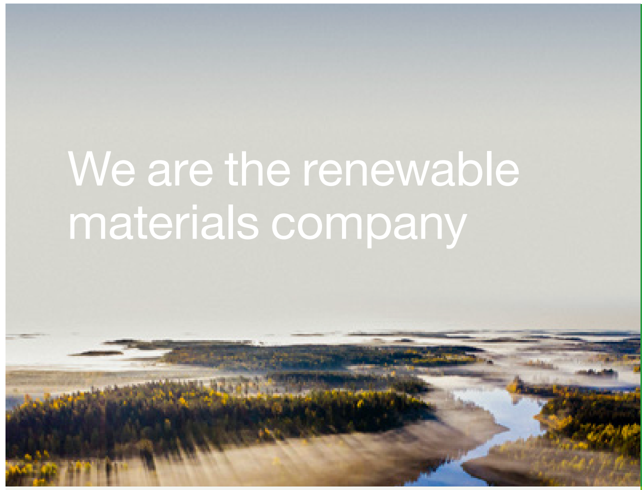
Stora Enso contributes to the transition towards a circular bioeconomy in three areas where it has the biggest impact and opportunities: climate change, biodiversity, and circularity. We create value by our low-carbon and recyclable fiber-based products, through which we support our customers in meeting the demand for renewable eco-friendly products. Our shares are listed at Helsinki (STEAV, STERV) and Stockholm (STE A, STE R) stock exchanges. In addition, the shares are traded in the USA as ADRs at OTC Markets (OTCQX) and ordinary shares (SEOAY, SEOFF, SEOJF).

Divisions

- Packaging Materials
- Packaging Solutions
- Wood Products
- Biomaterials
- Forest

Sales and operational EBIT margin





Renewability

Our raw material is renewable, recyclable and fossil-free

Circularity

Our renewable products contribute to a circular bioeconomy

Our purpose

Do good for people and the planet
Replace non-renewable materials with renewable products

Our values

Lead
Do What's Right

Less CO_2

Our products replace fossil-based materials

Personnel

20,000

Heritage

- **1288** World's first stock listing: The mining company Stora Kopparbergs Bergslag in Sweden.
- **1862** This business progressed to become Stora Kopparbergs Bergslag encompassing mining, iron, and wood activities.
- **1872** Hans Gutzeit established a sawmill in Kotka, Finland.
- **1998** Stora Enso was formed through the merger of the Finnish Enso Oyj and the Swedish STORA.
- **2005** Start-up of the Veracel pulp mill in Brazil.
- **2014** Start-up of the Montes del Plata pulp mill in Uruguay.
- **2016** Start-up of the Beihai mill in China.

  The converted paper machine at the Varkaus mill in Finland started production of containerboard.
- **2018** Acquisition of forest assets in Sweden.
- **2019** Stora Enso issues its first green bonds.
- **2021** The converted paper machine at the Oulu mill in Finland started production of packaging board.
- **2022** Exiting Russian operations.
- **2023** Acquisition of De Jong Packaging Group in the Netherlands.

  Paper business discontinued.

Q&A with Hans Sohlström, President and CEO

We spoke with Hans Sohlström to gain his perspective on his journey thus far with Stora Enso. We also discussed the key priorities for 2024, both to navigate the challenging market environment and to set the strategic path for the business.

Leading a purpose-driven company: Hans Sohlström on his appointment as Stora Enso's President and CEO:

I am honoured to lead a company with such a strong purpose and heritage. Stora Enso has a solid foundation, leading global positions with many growth opportunities in providing renewable and circular solutions made from wood. I have had the opportunity to meet with dedicated employees across the Group and visit various sites and locations. I am deeply impressed by the competence, knowledge, and dedication that exists within the organisation along with the Company's strong customer relationships.

Q: It has been a challenging year for Stora Enso and the whole sector, how would you sum it up?

A: 2023 was a challenging year for the whole industry, with lower demand and volumes in general. During the year, we experienced a decline with a speed and magnitude not seen for a couple of decades, with deteriorating market conditions and price pressure for all segments. For Stora Enso, we have faced unprecedented market conditions and need to focus our efforts on what we can control to improve our competitiveness and prepare for an unpredictable future.

The geopolitical disruption has worsened. Global trade and supply chains have been challenged, and a new definition of "global" has emerged when sourcing and moving goods. Moreover, we are facing increasing sustainability demands which we are well positioned to meet. Navigating in this constantly changing macro and business environment requires business resilience as a key component. Despite these challenges, we remain determined to create value for our shareholders.

Q: How has the Company responded to the market and company-related challenges?

A: To respond to these challenges, we focus on what we can control. A restructuring programme was initiated in June 2023 to strengthen the Group's long-term competitiveness, improve profitability and focus capital allocation on strategic growth markets.

We closed several production units with low long-term competitiveness. We also took the next step in further empowering our divisions by decentralising operations and creating lean Group functions, to increase agility, accountability, and customer focus. These were difficult but necessary decisions. The restructuring actions will improve our operational EBIT by approximately EUR 110 million annually and affected approximately 1,150 employees who unfortunately had to leave their positions.

> We have faced unprecedented market conditions and need to focus our efforts on what we can control to improve our competitiveness.

We also achieved a significant working capital reduction of EUR 650 million from the peak in the beginning of 2023. This helps generate cash flow, which is a key success factor.

Last year's restructuring programme initiated in June 2023 identified synergy opportunities. In February of this year, 2024, we initiated a profit improvement programme resulting from those findings which would improve the Group's operational EBIT by EUR 80 million annually, with the majority of these savings realised during 2025. This profit improvement initiative includes a potential reduction of approximately 1,000 employees without any new production site closures. Although difficult, this plan is necessary to ensure our long-term success and competitiveness. We are facing persistent weakness in the macroeconomic and geopolitical environment, and need to focus on core business activities which align with our strategy. This profit improvement programme will enable a strengthened focus on competitiveness and cash flow making us more resilient to market uncertainties.

Q: What progress was made towards the Company's long-term strategic objectives in 2023?

A: Our strategy yielded significant progress in 2023. We began the year by discontinuing our Paper division, which had been in a market-related structural decline for many years. Instead, we focused on growing in our key areas, most notably renewable packaging, our largest growth area. In January, we completed the acquisition of De Jong Packaging Group, a leading corrugated packaging producer in the Netherlands, which reinforced our position in West Europe. Furthermore, we continued converting a paper line into growing consumer board segments at our Oulu production site in Finland, with production set to commence in early 2025. These strategic investments will strengthen our positions in the attractive segments of renewable, circular, and recyclable packaging materials and solutions.

Q: What have your focus and priority areas been and what are some of your other most pressing priorities?

A: First of all, the health and safety of our employees, contractors, and local environment will always be our top priority, and I'm pleased to see our safety performance improving in 2023. Diversity, equity, and inclusion are critical ingredients for creating a good workplace where everyone feels safe, included, and equally treated, with a strong sense of belonging to their teams and to Stora Enso.

Since I took over the lead, we have identified four priorities for reshaping the Company to make it more competitive:

Our first priority is to create value by improving our profitability through procurement and operational efficiency, streamlining our organisation, and revising our commercial strategies. These efforts are aimed at achieving commercial excellence and cost-savings while better meeting our customers' evolving needs.

To enhance commercial and operational excellence, we implemented a leaner organisation, with profit and loss responsibility assigned to divisions and business units. This will improve decision-making and faster implementation of actions, as well as result orientation and customer focus.

Our second priority is to release capital, by reducing working capital, and through divestments of non-core activities and businesses. We will focus on optimising our working capital and cash flow management. The divestment process of our consumer board production site in Beihai, China, as well as the forestry operations in the surrounding region, is ongoing and according to our plan.

Our third priority is to improve our competitiveness through a revised asset strategy. We will achieve this through focused, timely, and relevant capital allocation in our core businesses and assets, upgrading or expanding our production sites if needed.

And the fourth priority is to cultivate strong leadership, which is critical to fostering a culture of collaboration, accountability, and agility that supports these goals. We believe that attracting and retaining top talent and building a culture of excellence, innovation, and engagement is essential to our success.

These priorities will remain central to our efforts as we work towards realising our vision of success.

Q: Your long-term ambition is to offer 100% regenerative products and solutions by 2050. Can you please elaborate on what this means for Stora Enso?

A: By regenerative we mean providing renewable and fully circular products and solutions that help reduce climate impact by removing more carbon than they emit and that support biodiversity restoration. This long-term ambition is guided by intermediate targets for 2030 in our three key sustainability areas: climate, circularity, and biodiversity.

During the year, we reinforced our climate commitment by joining The Climate Pledge initiative, with a commitment to achieve net zero carbon emissions by 2040, across all three Scope categories. We will continue our decarbonisation journey to improve energy efficiency, increasing the share of renewable energy sources, and working together with our suppliers and customers to reduce emissions throughout our value chain. Our focus on the three key sustainability areas is supported by our commitment to the UN Global Compact's Ten Principles and the UN's Guiding Principles on Business and Human Rights.

Q: What are your expectations and focus for 2024 onward?

A: We still expect the market conditions to remain challenging and uncertain in 2024, with continued pressure on demand, prices, and margins. However, we also see some signs of improvement, such as improving pulp market and normalisation of customer inventory levels across our main business segments. We will continue to focus on our profit and cash generation, commercial and operational excellence, enhancing our competitiveness and increasing shareholder value.

We see strong sustainability trends such as substitution, replacement, and eco-awareness driving demand for new solutions made from renewable and recyclable materials which replace fossil-based materials in the long term. Our growth strategy remains unchanged; however, we need to be proactive and adapt to be successful in a changing environment. We will continue to pursue growth opportunities in our strategic focus areas: renewable packaging, sustainable building solutions, and biomaterials innovation, leading Stora Enso towards a more sustainable future.

I would like to express my gratitude to our shareholders, employees, customers, and partners for their trust and support during this turbulent year. Together, we will overcome the current challenges and build a stronger, more competitive Stora Enso that generates greater shareholder value while also benefiting society and the environment.

Hans Sohlström
President and CEO

Key targets

Earnings per share (basic)

EUR -0.45

Proposed dividend

EUR 0.10 per share*

*The Board of Directors proposes to the AGM that a dividend of EUR 0.10 per share is to be distributed for 2023. In addition, the Board of Directors proposes that the AGM would authorise the Board of Directors to decide at its discretion on the payment of an additional dividend up to a maximum of EUR 0.20 per share.

Climate change:

Our Scope 1 & 2 CO_2e emissions were

41%

lower than in 2019

Biodiversity:

99%

of the land we own or manage was covered by forest certification schemes

Circularity:

94%

of our products were recyclable

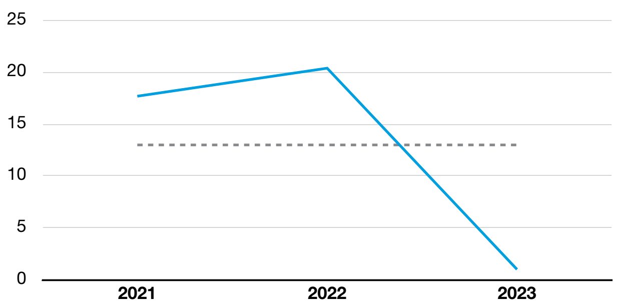
Key targets

	2023	2022	2021	Target	Performance against target
Financials					
Sales growth (Excl. Paper division, discountinued from 2023)	-20%	17%	29%	>5% per annum	🟠
Operational ROCE[1] excl. Forest	1,0%	20.4%	17.7%	>13%	🟠
Net debt to operational EBITDA[1]	3.2	0.7	1.1	<2.0	🟠
Net debt to equity	29%	15%	22%	60%	🟢
Dividend per share (EUR)	0.1[2]	0.6	0.3	See below[3]	🟢
Non-financials					
Reduction of absolute CO_2e emissions[4] (Scope 1 and 2)	-41%	-27%	-13%	-50% by 2030	🟡
Reduction of absolute CO_2e emissions[4] (Scope 3)	-34%	-24%	3%	-50% by 2030	🟡
Forest certification coverage	99%	99%	99%	96%	🟢
Circularity	94%	94%	94%	100% recyclable products by 2030	🟡

[1] Last 12 months
[2] Dividend proposal of 0.10 EUR/share to be paid in April 2024 – Proposal that the Board is authorised, at its discretion, to pay an additional 0.20 EUR/share until 31 December 2024.
[3] To distribute 50% of EPS excluding fair valuation over the cycle.
[4] Compared to the 2019 baseline. Historical figures are restated due to structural changes or additional data after the previous annual report.

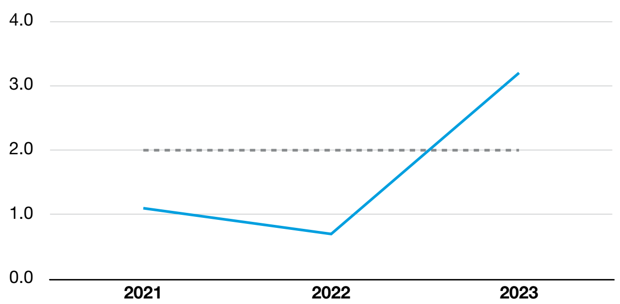
🟢 Achieved
🟡 On track
🟠 Not achieved

Operational ROCE excl. Forest*



*Last 12 months

Net debt to operational EBITDA



Key highlights of 2023

Stora Enso advanced its strategic agenda in 2023 by taking major steps in its core growth segments: renewable packaging, sustainable building products, and biomaterials innovations.

Aquisition of De Jong Packaging Group

In January, the acquisition of De Jong Packaging Group was completed. De Jong is based in the Netherlands and is one of the largest corrugated packaging producers in the Benelux countries. This acquisition builds the Group's foothold in Western Europe.

Discontinuing the Paper division

The Paper division was discontinued as of 1 January 2023. The retained paper sites Langerbrugge and Anjala are reported as part of the Packaging Materials division.

New high-tech corrugated packaging production site at De Lier in the Netherlands

In June, Stora Enso opened a new sustainable corrugated packaging site in the Netherlands. The site, part of the acquired De Jong Packaging Group, has four corrugators and is the largest and most modern in Europe. It produces boxes and trays for various applications.

Divestment process of Beihai in China

Stora Enso is in the process of a potential divestment of the consumer board site in Beihai, China.
The divestment will also encompass the forestry operations in the adjacent region. The process is progressing as planned, and we are working closely with our joint venture partners to manage the interest from potential buyers. The released capital will support the Group's already decided investments in Europe, improving our long-term profitable growth opportunities. The Group will continue to serve the Chinese market from its other sites around the world.

EUR 1 billion investment to accelerate growth in renewable packaging

The investment of approximately EUR 1 billion at the Oulu site in Finland to convert the remaining idle paper machine into a high-volume consumer board production line is moving ahead according to schedule. Production is expected to start during 2025. This site will be one of the most modern and cost-efficient production sites of packaging materials in Europe.

Commitment to net-zero carbon emissions

Stora Enso committed to achieving net-zero carbon emissions 2040 by signing The Climate Pledge. This commitment aligns with the broader ambition to be net carbon positive and provide 100% regenerative products by 2050. Stora Enso remains commited to its 2030 target to reduce absolute Scope 1, 2, and 3 emissions by 50% from the 2019 baseline, in line with the 1.5-degree scenario and approved by the Science Based Targets initiative.

Appointment of new President and CEO

Hans Sohlström was appointed the new President and CEO of Stora Enso on 18 September 2023. Mr Sohlström has more than 30 years of experience in business leadership, including over 10 years as CEO predominantly in the forest and renewable materials industries. Most recently, he led Ahlstrom Corporation, Ahlström Capital and Rettig Group. Prior to that, for over 20 years, he held several leadership positions at UPM-Kymmene Corporation. Mr Sohlström was a member of the Board of Directors of Stora Enso since March 2021 until he was appointed the President and CEO.

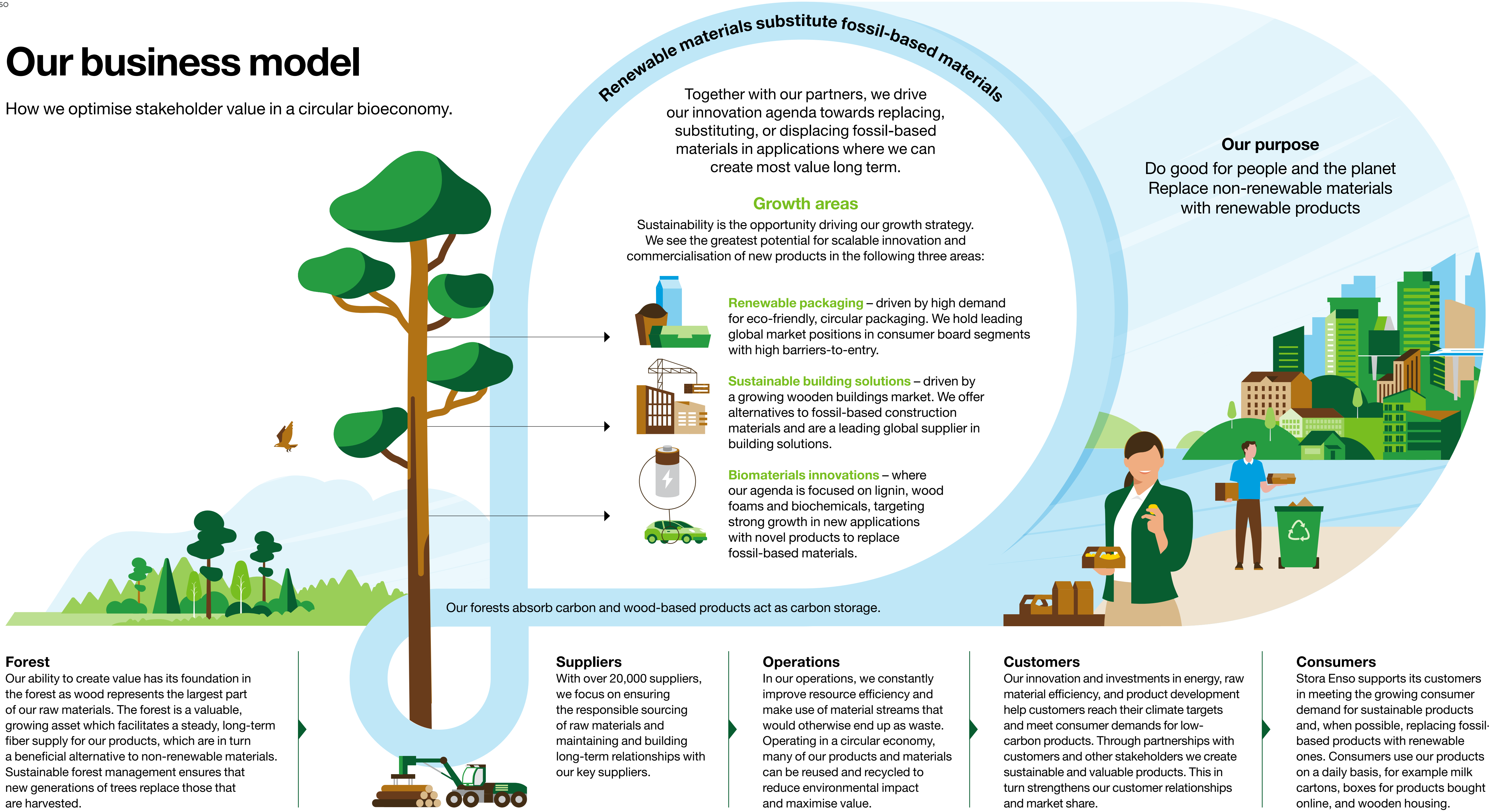
Restructuring to boost competitiveness and profitability

In June, Stora Enso announced restructuring actions that would improve operational EBIT by EUR 110 million annually while decreasing annual sales by EUR 380 million. The restructuring included closing down four production units in Finland, the Netherlands, Poland and Estonia, and reducing approximately 1,150 employees in total.

This is Stora Enso

Our business model

How we optimise stakeholder value in a circular bioeconomy.



Together with our partners, we drive our innovation agenda towards replacing, substituting, or displacing fossil-based materials in applications where we can create most value long term.

Growth areas

Sustainability is the opportunity driving our growth strategy. We see the greatest potential for scalable innovation and commercialisation of new products in the following three areas:

Renewable packaging – driven by high demand for eco-friendly, circular packaging. We hold leading global market positions in consumer board segments with high barriers-to-entry.

Sustainable building solutions – driven by a growing wooden buildings market. We offer alternatives to fossil-based construction materials and are a leading global supplier in building solutions.

Biomaterials innovations – where our agenda is focused on lignin, wood foams and biochemicals, targeting strong growth in new applications with novel products to replace fossil-based materials.

Our purpose

Do good for people and the planet
Replace non-renewable materials with renewable products

Our forests absorb carbon and wood-based products act as carbon storage.

Forest
Our ability to create value has its foundation in the forest as wood represents the largest part of our raw materials. The forest is a valuable, growing asset which facilitates a steady, long-term fiber supply for our products, which are in turn a beneficial alternative to non-renewable materials. Sustainable forest management ensures that new generations of trees replace those that are harvested.

Suppliers
With over 20,000 suppliers, we focus on ensuring the responsible sourcing of raw materials and maintaining and building long-term relationships with our key suppliers.

Operations
In our operations, we constantly improve resource efficiency and make use of material streams that would otherwise end up as waste. Operating in a circular economy, many of our products and materials can be reused and recycled to reduce environmental impact and maximise value.

Customers
Our innovation and investments in energy, raw material efficiency, and product development help customers reach their climate targets and meet consumer demands for low-carbon products. Through partnerships with customers and other stakeholders we create sustainable and valuable products. This in turn strengthens our customer relationships and market share.

Consumers
Stora Enso supports its customers in meeting the growing consumer demand for sustainable products and, when possible, replacing fossil-based products with renewable ones. Consumers use our products on a daily basis, for example milk cartons, boxes for products bought online, and wooden housing.

Investment case

Creating value for our shareholders now and for the long term.

A diversified business model underpinned by megatrends
Stora Enso is one of the world's largest private forest owners with a diversified product portfolio of renewable and circular solutions. We leverage our value chain, expertise and innovation to create competitive advantage. Our portfolio is balanced geographically and product-wise, offering a solid base and multiple growth opportunities. Global megatrends such as urbanisation, digitalisation, changing lifestyles, and eco-awareness all underpin our growth opportunities.

Sustainability is the opportunity driving our strategy
We create renewable and circular solutions from sustainably managed forests. Sustainability is integral to our business strategy and practices. Our products help combat climate change, restore the environment, and generate revenue and profits for the Group. Our ambition is to offer 100% regenerative solutions by 2050, meaning products that are fully circular, remove more carbon than they emit, and support biodiversity restoration.

Forest assets create a solid foundation
Forests are a scarce resource and a critical asset for the global renewable materials market, and a high proportion of its own wood supply gives Stora Enso tactical flexibility and synergies. It contributes to a strong balance sheet and long-term value growth. Owning land also provides an opportunity to increase revenue from wind power development, land swaps, and compensations for protection areas.

Growth with focused capital allocation
Through capital allocated to the key focus growth areas, Packaging Materials and Solutions, Building Solutions, and Biomaterials Innovations, Stora Enso's competitive advantage can further be enhanced. The target is to grow sales 5% annually and deliver a ROCE of 13%. Stora Enso's dividend policy is to distribute 50% of earnings to its shareholders over the cycle excluding fair valuation.

Focused and disciplined capital allocation drives shareholder value

Cash flow generation

Allocating capital for sustainable profitable growth

Organic growth
CAPEX at or below depreciation over the cycle.

M&A
Selective M&A to support growth in both Packaging and Building Solutions.

Returning capital to shareholders

Dividend
To distribute 50% of EPS excluding fair valuation over the cycle.

Our divisions

Packaging Materials

The Packaging Materials division is a global leader and expert in circular packaging providing premium packaging materials based on virgin and recycled fiber. Stora Enso helps customers replace fossil-based materials with low-carbon, renewable and recyclable alternatives for their food, beverage, and transport packaging with a wide selection of base boards and barrier coatings.

Packaging Solutions

The Packaging Solutions division is a packaging converter that provides premium fiber-based packaging products and services used by leading brands across multiple market areas, including retail, e-commerce, and industrial applications. The division also provides design and sustainability services for customers to optimise material use, logistics, and reduce CO_2 emissions.

Biomaterials

The Biomaterials division's business opportunities are strongly driven by the need to replace fossil-based and other non-renewable materials. Stora Enso uses all fractions of a tree to develop new biobased solutions for various end applications. The division's long-term growth is driven by new products and innovations, while pulp continues to be the foundation.

Wood Products

The Wood Products division is Europe's largest sawn timber producer and a leading provider of sustainable wood-based solutions for the global construction industry. Additionally, it offers window and door components, and co-products such as pellets made from wood residuals.

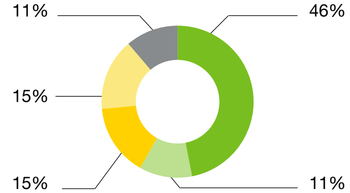
Forest

The Forest division is responsible for wood sourcing for Stora Enso's Nordic and Baltic operations and B2B customers. It manages the Group's forest assets in Sweden and a 41% share of Tornator, whose forests are mainly located in Finland. The division's operations are based on sustainable forest management from planning and logistics to harvesting and forest regeneration.

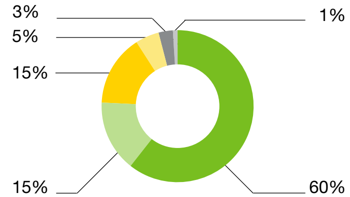
Division	Products and applications	Main customer groups	Key figures	Market position
Packaging Materials	– Liquid packaging boards – Foodservice boards – Fresh cartonboards – Containerboard – Book paper – Newsprint, magazine paper	Packaging converters, food producers, brand owners, retailers, and book and newspaper printers	Sales: EUR 4,557 million Operational EBIT: EUR -57 million Operational ROOC*: -1.6%	#1 globally in liquid packaging board #2 in Europe in fresh cartonboards
Packaging Solutions	– Boxes and trays for packaging – Packaging design and automation – Converting of carton and corrugated board	Leading brand owners in fresh produce, food and beverage, industrial applications, e-commerce, retail and transport industries	Sales: EUR 1,077 million Operational EBIT: EUR 43 million Operational ROOC*: 4.9%	#3 in Europe in kraftliners
Biomaterials	– Pulp – Lignode – Biobased binders – Wood foams – Biobased chemicals – Formed fiber – Tall oil, turpentine	Packaging, paper, tissue, specialty paper, hygiene products, construction and furniture industries, chemical producers	Sales: EUR 1,587 million Operational EBIT: EUR 118 million Operational ROOC*: 4.5%	#1 producer of fluff in Europe
Wood Products	– Material for mass timber construction: CLT, LVL – Services and digital tools – Building concepts – Window and door components – Sawn and planed wood	Construction companies, wholesalers and retailers	Sales: EUR 1,580 million Operational EBIT: EUR -64 million Operational ROOC*: -9.3%	#1 globally in cross-laminated timber #1 in Europe in classic sawn wood
Forest	– Wood procurement – Management of the Group's own forests – Biodiversity management – Forest management and other services for forest owners	Stora Enso's production sites, B2B customers, private forest owners	Sales: EUR 2,490 million Operational EBIT: EUR 253 million Operational ROCE*: 4.4%	One of the largest private forest owners in the world

*Last 12 months

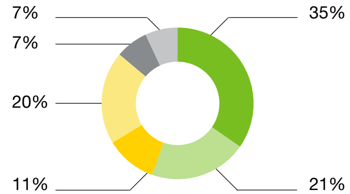
Share of external sales



Share of capital expenditure

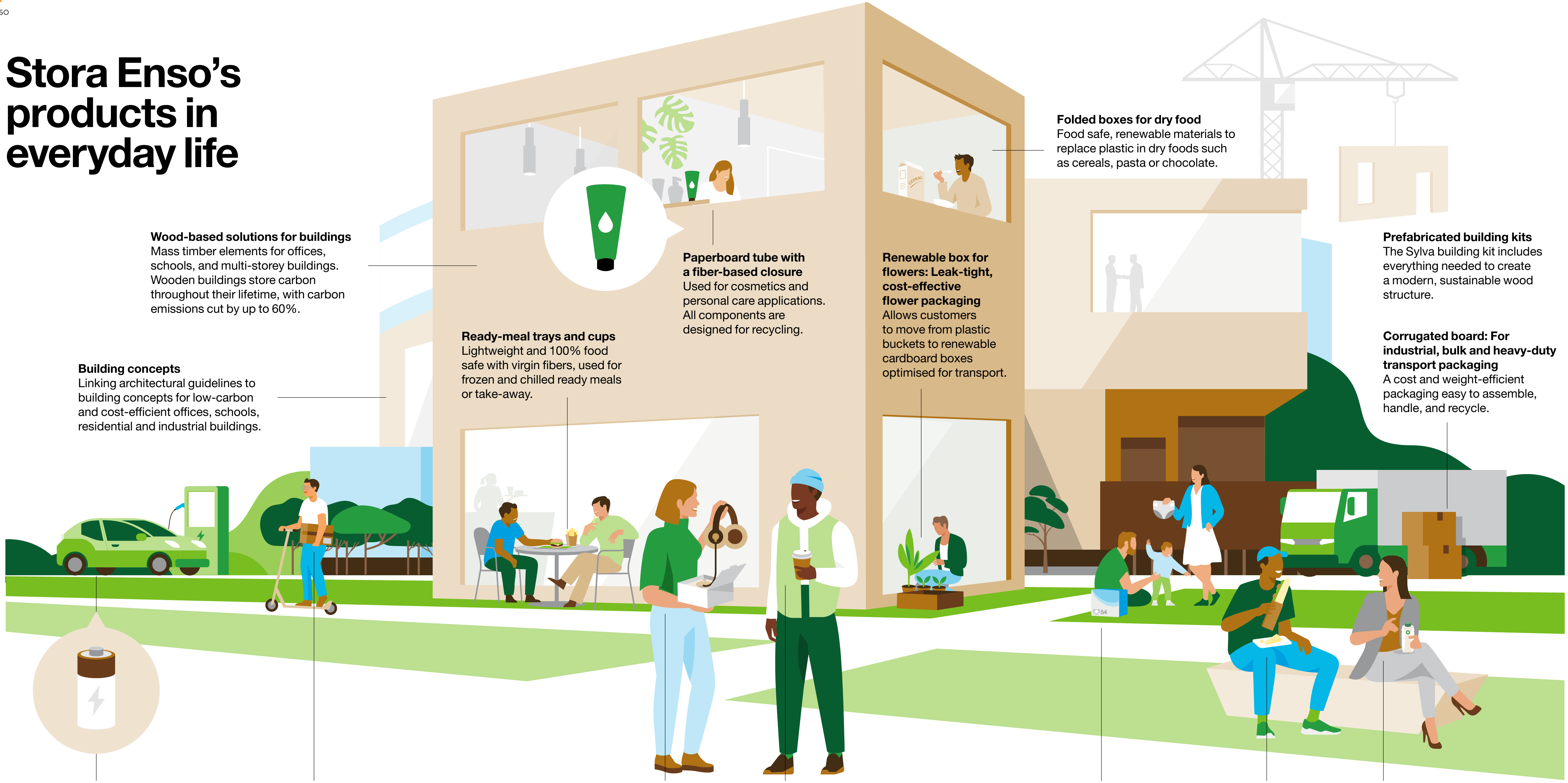


Share of personnel



- Packaging Materials
- Packaging Solutions
- Biomaterials
- Wood Products
- Forest
- Other

Stora Enso's products in everyday life



Wood-based solutions for buildings
Mass timber elements for offices, schools, and multi-storey buildings. Wooden buildings store carbon throughout their lifetime, with carbon emissions cut by up to 60%.

Building concepts
Linking architectural guidelines to building concepts for low-carbon and cost-efficient offices, schools, residential and industrial buildings.

Ready-meal trays and cups
Lightweight and 100% food safe with virgin fibers, used for frozen and chilled ready meals or take-away.

Paperboard tube with a fiber-based closure
Used for cosmetics and personal care applications. All components are designed for recycling.

Renewable box for flowers: Leak-tight, cost-effective flower packaging
Allows customers to move from plastic buckets to renewable cardboard boxes optimised for transport.

Folded boxes for dry food
Food safe, renewable materials to replace plastic in dry foods such as cereals, pasta or chocolate.

Prefabricated building kits
The Sylva building kit includes everything needed to create a modern, sustainable wood structure.

Corrugated board: For industrial, bulk and heavy-duty transport packaging
A cost and weight-efficient packaging easy to assemble, handle, and recycle.

Lignode
Biobased battery material, developed to be used e.g. in EVs, handheld tools or large-scale energy storage systems. Replaces or can be combined with finite mined or synthetic graphite in batteries.

E-commerce packaging
Recyclable solutions for e-commerce packaging, ensuring protection and cushioning, and enabling easy returns.

Wood foams
Recyclable and biodegradable cellulose-based packaging foam, replaces fossil-based foam in cushioning.

Paper cups
Cupstock designed for hot and cold beverage cups with sealable barriers and high resistance.

Non-bleached fluff pulp
Used for hygiene applications, such as baby care and feminine care products. 30% lower carbon footprint compared to traditional fluff pulp.

Fresh food trays
Easy-peeling packaging board used for e.g. cold cuts, fish, and cheese. Consists of 90% wood fibers, keeping plastic usage to a minimum.

Carton for liquid food
Recyclable packaging based on renewable materials used for packaging juices, milk, yogurt, soups, etc.

Stora Enso worldwide

Stora Enso operates worldwide and focuses on utilising renewable materials to create value in packaging, biomaterials, and wooden construction. Our customers are often global companies, such as packaging converters, brand owners and retailers, industrial component manufacturers and construction companies.

We combine global resources with a local presence, service offerings and sustainability expertise.

Stora Enso manages its own and leased forest land covering a total area of

2 million

hectares worldwide.

Stora Enso's productive forest land areas at the end of 2023

1

Swedish forests
1,139 thousand ha of forest land

Fair value[1]:
EUR 6,312 million

2

Tornator
Stora Enso's share: 285 thousand ha of forest land in Finland, Estonia, and Romania

Fair value[1]:
EUR 1,417 million

3

Guangxi[2], Southern China (leased)
61 thousand ha of forest land

Fair value[3]:
EUR 341 million

4

Montes del Plata, Uruguay
Stora Enso's share: 92 thousand ha of forest land

Fair value[3]:
EUR 504 million

5

Veracel, Brazil
Stora Enso's share: 49 thousand ha of forest land

Fair value[3]:
EUR 158 million

[1] Includes biological assets and forest land
[2] Ongoing divestment process
[3] Includes biological assets, forest land, and leased land

Europe

We are a leading European producer of packaging board, pulp, and wood-based products, with most of our sales and production in Europe. We operate production units in 12 European countries and have five innovation and research centres across Northern and Central Europe.

We source most of our primary raw material, wood, from our own forests in Northern Europe which are strategically located near our production facilities, as well as from our forest associates and private forest owners. This provides us with tactical flexibility in wood sourcing. In Central Europe, the wood and recycled fiber for our production facilities is sourced through our own organisation.

South America

We obtain high-quality and cost-competitive eucalyptus pulp from tree plantations in South America. In Brazil, we have a 50% joint operation Veracel with Suzano. Our share of the eucalyptus pulp produced is partly used in our production sites and partly sold as market pulp. In Uruguay, we have a 50% joint operation Montes del Plata with Arauco. Our share of the production is sold entirely as market pulp, mainly in Europe and Asia.

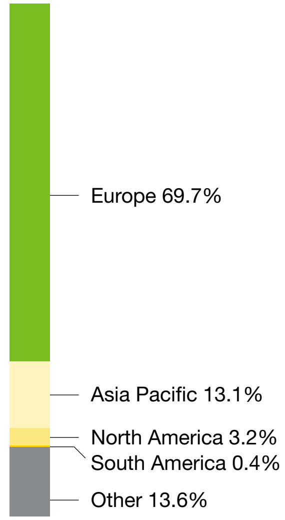
Asia

We supply our customers in Asia with renewable packaging products through our global operations from production sites in Europe and South America. Our consumer board site in Guangxi, China, serves the Asian markets with virgin fiber-based board, and our operations also include eucalyptus plantations supplying our production facilities in the region. Design studios and sales offices further support the business in the region.

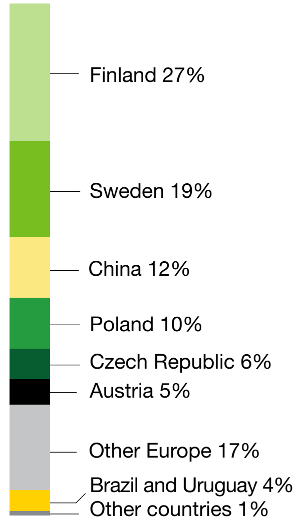
Rest of the world

Stora Enso has sales offices and a design studio in North America as well as sales offices in Africa, the Middle East, and Australia supporting the sales of our products globally.

Sales by destination



Employees by country[1]



[1] Including 50% of the employees at Veracel in Brazil and Montes del Plata in Uruguay.

Value from our forest

Our forests are the foundation of our business. They are a scarce resource and a critical asset for the global renewable materials market, the balance and protection of biodiversity, and the well-being of our communities.

Stora Enso is one of the largest private forest owners in the world, with forest assets valued at EUR 8.7 billion in 2023. Stora Enso owns or leases land covering a total area of 2.02 million hectares globally. 36% of wood raw material needs for our businesses are covered from our own sources and long-term supply agreements. This helps to stabilise the impacts of wood market volatility, increase the long-term yield and secure financial flexibility.

In addition to the wood supply from own forests and tree plantations, Stora Enso purchased wood from approximately 19,000 private forest owners during the year. In 2023, approximately 84% of Stora Enso's wood came from forests in Europe, most of which are privately owned.

Our long-term target is to increase the total value of our forest assets fully taking into account climate change adaptation and mitigation. Trees are a renewable resource, they grow back when forests are managed sustainably. For example, after final felling, we ensure that harvested forests are regenerated. Growing trees absorb carbon dioxide and wood-based products store carbon during their lifetime, while also substituting fossil fuel-based products. We support the cascading use of wood, which means that all parts of harvested trees, forestry residuals, and industrial side streams are used in the most optimal way. Our biological assets consist of standing trees to be used as raw material in pulp and mechanical wood production. Wood residues are used as biofuels mainly in our own operations.

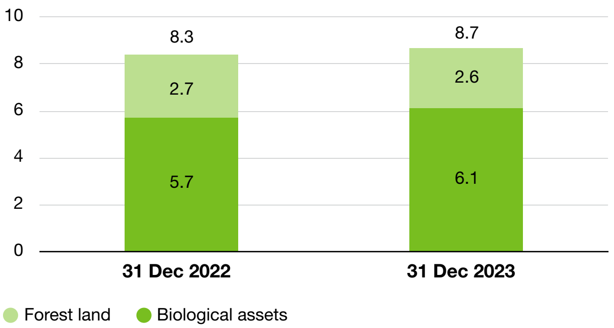
Benefits of owning forests

- Support Stora Enso's growth plans by securing a 36% self-sufficiency of wood supply.
- Raw material efficiency and optimisation of timber value for various end uses.
- Stable income from wood sales with increasing long-term demand for renewable materials.
- Yield improvement initiatives to increase harvesting sustainably in our own forests through tree breeding, fertilisation and advanced forest management practices.
- Opportunity to develop forest management practices to respond to changing market and climate conditions as well as to enhance biodiversity.
- Returns through land development, such as increasing wind power capacity, land swaps and compensations for protection areas, and revenue streams from land sales, hunting rights, and gravel sales.

› See also note 4.2 Forest assets.

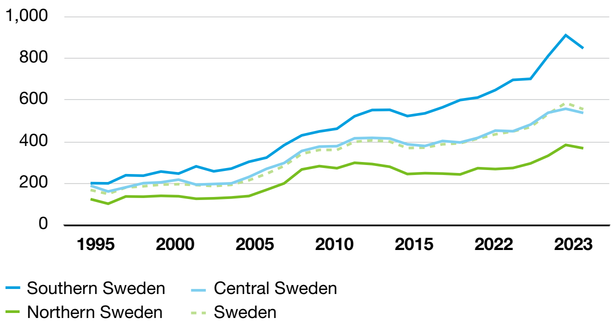
Group's forest assets value

EUR billion



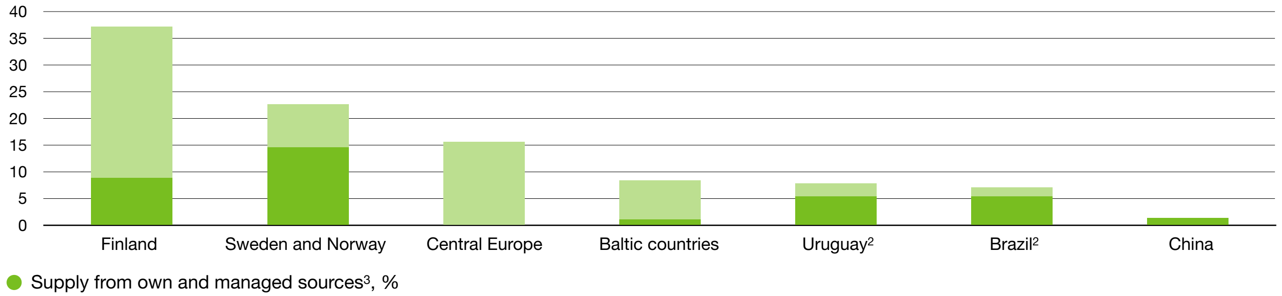
Including leased land and Stora Enso's share of Tornator.

Market transaction based forest prices in Sweden



Source: Ludvig & Co report, based on nominal prices.
Stora Enso's forest assets are located in Central and Northern Sweden.

Wood procurement by region[1], %



[1] Total amount of wood (roundwood and chips) procured within these regions for delivery to our units (million m³ solid under bark).
[2] Figures for Brazil and Uruguay include 50% of the wood procurement of our joint operations Veracel and Montes del Plata.
[3] Includes wood delivered from Stora Enso's forests to third-parties. Managed sources consist of long-term harvesting rights and contracts.
In 2023, we harvested in own and leased forests and sourced from long-term agreements a total of 10.2 million m³. Our deliveries to our mills were 28.1 million m³ in total excluding energy wood.

Estimated annual forest growth

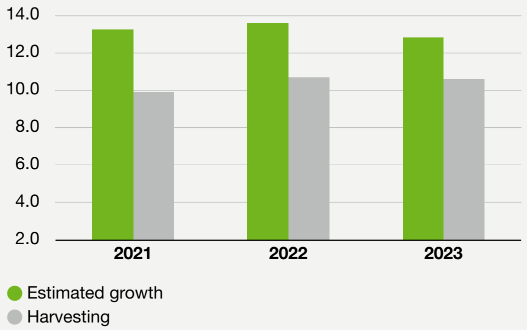
12.8 million m^3

forest cubic meters

Sustainable forest management promotes vital and growing forests.

Total growth and harvesting

Million m^3 fo



Annual harvesting

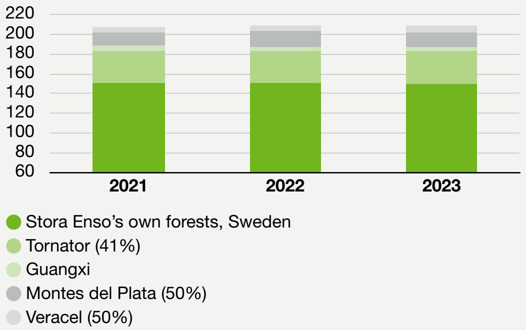
10.5 million m^3

forest cubic meters

In all our forests, wood harvesting is planned to suit the characteristics of each site.

Total standing stock

Million m^3 fo



Annual CO_2 sequestration

4.3 million tonnes

CO_2 sequestered in our own or leased productive forest lands, 3-year annual average.

Wind power

We are leasing out land to generate wind power – currently with annual energy production of around 1 TWh in Sweden, but there is potential to expand this further. Starting in 2023, we will also develop in-house projects for wind power on our own land. Additionally, ongoing efforts include exploring other revenue streams such as solar power and carbon credits.

Innovations for future-fit forests

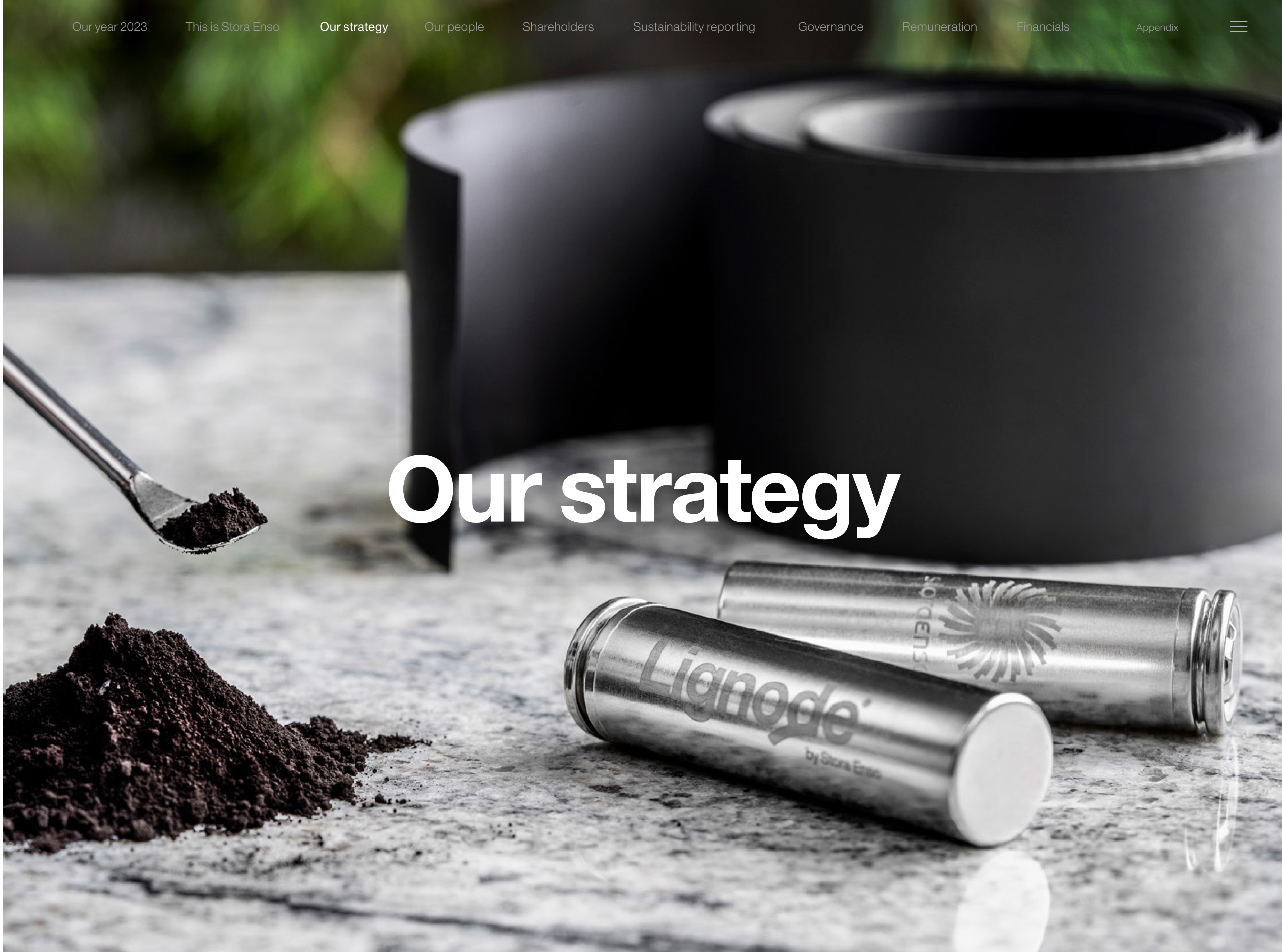
We are in a unique position: our own forest assets, forest professionals, and international network give us the capability and capacity to focus on development and innovation. This includes optimising land utilisation for higher efficiency, and developing new revenue streams. To capture the full value of our forest assets, we are intensifying our initiatives in our own forests in Sweden, focusing on research and development, and utilising new technologies and digitalisation.

Digitalisation, remote sensing technology, and artificial intelligence enable us to take a step forward in the way we operate in forests, in the wood supply chain, and in protecting and restoring biodiversity. With more precise data, we are able to more accurately track the volume, yield, and variety in forests, as well as early identification of any disease or causes for concern. Improved data also supports our ambition to implement more effective biodiversity actions. In the future, we will be able to follow the development of tree species composition and deadwood creation with high granularity, helping to identify key areas for biodiversity in forest landscapes. We support and encourage our partners to move in the same direction.

Sustainable forestry and biodiversity

Sustainable forest and plantation management secures the long-term availability of wood while ensuring the preservation of ecosystems and biodiversity, which is key to the resilience of forests. Biodiversity is the variability of life on genetic, species, and habitat levels. Globally, biodiversity has been decreasing for decades, and more actions are needed to reverse this development. Being one of the largest private forest owners in the world, we have the responsibility to safeguard biodiversity in all our operations.

› Read more about our actions on sustainable forestry and biodiversity in the Sustainability reporting section.



Our strategy

Global megatrends underpin our business strategy

Sustainability is core to our businesses, accelerating our growth, enabling margin expansion, and opening up new business opportunities. While climate change continues to impact the environment, economy, and society, an expanding global population and middle class is pushing up demand for food, clothing, housing and energy. At the same time, sustainability actions, technology developments, and consumer demand and preferences to substitute and replace fossil-based materials are changing buying behaviour. Overall, global megatrends drive the demand for renewable materials supporting our growth and value creation.

Key drivers

Circularity
Circularity is gaining momentum across various sectors and regions, driven by policy, innovation, and consumer demand. The world needs materials which are both renewable and recyclable, and supporting a circular bioeconomy to combat climate change, save natural resources, and minimise waste.

Eco-awareness
Climate change requires us to use natural resources more efficiently, and more and more consumers demand sustainable products. Investors and other financial institutions increasingly factor in companies' climate and biodiversity impacts in their investment strategies. Policy makers and regulators shape regulation to mitigate and adapt to climate change and halt biodiversity loss.

Climate change
The increase in average global temperatures has significant impacts on the environment, society, and economy, as seen in melting ice caps, rising sea levels, extreme weather events, biodiversity loss, food insecurity, and human health risks. A key factor to decelerate climate change, and where Stora Enso can contribute, is in replacing fossil-based materials with renewable materials.

Resource scarcity
A growing population and middle class increase the demand for food, such as meat, fish, dairy, sugar and vegetable oils. These require more land, energy and water to produce. This rise in global resource scarcity also increases the price of natural resources.

Stora Enso's response

Stora Enso's purpose is to "Do good for people and the planet". We believe everything which is made from fossil today can be made from a tree tomorrow. Our aim is to replace non-renewable materials with renewable products. This purpose underpins our commitment to accelerate the transition to a circular bioeconomy to combat climate change and have a positive impact on biodiversity. We strive to balance carbon flows, safeguard forests and nature, and have the most effective use of renewable materials.

Key risks

Macroeconomic and geopolitical disruption
Market demand, prices, the Group's profit margin and product volumes might be adversely impacted. Macroeconomic and geopolitical dynamics could also increase costs, complexity and lower visibility for the Group. Global instability causes interruptions in global supply chains, increasing the risk of significant disruptions.

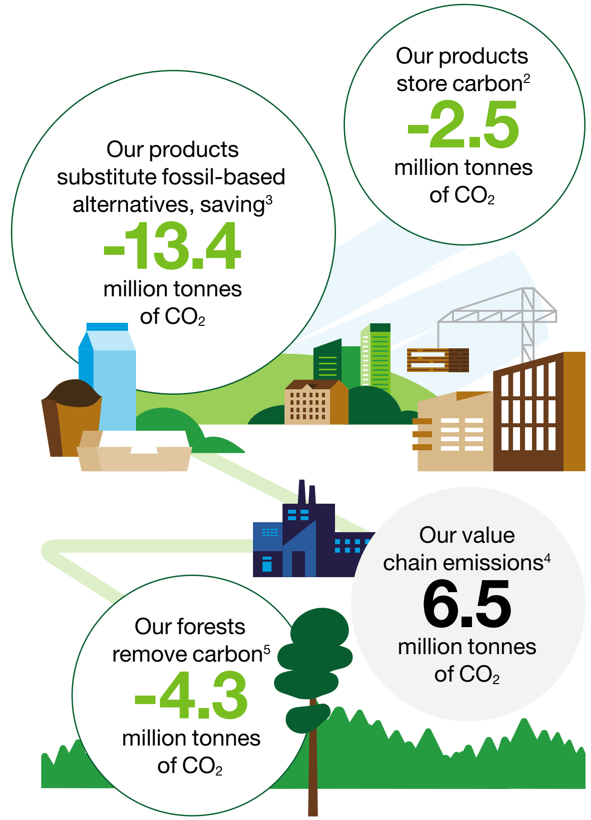
Regulatory change
Political or regulatory developments could lead to both positive and negative impact on Stora Enso's businesses.

Access to raw materials
Growing demand for biobased materials increases demand for wood-based raw material which can lead to a lack of supply for Stora Enso's needs. There can also be limited access to raw materials related to climate change and geopolitical instability.

Climate change
Stora Enso's forests, operating environment, and production sites could potentially be challenged due to the effects of climate change.

› Read more in the Risks section in the Report of the Board of Directors.

Stora Enso's annual climate impact[1]



[1] Negative value indicates a net removal from atmosphere.
[2] A modelled 100-year average with IPCC tool. Calculated by the Swedish University of Agricultural Sciences (SLU) based on Stora Enso's forest and production figures: Climate effects of a forestry company – including biogenic carbon fluxes and substitution effects.
[3] Substitution effect describes the amount of greenhouse gas emissions avoided from using our products and biomass energy compared to more carbon-intensive fossil products and fuels. Calculated based on Stora Enso's product portfolio.
[4] Stora Enso's fossil CO_2e emissions in 2023, including direct emissions from our operations, emissions from purchased energy, and emissions from other sources along our value chain (Scope 1, 2, and 3). Calculated based on the Greenhouse Gas Protocol guidance.
[5] Annual CO_2 sequestration in Stora Enso's owned or leased productive forest lands, three-year annual average. For further details, see Consolidated sustainability figures.

Strategic focus areas

We create value for our shareholders by growing our leading positions in packaging, biomaterials innovations and building solutions together with a strict capital allocation strategy, cost, and other financial controls.

Sustainability is driving our growth strategy

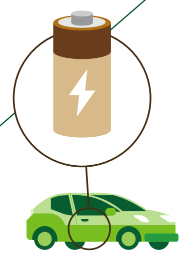
Growth and value drivers

Renewable packaging

In Packaging, we continue to see high demand for plastic substitution and circular solutions. Fiber-based packaging is the most sustainable option for many products, as it can be recycled, reused, or composted. Fiber-based packaging is the fastest growing packaging materials globally, and fiber-based packaging is expected to grow faster than plastic alternatives long-term. We have leading global market positions in high-value segments and long-term customer partnerships. Our innovative and customised solutions help our customers reduce their environmental impact and enhance their brand image. We offer a wide range of fiber-based packaging materials and solutions, such as cartons, boxes, trays, cups, and bags, for various industries, such as food and beverage, e-commerce, pharmaceutical, and cosmetics.

Sustainable building solutions

There are growth opportunities in the building industry, offering wooden alternatives to other construction materials that have a larger carbon footprint, such as concrete and steel. The global construction market is moving from labour intensive to modular building methods that use less energy and have a low carbon footprint. Today, mass timber products can be used to build sustainable and safe high-rise buildings. We have a strong position to capture more value in the full supply chain with our products and value-added services, such as pre-fabricated, bespoke wooden elements, new concepts, and digital services.



Biomaterials innovation

In Biomaterials, we focus on offering innovative and sustainable materials for high growth, high margin markets with our portfolio of biobased solutions, proprietary technologies, and a unique value proposition. Through our know-how, strategic collaborations and partnerships, we accelerate breakthrough innovations in wood foams, biochemicals, and lignin-based applications, including anode material for batteries and biobinders for construction, which can replace fossil-based materials.

Forest

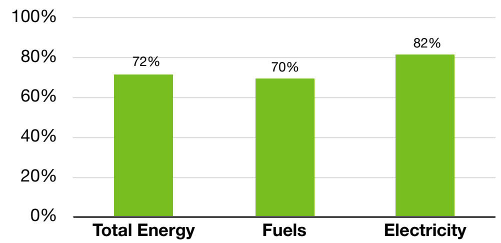
Forests are the foundation for Stora Enso's renewable solutions. Stora Enso has forest assets in Sweden and a 41% share of Tornator, whose forest assets are mainly located in Finland. The Forest division is responsible for wood sourcing for Stora Enso's Nordic and Baltic operations.

Pulp, traditional wood products

Ambition to significantly reduce earnings cyclicality

- Responsible exit from the paper business
- Developing a more value-added pulp product mix
- High self-sufficiency on energy reduces our exposure to external cost instability
- Growth in packaging with increased integration of captive pulp
- Growing the share of building solutions
- 36% self-sufficiency in wood supply

Stora Enso's energy self-sufficiency in 2023



Strategic progress

Restructuring actions for long-term competitiveness

Stora Enso's restructuring actions will strengthen the Group's long-term competitiveness, improve profitability and focus capital allocation in strategic growth markets. The restructuring actions announced in June 2023 will improve operational EBIT by EUR 110 million annually while decreasing annual sales by EUR 380 million, based on the 2022 sales figures. We also took the next step in driving a decentralised operating model through autonomous divisions targeting increased customer centricity and higher efficiency. This will help us optimise sourcing and value chain as well as enhance commercial and operational excellence. We have also worked on capital release through the reduction of working capital.

The restructuring included closure of the Sunila pulp production unit in Finland, the De Hoop containerboard site in the Netherlands, one containerboard line at the Ostrołęka site in Poland, and the Näpi sawmill in Estonia. The closures targeted a reduction of approximately 600 employees. The restructuring also included a reduction of 300 office employees in group functions and a reduction of 250 employees in the Packaging Materials division. The restructuring actions included a reduction of 1,150 employees in total.

Investments and capital allocation

At the end of 2022, Stora Enso announced the investment of approximately EUR 1 billion to convert the remaining idle paper machine at the Oulu site in Finland into a high-volume consumer board production line. The investment accelerates our growth strategy in renewable packaging by providing increased volumes for growing packaging segments. Production on the converted machine is estimated to start in early 2025. Another initiative within our capital allocation is the divestment of Beihai, which will allow Stora Enso to accelerate its strategy by focusing on investing in other cost-efficient sites such as the Oulu site in Finland. In January, the acquisition of De Jong Packaging Group was completed. De Jong is based in the Netherlands and is one of the largest corrugated packaging producers in the Benelux countries. This acquisition builds the Group's foothold in Western Europe. De Jong is now included in Packaging Solutions. The enterprise value was approximately EUR 1,020 million.

Sustainability progress

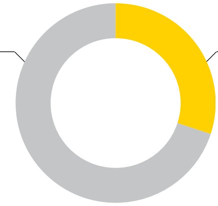
Throughout the year, we advanced our sustainability agenda, witnessing reductions in carbon emissions across all three Scope categories. Lower production volumes, together with site and production line closures, resulted in a 41% decrease in Scope 1 & 2 emissions and a 34% decrease in Scope 3 emissions compared to the 2019 baseline. Our commitment to circularity involves reducing, reusing, and recycling materials in both production and consumption. We not only integrate circularity into our product development but also collaborate with customers and partners to promote product recycling. By the end of 2023, 94% of our products were technically recyclable. Our biodiversity initiatives aim for a net positive impact, with action programmes in place until 2030 to enhance biodiversity at species, habitat, and landscape levels. Additionally, the share of forest cretification coverage of the land we own or manage remained high at 99%.

Discontinued paper business

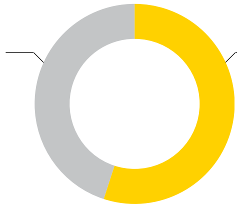
The Paper division was discontinued at the beginning of 2023. Paper demand in Europe has been in structural decline for over a decade, and paper is no longer a strategic growth area for the Group. Our exposure to paper markets now represents only a small part of our total sales. The retained Langerbrugge (Belgium) and Anjala (Finland) paper production sites have been integrated into Packaging Materials division reporting. In line with Stora Enso's strategy, our focus is on long-term growth potential for renewable products in packaging, building solutions, and biomaterials innovations.

Strategic growth areas

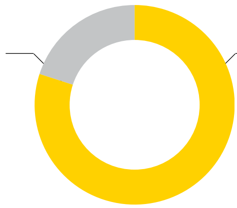
Sales 2006



Sales 2023



Sales 2030



Calculations are based on external sales.

*Strategic growth areas include Renewable packaging, Sustainable building solutions, and Biomaterials innovations.
**Foundation businesses include pulp, traditional wood products, and forest.

Our people

People and culture

To lead in a changing world, Stora Enso has developed a People Promise and Expectations framework strongly tied to Stora Enso's strategy. Our success depends on the power and potential of our people. With operations, sales and supply chains extending globally, we are guided by our values "Lead" and "Do What's Right" and endeavour to set the example and lead in all aspects of our business.

Employee listening and engagement

Importantly, Stora Enso strives to understand employee views, measure the progress on our People Promise, and consequently adapt and fine-tune to help teams grow and improve via the all-employee survey Engage. The survey was conducted twice in 2023 with a response rate of approximately 80% in both surveys. The engagement scores were 8.0 and 7.8, both slightly above the industry benchmark. The top strengths for Stora Enso, as viewed by employees, were growth, management support, freedom to express opinions, and relationships with colleagues.

Adapting to a decentralised model

During 2023, Stora Enso took further steps with restructuring actions towards a decentralised operating model to empower our divisions, create leaner Group functions and to target increased customer-centricity. This has entailed considerable organisational change management across the Company. In all respects, care has been taken to follow national, union and Works Council guidance and additionally supporting managers and employees with continuous communications through various channels. For more details on support in restructuring situations, see chapter Employees in the Sustainability reporting section.

Four cornerstones of our People Promise

Provide a safe, diverse, and inclusive work environment

We value different experiences and views. Diversity strengthens our competitiveness and contributes to better decision making by enabling us to explore new perspectives. Combined with inclusion, it supports high work satisfaction and innovation as well as agility. Our initiatives supporting diversity, equity, and inclusion are described in more detail on the next page.

In all our operations and offices, we encourage our people to take an active role in continuous safety improvement. Since safety is psychological as well as physical, we promote mental health awareness through, for example, webinars and discussion forums. For office workers, approximately 40% of total headcount, we offer flexible working arrangements such as hybrid and remote work to enhance work-life balance.

› Read more on our safety performance in the Sustainability reporting section.

Drive customer value, performance, and innovation

Stora Enso defines its direction and actions through customer value. With this, we expect our people to strive for high performance and innovation in all parts of the organisation, further supported by diversity and collaboration. Among programmes driven in our divisions, we are upskilling managers, strengthening agility, developing capability and cultivating expert partners through a range of trainings, workshops, webinars, and external conferences. Our sales academy tailored for sales and other functions aims to further bolster our value and performance in the marketplace.

Grow leadership

Stora Enso grows leaders who share our purpose and values and celebrate innovation and collaboration. Leadership programmes during 2023 included: Senior leaders, executive leadership in conjunction with universities, leading leaders for second and third level line managers, Stora Enso manager for first level line managers, intensive preparatory manager training for employees, and Agile leadership training open to all. In total, 450 leaders and potential leaders participated in these trainings. Additionally, Stora Enso continued the mentoring programme with over 200 mentor-mentee pairs.

Grow to your full potential

We encourage everyone to take responsibility for their growth and reach their best potential, and emphasise providing development opportunities for all employees to expand their knowledge, skills, and networks. Strategic workforce planning is focused on assuring that we have the organisation and capabilities needed to meet market demands, thus devising recruitment and talent activities that serve to address workforce gaps as well as nurture and develop employees.

Stora Enso was ranked

top leader

in the Financial Times Diversity Leaders index

Share of women

24%

among all managers

Employees representing

over 80

different citizenships

Diversity, equity, and inclusion

Stora Enso is committed to offering an inclusive and equal workplace where we respect and appreciate individual differences.

Reflecting the societies where we operate is crucial to our strategy: diversity and inclusion are strong enablers of improved performance, collaboration, and innovation. Increased diversity of thought is needed to develop our products to meet market demand. We value diversity of thought and encourage employees to share their views, we also have zero tolerance for discrimination, harassment and bullying in any form.

We have set our diversity KPI related to gender balance, while recognising diversity embraces age, ethnicity, national origin, and other personal identity aspects. Our aims and priorities for providing a safe, diverse, and inclusive working environment for all our employees is laid out in our People Promise.

Stora Enso is continuously and actively working towards increased inclusion with a variety of actions. Additionally, we frequently monitor employee views and reflections on the diversity and inclusion efforts as part of employee engagement surveys. Shown in recent results and benchmarking, we rank in the middle among manufacturing sector companies.

During 2023, improvement actions included recruitment outreach and employment of people with diverse backgrounds in parallel with analysing and understanding the gender gap. One example of this was an unconscious bias training organised for recruiters to enhance inclusive recruitment and workplace diversity.

Our several Employee Resource Groups (ERGs) play an essential role in our work. Communications campaigns have served to create further awareness around diversity, equity, and inclusion topics company-wide. These include campaigns for International Women's Day, Pride Month and Mental Health Day including neurodivergence.

In 2022, a pay equity study was carried out by an independent third-party covering all office workers. Actions to close unexplained pay gaps identified in the study took place in 2023.

› Read more in chapter Employees in the Sustainability reporting section.

Promoting diversity and inclusion in the local context

In traditionally male-dominated industries, the proportion of females might still remain low especially at production sites, while in functional and administrative roles the proportion of women is higher. This is the situation at Wood Products division's sites in Austria. To better understand and address these gender imbalances, the division conducted a gender gap analysis across all of its locations in Austria. The analysis covered various diversity and inclusion aspects, ranging from recruitment processes to corporate culture.

Based on the survey, the division developed a roadmap in areas such as empowering women in their careers, succession planning, inclusive recruitment, and enhancing managerial skills. Each production unit and department has now established three-year targets, which are monitored quarterly. As one of the first actions resulting from the survey, a training programme was implemented for all management levels, focusing on leading diversity and identifying potential biases.

Community engagement

With a strong global presence, Stora Enso depends on thriving and resilient communities. Beyond our own employees, we are committed to supporting the local communities nearby our operations. Our Purpose "Do Good for the People and the Planet" and our Values "Lead" and "Do What's Right" underline our commitment to doing business responsibly in the communities in which we operate.

Communities around our production sites and forestry operations form one of our most important stakeholder groups. Our operations are heavily dependent on local communities for a skilled and competitive workforce, and for the sourcing of our most important raw material, wood. We have a long history in engaging with local communities in different local settings and cultures. The form and frequency of the engagement with local communities is shaped by the local context. In some areas, the interaction is through community representatives while others may prefer direct and inclusive contact. Many of our employees live in these communities and have a deeper understanding of the local context.

We maintain continuous cooperation with local schools and universities, NGOs and suppliers, and other business partners. It is in our interest to ensure these communities are resilient. Stora Enso, for example, provides a significant number of summer jobs for students and graduates to begin their career. During 2023, we had approximately 1,100 summer employees located mainly in Finland and Sweden.

During site closures, it is of utmost importance to us that affected employees are given access to support throughout any restructuring process. We are committed to working closely together among our locations, the local community, and other stakeholders to support in re-employment and training of affected employees. Supporting the livelihood of local communities during site closures is equally important to us. During the year, we collaborated, for example, with the city of Kotka and the regional business services provider to find a new owner for the closed Sunila site, creating new investments and employment opportunities in the community.

› For more information on support in responsible exits and restructuring situations, see chapter Employees in the Sustainability reporting section.

Harvesting Partner concept supports entrepreneurs in rural areas

Stora Enso's Harvesting Partner programme is aimed at attracting new entrepreneurs to the industry and helping them set up their own business, and thereby creating new job and business opportunities in rural areas. We offer long-term partnerships with a four-year contract, machinery, and a complete package of support services. The new concept enables Stora Enso to increase the availability of skillful operators, and to improve efficiency and productivity. The first entrepreneurs started in Sweden in 2022, and four new harvesting partners have started their business during 2023. The concept continues to expand with new partners outside Sweden and has now been launched in also Finland, Lithuania, and Norway.

Impact on local communities

By supporting local employment, income generation, infrastructure, and collaboration, we can help to strengthen our neighbouring communities. However, our tree plantations influence land use in ways that may adversely affect the rights of local communities. Our actions must be managed responsibly in order to minimise negative socio-environmental impact and maximise positive influence.

› Read more in chapter Community in the Sustainability reporting section.


Shareholders
Mountain
BLACK TEA

Information for shareholders

Annual General Meeting (AGM)

Stora Enso Oyj's Annual General Meeting (AGM) will be held on Wednesday 20 March 2024 at 16:00 EET.

Nominee-registered shareholders wishing to attend and vote at the AGM must have shares that would entitle to being registered in the Company shareholders' register on the record date 6 March 2023 and must be temporarily registered in the Stora Enso shareholders' register by 10 March 2023. For shares registered through Euroclear Sweden and for holders of ADRs, the timetable may vary and earlier dates may apply. Instructions for submitting notice of attendance is given in the invitation to the AGM which can be consulted on Stora Enso's website at storaenso.com/agm.

AGM and dividend in 2024

8 March	Record date for AGM
20 March	Annual General Meeting (AGM)
21 March	Ex-dividend date
22 March	Record date for dividend
4 April	Dividend payment (first instalment)

Dividend

The Board of Directors proposes to the AGM that a dividend of EUR 0.10 per share to be distributed on the basis of the balance sheet adopted for the year ending 31 December 2023. In addition, the Board of Directors proposes that the AGM would authorise the Board of Directors to decide at its discretion on the payment of an additional dividend up to a maximum of EUR 0.20 per share. The authorisation would be valid until 31 December 2024. The dividend payable on shares registered with Euroclear Sweden will be forwarded by Euroclear Sweden AB and paid in Swedish crowns. The dividend payable to ADR holders will be forwarded by Citibank N.A. (Citi) and paid in US dollars.

Publications dates for 2024

1 February	Interim report for October-December and full-year report for 2023
13 February	Annual Report 2023
25 April	Interim report for January-March 2024
24 July	Half-year report for January–June 2024
24 October	Interim report for January–September 2024

Distribution of financial information

Stora Enso's Annual Report in English can be downloaded as a pdf file at storaenso.com/annualreport.

The official financial statements in Finnish are available at the same address. The governance and remuneration sections are also available in Finnish. The strategy, sustainability reporting and shareholders sections are available in English only. The interim, half-year and full-year reports are published in English and Finnish at storaenso.com/press.

Information for holders of American Depositary Receipts (ADRs)

The Stora Enso dividend reinvestment and direct purchase plan is administered by Citibank N.A. The plan makes it easier for existing ADR holders and first-time purchasers of Stora Enso ADRs to increase their investment by reinvesting cash distributions or by making additional cash investments. The plan is intended for US residents only. Further information on the Stora Enso ADR programme is available at citi.com/DR.

Contact information for Stora Enso ADR holders

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Computershare
P.O. Box 43077
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Stora Enso in the capital markets

Shares and shareholders

Shares and voting rights

The shares of Stora Enso Oyj (hereafter the "Company" or "Stora Enso") are divided into A and R shares, which entitle holders to the same dividend but different voting rights. Each A share and every ten R shares carry one vote at a shareholders' meeting. However, each shareholder has at least one vote.

As at 31 December 2023, Stora Enso had 176,230,916 A shares and 612,389,071 R shares in issue, of which the Company held no A shares or R shares. The total number of Stora Enso shares in issue was 788,619,987 and the total number of votes was 237,469,823.

Share listings

Stora Enso shares are listed on the Nasdaq Helsinki and the Nasdaq Stockholm. Stora Enso shares are quoted in Helsinki in euros (EUR) and in Stockholm in Swedish crowns (SEK).

American Depositary Receipts (ADRs)

Stora Enso has a sponsored Level I American Depositary Receipts (ADR) facility. Stora Enso ADRs are traded over-the-counter (OTC) in the USA. The ratio between Stora Enso ADRs and R shares is 1:1, i.e. one ADR represents one Stora Enso R share. Citibank, N.A. acts as the depositary bank for the Stora Enso ADR programme. The trading symbols of the ADRs and Ordinary Shares are SEOAY, SEOFF, SEOJF. The CUSIP number is 86210M106.

Share registers

The Company's shares are entered in the Book-Entry Securities System maintained by Euroclear Finland Oy, which also maintains the official share register of Stora Enso Oyj.

As at 31 December 2023, 788,619,987 of the Company's shares including both A and R shares were registered in Euroclear Finland, 52,622,149 A and R shares in Euroclear Sweden AB and 12,876,025 shares in ADR form at Citibank, N.A.

Distribution by book-entry system, 31 December 2023

Number of shares	Total	A shares	R shares
Euroclear Finland Oy	788,619,987	176,230,916	612,389,071
Euroclear Sweden AB[1]	52,622,149	4,511,992	48,110,157
Citi administered ADRs[1]	12,876,025	-	12,876,025
Total	**788,619,987**	**176,230,916**	**612,389,071**

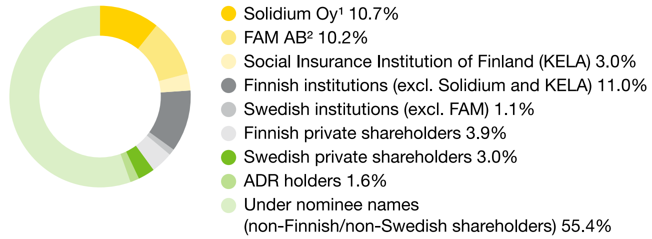
[1] Shares registered in Euroclear Sweden and ADRs are both nominee registered in Euroclear Finland.

Ownership distribution, 31 December 2023

	% of shares	% of votes	% of shareholders
Solidium Oy[1]	10.7%	27.3%	0.0%
FAM AB[2]	10.2%	27.3%	0.0%
Social Insurance Institution of Finland (KELA)	3.0%	10.0%	0.0%
Finnish institutions (excl. Solidium and KELA)	11.0%	8.1%	2.4%
Swedish institutions (excl. FAM)	1.1%	0.9%	1.1%
Finnish private shareholders	3.9%	2.4%	47.6%
Swedish private shareholders	3.0%	2.2%	47.0%
ADR holders	1.6%	0.5%	0.9%
Under nominee names (non-Finnish/non-Swedish shareholders)	55.4%	21.3%	1.0%

[1] Entirely owned by the Finnish State.
[2] As confirmed to Stora Enso.

Ownership distribution, % of shares held



[1] Entirely owned by Finnish state.
[2] As confirmed to Stora Enso.

Share capital

On 31 December 2023, the Company's fully paid-up share capital entered in the Finnish Trade Register was EUR 1,342 million. The current accountable par of each issued share is EUR 1.70.

Conversion

According to the Articles of Association, holders of Stora Enso A shares may convert these into R shares at any time. The conversion of shares is voluntary. The conversions of a total of 7,364 A shares into R shares were recorded in the Finnish Trade Register during the year 2023.

Changes in share capital 2013–2023

	No. of A shares issued	No. of R shares issued	Total no. of shares	Share capital (EUR million)
Stora Enso Oyj, 1 Jan 2013	**177,147,772**	**612,390,727**	**789,538,499**	**1,342**
Cancellation of shares owned by the Company, 15 May 2013		-918,512	788,619,987	-
Conversion of A shares into R shares, Dec 2012–Nov 2013	-51,568	51,568	-	-
Stora Enso Oyj, 31 Dec 2013	**177,096,204**	**611,523,783**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2013–Nov 2014	-40,000	40,000	-	-
Stora Enso Oyj, 31 Dec 2014	**177,056,204**	**611,563,783**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2014–Nov 2015	-524,114	524,114	-	-
Stora Enso Oyj, 31 Dec 2015	**176,532,090**	**612,087,897**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2015–Nov 2016	-25,000	25,000	-	-
Stora Enso Oyj, 31 Dec 2016	**176,507,090**	**612,112,897**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2016–Nov 2017	-114,770	114,770	-	-
Stora Enso Oyj, 31 Dec 2017	**176,392,320**	**612,227,667**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2017–Nov 2018	-79,648	79,648	-	-
Stora Enso Oyj, 31 Dec 2018	**176,312,672**	**612,307,315**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2018–Nov 2019	-55,838	55,838	-	-
Stora Enso Oyj, 31 Dec 2019	**176,256,834**	**612,363,153**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2019–Nov 2020	-2,419	2,419	-	-
Stora Enso Oyj, 31 Dec 2020	**176,254,415**	**612,365,572**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2020–Nov 2021	-10,366	10,366	-	-
Stora Enso Oyj, 31 Dec 2021	**176,244,049**	**612,375,938**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2021–Nov 2022	-5,769	5,769	-	-
Stora Enso Oyj, 31 Dec 2022	**176,238,280**	**612,381,707**	**788,619,987**	**1,342**
Conversion of A shares into R shares, Dec 2022–Nov 2023	-7,364	7,364	-	-
Stora Enso Oyj, 31 Dec 2023	**176,230,916**	**612,389,071**	**788,619,987**	**1,342**

For more historical data about the share capital, please visit storaenso.com/investors/shares.

Stora Enso's activities during 2023

Stora Enso's Investor Relations activities in 2023 focused on promoting a fair valuation of the Company and ensuring continued access to funding sources in the equity markets. The Investor Relations (IR) team provided timely and accurate information on the development of the Company's business operations, strategy, performance, markets, and financial position.

Throughout the year, the IR team conducted numerous individual and group meetings, both in person and virtually, with equity investors. These meetings were separately and with the senior management team members and other experts at Stora Enso. The team also maintained regular contact with equity research analysts at investment banks and brokerage firms. Additionally, the team organized site visits to Stora Enso mills in Sweden , Austria and Finland. To further engage with investors, the senior management and the IR team members gave presentations at virtual and live investor conferences in Scandinavia, Continental Europe, and the United Kingdom.

In May, the Company held an ESG (Environmental, Social, Governance) info call for analysts and investors. The focus of the event was to provide information on various sustainability areas including Biodiversity, Climate and Human rights.

Overall, Stora Enso's Investor Relations activities in 2023 successfully maintained strong relationships with investors and ensured continued access to funding sources, while also promoting the Company's commitment to sustainability.

Stora Enso's goals and ambitions by 2030:

- an increase in Group sales by 30% excluding inflation vs 2021
- a 15% operational EBIT margin over a cycle
- Packaging to represent more than 60% of Group sales
- >40% of Wood Products sales from Building Solutions, and to increase the operational EBITDA in Wood Products by 75% over a cycle
- new revenue streams of EUR 1 billion from Biomaterials Innovations
- 5–10 TWh of wind power from the Group's own forest land
- market pulp exposure significantly reduced, no paper exposure
- earnings cyclicality to be reduced by half compared to 2016–2021

Disclosure of financially material ESG topics for investors

Stora Enso's reporting on the material ESG topics is prepared according to several internationally recognised frameworks.

Stora Enso reporting on the SASB's Sustainability Accounting Standards for Forest Management and Containers & Packaging relate to topics that are considered to be financially material in the industry. These include topics such as sustainable forest management and forest certification, greenhouse gas emissions, air quality, energy management, water management, product safety, product life cycle management, and supply chain management. For further details, see the Stora Enso's SASB Content Index.

The Group's sustainability reporting is prepared in accordance with the GRI Standards covering all General Disclosures and Topic-specific Standards deemed material, presented in the GRI Content Index. Additionally, Stora Enso reports according to the Task Force on Climate-related Financial Disclosures (TCFD) framework for disclosing climate-related risks and opportunities. The Group's disclosures with reference to TCFD recommendations are listed in this index table.

In 2023, the EU Taxonomy was expanded with the four remaining environmental objectives covered by the EU Environmental Delegated Act and with amendments to the Climate Delegated Act. The amendments did not bring major impact on Stora Enso's Taxonomy-eligibility. For further details on Stora Enso's EU Taxonomy reporting for 2023, see here.

Guidance policy

In connection with its financial statement release for 2023, Stora Enso announced its guidance for 2024. Stora Enso's full year 2024 operational EBIT is expected to be higher than for the full year 2023 (EUR 342 million).

Closed period

Stora Enso's closed period start when the reporting period ends or 30 days prior to the announcement of the results, whichever is earlier, and lasts until the day of the announcement of the results. The dates are published in the financial calendar at storaenso.com/investors. During closed periods, Stora Enso PDMR's or persons entered into the Company's Closed Period List are not allowed to trade in the Company's securities. In addition, there are no communications in regards to the Group's financials and/or financially related topics with the capital markets or financial media during the closed period. This applies to meetings, telephone conversations or other means of communication.

Shareholdings of other Group-related bodies as at 31 December 2023

E.J. Ljungberg's Foundation owned 39,534 A shares and 101,579 R shares, Mr. and Mrs. Ljungberg's Testamentary Foundation owned 5,093 A shares and 13,085 R shares and Bergslaget's Healthcare Foundation owned 626,269 A shares and 1,609,483 R shares.

Shareholders

At the end of 2023, the Company had approximately 115,306 registered shareholders, including about 55,855 Swedish and 58,496 Finnish shareholders and 955 ADR holders. Each nominee register is entered in the share register as one shareholder.

The free float of shares, excluding shareholders with holdings of more than 5% of shares or votes, is approximately 600 million shares, corresponding to 79% of the total number of shares issued. The largest shareholder in the Company is Solidium Oy based in Finland.

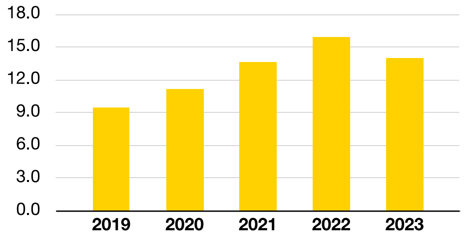
Major shareholders as at 31 December 2023

By voting power	A shares	R shares	% of shares	% of votes
1 Solidium Oy[1]	62,655,036	21,792,540	10.7%	27.3%
2 FAM AB[2]	63,123,386	17,000,000	10.2%	27.3%
3 Social Insurance Institution of Finland (KELA)	23,825,086	-	3.0%	10.0%
4 Ilmarinen Mutual Pension Insurance Company	4,159,992	15,290,638	2.5%	2.4%
5 Varma Mutual Pension Insurance Company	5,163,018	1,140,874	0.8%	2.2%
6 MP-Bolagen i Vetlanda AB[1]	4,885,000	1,000,000	0.7%	2.1%
7 Elo Mutual Pension Insurance Company	2,010,000	9,987,000	1.5%	1.3%
8 Bergslaget's Healthcare Foundation	626,269	1,609,483	0.3%	0.3%
9 The State Pension Fund	-	5,600,000	0.7%	0.2%
10 The Society of Swedish Literature in Finland	-	3,000,000	0.4%	0.1%
11 Avanza Pension Insurance	142,664	1,372,515	0.2%	0.1%
12 OP Finland Fund	-	2,549,753	0.3%	0.1%
13 Danske Invest Finnish Equity Fund	-	2,435,000	0.3%	0.1%
14 Unionen (Swedish trade union)	-	2,312,750	0.3%	0.1%
15 EVLI Finland Select Fund	-	1,940,000	0.2%	0.1%
Total	**166,590,451**	**87,030,553**	**32.2%**	**73.8%**
Nominee-registered shares[3]	75,045,090	487,121,848	71.3%	52.1%

[1] Entirely owned by the Finnish State.
[2] As confirmed to Stora Enso.
[3] As some of the shareholdings on the list are nominee registered, the percentage figures do not add up to 100%.
[4] According to Euroclear Finland.
The list has been compiled by the Company on the basis of shareholder information obtained from Euroclear Finland, Euroclear Sweden and a database managed by Citibank, N.A. This information includes only directly registered holdings, thus certain holdings (which may be substantial) of shares held in nominee or brokerage accounts cannot be included. The list is therefore incomplete.

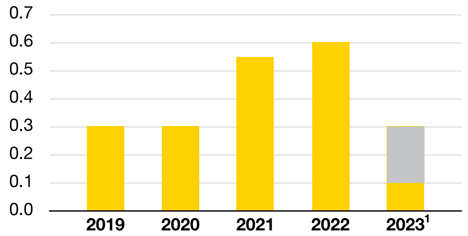
Equity per share

EUR



Dividend per share

EUR



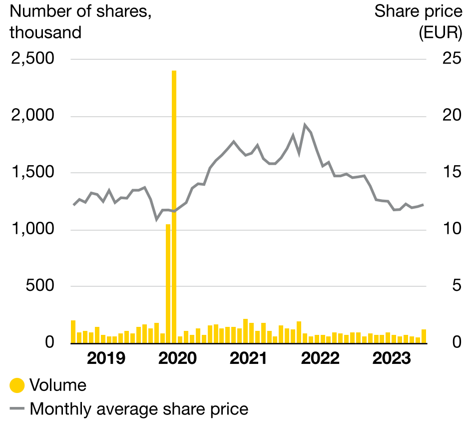
[1] Dividend proposal of 0.10 EUR/share to be paid in April 2024. Proposal that the Board is authorised, at its discretion, to pay an additional 0.20 EUR/share until 31 December 2024

Share price performance and volumes

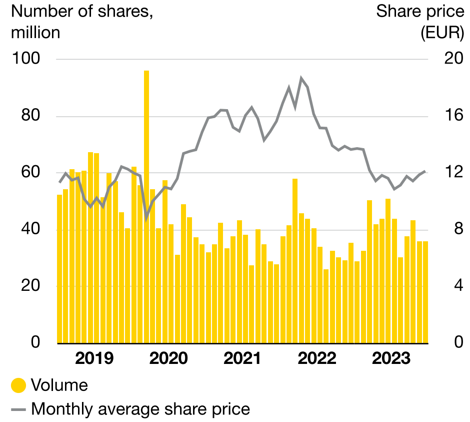
Helsinki

The Stora Enso R (STERV) share price decreased by 5% during 2023 (19% decrease in 2022). Over the same period, the OMX Helsinki Index decreased by 7% (16% decrease in 2022) and the OMX Helsinki Basic Materials Index decreased by 3% (4% decrease in 2022).

Helsinki, Stora Enso A



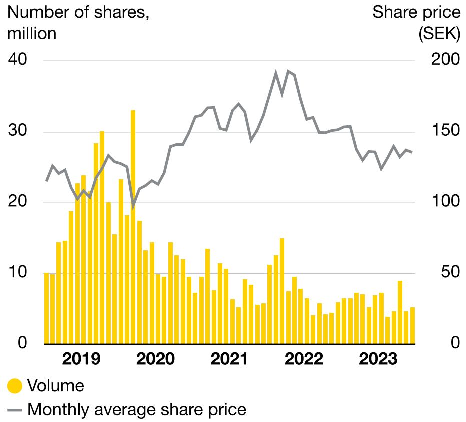
Helsinki, Stora Enso R



Stockholm

The Stora Enso R (STE R) share price decreased by 5% during 2023 (11% decrease in 2022). Over the same period, the OMX Stockholm Index increased by 15% (25% decrease in 2022) and the OMX Stockholm Basic Materials Index increased by 10% (12% decrease in 2022).

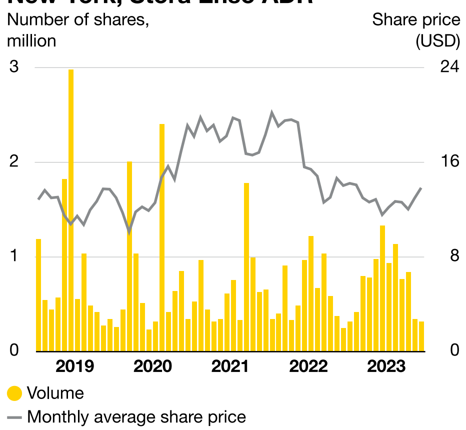
Stockholm, Stora Enso R



OTC

Stora Enso ADR (SEOAY) share price decreased by 1% during 2023 (23% decrease in 2022). Over the same period, the Standard & Poor's Global Timber and Forestry Index increased by 11% (21% decrease in 2022).

New York, Stora Enso ADR

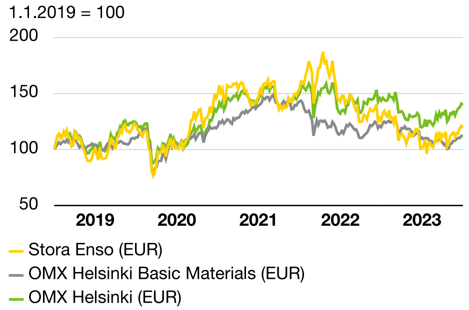


Share prices and volumes in 2023

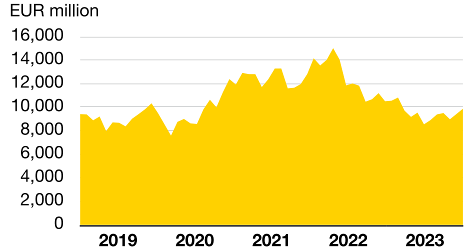
		Helsinki, EUR	Stockholm, SEK	OTC, USD
	A share	15.55	173.60	
High	R share	14.25	161.90	15.35
	A share	11.00	130.00	
Low	R share	10.11	117.10	11.16
	A share	12.45	139.00	
Closing, 31 Dec 2023	R share	12.53	139.10	13.87
	A share	-10.0%	-10.0%	
Change from previous year	R share	-5.0%	-5.0%	-1.0%
	A share	968,233	946,966	
Cumulative trading volume, no. of shares	R share	476,654,045	73,582,343	8,971,544

The volume-weighted average price of R shares over the year was EUR 11.93 in Helsinki (EUR 16.12 in 2022), SEK 136.88 in Stockholm (SEK 173.10 in 2022) and USD 13.00 on the OTC in the USA (USD 16.76 in 2022). Total market capitalisation of the Company was EUR 10.5 billion (EUR 11.3 billion) at the end of 2023.

Stora Enso R Share vs Nasdaq Helsinki indices



Market capitalisation on Nasdaq Helsinki



Stora Enso actively participates in the following ESG assessment schemes:

ESG rating	Stora Enso score / best possible score	Rating compared to peers
CDP	Climate A-/A Forest A/A Water A-/A	Above the industry average
FTSE Russell	4.4/5	Among highest rank in the industry
ISS Corporate Rating	B/A+	Among highest rank in the industry
ISS QualityScore	Governance 2/1* Social 1/1* Environment 1/1*	Among highest rank in the industry
MSCI	AAA/AAA	Among highest rank in the industry
Sustainalytics	14.4/0**	Among highest rank in the industry
VigeoEiris	71/100	Among highest rank in the industry

*1 to 10 (1 indicating the lowest risk)
**0 to 100 (0 indicating the lowest risk)

Stora Enso is included in several stock market indices worldwide. Stora Enso is also included in several stock market ESG indices worldwide. These indices provide investors with a representation of the performance of leading companies based on various categories and specific ESG criteria.

Stora Enso is included in the following indices amongst others

OMX INDICES	STOXX INDICES	FTSE INDICES	MSCI INDICES	EURONEXT INDICES	SUSTAINABILITY INDICES
OMX Helsinki	EURO STOXX	FTSE RAFI All-World 3000	MSCI Finland	Euronext Eurozone 150 EW	EURO STOXX Climate Transition Benchmark
OMX Helsinki 25	EURO STOXX Mid	FTSE RAFI Europe	MSCI Europe	Euronext Europe 500	EURO STOXX Paris-Aligned Benchmark
OMX Helsinki Large Cap	STOXX Developed World	FTSE Developed Europe All Cap	MSCI World	Euronext World	Euronext Climate Europe
OMX Helsinki Basic Materials	STOXX Developed Europe	FTSE Finland 25 Index	MSCI World IMI	Euronext Developed Market	Euronext Eurozone 100 ESG
OMX Stockholm	STOXX Developed Nordic		MSCI ACWI		Euronext Low Carbon 300 World PAB
OMX Stockholm Large Cap	STOXX Global 3000		MSCI ACWI IMI		Euronext Vigeo Europe 120 Index
OMX Stockholm Basic Materials	STOXX Nordic				Euronext Vigeo World 120
Nasdaq OMX Nordic 120					FTSE4Good Index
					MSCI Acwi ESG Leaders
					MSCI Europe ESG Leaders
					MSCI World Climate Change
					MSCI World ESG Leaders
					MSCI World SRI
					OMX Sustainability Finland
					STOXX Europe Sustainability
					STOXX Global ESG Leaders
					ISS STOXX World AC Biodiversity

Trading codes and currencies

	Helsinki	Stockholm	OTC
A share	STEAV	STE A	-
R share	STERV	STE R	-
ADRs	-	-	SEOAY
Segment	Large Cap	Large Cap	-
Sector	Materials	Materials	-
Currency	EUR	SEK	USD
ISIN, A share	FI0009005953	FI0009007603	
ISIN, R share	FI0009005961	FI0009007611	
CUSIP	-	-	86210M106
Reuters			STERV.HE
Bloomberg			STERV FH Equity

Key share data 2011–2023, total operations (for calculations see Alternative performance measures)

According to Nasdaq Helsinki	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Earnings per share, EUR	-0.45	1.97	1.61	0.79	1.12	1.28	0.79	0.59	1.02	0.13	-0.07	0.61	0.43
– diluted, EUR	-0.45	1.97	1.61	0.79	1.12	1.28	0.79	0.59	1.02	0.13	-0.07	0.61	0.43
– excl. FV, EUR (1)	-0.73	1.55	1.19	0.45	0.61	1.26	0.89	0.65	1.24	0.40	0.40	0.33	0.63
Equity/share, EUR	13.93	15.89	13.55	11.17	9.42	8.51	7.62	7.36	6.83	6.43	6.61	7.32	7.45
Dividend and distribution/share, EUR	0.10	0.60	0.55(2)	0.30	0.30	0.50	0.41	0.37	0.33	0.30	0.30	0.30	0.30
Payout ratio excluding FV (3) %	-13.7	38.6	46.3	66.7	49.2	39.7	46.1	56.9	26.6	75.0	75.0	90.9	47.6
Dividend and distribution yield, %													
A share	0.8	4.3	3.3(2)	1.9	2.2	4.5	3.1	3.6	3.9	4.0	4.1	5.3	5.9
R share	0.8	4.6	3.4(2)	1.9	2.3	5.0	3.1	3.6	3.9	4.0	4.1	5.7	6.5
Price/earnings ratio (P/E), excl. FV													
A share	-17.1	9.0	14.0	35.3	22.2	8.8	14.8	16.0	6.8	18.7	18.3	17.3	8.0
R share	-17.2	8.5	13.6	34.8	21.2	8.0	14.9	15.7	6.8	18.6	18.3	15.9	7.3
Share prices for the period, EUR													
A share													
– closing price	12.45	13.90	16.60	15.90	13.55	11.05	13.20	10.40	8.40	7.48	7.31	5.70	5.03
– average price	12.82	16.61	16.68	12.06	12.88	16.36	11.93	8.50	8.87	7.29	6.82	6.15	7.73
– high	15.55	20.60	18.70	16.20	14.45	18.45	13.79	10.45	11.01	8.35	7.49	7.15	9.80
– low	11.00	13.40	14.45	9.26	10.85	10.75	10.26	6.56	6.70	5.73	5.42	5.10	4.70
R share													
– closing price	12.53	13.15	16.14	15.65	12.97	10.09	13.22	10.21	8.39	7.44	7.30	5.25	4.63
– average price	11.93	16.12	15.70	11.52	11.05	14.61	11.54	7.88	8.70	7.16	5.79	5.08	6.28
– high	14.25	20.01	17.67	15.85	13.05	18.29	13.75	10.28	10.95	8.38	7.54	5.95	8.99
– low	10.11	12.66	13.67	7.25	9.10	9.92	9.70	6.50	6.58	5.71	4.76	4.14	3.73
Market capitalisation at year-end, EUR million													
A share	2,194	2,450	2,926	2,802	2,388	1,948	2,328	1,836	1,483	1,324	1,295	1,010	891
R share	7,670	8,053	9,884	9,580	7,939	6,175	8,094	6,250	5,135	4,547	4,464	3,212	2,835
Total	9,864	10,503	12,809	12,383	10,328	8,123	10,422	8,085	6,618	5,871	5,756	4,222	3,726
Number of shares at the end of period, (thousands)													
A share	176,231	176,238	176,244	176,254	176,257	176,313	176,392	176,507	176,532	177,056	177,096	177,148	177,149
R share	612,389	612,382	612,376	612,366	612,363	612,307	612,228	612,113	612,088	611,564	611,524	612,391	612,389
Total	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	789,538	789,538
Trading volume, (thousands)													
A share	968	1,174	1,750	4,662	1,299	3,068	6,768	1,254	1,641	1,553	1,656	831	1,402
% of total number of A shares	0.5	0.7	1.0	2.6	0.7	1.7	3.8	0.7	0.9	0.9	0.9	0.5	0.8
R share	476,654	455,952	422,493	605,233	679,475	610,300	571,717	765,122	798,507	731,067	828,401	977,746	1,237,898
% of total number of R shares	77.8	74.5	69.0	98.8	111.0	99.7	93.4	125.0	130.5	119.5	135.5	159.7	202.1
Average number of shares (thousands)													
basic	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620	788,620
diluted	789,714	789,391	789,126	789,182	789,533	789,883	790,024	789,888	789,809	789,210	788,620	788,620	788,620

[1] Earnings per share (EPS) excl. FV was added to the list of non-IFRS measures in 2020 replacing the key figure of EPS excl. IAC. Comparatives are recalculated for 2018-2019. For 2011–2017 table includes EPS excl. IAC figures.
[2] Board of Directors' proposal to the AGM for distribution of dividend.
IAC = Items affecting comparability

Read more about incentive programmes in note 3.4 and management interests in note 3.2.

Debt investors

Funding strategy

Stora Enso's funding strategy is based on the Group's financial targets. Stora Enso should have access to sufficient and competitively priced funding at any time to be able to pursue its strategy and achieve its financial targets. Stora Enso maintains consistent dialogue with fixed-income community with informative and transparent communication and meetings in conferences and roadshows. The Company's Treasury function is responsible for fixed income investor communication.

Funding is obtained in the currencies of the Group's investments and assets (primarily EUR, SEK, CNY and USD). Commercial paper markets are used for short-term funding and liquidity management.

In 2023, the liquidity and funding position continued to be strong. Stora Enso had approximately EUR 2.5 billion cash and cash equivalents at 31 December 2023. The Company also had in total EUR 800 million committed undrawn credit facilities at year-end. Additionally, the Company has access to EUR 1.1 billion statutory pension premium loans in Finland. Stora Enso has a good access to various funding sources.

Public debt structure as at 31 December 2023

	EUR	USD	SEK
Public issues	EUR 500 million 2026	USD 300 million 2036	SEK 1514 million 2024
	EUR 300 million 2027		SEK 3500 million 2025
	EUR 300 million 2028		SEK 2950 million 2027
	EUR 500 million 2029		SEK 2750 million 2028
	EUR 500 million 2030		
Private placements	EUR 125 million 2025		SEK 1000 million 2026
	EUR 25 million 2027		SEK 425 million 2033

Debt programmes and credit facilities as at 31 December 2023

	EUR	SEK
Commercial paper programmes	Finnish Commercial Paper Programme EUR 750 million	Swedish Commercial Paper Programme SEK 10 000 million
EMTN (Euro Medium-Term Note programme)	EUR 4 000 million	
Back-up facility	EUR 700 million sustainability linked revolving credit facility 2028[1]	
	EUR 100 million Bilateral Committed Credit Facility 2025 undrawn	

[1] Undrawn committed credit facility EUR 700 million. Part of the pricing for the facility agreement is based on Stora Enso's Science Based Targets to combat global warming by reducing greenhouse gases, including CO_2.

Stora Enso has integrated sustainability agenda to its funding and financial services. The Group has the long-term aim to secure funding partners that have sustainability as a fundamental part of their agenda. It aims to influence and develop the financial markets to ensure that sustainability becomes an integral part of decisions and credit evaluation. For more information, visit storaenso.com/investors.

Green Bonds

In 2023, Stora Enso issued both EUR and SEK denominated new Green Bonds. During the second quarter Stora Enso issued two EUR 500 million green bonds with 3- and 6.25-year maturities. During the fourth quarter the Company issued new SEK green bonds and private placements with nominal value of SEK 6,525 million. The bonds are listed on the Luxembourg Stock Exchange.

In 2023 Stora Enso published a new Green and Sustainability-Linked Financing Framework. The framework is based on Stora Enso's sustainability agenda and goals, driving the transformation towards a circular bioeconomy. Green bonds issued in 2023 were issued under the new framework. The framework replaces the old Green Bond Framework, published in 2018.

The green financing element of the framework comprises of the following six eligible asset categories: sustainable forest management, sustainable product processes, energy efficiency, renewable energy and waste to energy, sustainable water management, and waste management and pollution control. The categories are designed to promote the transition towards a low-carbon and environmentally sustainable society in accordance with Stora Enso's sustainability agenda. The sustainability-linked financing element specifies key performance indicators for Stora Enso's performance on climate change, biodiversity and circularity.

Please find additional information here: Sustainable finance

Rating strategy

Stora Enso Group's target is to have at least one public credit rating with the ambition to remain investment grade and sustain such metrics throughout business cycles. The present rating and outlook from Moody's and Fitch Ratings are shown below.

Ratings as at 31 December 2023

Rating agency	Long/short-term rating	Valid from
Fitch Ratings	BBB- (stable)	4 August 2023
Moody's	Baa3 (stable) / P-3	17 November 2023

Stora Enso's current credit ratings are: Baa3 with stable outlook from Moody's and BBB- with stable outlook from Fitch Ratings. Both ratings correspond to an Investment Grade rating.

Stora Enso's goal is to ensure that rating agencies continue to be comfortable with Stora Enso's strategy and performance. The Company's strategy is to achieve liquidity well in line with the comfort level of the agencies. Review meetings are arranged with the Stora Enso management annually, and regular contact is maintained with the rating analysts.

Read more about debt and loans in note 5.3 Interest-bearing assets and liabilities.

Sustainability reporting

Sustainability approach, governance, and stakeholders

Stora Enso drives the transition towards a bio-based circular economy in the three areas where it has the most substantial impact and opportunities: climate change, biodiversity, and circularity, while respecting planetary boundaries. The Group's sustainability approach and ambition is embedded throughout its business operations and decisions.

Approach to sustainability

Stora Enso's sustainability approach is built on the framework launched in 2021 and is premised on actively contributing to mitigate climate change and halt biodiversity loss. The Planetary Boundary concept, developed by climate scientists at the Stockholm Resilience Centre, serves as the basis for this approach. It offers a scientifically grounded framework that informs and guides strategic decision-making.

Building on the Planetary Boundary concept, Stora Enso's long-term ambition is that all of its products and solutions will be 100% regenerative by 2050. This means renewable and fully circular products and solutions that help reduce climate impacts by sequestering more carbon than they emit and supporting biodiversity restoration. The long-term ambition is supported by intermediate targets for 2030. For climate, the Group's target is to reduce absolute carbon dioxide emissions by 50% by 2030 from the 2019 baseline, both in its own production and within the value chain. For circularity, the target is to achieve 100% technically recyclable products by 2030. Finally, Stora Enso's aim to preserve biodiversity in harvesting is measured with a set of biodiversity impact indicators with a target to reach 100% compliance by 2030.

These ambitions stand on a foundation of conducting everyday business in a responsible manner. Sustainability is embedded in the Group's key business processes such as:

- Strategy and business reviews with the divisions
- Product management and innovation
- Investments, and mergers and acquisitions
- Management remuneration
- Funding strategy

Stora Enso has set targets and defined key performance indicators (KPIs) for all the areas in its sustainability framework. Progress is regularly monitored on Group level and via quarterly divisional business reviews. Consolidated results on the Group's sustainability performance are reported annually (see Sustainability targets) and selected sustainability indicators are also reported quarterly in Stora Enso's interim reports.

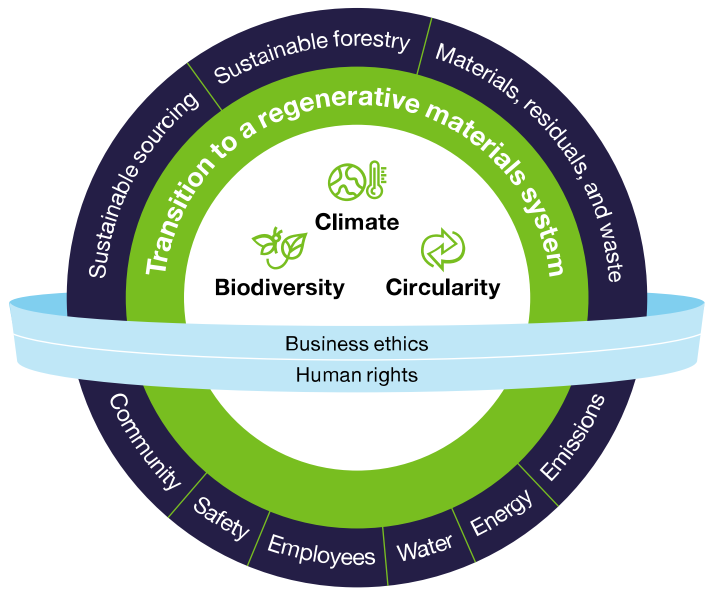
Stora Enso acknowledges the importance of the United Nations Sustainable Development Goals (SDGs) and supports all seventeen SDGs. Goals 12, 13, and 15 have been identified as the most relevant, where the Group has the largest impact through its own operations and products.

Sustainability governance

At Stora Enso, sustainability is owned by the Board of Directors, the President and Chief Executive Officer (CEO), and the Group Leadership Team (GLT). The CEO holds ultimate responsibility for the implementation of the Group's sustainability agenda. Sustainability work is led by the Executive Vice President, Sustainability, who reports directly to the CEO and is part of the Group Leadership Team (GLT). Read more about the management of the Company in the Governance section. The Board of Directors' Sustainability and Ethics Committee (SECo) oversees the implementation of Stora Enso's sustainability agenda, and the Ethics and Compliance Strategy. The Committee met four times in 2023 and has also reviewed the sustainability disclosures in this Annual Report. The main focus areas of the Committee during the year are described in the Governance section.

In 2023, a teach-in was organised for the Board regarding the EU Corporate Sustainability Reporting Directive (CSRD). The session primarily emphasised the Board's oversight duties and highlighted the Finance and Audit Committee's role in approving the Board of Directors' report, which encompasses the upcoming sustainability reporting requirements. Today, oversight for sustainability reporting is exercised by the SECo which, on a quarterly basis, reviews a comprehensive sustainability scorecard with a set of targets and metrics that extend beyond the interim report. The Committee receives regular updates on specific topics, such as biodiversity, water management, carbon, safety, data privacy, and human rights to ensure continued capacity building on the most material sustainability topics. SECo is also kept informed on business ethics investigations, Supplier Code of Conduct audit findings, and significant environmental incidents at Stora Enso.

Stora Enso sustainability framework



Alongside financial ones, sustainability is one of the performance metrics in Stora Enso's short and long-term incentive programmes (STI and LTI). In the STI programme, non-financial sustainability targets represent a 20% weight, and is divided into: occupational safety measured by the total recordable incident rate (15%), and the reduction of production units' direct Scope 1 and indirect Scope 2 GHG emissions (5%). In the LTI programme, non-financial sustainability targets also represent a 20% weight. In addition to the GHG Scope 1 and 2 targets (10%), the LTI includes a target on diversity and inclusion (10%), measured by the share of female managers among all managers. For more information, see the Remuneration section.

Stora Enso's joint operations in Brazil (Veracel) and Uruguay (Montes del Plata) have their own sustainability teams. Sustainability topics are regularly discussed by their respective Boards which include representatives from Stora Enso. The Sustainability and Communications Support Groups at both joint operations convene regularly with representation from both joint venture partners. In addition, Stora Enso is represented on the Board of its equity-accounted investments, such as the forestry company Tornator in Finland.

Sustainability policies

Stora Enso's Sustainability Policy outlines the Group's overarching stance on sustainability. The Stora Enso Code, along with additional policies and guidelines addressing specific sustainability issues, provides a more detailed explanation of the Group's approach. These documents not only elaborate on the Company's principles but also serve as guides for employees in their day-to-day tasks. The policies and guidelines are reviewed bi-annually. For an overview of Stora Enso's sustainability policies and guidelines, see Policies and guidelines.

Stakeholder engagement

Open dialogue with key stakeholders is crucial to identify concerns, global trends, and market expectations successfully and proactively. Stora Enso's stakeholder engagement work is based on both structured and informal interaction, and on regular surveys on topics such as customer and employee satisfaction and investor expectations. The Group also obtains important information through its formal grievance channels. Examples of key sustainability topics discussed with stakeholders are reported in their respective sections in this report.

Materiality

Stora Enso acknowledges the concept of double materiality. When assessing the most relevant topics that influence or are affected by the Group's value chain, Stora Enso takes into consideration both financial and non-financial risks and opportunities, as well as the Group's most significant impacts on society and the environment. During 2023, Stora Enso updated its materiality analysis to ensure that it prioritises the most relevant sustainability topics in the implementation of its sustainability agenda, target setting, and reporting. The analysis was built on the previous assessment conducted in 2020. Going forward, the assessment will be updated on an annual basis.

Impacts were identified and prioritised via internal analysis, and stakeholder views were gathered through various sources, focusing on qualitative resources. The assessment encompassed financial as well as environmental and societal impacts, with a greater emphasis on evolving EU regulations and scientific frameworks such as the United Nations' Intergovernmental Panel on Climate Change (IPCC), the Convention on Biological Diversity, and the Planetary Boundaries Framework. The materiality assessment was aligned with the Global Reporting Initiative's (GRI) 2021 recommendations, and was inspired by CSRD guidance. In order to ensure alignment with the upcoming legislation, Stora Enso is conducting a new double materiality assessment according to EFRAG's implementation guidelines from December 2023.

The outcome of the 2023 assessment confirmed that the most material topics for Stora Enso remain the same as those in 2020, but some areas have grown in importance. Climate change, biodiversity, circularity, and occupational health and safety continue to present the most significant financial risks and opportunities for Stora Enso. Value chain related aspects, such as sustainable sourcing, and workers and communities affected by the Group's activities, have become more material according to the assessment. Based on the outcome, Stora Enso's ambition to develop 100% regenerative solutions by 2050, along with the areas in its sustainability framework focusing on climate change, biodiversity, and circularity, remain valid.

In the context of double materiality, the Group's assessment of its impacts on the environment and people complements and supports the Group's Enterprise Risk Management (ERM) process focusing on financial risks and opportunities. The statutory non-financial information in the Report of the Board of Directors includes those sustainability topics that relate to the Group's key risks and opportunities, including assessments of financial impacts on the Company and the sustainability impacts of the Company's operations on society.

United Nation's Sustainable Development Goals

12 Responsible consumption and production: Stora Enso's aim is to offer low-carbon, renewable, and circular products, replacing those made from fossil-based materials. In addition to its products, Stora Enso contributes to SDG 12 through its operations and supply chain. The Group works constantly to reuse and recycle materials, to minimise waste, and to maximise the value of material streams by creating circular material flows in the value chain, while reducing its own process waste to landfill.

13 Climate action: The Group's operations are based on renewable raw materials and sustainable forest management, which contribute to climate action. Stora Enso's products help to reduce CO_2 emissions by providing low carbon, renewable, and recyclable alternatives to fossil fuels and other non-renewable materials. The Group has set science-based targets to reduce CO_2e emissions from its own operations and across its value chain by 50% by 2030, from the 2019 baseline.

15 Life on land: Stora Enso's work with forests, plantations, and land use directly contributes to SDG 15, which focuses on the sustainable management of all types of forests, halting biodiversity loss, and regenerating biodiversity. Sustainable forest management safeguards forest health and productivity and protects biodiversity, while securing the long-term availability of renewable resources. Stora Enso closely monitors the management of the forests and plantations from which it sources wood.

Policy development

The rollout of policies and legislation from national governments, the EU, and international forums to achieve the green transition continued throughout 2023. Stora Enso welcomes this ambition and believes that the circular bioeconomy has an important role to play in the transition. The Group actively engages on all pertinent policy areas, providing constructive and detailed evidence to show, for example, how sustainable forest management can enhance biodiversity while maintaining forest carbon sinks, or how renewable materials can replace fossil-based products. Stora Enso identifies synergies and opportunities within EU regulation and policy consultations to seek more sustainable alternatives, particularly in sectors such as packaging, batteries, and construction. These are areas where wood can be used for innovative applications to replace non-renewable products. Read more about Stora Enso's public policy work here.

The EU, in particular, has a wide set of legislation and regulations bundled within the European Green Deal. In 2023, there were numerous EU policy developments relevant to Stora Enso's business. The Group has continued to engage with decision-makers and relevant stakeholders in three priority areas: climate change, biodiversity, and circularity. This includes, for example, the proposed Nature Restoration Law, the Packaging and Packaging Waste Regulation (PPWR), the Critical Raw Materials Act, and the Construction Products Regulation (CPR).

The EU Corporate Sustainability Reporting Directive (CSRD) came into force in January 2023. Large, listed companies are required to apply the new rules from the start of the 2024 financial year. The directive ensures that investors and other stakeholders have sufficient information to assess the impact of companies on people and the environment, and to assess financial risks and opportunities arising from climate change and other sustainability issues. Meanwhile, the Corporate Sustainability Due Diligence Directive (CSDDD) took further steps towards adoption. Companies will be required to identify, prevent, halt, or mitigate the negative impacts of their operations on people and the environment, and will be required to demonstrate their human rights and environmental efforts across their business practices.

Key memberships in industry and trade associations

Stora Enso is a member of, or represented in, several trade and industry associations across its various business areas. The main organisations are listed below:

- The Confederation of European Paper Industries (CEPI), with representation via national industry associations
- National memberships in forest industry associations, such as the Finnish and Swedish forest industry federations
- National memberships in woodworking industries' federations in Austria, Finland, and Sweden
- Business Europe
- The International Chamber of Commerce (ICC)
- National memberships in the development of international (ISO) and European (CEN) standardisation
- The European Federation of Corrugated Board Manufacturers (FEFCO), with representation via national industry associations
- 4evergreen
- The European Organisation for Packaging and the Environment (EUROPEN)
- The European Confederation of Woodworking Industries (CEI-Bois)
- The Alliance for Beverage Cartons and the Environment (ACE)
- The European platform to improve and increase the recycling of beverage cartons (EXTR:ACT)
- The European Carton Makers Association (ECMA)
- The Digital Watermarks Initiative HolyGrail 2.

External assurance:

Stora Enso's sustainability reporting has been assured by an independent third-party provider with a level of Limited Assurance, with GRI Standards serving as criteria. Given the Group's commitment to climate change mitigation and related emissions data reliability, a level of Reasonable Assurance, with GHG Protocol serving as criteria, has been provided for direct and indirect fossil CO_2e emissions (Scope 1 and 2).

Stora Enso's sustainability impact and topics are described in the following sections of the Annual Report:

- Strategy section: material topics in relation to Group's strategy
- Sustainability reporting: material sustainability impacts
- GRI content index
- SASB content index
- TCFD and TNFD frameworks
- EU Taxonomy

Significant stakeholder groups:

- Investors
- Customers
- Consumers
- Employees
- Media
- NGOs
- Policy makers
- Partners and suppliers
- Forest owners
- Local communities
- Trade unions

Collaboration with non-governmental organisations

Stora Enso actively collaborates with prioritised non-governmental organisations (NGOs). The Group is involved in developing industry practices related to climate change, circular bioeconomy, sustainable forestry, human rights, and business ethics, as well as in the development of sustainability reporting and assurance. Key collaborations in 2023 included:

- Forest certification organisations (FSC and PEFC)
- Climate Leadership Coalition
- Finnish Business & Society (FIBS)
- Global Business Initiative on Human Rights (GBI)
- Science Based Targets initiative (SBTi)
- The Forest Dialogue (TFD)
- Transparency International
- UN Global Compact
- We Mean Business Coalition
- World Business Council for Sustainable Development (WBCSD)
- World Green Building Council (WorldGBC)
- World Wide Fund for Nature (WWF)
- ECO platform
- International Sustainable Forestry Coalition

Stora Enso's sustainability targets and key performance indicators (KPIs)

Sustainability topic	Key performance indicator (KPI)	Target	2023	2022	2021	Progress comment
Transformation agenda						
Climate	Reduction of production units' absolute fossil CO_2e emissions (Scope 1 and 2)	50% reduction by the end of 2030 from 2019 baseline	-41%	-27%	-13%	**On track** – during 2023, Scope 1 & 2 emissions decreased mainly as a consequence of lower production volumes as well as site and production line closures.
	Reduction of absolute fossil CO_2e emissions in supply chain, transportation and customer operations (Scope 3)	50% reduction by the end of 2030 from 2019 baseline	-34%	-24%	3%	**On track** – during 2023, Scope 3 emissions decreased mainly as a consequence of lower production volumes as well as site and production line closures.
Biodiversity	% of the owned and leased lands in wood production and harvesting covered by forest certification schemes	Maintain a minimum coverage level of 96%	99%	99%	99%	**Achieved** – the certification coverage has remained high. The reporting on biodiversity is complemented with specific biodiversity indicators.
Circularity	% of technically recyclable products	100% by the end of 2030	94%	94%	94%	**On track** – stable performance with a focus on recyclability in product development.
Responsible business practices						
Materials, residuals, and waste	Process residuals utilisation rate (%)	Maintain a minimum utilisation level of 98%	99%	99%	98%	**Achieved** – stable performance with a high utilisation rate of process residuals.
Energy	Projected energy savings, % (MWh saved/ MWh total energy used, electricity, heat, and fuels)	1.1% annual energy saving until 2030	-0.7%	-1.1%	-0.6%	**Not achieved** – projected energy savings below target, focus on optimisation of energy efficiency with targeted measures at production sites.
Water	Process water discharges per saleable tonne of board, pulp, and paper (m^3/t)	17% reduction by 2030 from 2019 baseline (36m^3/tonne)	35	34	33	**Behind** – lower production volumes are currently adversely affecting the performance per saleable tonne, as a regular water flow needs to be maintained, particularly in wastewater treatment.
	Total water withdrawal per saleable tonne of board, pulp, and paper (m^3/t)	Decreasing trend from 2016 baseline (60m^3)	61	57	54	**Not achieved** – performance impacted by lower production volumes (see above).
Environmental incidents	Number of significant non-compliance events	Zero non-compliance events	14	16	8	**Not achieved** – significant non-compliance events occurred despite prevention measures. Increased management focus was placed on the topic.
Employees	Diversity and inclusion: % of female managers among all managers	25% by the end of 2024	24%	23%	23%	**On track** – at the end of 2023, the share of female managers was 24%, progressing in line with the target set for 2024. Efforts continue to further enhance diversity and inclusion.
Safety	Total Recordable Incident (TRI) rate	4.9 milestone by the end of 2023	4.7	5.9	6.2	**Achieved** – target was exceeded by prioritising preventive safety measures and reinforcing divisions' accountability on improving performance.
Business ethics	Ethics and Compliance Index	Positive trend	8.9	8.7	n/a	**Achieved** – improved score in the Ethics and Compliance Index.
Human rights	Implementation of human rights due diligence programme across the value chain	Ensure efficient implementation of human rights due diligence programme	Implementing pilot phase findings into operations and processes	3 pilots targeting key risk areas	Continuous improvements	**On track** – continued focus on human rights due diligence.
Community	Community Investment (CI): % of working hours and in-kind in the total CI	Increase to 70% by 2023 while also increasing the total CI	39%	41%	42%	**Not achieved** – in 2023, the Community Investment target was closed. A new measurement reflecting the decentralised operating model is under consideration.
Sustainable sourcing	% of supplier spend covered by the Supplier Code of Conduct (SCoC)	Maintain a minimum coverage level of 95%	95%	96%	96%	**Achieved** – slight decline in the coverage level of the SCoC, but performance remains on target.

For accounting principles and restatements of historical figures, see the Consolidated sustainability figures.

storaenso

Climate change: emissions

The Intergovernmental Panel on Climate Change (IPCC) stresses the urgency of ambitious, near-term climate action and accelerated measures to limit global warming to 1.5°C. Furthermore, the planetary boundary for climate change – one of the two core boundaries – has already been crossed*. Both mitigation and adaptation efforts are now imperative, necessitating systemic change across sectors. Stora Enso is committed to reducing emissions in its own production, as well as across its value chain in line with the Science Based Targets initiative's 1.5-degree pathway.

*Stockholm Resilience Center

Progress

Stora Enso has a long history of greenhouse gas emissions reporting, having set its first related target in 2007. Stora Enso was the first forest products company to set a science-based target (SBT) in 2017 to reduce its GHG emissions, achieving the target nine years ahead of schedule. In 2021, Stora Enso raised its ambition to align with the 1.5-degree scenario. The updated target is to reduce absolute CO_2e emissions in both own production (Scope 1 and 2) and within the value chain (Scope 3) by 50% by 2030, from the 2019 baseline. In 2023, Stora Enso reinforced its climate commitment by joining The Climate Pledge initiative, with a commitment to achieve net zero carbon emissions by 2040, across all three Scope categories.

Scope 1 and 2 CO_2e emissions

In line with the Group's Carbon Neutrality roadmap, Stora Enso continued its decarbonisation efforts, such as changing fuel types from fossil to biomass fuels, shifting to low-carbon electricity, and improving energy efficiency. During 2024–2025, Stora Enso continues to invest in projects that, in addition to business targets, aim at reaching the CO_2e targets. Additionally, the announced site closures will impact the emission reduction outcome.

Stora Enso's operations largely utilise renewable biomass fuels from forest and process residuals, resulting in a high share of biogenic CO_2 emissions. In 2023, 86% of the total direct CO_2 emissions from the Group's own operations were carbon neutral, originating from biomass fuels.

Scope 3 CO_2e emissions

Scope 3 accounting differs inherently from Scope 1 and 2, as it involves activities outside of a company's direct control. It remains a developing field, partly due to the limited availability of primary data. In 2023, Stora Enso continued with enhanced actions to lead an internal programme for increasing the amount of primary data to establish a better-informed baseline, improve the accuracy of data collection, and support data-driven development actions and investments. Within this programme, Stora Enso aims to automate the majority of its Scope 3 accounting, enhancing the granularity of data down to production unit level.

In 2023, Scope 3 emissions accounted for approximately 76% of Stora Enso's total CO_2e emissions. The most significant climate impacts in the Group's value chain are generated from the sourcing and manufacturing of raw materials, the further processing of products by customers, and in the transportation of raw materials and final products. To read more about Scope 3 emissions actions in the Group's supply chain, see Sustainable sourcing.

Targets and performance

Reduction of absolute Scope 1 and 2 CO_2e emissions from operations by 50% by 2030 from the 2019 baseline

Reduction of absolute Scope 3 CO_2e emissions in supply chain, transportation, and customer operations by 50% by 2030 from the 2019 baseline

Key Performance Indicator (KPI)	2023	2022	2021
Reduction of production units' absolute fossil CO_2e emissions (Scope 1 and 2)[1]	-41%	-27%	-13%
Reduction of absolute fossil CO_2e emissions in supply chain, transportation and customer operations (Scope 3)[1]	-34%	-24%	3%

[1] Historical figures are restated due to structural changes or additional data after the previous annual report.

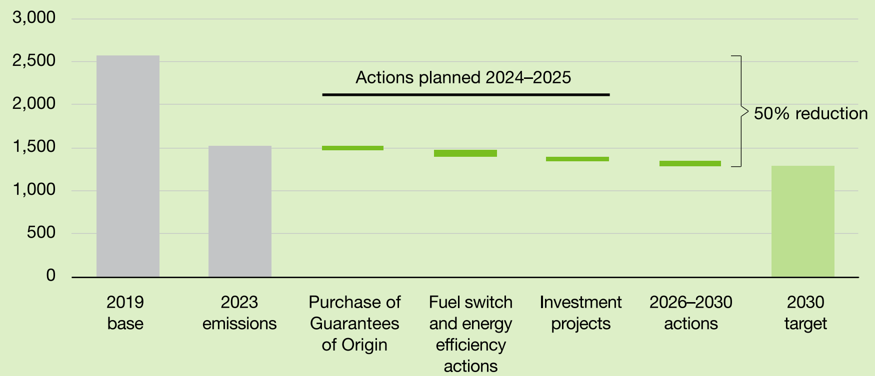
On track – during 2023, Scope 1 & 2 emissions decreased mainly as a consequence of lower production volumes as well as site and production line closures.
On track – during 2023, Scope 3 emissions decreased mainly as a consequence of lower production volumes as well as site and production line closures.

Key actions to drive performance

- Stora Enso's Carbon Neutrality Roadmap as a key tool in greenhouse gas scenario assessment guiding short- and long-term fossil CO_2e reduction actions
- Increasing the share of clean energy sources and improving energy efficiency
- Scope 1 and 2 reduction targets linked to management remuneration
- Developing an automated Scope 3 accounting system and improving the accuracy of collected data
- Further improving Scope 3 performance by enhancing efficiency and lowering carbon intensity together with the supply chain, transportation, and customer operations

Summary of Stora Enso's roadmap for reaching the 2030 target for Scope 1 & 2

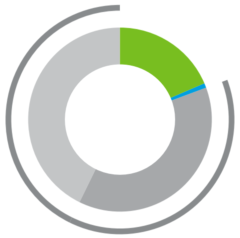
Scope 1 & 2 CO_2e emissions (kt/a)



For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Stora Enso's wider climate impact is presented in the section Our strategy, including the carbon stored in products, carbon sequestered by the Group's forests, and carbon saved by substituting fossil-based materials.

Distribution of GHG emissions 2023
% of total GHG emissions



Ways of working

Stora Enso's climate ambition and actions are in line with the Paris Agreement and the SBTi's 1.5 °C pathway. Stora Enso supports the European Green Deal, which provides an action plan to boost the economy through green technology, promoting sustainable industry and transport, and cutting pollution. The currently evolving GHG Protocol's Land Sector and Removals Guidance will provide direction on how companies and organisations should account for greenhouse gas emissions and carbon removals from land use, land use change, bioenergy, and related topics in their greenhouse gas inventories. Stora Enso has actively participated in the GHG Protocol Secretariat to provide feedback.

The Group's Carbon Neutrality Roadmap is complemented by the divisions' own carbon neutrality roadmaps which guide their work towards reaching the emission reduction targets. To support the implementation of the roadmap, training for employees on energy conservation and climate actions are embedded in the sites' management systems. The Scope 1 and 2 CO_2e targets are always part of the Group's capital expenditure assessment.

Since 2022, Stora Enso's Scope 1 and 2 targets have been included in the Group's short- and long-term incentive programmes. For more information, see the Remuneration section.

To progress towards its Scope 3 CO_2e reduction target, Stora Enso collaborates closely with suppliers to further enhance efficiency and to lower carbon intensity. An essential tool for enforcing emission reductions is the Stora Enso Supplier Code of Conduct, the common set of requirements for all suppliers. Additionally, as part of the tendering process, suppliers are required to submit data on their carbon emissions.

Climate scenarios

Stora Enso continuously assesses and works to improve its climate scenario modellings in order to better analyse the resilience of the Group's assets and operations in different scenarios, and to support the planning of mitigating actions at the sites accordingly. Financial risks and opportunities related to climate change are evaluated through the annual Enterprise Risk Management (ERM) process. Stora Enso is aligned with the Task Force for Climate-related Financial Disclosures (TCFD) and utilises physical and transition risk scenarios to assess the potential impacts of climate change. Read more in the Financials (Climate-related financial disclosures).

Carbon offsetting

Stora Enso's primary means of reducing fossil carbon emissions is through direct action within its own operations and value chain. The Group's corporate carbon performance is reported without offsets as advised by Science Based Targets initiative. Despite direct action being the primary means of emissions reduction, some emissions currently remain unavoidable. Therefore, carbon offsetting is used in some of the Group's products as a way to offer materials that can help customers to reduce their climate impact. Offsetting for products is done only through projects that are measurable and third-party verified, for example, in accordance with the Gold Standard.

Scope 3 reduction roadmap, Packaging Materials

In 2023, the Packaging Materials division took significant strides to advance its Scope 3 reduction objectives, in line with the Group target, and concentrating on three key categories with the most pronounced impact:
1) Sourcing of chemicals and non-fiber raw materials: Reduction efforts encompass supplier collaboration with a focus on identifying suppliers committed to emissions reduction. Actions in the division's own product development and innovation include, for example, reducing bleaching and mineral coatings, and the light-weighting of barrier layers.
2) Processing of sold products: Enhancing data quality by collecting primary data from customers.
3) Downstream transportation: Entering strategic partnerships with logistics solutions providers to accelerate the transition towards electric vehicles and biofuels.

Piloting carbon capture technology in Sweden

Stora Enso is piloting novel carbon capture technology (CCS) at Skutskär pulp production site in Sweden to capture biogenic CO_2 from the site's flue gases. One of the advantages of the used technology is that it enables the process to be carried out by utilising site's waste heat. The pilot is part of the EU's four-year ACCSESS project supporting widespread CCS deployment in Europe.

Stora Enso commits to net zero carbon emissions by 2040

In 2023, Stora Enso joined the The Climate Pledge platform designed to bring the world's largest companies together to work towards achieving net zero carbon emissions by 2040, ten years ahead of the Paris Agreement. Committing to net-zero emissions is a logical step for Stora Enso in its long-term ambition to become net carbon positive, and to offer 100% regenerative products and solutions by 2050. As a signatory, Stora Enso seeks to drive change and accelerate decarbonisation through energy efficiency improvements, shifting to renewable fuels and electricity, and active collaboration with value chain partners.

Sustainable forestry and biodiversity

Biodiversity is fundamental to the planet and to people, supporting functioning ecosystems. It is impacted by human interventions and interlinked with climate change, meaning more actions are needed to reverse both biodiversity loss and rising temperatures. These efforts are being actively shaped through international agreements and initiatives. Sustainable forest management promotes vital and growing forests, which bind carbon dioxide from the atmosphere and preserve biodiversity while securing the long-term availability of wood. At the same time, forests must be able to adapt to a changing climate. Stora Enso is one of the largest private forest owners in the world, and recognises its responsibility to safeguard forests and nature, striving for a net positive impact on biodiversity.

Progress

Biodiversity Leadership Programme

To achieve a net positive impact on biodiversity, Stora Enso has set an over-arching Biodiversity Leadership Programme for an integrated, long-term approach. It includes four streams:

1. Biodiversity alignment on a global scale
2. New value innovation
3. Data, modelling, and analytics
4. Concrete biodiversity actions in the forest

In 2023, Stora Enso continued developing ways to measure and achieve a net positive impact on biodiversity. To verify this impact and speed up the pace of change, it is key to collaborate globally and combine data-driven decision-making and modelling with adaptive forestry actions.

The development of the Group's biodiversity indicators continued throughout the year. In 2021, Stora Enso organised some of its most impactful biodiversity actions practised during harvesting into common impact indicators for Finland, Sweden, and the Baltics. In 2023, the data collection was advanced with digitalisation to ensure harmonised reporting in the field. 2023 also saw further development of two sets of biodiversity indicators that monitor long-term biodiversity trends in the Group's own forests and tree plantations (see details on the Group's biodiversity website).

Biodiversity actions in Northern forests

Targeted biodiversity action programmes involve concrete measures in Finland, Sweden, and the Baltics. Forest certifications set the basis in each country, but Stora Enso's programmes go beyond certification requirements, especially in company-owned forests where the Group controls the decision-making process.

The biodiversity action programme for Stora Enso's own forests in Sweden has five focus areas with measurable targets for 2030: measures to improve specific habitats, restoration of waterways and wetlands, enhancement of deadwood, promoting broadleaved trees, and actions designed for red-listed species. Major achievements in the Group's land holdings included rolling out restoration plans for three wetlands, controlled burnings to promote habitats vital for fire-dependent species, and the further development of the Group's umbrella species concept.

Targets and performance

- Achieve a net positive impact on biodiversity in Stora Enso's own forests and plantations through active biodiversity management
- Maintain a minimum coverage level of 96% for forest certification

Key Performance Indicator (KPI)	2023	2022	2021
% of the owned and leased lands in wood production and harvesting covered by forest certification schemes	99%	99%	99%

Achieved – the certification coverage has remained high. Certain purchased areas in Stora Enso's joint operations in Brazil and Uruguay were in the certification process, but not yet certified by the end of 2023. The reporting on biodiversity is complemented with specific biodiversity indicators.

Biodiversity impact indicators to protect biodiversity

Biodiversity impact indicators measure how well biodiversity is preserved in harvesting, according to internal standards and requirements. Stora Enso's current target is to reach 90% performance for each indicator, meaning that at least 90% of surveyed sites meet the best practices for biodiversity as defined in the Group's biodiversity requirements. The target is 100% compliance by 2030.

Biodiversity indicators[1]	2023	2022	2021
High stumps	84%	71%	70%
Ground deadwood	81%	84%	92%
Soil and water	96%	95%	86%
Habitats	98%	85%	89%
Tree retention	87%	87%	89%
Buffer zones	91%	93%	n/a
Total	**90%**	**86%**	**87%**

Performance is assessed through a sample of harvesting sites in Finland, Sweden, and the Baltics, reported as weighted average. For details on each indicator and region, see Stora Enso's biodiversity impact indicator webpage.
[1] Historical figures are restated due to a change in accounting method after the previous annual report.

Key actions to drive performance

- Biodiversity Leadership Programme to drive alignment with external priorities, innovation, and adaptive actions to improve biodiversity at species, habitat, and landscape levels
- Developing and implementing ways to model, monitor, and measure the journey towards a verifiable net positive impact
- Biodiversity action programmes in own forests in Sweden and in wood supply in Finland, Sweden, and the Baltics
- Measuring performance: impact indicators for biodiversity in harvesting and state indicators for biodiversity conditions in own forests and plantations
- Using own forests as a platform to explore and research new forestry practices for biodiversity, forest growth and carbon sink, resource efficiency, and climate adaptation

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Due to the importance of mixed forests, increasing the population of broadleaved trees on its own forest land is also one of the targets of Stora Enso's Green and Sustainability-linked Financing Framework, launched in 2023, and one of the first of its kind to include a dedicated biodiversity target. The key performance indicator focuses on birch, which is the most important native broadleaved species in Nordic forestry. By 2030, Stora Enso aims to plant at least 3.4 million birch trees in its forests to enhance biodiversity and build long-term resilience and adaptation to climate change.

In Finland, the biodiversity action programme supports private forest owners' efforts to drive biodiversity in four focus areas: deadwood and tree retention, conservation and restoration, water protection, and enhancing habitats. Key actions in 2023 included wetland restoration with associate company Tornator, forest stream conservation with Tornator and WWF Finland, rolling out a biodiversity premium pilot for forest owners, and promoting naturally regenerating broadleaved trees by planting less spruce. Similar programmes are being developed for forest owners in the Baltics and Sweden.

Protecting biodiversity on plantations

Stora Enso's 50% joint operation Veracel in Brazil protects and restores biodiversity in the Atlantic rainforest. When Veracel began operations in 1991, only a fraction of the original Atlantic rainforest was left in the region following extensive logging and clearing for cattle ranching. Since the plantations were established, Veracel has worked systematically to protect and restore local biodiversity. Half of Veracel's land areas (115,000 hectares) is now dedicated to rainforest preservation and restoration, and Veracel aims to restore around 400 hectares of rainforest habitat every year through planting of native species. Between 1994 and 2023, a total of 8,200 hectares have been restored.

Ways of working

To cover all aspects of sustainability in Stora Enso's wood and fiber sourcing and land management, the Group applies the same comprehensive policy and guidelines for the wood procurement process in all its operating regions. The Wood and Fiber Sourcing, and Land Management Policy covers the entire cycle of forest and tree plantation management. The policy requires sustainable forest management through responsible sourcing and land use in order to safeguard the health and ecological function of ecosystems and to conserve biodiversity, soil, and water.

Sustainable forest management for healthy forests

Sustainable forest management encompasses environmental, social, and economic factors and constitutes an integral part of Stora Enso's work, both in boreal forests and on plantations.
The most common forest management method in the Nordics is retention forestry, in which measures to promote biodiversity are integrated into harvest operations. In this method, the forest lifecycle is around 60–100 years, after which most of the trees are harvested with special consideration to biodiversity. After final felling, forest is regenerated by planting new trees.
In 2023, Stora Enso planted and delivered over 41.5 million tree seedlings in the Nordics and the Baltics. In addition to retention forestry, alternative practices are explored in company-owned forests to learn more about their potential impacts on biodiversity and growth. Stora Enso has long-term strategic tree breeding programmes to provide new generations of trees for improved growth and resilience to climate change. In Sweden, three company-owned nurseries supply future-fit, genetically diverse seedlings for regeneration.

Forest certification and deforestation-free practices

Stora Enso uses forest certification and third-party traceability systems to know the origin of all the wood it uses and to ensure that it comes from sustainable sources. These include the Forest Stewardship Council's (FSC[1]) Chain of Custody/Controlled Wood scheme, the Chain of Custody/Due Diligence System of the Programme for the Endorsement of Forest Certification (PEFC), and the ISO 14001 environmental management system.

Stora Enso's Supplier Code of Conduct complements these tools by imposing strict contractual requirements on suppliers. In 2023, Stora Enso started work to improve digital wood traceability in accordance with the new EU Deforestation-free Regulation. With forest regeneration measures, strict enforcement, and various tools in place to ensure sustainable forest management and wood sourcing, Stora Enso does not engage in the deforestation or depletion of the world's forests.

Similar to the Group's managed semi-natural boreal forests, plantations are also certified to ensure the consideration of all sustainability aspects. Stora Enso never establishes plantations in natural forests, protected areas, or water-sensitive locations, and only uses land with low biodiversity values, such as former pastureland. Plantations typically consist of a mosaic of areas for intensive wood production and biodiversity conservation. The Group recognises that its plantations are an integral part of local land use, and therefore evaluates and defines sustainable land use practices specifically for each location.

[1] Stora Enso Communications' FSC® trademark license number is FSC-N001919.

Stakeholder concerns and collaboration

Stora Enso works actively with its stakeholders to ensure different communities continue to have access to forests as a source of livelihood, prosperity, food, and recreation. There are growing expectations for increased forest protection and changes to existing forestry practices.
Stora Enso is an active member of numerous local and global forestry associations, networks, and initiatives. The Group has been a member of the Forest Solutions Group (FSG) of the World Business Council for Sustainable Development (WBCSD) since the late 1990s and continues to support and participate in The Forests Dialogue (TFD). In 2023, Stora Enso joined the new International Sustainable Forestry Coalition (ISFC) to support dialogue around forestry and renewable materials. Stora Enso's approach to the recommendations of the Taskforce on Nature-related Financial Disclosures (TNFD) is described in the Board of Directors Report.

Research and NGO collaborations enable Stora Enso to actively preserve nature and follow the latest findings. In 2023, the Group continued its various nature conservation projects with WWF Finland and its long-term cooperation with the Swedish University of Agricultural Sciences (SLU) on biodiversity, forest growth and yield, and remote sensing.

Circularity

The pressing issues of climate change, biodiversity loss, and resource scarcity underscore the urgency of transitioning from a linear to a circular economy. Globally, only 7.2%* of all material inputs are materials that are cycled back into the global economy after their end-of-life. This highlights the need for active collaboration to advance circularity and to strengthen collection and recycling infrastructure. With renewable and recyclable materials and solutions, Stora Enso is positioned at the core of circular bioeconomy. Long-lived, wood-based products serve as carbon capturers, and can be reused, recycled or used for energy at the end of their lifecycle.

* Circle Economy: The circularity GAP report 2023

Progress

Stora Enso's approach to circularity is driven by a commitment to reduce, reuse, and recycle materials and resources in both production and consumption.

Throughout the year, Stora Enso continued to develop and improve the recyclability of its products, thereby enhancing the potential for reducing the use of virgin resources. These efforts have yielded a range of new packaging solutions, such as the circular packaging material for frozen and chilled food and renewable, leak-tight flower packaging. With optimised packaging and the right functionality to safeguard the product, the amount of material used, and waste created, can be minimised, while also expanding the product's lifespan. One of the focus areas is to improve the circularity of barrier coatings in packaging. An example of this is Rematch, a joint collaboration with industry partners launched in 2023 with the objective to develop the separation of polymer from fiber in barrier-coated materials.

Advancing the reuse of wooden building materials

Stora Enso aims to extend the value of used wood products and building materials through modular building solutions that support multiple uses throughout their lifecycle. The Group's 'design for reuse' concept encompasses repurposing existing wooden building elements for a new function. An example of this is the new mixed-use building concept, which enables multiple upcyclings of the building structure for various purposes. This approach, requiring co-operation within the value chain, contributes to a reduction in carbon emissions and waste, compared to traditional demolition and redevelopment. Furthermore, wood products play a vital role in storing carbon throughout their entire lifespan.

To further promote the upcycling, recovery, and recycling of wood construction waste in Europe, Stora Enso joined an EU-funded research programme, Woodcircles.

Value from recycled fibers

Both renewable virgin fibers and recycled fibers are needed to sustain a circular economy. Stora Enso is one of the largest Paper for Recycling (PfR) consumers in Europe. Through cooperation with local authorities and waste management companies, and by managing its own collection facilities, Stora Enso secures a sufficient supply of PfR. Recycled newspapers and magazines are used to produce certain paper grades at Stora Enso's Langerbrugge site in Belgium, and recovered board is used to make specific containerboard grades at the Ostrołeka site in Poland and at the Varkaus site in Finland. In Poland, Stora Enso owns and manages a network of 15 depots, where PfR is collected and baled for transportation to the Ostrołeka site, and to external PfR customers.

Targets and performance

Achieve 100% technically recyclable products by 2030

Key Performance Indicator (KPI)	2023	2022	2021
% of technically recyclable products	94%	94%	94%

On track – stable performance with a focus on recyclability in product development.

Key actions to drive performance

- Increased focus on circularity in the innovation and design processes to ensure recyclability of products
- Full adoption of the Stora Enso Circular Design Guidelines across the Group by 2025
- Collaboration with customers and partners on improving material efficiency to reduce the environmental impact of products and processes
- Driving change on system level and promoting the actual recycling of products in joint efforts with the value chain

Key principles from Stora Enso's Circular Design Guidelines

Design for renewable materials
Making the sustainable choice from the start

Design out waste
Using less resources for producing a product

Design for recyclability
Choosing materials for their ability to be recycled

Design for circularity of the full value chain
Driving circularity together with our partners

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Driving recyclability within the value chain

Facilitating the recyclability of a product at its end-of-life necessitates that its material components are designed accordingly from the beginning. Designing for recyclability involves the wider value chain, emphasising partnerships and collaboration as critical means to actively contribute to the development of future collection, sorting, and recycling infrastructure, as well as to promote the advancement of recycling technology and awareness. The infrastructure to collect, sort, and recycle waste still varies both nationally and locally.

For fiber-based packaging, Stora Enso's aim is to achieve an 85% actual recycling target in Europe by 2030 through active industry collaboration. One of its key areas of engagement is the 4evergreen alliance, a European circular economy platform with a particular emphasis on enhancing circularity in household, out-of-home, and on-the-go packaging. In 2023, the alliance released an updated version of its Circularity by Design Guideline, with new guidance on how to design beverage packaging that is recyclable from the very beginning. It also released the beta version of its Fibre-Based Packaging Recyclability Evaluation protocol, expected to create an improved and standardised framework for evaluating the recyclability of packaging products in Europe. As a third deliverable, an updated version of the 'Guidance for Collection & Sorting' was published with guidelines for the improved collection and sorting of fibre-based packaging.

Stora Enso also continued its engagement in The Cup Collective initiative, a collaboration with Huhtamaki that aims for recycling and capturing the value of used paper cups on an industrial scale.

Ways of working

Through an in-depth customer understanding and close relationships with its customers, Stora Enso designs products to be functional and valuable throughout their lifecycle. To achieve circularity and the technical recycling of its products, Stora Enso's Circular Design Guidelines contain principles that serve as guidance for all divisions, whether planning to create new processes and solutions or to update existing ones. These guidelines will be fully adopted in the innovation and product management processes by 2025. Recyclability tests and assessments are carried out where applicable. In the Packaging Materials division, a 'Product Life Cycle Operating Model' has been established to support a holistic product circularity approach for innovations.

In 2023, Stora Enso introduced an internal 'Regenerative Scorecard' to screen new and existing products for inclusion in a future regenerative products portfolio. The circularity indicators included in the scorecard are related to material utilisation, recyclability, and the use and re-use of recycled and renewable materials. The implementation of the scorecard will continue in 2024.

Stora Enso actively participates in external initiatives and associations dedicated to advancing recycling practices in society. In addition to the 4evergreen alliance, Stora Enso participates in The Digital Watermarks Initiative HolyGrail 2.0, which focuses on the development of innovative solutions aimed at improving the efficiency of sorting used packaging materials. To drive collection and recycling within the beverage carton sector, the Group participates in regional and global platforms. These platforms include the Alliance for Beverage Cartons and the Environment (ACE), The European Federation of Corrugated Board Manufacturers (FEFCO), and the EXTR:ACT platform. Stora Enso also cooperates with local authorities and waste management companies to increase the number of available facilities and to further promote recycling in society.

One of the pivotal legislative initiatives related to Stora Enso's product offering and circularity is the EU Packaging and Packaging Waste Regulation (PPWR), a fundamental pillar of the Circular Economy Action Plan of the European Green Deal. The primary objective of this proposal is to ensure that all packaging in the EU is reusable or recyclable in an economically viable way by 2030. Furthermore, the proposed Construction Products Regulation (CPR) lays down harmonised EU rules for making construction products available on the market. The new regulation will align construction products with circular economy principles, so that they last longer, are easier to repair, and can be recycled at the end of their lifespan.

One of Europe's main recycling hubs for beverage cartons

In 2023, a new fiber recycling line for post-consumer beverage cartons began operations in Ostrołęka, Poland. The line is set to triple the country's annual recycling capacity of post-consumer beverage cartons and has the potential to recycle the entire volume of beverage cartons sold in Poland, with additional volumes from Central and Eastern Europe. The non-fiber fraction of beverage cartons, polyAl, is recovered and will be recycled in a dedicated facility by Tetrapak.

Woodcircles targets large-scale circular use of wood in construction

The construction sector is responsible for over 35% of the EU's total waste generation. To realise its full circular potential, it is crucial to establish value chains that address wood construction waste. Woodcircles is a European innovation project dedicated to substantially enhancing the circular utilisation of wood in construction. The primary goal is to reduce waste generation and resource consumption by promoting the increased use and reuse of wood. As a partner in this project, Stora Enso is responsible for the development of a 100% recycled construction product. The consortium is spearheaded by 20 partners.

Recyclable, biobased-foam for consumer packaging

Stora Enso has developed a bio-based, recyclable packaging foam made of cellulose that is derived from wood. The raw materials are sourced from sustainably managed forests and produced without solvents, blowing agents, or hazardous chemicals. The bio-based foam is lightweight and shock absorbent, making it an ideal choice for protective packaging applications. The product is currently in the pilot phase, with the aim to to gradually scale up operations.

Product stewardship

Stora Enso's comprehensive product stewardship approach starts with material sourcing and extends across the entire product lifespan, including end-of-life management. This involves the assessment of health, safety, and environmental aspects at each stage. Life cycle assessments offer factual, verifiable insights for comparing and reducing environmental impacts.

Product safety

Stora Enso requires all its suppliers to comply with the Group's product safety requirements. Products covered by specific safety regulations include food contact materials, materials for toys, packaging for pharmaceuticals, and materials for personal care and hygiene products. Units producing these sensitive materials follow Good Manufacturing Practices – a set of widely recognised guidelines incorporated into EU regulations. Stora Enso follows legislation designed to protect human health and the environment, including regulation on chemical substances (REACH), the Biocidal Products Regulation, the Classification, Labelling, and Packaging Regulation, and relevant food contact legislation concerning food safety.

Per- and polyfluoroalkyl substances (PFAS) are a large group of synthetic chemicals widely used by various industries. Stora Enso's production sites do not use or intentionally add any PFAS in the manufacturing of paper and paperboard products. Instead, the Group uses alternative barrier solutions in its packaging products to provide the necessary protection.

Certified sustainability

The ISO 22000, FSSC 22000, BRCGS, and FDA product safety certificates issued to many of Stora Enso's units further ensure that a systematic approach to food safety issues is applied. ISO 9001, ISO 14001, ISO 50001, and ISO 45001 certified systems help to identify and meet customer requirements as well as to systematically improve product quality and environmental, energy, and occupational safety management. All the Group's construction products are CE marked to guarantee that they comply with the relevant EU legislation. Many of Stora Enso's products are FSC or PEFC certified or receive other verification for responsible chain-of-custody and due diligence. The proportion of third-party certified wood in Stora Enso's total wood supply was 81% in 2023.

Life cycle assessments

Stora Enso collects and regularly updates product-specific life cycle inventory data, which is typically used in Life Cycle Assessments (LCAs) conducted by Stora Enso's experts and customers, often in collaboration with academia, expert organisations, or industry associations. The LCAs help to evaluate the environmental performance of products, enabling a comparison between the impacts of renewable products to those of fossil-based alternatives.

Environmental product declarations for building products

Environmental Product Declarations (EPD) offered for all Stora Enso's building products provide third-party verified information about the product's environmental performance throughout its life cycle and are in line with relevant ISO and EN standards. EPDs help customers to assess the life cycle impacts of their construction projects and are an important resource for customers who wish to apply for building certification schemes or ecolabels for their products. Stora Enso is a member of the ECO Platform association, working to promote the sustainable development of the construction sector by providing credible and scientifically correct product data in EPDs.
In 2023, Stora Enso published updated EPDs for cross-laminated timber (CLT) and laminated veneer lumber (LVL) indicating further improved environmental performance compared to comparison years. For more details on EPDs and carbon footprint calculations, see storaenso.com.

Fiber-based transportation trays for plants

Stora Enso, together with Norway's largest wholly-owned flower retailer chain, has developed a renewable, fiber-based tray for transporting plants. The horticulture trays are made from Stora Enso's formed fiber with the required qualities for stiffness, water resistance, and efficiency in logistics. The LCA studied multiple impacts, and as one example, it shows that the formed fiber trays help to cut CO_2 emissions by approximately 55-80% in comparison to single-use plastic alternatives, including recycled plastics.
The trays are produced in Sweden with sustainably sourced Nordic wood fiber, using 100% fossil-free energy. The trays were successfully tested and shown by customers in Scandinavia to consistently withstand at least three reuses. Read more here.

Developing a holistic Life Cycle Sustainability Assessment method

Stora Enso is a member of a European consortium, ORIENTING, which strives for the development of a level playing field for products based on transparent and verifiable sustainability information through a robust methodology for Life Cycle Sustainability Assessments (LCSAs). The methodology adopts an integrated approach for assessing and managing environmental, social, and economic impacts of products, covering also circularity and the criticality of raw materials. As part of the consortium, Stora Enso is piloting the new methodology with a beverage carton.

Materials, residuals, and waste

Efficient resource utilisation and the establishment of circular material flows are pivotal for society to thrive within its planetary boundaries. There is also a growing emphasis from consumers, legislators, organisations, and financial institutions on raw materials, material flows, and waste reduction. Stora Enso is committed to waste reduction at all stages of production. The commitment encompasses the optimisation of both environmental and financial value by efficiently utilising side streams and residues generated during production processes.

Progress

Stora Enso works to reuse and recycle materials, minimise waste, and 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 is legally, technically, and commercially possible. In 2023, 96% of the total process material use was renewable.

During 2023, Stora Enso continued to drive the development of lignin-based products, focusing on binders for construction and anode materials for batteries. Lignin is an example of where a short-lived energy product's lifecycle can be extended to medium or long term. The pilot facility for hard, carbon-based battery material continues to operate at the Sunila site in Finland, and a feasibility study for lignin extraction was initiated in 2023 at the Skutskär pulp production site in Sweden.

Stora Enso continuously explores innovative ways to leverage refined wastewater residues in the creation of new products, thereby enhancing circularity. As an example, the Skoghall site in Sweden and the Heinola site in Finland have partnered with the Sweden's University of Karlstad and other stakeholders in the materials value chain to explore the production of bio-based products. This includes using biosludge as a significant resource for bioplastics and biogas. In Finland, at the Anjala and Imatra sites, a portion of wastewater treatment plant sludge is repurposed as soil enhancer instead of being used for energy generation.

Stora Enso focuses on extracting value from waste to enhance soil quality and water protection. The Skoghall site and Stora Enso Forest continued their participation in an external research programme to explore the use of a mix of carbonated sludge and biofuel boiler ash as a soil enhancer in the Group's Swedish forests. These soil enhancers offer renewable sources of nutrients, replacing industrially manufactured, energy-intensive nitrogen and phosphorus fertilisers that deplete scarce natural resources. Simultaneously, they aid in mitigating agricultural nutrient emissions into bodies of water by enhancing the soil's capacity to retain both water and nutrients, while promoting carbon sequestration in fields through improved growth conditions.

To further drive operational circularity, the Enocell pulp production site in Finland delivers lime kiln dust as agriculture fertiliser and ash to be spread on forest land. This serves to compensate for nutrient removal from biomass extraction, ensuring long-term production capacity and preventing soil acidification.

Additionally, the Skoghall site and the Group's forest nursery in Sjögränd, Sweden, continued their collaboration to explore how the growth of pine and spruce plants can be enhanced by using pellets based on nutrients and ash. This has the potential to replace peat with sludge as a growth medium for plants.

Ways of working

Stora Enso applies precautionary management actions to mitigate and remedy potential adverse impacts on the environment and people. Its environmental management systems include on-site management procedures for handling chemicals, waste, residuals, and emissions into the air. Local environmental stewardship at the sites, including water and energy management and resource efficiency, is supported by third-party ISO 14001-certified environmental management system. This ensures continuous improvements in the most highly prioritised environmental issues, including remediation when necessary. All sawmills, board, pulp, and paper industrial sites are certified to the ISO 14001 environmental management system. The majority of the corrugated production units are also certified. Of the corrugated units which were acquired in 2023, Heidelberg, St. Ingbert, and Sausenheim located in Germany, are certified. Third-party certification work for the other units, and the formed fiber plant in Hylte, Sweden, will begin in 2024. Read more about the Group's approach in the Environmental Guidelines. For Stora Enso's environmental investments and liabilities, see Financials.

Stora Enso collaborates with selected external partners from academia, business associations, and corporations to reduce, reuse, and recycle materials and resources in production and residuals management. External partnerships include, among others, involvement in the Swedish Energiforsk's Ash program to support decision-makers in improving resource management in society, particularly through the beneficial use of ashes.

Targets and performance

Maintain a process residuals utilisation rate of minimum 98%

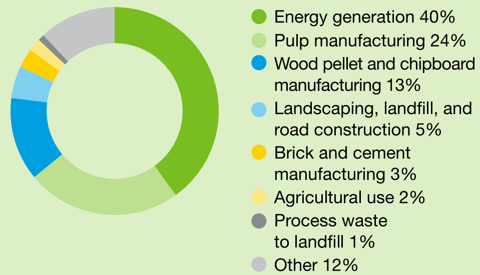
Key Performance Indicator (KPI)	2023	2022	2021
Process residuals utilisation rate (%)	99%	99%	98%

Achieved – stable performance with a high utilisation rate of process residuals.

Key actions to drive performance

- Reuse and recycling of materials to minimise waste and to ensure efficient use of resources
- Maximising the value of materials streams through circular material flows
- Converting material side-streams, such as lignin, to new circular products
- Partnering across the value chain for the beneficial use of process residuals

Utilisation of process waste and residual materials
3.7 million tonnes



For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Energy

In 2023, the significance of ensuring energy supply security and expediting the shift towards green energy remained paramount. With access to renewable biomass and fossil-free electricity, Stora Enso is well-positioned to contribute to the green transition and to a low-carbon economy. The Group applies the principle of the cascading use of wood, ensuring that all parts of harvested trees, forestry residuals, and industrial side streams are used in the most economically and environmentally valuable way, before being used as energy.

Progress

Energy efficiency is an integral part of Stora Enso's Carbon Neutrality roadmap. The Group's production units work systematically to improve energy efficiency, supported by the third-party certified ISO 50001 energy management system. By the end of 2023, 91% of the Group's energy consumption was certified to the ISO 50001 standard (97% in 2022). For information on unit-specific certificates, see Sustainability data by unit.

The central energy and water efficiency investment fund is an important tool for implementing energy savings in the Group's units. In 2023, many of the investments focused on the utilisation of secondary heat in production processes, for example by recovering heat from flue gas systems and utilising thermal power from pulp cooking to heat demineralised water.

2023 saw an expansion of the De Lier corrugated packaging production facility in the Netherlands. The unit utilises a variety of sustainable solutions, such as solar panels and residual heat generated by two new corrugators to heat the site's office buildings. Solar panels are also utilised at the Bad St. Leonhard sawmill in Austria.

The Wood Products division initiated a data automation programme that covers all sawmills. Automating energy data measurement and monitoring supports the optimisation of energy performance and related investments.

Atmospheric emissions

Atmospheric air pollution and aerosol loading relate to one of the planetary boundaries that guide Stora Enso's environmental agenda. The Group's atmospheric emissions stem primarily from the combustion of fuels for energy generation at the production sites and from transportation. Emissions include CO_2, sulphur dioxide (SO_2), nitrogen oxides (NOx), fine particles, and volatile organic compounds (VOC) that result from the processing of wood. Stora Enso works to reduce air emissions from point sources using advanced technologies such as scrubbers and boiler process control systems. There are also emissions of ozone-depleting substances (ODS) from fixed installations, such as refrigeration and heat pump systems, that contribute to the stratospheric ozone layer depletion.

The manufacturing of pulp requires heat and chemicals when treating wood chips, which generates odorous, gaseous sulphur compounds (total reduced sulphur compounds and sulphur oxides) to air. Production sites have local permit limits that regulate emissions of sulphurous gases to air. Any non-compliance is recorded and reported according to both local and Group procedures.

Ways of working

Within Stora Enso's value chain, board, pulp, and paper production processes are the most energy-intensive, underscoring the need for these units to ensure energy efficiency across the entire production process. The Group's energy supply is managed through long-term contracts, direct market access via energy exchanges, combined heat and power production at production units, and shareholding in the energy company Pohjolan Voima Oyj.

In 2023, increased emphasis was placed on harnessing the Group's own electricity generation capabilities and electricity demand flexibility. The ability to adjust energy generation and consumption in response to market dynamics offers the potential for savings on fuel consumption and associated energy production costs. On a broader scale, such flexibility is needed for allowing a greater amount of renewable energy to enter the energy system. Stora Enso's sites also generate and distribute energy to local district heating systems and industrial partners, largely based on the incineration of harvesting and production process residuals. At the end of the year, 11 sites sold heat for external energy use, mainly to local district heating systems.

New electric boiler reduces CO_2 emissions

Stora Enso invested in a new 60 MW electric boiler at Anjalankoski site to reduce the use of fossil fuels in the site's heat production. The investment also enhances flexibility in heat production processes and reduces emissions to air. The boiler is scheduled to be commissioned during first half of 2024.

Targets and performance

Annual energy saving of -1.1% until 2030

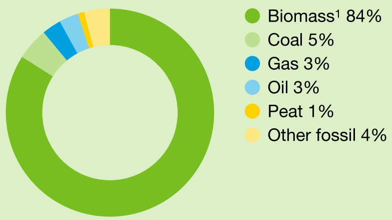
Key Performance Indicator (KPI)	2023	2022	2021
Projected energy savings, % (MWh saved/MWh total energy used, electricity, heat, and fuels)	-0.7%	-1.1%	-0.6%

Not achieved – projected energy savings below target, focus on optimisation of energy efficiency with targeted measures at production sites.

Key actions to drive performance

- Continuous optimisation of energy efficiency with targeted measures at production sites
- Investments in energy efficiency supported by a dedicated investment fund
- Focus on replacing fossil fuels with renewables and increasing non-fossil electricity
- Using long-term energy supply contracts to ensure reliable energy supply
- Certified ISO 50001 energy management systems to mitigate risk exposure and enhance performance

Fuels



[1] Biomass corresponds to renewable energy.

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Water

Water has a fundamental role in the biosphere for regulating the amount of biomass and impacting the amount of carbon in the entire Earth system. With a growing global population, the demand for water is on the rise, while, at the same time, human activity is disrupting natural water cycles. Freshwater plays a central role in Stora Enso's production processes and is a key component in forest growth. The Group strives to reduce its impact on the sites' water sources and maximise the efficient use of water, while navigating within the science-based planetary boundary for freshwater change.

Progress

Water withdrawal and discharges

Production at Stora Enso's board, pulp, and paper units requires substantial amounts of water, accounting for over 99% of the Group's total water withdrawal. These units predominantly draw process and cooling water from surface water sources, with 99% of the total water withdrawal derived from surface water in 2023. Less than 1% is sourced from municipal or groundwater supplies. After use, the process water is cleaned at treatment plants before being returned to the local ecosystem. Almost 96% of water is recycled back into the environment, while only around 4% of water is consumed in production processes. Process water undergoes purification at treatment facilities before being released, while cooling and non-process water can typically be discharged without treatment. Optimising water recycling reduces the need for water pumping and heating, resulting in energy savings and enhancing the efficiency of treating the remaining wastewater.

Stora Enso invested a total of EUR 36 million in water-related improvements across all operations in 2023. The central energy and water efficiency fund specifically supported water-related investments of EUR 1 million at the Imatra and Skoghall sites. These investments are estimated to reduce the Group's water discharges by 3 million m^3 and total costs by EUR 0.7 million annually.

Water availability and water stress

While water is relatively abundant at Stora Enso's production locations, water stress may still impact operations locally and through the Group's wider supply chains. Some sites are occasionally impacted by water stress in terms of availability or increased surface water temperature.

Stora Enso applies the WRI Aqueduct Water Risk Atlas to assess water-related risks at its production units. In 2023, the assessment scope was expanded to include De Jong Group. According to this tool, six of the Group's units operate in regions with High Baseline Water Stress: the Beihai site in China, the Langerbrugge site in Belgium, and the corrugated units Wujin and Qianan in China, and in Mosina and Łódz in Poland. During 2023, these units withdrew 17 million m^3 of water, which is 4% of the Group's total water withdrawal. The process water discharges of these units were 14 million m^3, which is 7% of the Group's total process water discharges.

Finalisation of the investigation of legionella-related infections in Belgium

In 2019, there was an outbreak of legionella-related infections in the Ghent harbour area in Belgium, which encompasses the Stora Enso Langerbrugge production site. Stora Enso has collaborated and complied with all measures required by the authorities and has used external microbiological and medical experts to conduct further sampling and evaluation. After extensive investigations, the Belgian Council Chamber decided in February 2022 to refer Langerbrugge and three individuals, who at the time of the incident were employed by Stora Enso, to the competent criminal court. Stora Enso concluded settlement agreements with all aggrieved persons and reached final settlements with the municipality of Evergem, the city of Ghent, and the Flemish Region during the last quarter of 2023.
In January 2024, the court confirmed the guilty plea agreement that was reached by the Langerbrugge site and the three individuals with the public prosecutor.

Ways of working

Water stewardship

Stora Enso's approach to water stewardship encompasses both surface and groundwater (blue water), and soil moisture from precipitation (green water). The approach is founded on the assessment of local conditions at each site and within the surrounding water basins. It involves the mapping of water usage to underscore opportunities for savings and establishing goals that align with the specific local context and the relevant Group KPIs. These activities are supported by investments in water cleaning technology and engagement with stakeholders. Performance development is managed within the respective sites' management systems. Stora Enso's industrial units are required

Targets and performance

- Reducing specific process water discharges per saleable tonne (m^3/tonne) by 17% by 2030 from the 2019 baseline (36 m^3)
- Decreasing the trend for total water withdrawal per saleable tonne (m^3/tonne) from the 2016 baseline (60 m^3)

Key Performance Indicator (KPI)	2023	2022	2021
Process water discharges per saleable tonne of board, pulp and paper (m^3/t)[1]	35	34	33
Total water withdrawal per saleable tonne of board, pulp and paper (m^3/t)[1]	61	57	54

[1] Historical figures are restated due to structural changes or additional data after the previous annual report.

Process water discharges: **Behind** – lower production volumes are currently adversely affecting the performance per saleable tonne, as a regular water flow needs to be maintained, particularly in wastewater treatment.

Total water withdrawal: **Not achieved** – performance impacted by lower production volumes (see above).

Key actions to drive performance

- All industrial sites are required to comply with Water Management Requirements, standardising water improvements across divisions
- Recycling of water at the sites, when possible, to reduce the need for water intake
- Minimising the use of process water, and cleaning using the best available technologies

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

to comply with the Group's Water Management Requirements, which have been established to standardise water improvement work across divisions and to achieve integrated water, energy, and cost savings.

Stora Enso aims to improve water performance through targeted investments, combined with continuous improvements. This helps to prepare for stricter compliance requirements following the introduction of the EU Industrial Emissions Directive and future permit requirements. The Group's approach to the recommendations of the Taskforce on Nature-related Financial Disclosures (TNFD) is described in the Report of the Board of Directors. Stora Enso is also committed to the UN Water Action Agenda to accelerate progress on addressing global water challenges.

Assessing water-related risk and monitoring compliance

Stora Enso identifies water-related risks in its operations through the assessment of water scarcity, failures of water-related equipment, flooding, run-off and rising water levels, and raw water temperature implications. The Group applies precautionary management actions to mitigate and remedy potential adverse impacts on the environment and people. The environmental work at Stora Enso's sites, including water management and resource efficiency, is supported by third-party certified environmental management systems. All sawmills, board, pulp, and paper industrial sites are certified to the ISO 14001 environmental management system. The majority of the corrugated production units are also certified. Of the corrugated units which were acquired in 2023, Heidelberg, St. Ingbert, and Sausenheim located in Germany, are certified. Third-party certification work for the other units, and the formed fiber plant in Hylte, Sweden, will begin in 2024. Stora Enso reviews potential investments including mergers, acquisitions, and divestments for risks and opportunities via its due diligence procedures, including Environmental and Social Impact Assessments (ESIAs) and sustainability assessments for innovation projects. Consult Stora Enso's Environmental Guidelines to learn more.

Compliance with legislation and environmental permit limits are monitored by the sites and reported to the relevant environmental authorities. Non-compliances and incidents are reported as they occur, and are consolidated to Group management on a quarterly basis. Significant incidents are reported immediately. For details on significant environmental incidents and violations of environmental permits, see Environmental incidents.

Green water impact

Green water – the water available to trees and plants in terms of soil moisture, precipitation, and evaporation – is critical for supporting and regulating biosphere processes related to carbon and biogeochemical cycles. Sustainably managed forests and plantations play a key role in maintaining natural water cycles. Forests and plantations need rainwater for growth, and active water management in plantations contributes to positive effects on the total water balance, as well as water storage, purity, and quality. To measure the Company's biodiversity progress and the quality of harvesting operations, Stora Enso has set six biodiversity impact indicators, including indicators for soil and water. Read more in Sustainable forestry and biodiversity.

Increased water recycling and reduced freshwater intake

One of the bleaching plants at the Skutskär production site in Sweden has been reconstructed to reduce freshwater intake. Stora Enso invested EUR 47 million to upgrade the bleach plant, which now operates mainly with secondary condensate and drying machine water. The investment is estimated to decrease the use of freshwater in the production site by 4.5 million m^3 compared to before the rebuild.

Environmental incidents

Stora Enso has Group-wide reporting and management processes in place for environmental incidents occurring at its production units.The Group's objective is to have no environmental incidents, but unexpected events can occasionally result in temporary breaches. Corrective and preventive measures might include training, investment, and installation of new equipment. Root cause analysis is carried out and shared within the organisation for continuous improvement and prevention purposes. All significant events are reported to the Board of Director's Sustainability and Ethics Committee, and the Group Compliance Investigation Guidelines are applied also for environmental non-compliances and incidents.

Unit	Description of the event	Corrective and preventive measures
De Hoop mill	Oil pollution of the Eerbeek brook behind the mill due to sewer overload caused by extreme rainfall, leading to overflow of the road and discharge of oil-contaminated water to rainwater sewer connected to the brook.	Oil captured and polluted areas decontaminated. Rainwater sewers cleaned and sealed to prevent contamination of the brook. Additional cleaning process water sewers implemented, and sewer drawings updated.
Enocell mill	Monthly permit limits in November and December exceeded for collection and treatment of weak odorous gases due to occasional problems with the burning of odorous gases in the recovery boiler, thus leaving gases unburnt through the chimney.	Equipment changed for condensate removal in recovery boiler. Additional measures taken during the maintenance break. Plan accepted by the authorities.
Forest Baltic	A major newspaper in Estonia published a story about harvesting in a bird-rich forest based on a complaint sent to the authorities, which suspended Stora Enso's harvesting at the site.	Harvesting practices reviewed taking into account Estonian FSC criteria and current legislation. Short-term guidelines issued to own personnel and contractors on working practices during bird nesting season. Updated procedures will be applied after the launch of the new FSC criteria and eventual legislative changes.
Forest Finland	A Forest Act's water small stream was crossed during forest transport, causing terrain soil damage after heavy rain. Damage was caused by deficiencies in the bridge structure and wrong harvesting timing.	Harvesting instructions updated with additional guidance for approval of bridges by management, considering also weather conditions and right logging timing when crossing riverbeds. Strip road's depression repaired in soil preparation.
Forest Finland	Harvesting in flying squirrel's habitat due to deficiencies in terrain marking on the logging map applied during harvesting as well as insufficient communication with the contractor's harvester driver.	Operating instructions regarding flying squirrels reviewed and field trainings held with contractors.
Forest Finland	Water Act's trickle in logging area was crossed by a forest machine resulting in destroyed trickle at the crossing point. The damage was caused by deficiencies in the bridge structure.	Improved procedures for bridge construction and timing of harvesting activities. Trickle to be restored in spring 2024.
Forest Finland	Lack of sufficient buffer zones left around a Forest Act's trickle and seepage surface. This was caused by deficiencies in contractors' logging planning during winter and lack of awareness of the existing habitat.	Improved planning for snow period, implementation of humidity index map in planning.
Forest Finland	Planning of harvesting operation, involving crossing of a Forest Act water stream, not done according to instructions. The authorities were not notified about the crossing and the exception permit for felling of trees from the crossing point had not been granted.	Training in existing instructions to personnel related to the application of exception permits and reporting crossings to authorities regarding habitats protected by law.
Forest Finland	One or two small trees were felled at a small, potential Forest Act marsh. The habitat was demarcated from the logging site with protect-save tapes, but trees were cut too close to the habitat during preliminary clearing due to human error (event from 2022 upgraded to major in 2023).	Additional training provided to forestry experts concerning the use of information about protected habitats in operational data for relevant forest sites.
Forest Sweden	Harvesting 5.2 ha outside the felling boundary, partly in natural reserve area, where approximately 70 trees were felled. Case was filed to the police by the County Administrative Board.	Training performed for one machine driver. Analysis did not reveal deficiencies in instructions.
Forest Sweden	Harvesting 0.13 ha with general biotope protection without required permission of exemption. Case filed to the police by the County Administrative Board. Company fine of SEK 30,000 (EUR 2,600) paid by Stora Enso.	Instructions updated with information on this specific general biotope protection. Information shared internally.
Forest Sweden	Five trees were cut within Natura 2000 area without previous consultation with the County Administrative Board, which filed the case to the police.	Forestry operations in conjunction with Natura 2000 areas stopped, and instructions for consultation updated to prevent reoccurrence. Information shared internally.
Forest Sweden	Harvesting 1 ha outside the existing final felling contract done without notification to the Forestry Board. The Expansion was initiated due to bark beetle damages in the area but lacked permission. Case notified by media, and police report filed by the Forestry board.	The routine for harvesting planning and directives updated. Wood purchasing organisation informed about the incident. Customers informed about their receival of controversial wood.
Imatra mill	Permit limit for strong malodorous gases handling disturbance time exceeded in October, following the update of the automation system during maintenance shut down.	Error corrected in valve programming, and the testing process for critical equipment was improved after changes. Enhanced emissions monitoring to the automation system and improvements in emergency on-duty services during start-ups.
Ždírec mill	Permit limit for night-time noise exceeded during an authority control measurement in a family house located close to the sawmill and log infeed line.	Application for night operations with increased noise limit prepared for 2024. Implementation of a noise study, preventive actions in collaboration with a noise measurement company, and limitations of forklift traffic during night-time.

Targets and performance

Zero non-compliance events

Key Performance Indicator (KPI)	2023	2022	2021
Number of significant non-compliance events	14	16	8

[1] Historical figure for 2022 is restated. Details disclosed in the table to the left.

Not achieved – significant non-compliance events occurred despite prevention measures. Increased management focus was placed on the topic.

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Employees

Stora Enso's business success depends on its ability to retain, develop, and attract new talent. Skilled and engaged employees are essential in responding to a changing business environment, driving the Group's strategy and sustainability ambition forward. Stora Enso's employees strongly identify with its purpose to contribute to solving global sustainability challenges, an asset the Group builds on when competing for future talent. Stora Enso strives to foster an inclusive workplace with opportunities for upskilling and competence development.

Progress

Diversity and inclusion

Stora Enso recognises the importance of a diverse and inclusive working environment to improve performance, collaboration, and innovation. The Group's approach to diversity and inclusion is described in more detail in the section Our people.

To increase transparency on equal opportunities and fair compensation, Stora Enso conducted a gender pay equity study in 2022, covering all office workers. The study was carried out by an independent third party and focused on identifying any unexplained gender pay gaps. Overall, the results were at an average level compared to other industrial companies and showed that, for most part, the pay was concluded to be equal. However, there was a small portion of employees for whom legitimate factors, such as experience, tenure, or performance, did not explain the pay difference. The unexplained pay gap findings of the study have been closed in connection with the 2023 annual salary review process. Going forward, pay equity development will be monitored on an annual basis. For comparison of female employees' compensation to male employees' compensation, see Consolidated sustainability figures.

Living wages

In 2023, Stora Enso conducted a living wage analysis using the comparison data and methodology provided by the Business for Social Responsibility (BSR), a global non-profit organisation. The previous analysis was conducted in 2021. In 2023, the study was carried out in 13 countries, representing as many as 91% of the Group's employees. Within these countries, the largest operational sites and offices were included, reaching a total of 34 locations globally. In all of the locations, Stora Enso's minimum compensation was above the living wage defined by BSR when accounted for lowest wage with bonuses.

Based on the internal minimum wage assessment conducted in most high-risk countries in 2023, Stora Enso complies with minimum wage regulations and pays at par or above the legal requirements. For more information, see Consolidated sustainability figures.

Leadership and competence development

Leadership is one of the key enablers needed to implement the Group's strategy, and Stora Enso continuously invests in the development of its leaders and managers through a number of leadership training programmes. The leadership programme matrix comprises five distinct levels of leadership training, each designed to cater to the various stages and needs of leadership development within the organisation. The programmes support leaders without a formal role, those new to leading projects and teams, and those with previous managerial experience but new to the company, as well as senior leaders and executives. Approximately 450 employees participated in leadership training during the year. There is also a broad range of leadership training courses available online for all employees.

In 2022, a two-day event was hosted for 200 Stora Enso leaders covering topics such as the planetary boundaries, the fast-changing world of geopolitics, and how a supportive company culture and leadership can drive the development of solutions for a sustainable business. In 2023, key learnings were cascaded within the organisation, encouraging discussions within teams. Divisions also implemented e-learning programmes and conducted online learning sessions on key sustainability topics to enhance collective sustainability capabilities.

Stora Enso also continued to run an internal mentoring programme available to all employees to enhance learning culture and to promote professional and personal development. Over 200 mentor-mentee pairs took part in the programme in 2023.

Talent development and upskilling plans are part of performance and development reviews to support individual career planning. The aim is that all employees are involved in at least one formal performance and development review with their manager each year.

Targets and performance

Increase the share of female managers to 25% by the end of 2024

Key Performance Indicator (KPI)	2023	2022	2021
% of female managers among all managers	24%	23%	23%

On track – at the end of 2023, the share of female managers was 24%, progressing in line with the target set for 2024. Efforts continue to further enhance diversity and inclusion.

Key actions to drive performance

- Group-wide recruitment principles to enhance inclusive recruitment
- Promoting diversity, equity, and inclusion through various initiatives led by divisions
- Leadership development programmes to build and maintain a high-performance culture
- Focus on capability development in sustainability, which is integral to Stora Enso´s strategy
- Linking the target to increase the share of female managers to remuneration as a component of the long-term incentive programme

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Ways of working

The global People Promise and Expectations framework supports driving the Group's strategy with defined priorities. In line with the decentralised operating model, responsibility for planning and implementing actions related to these priorities was transferred to divisions in late 2023. The employee engagement survey was conducted twice in 2023 to better understand employee views and measure progress on the People Promise and Expectations. Read more in the section Our people.

Fair labour

Stora Enso continued to address areas in the Global Framework Agreement signed with the labour unions IndustriAll, UniGlobal, and BWI to strive for a working environment where all its employees are treated with respect and in a fair manner. Stora Enso's bi-annual meeting with Global Unions, in accordance with the Global Framework Agreement is scheduled to take place in early 2024. Stora Enso also works closely with the European Works Council to establish and develop an open and confidential information and consultation procedure between the Company and its employees in the EU/EEA.

At the end of 2023, approximately 80% of Stora Enso's employees were covered by collective bargaining agreements (85% in 2022). The number is an estimate due to differences in national legislation. In China, the right to freedom of association and collective bargaining is stipulated by law. Stora Enso's packaging units in China, which account for the majority of the Group's employees in the country, have established unions which form part of the state-authorised China Labour Union. In addition, Stora Enso operates a board production site and in forestry operations in China. These units have formed worker councils, which serve as channels for direct feedback and dialogue between employees and management.

Stora Enso's biennial self-assessment regarding compliance with the Group's Minimum HR Requirements was conducted in 2023. The assessment covers areas such as working hours, basic employee rights, working conditions, and non-discrimination. Based on assessment, the vast majority of Stora Enso's production units are in compliance with these requirements. Units with identified improvement needs have established action plans to become fully compliant with the requirements.

In December 2021, a court ruling in France sentenced Stora Enso to pay damages to former employees following the closing down of the Corbehem site in France in 2014. At the end of 2023, the case was still being processed in the Supreme Court.

Support for responsible exits and restructuring situations

In 2023, Stora Enso progressed with its restructuring actions aimed at strengthening the Group's long-term competitiveness and creating a decentralised and more customer-centric operating model. The headcount impact from this restructuring programme was 1,150 with some of the effects actualising in 2024.

The closure of the Sunila site and the closure of one paper line at the Anjala site in Finland resulted in 240 and 50 reductions respectively. Meanwhile, the closure of one of the containerboard lines at the Ostrołęka site in Poland resulted in 50 reductions. The closure of the De Hoop container board site in the Netherlands resulted in 185 reductions, while the closure of the Näpi sawmill in Estonia resulted in 90 reductions. Change negotiations in the Packaging Materials division's management and support functions resulted in approximately 250 reductions. Finally, in the Group functions, negotiations impacted approximately 280 positions.

In restructuring situations, Stora Enso is committed to working closely together with the Group's other locations, the local community, and other relevant stakeholders to support the re-employment and training of the affected employees. During significant operational changes notice periods are typically several months and are based on local legislation and/or collective bargaining agreements. The majority of Stora Enso employees are covered by collective bargaining agreements, and in organisational restructuring situations consultation processes with trade unions are carried out according to local legislation and relevant collective bargaining agreements.

It is important that the impacted employees understand the reasons for the change and are supported in finding work elsewhere. Every employee should be treated with respect and given access to support throughout the restructuring process. Initiatives are developed on a country or local level to suit local circumstances and requirements. Furthermore, Stora Enso is committed to working closely with the local communities impacted during significant restructurings, read more in Community engagement. For more information about significant changes during the year, see Consolidation of sustainability statements.

Safety

A safe and healthy working environment is at the core of all Stora Enso business activities and processes. It also plays an important role in supporting productivity and efficiency at work. Stora Enso's aim is to provide an accident-free workplace for all. The Group's safety commitment applies equally, not only to its own employees, but also to contractors and other visitors at its sites. Everyone is expected and encouraged to take an active role in supporting the continuous improvement of safety.

Progress

While the Group's TRI rate has improved from last year, safety efforts continue as more work remains to be done. In 2023, a new leading indicator, the ´Safety Engagement Rate`, was introduced to divisions and to sourcing and logistics operations to monitor proactive safety reporting. The indicator includes, for example, near misses, safety walks, safety observations, and improvement ideas. The leading indicator complements the lagging indicator on Total Recordable Incidents (TRI) and emphasises the importance of preventive risk action, and everyone's responsibility in ensuring a safe workplace. Divisions have defined roadmaps to guide their safety work, incorporating the new indicator on safety engagement.

Stora Enso's fifth consecutive annual Safety Week was organised in 2023 to highlight and share good safety practices among employees and contractors. The global event supports the development of a safer working environment, strengthens safety culture, and through participation from top management, underpins the importance of safety leadership.

Fire incident at Ala sawmill in Sweden

In August 2023, a fire broke out at the Ala sawmill in Sweden, while restarting kiln 2 after a summer stoppage. The building was destroyed by the rapidly spreading fire, leaving the mill with 50% reduction in kiln capacity. The emergency routine was activated immediately, and no one was injured. Investment into new dryers has been started.

Ways of working

The Group's safety work comprises proactive safety initiatives and the engagement of employees, preventive risk management, the investigation of incidents, and the sharing of findings across divisions. Divisions and units have safety training programmes to ensure all employees have the necessary health and safety-related competencies and skills. Safety trainings are mandatory for Stora Enso's employees where applicable and are provided during paid working hours. The mandatory Supplier Safety Trail training course promotes supplier and contractor safety.

The provision of a safe working environment and the upholding of operational integrity are under constant review at Stora Enso, and are based on international standards, but with an ambition that reaches far beyond mere compliance. Currently 46 out of 61 operational units are externally certified according to the ISO 45001:2018 safety management standard. Stora Enso encourages supply chain partners to pursue similar certification.

Stora Enso's Occupational Health and Safety accountability was transferred to divisions in 2022, with clearly defined governance practices to promote collaboration and knowledge sharing across the Group. The divisions' respective safety organisations maintain a strong focus on all safety-related issues, including contractor safety and audits. Sourcing and logistics operations continue to stress safety through the Supplier Code of Conduct. Safety remains a key focus at every level of the organisation, from the Board of Directors to local units. Other relevant stakeholders, such as workers', contractors' or suppliers' representatives are consulted when necessary.

Stora Enso utilises the 'Fair and Just' approach to safety incidents, focused on understanding the root cause and preventing re-occurrence, ensuring fair investigation procedures, and fostering accountability. The Group's approach to safety goes beyond physical safety, and employees and contractors are encouraged to proactively identify and report unsafe situations or actions. Read more in Business ethics.

Virtual Safety Walks empower safety leadership

Stora Enso Packaging Materials division launched virtual safety walks during the COVID-19 pandemic, and this practice has continued ever since. The safety walks welcome divisional top management, operation leaders, safety managers, and production workers to discuss, give feedback, and share best practices across units. The number of participants in virtual walks has doubled since launching, with participation across continents.

All units belonging to Packaging Materials have been visited at least once and virtual revisits are organised, especially on occasions where the safety walk has included a significant amount of constructive feedback.

Targets and performance

Total Recordable Incident (TRI) rate of 4.9 or less by the end of 2023

Key Performance Indicator (KPI)	2023	2022	2021
TRI rate	4.7	5.9	6.2

Achieved – target was exceeded by prioritising preventive safety measures and reinforcing divisions' accountability on improving performance.
In 2023, no fatal injuries occurred at Stora Enso's sites.

Key actions to drive performance

- To further reinforce accountability in improving safety performance and carrying out targeted mitigating and corrective actions, accountability is transferred to divisions
- New leading safety indicator, the 'Safety Engagement Rate', introduced in 2023, focused on preventive safety management
- Both lagging (TRI) and leading safety indicators linked to remuneration as a component of the short-term incentive programme
- Continuous development and extension of the coverage of the Stora Enso safety notification and observation system (SMART), available for both employees and contractors

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Business ethics

Compliance with laws and regulations is what gives a company its licence to operate and helps it to navigate a changing business environment. Stora Enso operates globally, including in high-risk markets that offer business opportunities but may entail exposure to serious compliance risks. Measures are taken to help combat corruption, follow international trade sanctions, ensure sound business practices, and preserve competitive markets. The Group's work is guided by its values 'Lead' and 'Do what's right', and by empowering all employees to speak up against misconduct or unethical behaviour.

Progress

Enhancements in governance and compliance

During the past years, there has been a significant increase in reported misconduct cases, which is likely due to a greater external and internal focus on ethical conduct, compliance, and voicing concerns. Following this development, Stora Enso continued to strengthen its governance and operating model for ethics and compliance topics. To ensure that all compliance cases are thoroughly evaluated and assessed in a timely and efficient manner, a new Disciplinary Committee was established with the sole responsibility of the closing of compliance investigations. Furthermore, to support all parties involved in evaluating a misconduct investigation and determining the appropriate disciplinary action, Stora Enso initiated the creation of a Disciplinary Handbook to provide an ethical foundation for reasonable disciplinary action taken within Stora Enso. The Ethics and Compliance team is now responsible for investigating major environmental non-compliance incidents, in addition to their previously assigned responsibility for safety incidents.

In line with the upcoming EU requirements on due diligence, the Group Ethics and Compliance team has placed greater emphasis and resources on the Group's value chain, both with customers and suppliers. Together with the Group Sustainability team, it steers the governance model and Group requirements, whereas the divisions are responsible for ensuring the implementation of these requirements and for reporting performance to the Group. From the latter part of 2023, divisions also report and review several Ethics and Compliance focused KPIs on a quarterly basis with the Group Leadership Team. These reviews are an organic part of the decentralised operating model to enable a balance between empowering divisions and maintaining strong central leadership over critical matters such as compliance, ethics, and values.

A first version of the Customer Code of Conduct was also produced during the year and will be piloted in selected business areas. The Customer Code of Conduct summarises Stora Enso's expectations towards customers in all sustainability areas including business ethics, human rights, environmental protection, and grievance handling.

Continuing the Group's actions in response to the dramatic increase of sanction programmes against Russia from multiple jurisdictions, the trade sanction chapter in the Business Practice Policy will be updated and renamed to 'Trade Sanctions and Exports Controls'. These updates mainly reflect recent legislative developments with regarding international sanctions, as well as Stora Enso's early decision in March 2022 to stop all direct and indirect business with Russia. Stora Enso is committed to ensuring that it complies with all applicable sanctions-related laws and regulations globally.

The European Commission conducted an unannounced inspection (dawn raid) at Stora Enso's headquarters in Finland in October 2021. In June 2023, the European Commission announced that after a thorough and careful assessment, it has decided to close the investigation. The European Commission conducted similar inspections in several member states, at the premises of companies active in the wood pulp sector.

During 2023, Stora Enso's updated Competition Law Compliance Programme was successfully completed. While this work was already underway, the dawn raid initiated by the European Commission and the subsequent internal investigation in 2021 served as an important catalyst to further scrutinise the Group's processes and adapt accordingly. The programme comprises various rounds of training, detailed competition law risk assessments, and targeted risk mitigation actions. As such, the competition law section of the Group's Business Practice Policy was updated with improvements. Extensive updates were also made to the IT guidelines to further strengthen business communications practices.

Ethical dialogue and capacity building

To further promote ethical leadership, comprehensive onboarding material was tailored for new and existing Group Leadership Team members to ensure that senior management has a clear and

Targets and performance

Maintain a positive trend in the Ethics and Compliance Index

Key Performance Indicator (KPI)	2023	2022	2021
Ethics and Compliance Index*	8.9	8.7	n/a

*An average of five Ethics and Compliance-related questions in the employee survey. The maximum rating is 10.

Achieved – improved score in the Ethics and Compliance Index.

Key actions to drive performance

- Continued actions in the four key focus areas to enhance awareness and knowledge within business ethics: Risk assessment and compliance: Values-based leadership; Ethical dialogue; Speak Up – Listen Up
- Capacity building and awareness raising prioritised throughout the organisation
- Focus on trade sanctions and export controls following changes in the geopolitical landscape
- Increasing the activities of the Ethics Ambassador Network to promote ethical dialogue

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

thorough understanding of the company values and culture, as well as the most important ethics and compliance rules and processes. The details of training initiatives for all employees are further explained under 'Ways of Working'.

To strengthen awareness and knowledge among all employees, two new ethics webinars were organised covering psychological safety and impact of pressure on human behaviour. The Ethics Ambassador Network gained wide interest during the year, and now has approximately 300 ambassadors from all parts of the organisation. Training sessions were organised for the new Ethics Ambassadors, focusing on the Group's purpose and values, international compliance legislation, and internal policies and rules.

The Ethics and Compliance Academy has proven to be a valuable tool over the years to educate Ethics and Compliance professionals within the Group, and in 2023 the content was renewed. The Academy is an important enabler of constant learning, facilitation of knowledge, and experience sharing throughout the organisation.

Ways of working

The Stora Enso Code, the Group's code of conduct, outlines the approach to ethical business practices, human and labour rights, and the environment. The Code is a single set of values for all employees, applied wherever Stora Enso operates. The Ethics and Compliance Strategy outlines how the Ethics and Compliance function supports Stora Enso's purpose and values and contributes to the fulfilment of the Group's strategy.

All new Stora Enso employees are required to complete the Code training. Employees who face elevated ethics and compliance risks due to the nature of their work are required to complete mandatory, in-depth compliance training, named COMPLY, and to annually sign off on updates. All office workers are also required to complete training on data privacy. Sales and sourcing teams are offered tailored training on competition law and anti-corruption, including training on trade associations, joint purchasing agreements, gifts and hospitality, and the onboarding of critical business partners.

Stora Enso's Ethics and Compliance function is a part of Group Legal function, headed by the General Counsel who reports directly to the CEO. The Ethics and Compliance Management Committee – a governance body chaired by the General Counsel – monitors legal compliance and ethical business conduct and meets quarterly.

Ethics and Compliance integration is also a crucial part of the aftermath of all mergers and acquisitions. During the year, the Group's Ethics and Compliance programme was rolled out to the De Jong Group following its acquisition, and improvement actions will continue going forward.

Risk assessment and monitoring

Stora Enso's risk assessment procedures are outlined in the Enterprise Risk Management instructions, which cover all units. The results are used for planning purposes by divisional management teams and by Ethics and Compliance. To support compliance control, a third-party management tool is used for due diligence, onboarding, and the continuous monitoring of critical third-party business partners. A screening process is also utilised in both external and internal senior management recruitment.

Another important tool for ensuring high business ethics is 'The Ethics and Compliance Self-assessment Tool (T.E.S.T.)'. This extensive self-assessment covers all critical areas and controls in the Stora Enso Code and the Business Practice Policy and is mandatory for all key units in each division. T.E.S.T. provides divisions and functions with an overview of their progress in implementing policies and compliance measures, while also identifying and managing possible gaps and risks.

Reporting and investigating misconduct

Employees and other stakeholders are encouraged to report suspected cases of misconduct or unethical behaviour. Stora Enso complies with the EU Whistleblowing Directive, and reporting is facilitated via any of the Group's grievance channels, be it personal contact, e-mail, letter, phone, or anonymously via the 'Speak Up' reporting channel. All potential non-compliance cases involving a Stora Enso employee or a contracted third-party are duly investigated by a dedicated, independent internal team. All cases, upon completion, are reported to both the Ethics and Compliance Management Committee (from October 2023 the Disciplinary Committee) and the Board of Directors' Sustainability and Ethics Committee. Proven cases of non-compliance may lead to disciplinary or legal action. In cases where a remediation plan is required, it is implemented together with the relevant management representatives.

A successful recruitment campaign to the Ethics Ambassador Network

During 2023, approximately 250 new employees were successfully recruited to Stora Enso's Ethics Ambassador Network. The network, established in 2016, aims to raise awareness and knowledge of the importance of business ethics. There are now over 300 Ethics Ambassadors within Stora Enso, situated in 22 different countries, representing a wide variety of roles within the organisation. Ambassadors act as role models for ethical values and actively promote ethics and Stora Enso's purpose and values in their respective workplaces.

Human rights

Every individual has a right to be treated with dignity, without discrimination. Geopolitical tensions, climate change, and increasing inequality further emphasise the importance of human rights. New regulatory developments, such as the EU's Corporate Sustainability Due Diligence Directive, oblige companies to conduct due diligence to identify and prevent environmental and human rights risks. When growing and harvesting trees, producing products or transporting materials, Stora Enso has an impact on people. The Group directly impacts approximately 19,000 forest owners, 21,000 employees, over 20,000 suppliers and thousands of customers globally. Stora Enso's approach to human rights is informed by the UN Guiding Principles on Business and Human Rights. It involves the proactive identification of potential risks across the value chain, taking appropriate action to mitigate adverse impacts, and implementing remediation measures when needed.

Progress

While Stora Enso considers all human rights to be important and respects them, the human rights identified as being most salient remain its primary focus. Geographically, the biggest potential impact is in countries where the Group employs large groups of people, either directly or indirectly. In addition, Stora Enso has identified high-risk sourcing categories where salient human rights issues may be impacted through the supply chain. These include recycling services, land and sea transportation services, and wood supply functions.

Salient human rights issue	2023 actions
Health and safety	• Proactive safety measures to ensure an accident-free workplace. Zero fatal accidents occurred at Stora Enso's sites. Read more in Safety. • New leading safety indicator focused on preventive management introduced in 2023. • Short-term incentives linked to improved performance on safety. Read more in Remuneration.
Fair labour	• FSC chain-of-custody audits carried out at 14 sites in 2023, covering requirements on core labour rights. • 25 Supplier Code of Conduct (SCoC) audits during 2023, primarily in China, with the majority relating to contracted manufacturing and labour agencies. Read more in Sustainable sourcing. • Bi-annual meetings with Global Unions as part of the Global Framework Agreement. Read more about Stora Enso's commitment to freedom of association in Employees. • Long-term incentives linked to improved performance on diversity. Read more in Remuneration. • Stora Enso conducts a bi-annual living wage analysis. Read more in Employees.
Acquisition and management of land and natural resource rights	• Sustainable resettlement in Bahia, Brazil. At the end of 2023, 139 hectares or 0.1% of productive land owned by Veracel remained occupied by social landless movements not involved in the agreements. Read more on storaenso.com. • Monitoring state land recovery in Guangxi province, China. Recovery of occupied land continued in 2023, with 7,077 hectares of land, or 10%, under occupation at the end on the year. Read more in the Report of the Board of Directors. • Community consultations are a key element in Stora Enso's human rights due diligence and forest operations. Read more in Community.
Access to grievance mechanisms	• Speak-Up Hotline is accessible for internal and external stakeholders, and all cases are investigated. Read more in Business ethics. • Local grievance channels are available for communities and other external stakeholders of the joint operations Veracel in Brazil and Montes del Plata in Uruguay. For more details, see the Veracel and Montes del Plata websites.
Children's rights	• The child labour remediation programme[1] in Pakistan was completed in March 2023. The programme focused on providing vocational training to students to improve their future employability. Read more on storaenso.com.

[1] As part of our responsible exit from Pakistan following the 2017 divestment of the 35% minority holding in the equity accounted investment.

Targets and performance

Ensure efficient implementation of the human rights due diligence programme

Key Performance Indicator (KPI)	2023	2022	2021
Implementation of human rights due diligence programme	Implementing pilot phase findings into operations and processes	3 pilots targeting key risk areas	Continuous improvements

On track – continued focus on human rights due diligence.

Key actions to drive performance

- Continuous alignment with the proposed EU Corporate Sustainability Due Diligence Directive (CSDDD)
- Scaling up best practices within the organisation on salient human rights issues, including knowledge sharing with joint ventures
- Long and short-term remuneration incentives linked to improved performance on safety and diversity
- Continued focus on Sedex Member Ethical Data Audits (SMETA)

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Scaling up best practices
In 2023, Stora Enso shared best practices and adapted existing processes to embed the outcomes of the three deep-dive projects initiated in 2022. The projects were carried out together with a third-party consultancy, with the aim of improving risk identification and controls for two high-risk supply chains, as well as the due diligence processes in the Group's own operations.

1. Internal assessment process focusing on migrant workers in the forest supply chain
In Stora Enso's forest operations in Sweden, activities such as the clearing and planting of trees are carried out by silviculture contractors, who predominantly employ migrant workers. A deep dive in 2022 resulted in a new monitoring and auditing approach being introduced to avoid or mitigate risks to migrant workers. This includes, among other things, more time to interact with migrant workers in the field as well as outside of working hours, facilitated by a translator. Two of the specific key improvement areas identified were workers' difficulty in understanding wage payments and a low awareness of the rights afforded to them under applicable agreements in Sweden. As a result, the new collective bargaining agreement includes a commitment from the union to provide physical meetings at the start of every season. During 2023, all audits of silviculture contractors in Sweden were carried out following this new approach, and findings were shared with industry peers. The next step is to scale this approach to other Stora Enso locations and work towards a common approach with industry peers.

2. Deep-dive assessment of the Paper for Recycling supply chain
The Paper for Recycling (PfR) supply chain has a heightened risk due to the complex nature of the supply chain's structure and low of awareness of the relevant risks among the wide range of actors involved. The outcome of the assessment showed that the work in the PfR supply chain is often labour intensive and associated with a lower barrier to entry and skill level. Risks can include inadequate or unregulated working conditions, informal forms of employment, low wages, the use of migrant workers, and a lack of transparency regarding sub-suppliers, among others. Jobs in the PfR supply chain can be a last resort of employment, which may further contribute to placing workers in a vulnerable position. Based on the risk landscape identified through the deep dive assessment carried out in the Packaging Materials division in Poland in 2022, Stora Enso has developed a more structured way of working with the PfR supply chain. This includes placing a greater focus on the specific supplier segments to assess risks and identify appropriate mitigation activities.

3. Improved risk assessment and monitoring in the due diligence process for own operations
The Biomaterials division's production sites in the Nordics focused on defining a new approach to improve the due diligence process for Stora Enso's own operations, in conjunction with SMETA audits. The approach has since been shared with other divisions, and in late 2023 extended to the Veracel joint operation in Brazil and its own human rights due diligence work. The process compliments the SMETA audits by focusing on dialogue and improvement possibilities, and broadens the scope of included stakeholder groups beyond own employees. Since on-site contractors often fall outside of a company's monitoring scope, the assessment gave valuable practical pointers on how to include on-site contractors in the due diligence process.

Capacity building
Training and capacity building is an integral part of due diligence to enable the integration of human rights into key business processes. Human rights are a core element in several training modules for the Group's employees, including in the Stora Enso Code training aimed at all employees.

The annual mandatory Human Rights training for security guards at the Veracel 50% owned joint venture operation was carried out according to plan.

Stora Enso arranges other training and awareness building activities tailored to specific needs. To cite one example, in 2023 all managers working in silviculture in Sweden were invited to an awareness-raising session focused on migrant workers' rights.

Ways of working

The commitment to respect human rights covers all operations, including the Group's employees, contractors, suppliers, and communities. Stora Enso takes human rights into account across its business activities, starting from investment decisions, while paying special attention to vulnerable groups, and encouraging the Group's partners to do the same.
The integration of human rights aspects into Stora Enso's business activities is described in further detail in the Human Rights Guidelines.

The Group continuously identifies and assesses potential and actual adverse impacts related to human rights and defines preventive and mitigating actions accordingly. Risk identification is integrated into due diligence processes and informs the Group's Enterprise Risk Management process. Stora Enso is committed to remedying situations where its activities have caused or contributed to adverse human rights impacts. Remediation measures are determined on a case-by-case basis and according to the local context. The Group's remediation process includes implementing corrective actions and ensuring knowledge sharing to prevent similar cases from arising in the future. Stora Enso continues to develop its due diligence processes in line with the upcoming Corporate Sustainability Due Diligence Directive.

Key tools for project-specific human rights include:
- Investment guidelines
- Environmental and social due diligence for mergers and acquisitions
- Environmental and Social Impact Assessments
- Community consultations, including Free, Prior and Informed Consent
- Sustainability Assessment checklist for innovation projects

Value chain transparency and reporting on human rights
Improving value chain transparency is a key component of due diligence. Stora Enso has been a member of the Supplier Ethical Data Exchange (Sedex), since 2011, a platform where companies share unit-specific sustainability information with customers. Sedex Member Ethical Data Audits (SMETA) are conducted regularly, assessing suppliers' performance against applicable labour standards, as well as health and safety, environmental, and business ethics criteria. Furthermore, Stora Enso is a member of EcoVadis, a platform where companies' supplier performance is assessed and shared with customers. In 2023, Stora Enso was awarded the highest 'Platinum' level by EcoVadis for the seventh consecutive year.

The Group also takes part in membership organisations such as the Global Business Initiative for Human Rights (GBI), the World Business Council for Sustainable Development (WBCSD), and the Enact Human Rights & Business Practice Group (HRBPG) for access to expert knowledge and peer learning.

Stora Enso reports on its human rights work annually and strives to align its reporting with the United Nation's Guiding Principles (UNGP) reporting framework. The Group publishes an annual Slavery and Human Trafficking Statement in accordance with the United Kingdom's Modern Slavery Act 2015 and the Australian Modern Slavery Act 2018.

Community

Resilient and thriving communities promote economic stability and social well-being. Stora Enso is a significant employer, business partner, and taxpayer in its operating areas, while its investments improve local infrastructure. The Group has processes and procedures in place to prevent and avoid any influence from its tree plantations on land use that may adversely affect the rights of local communities. Protecting and respecting the rights of local communities and indigenous peoples is an essential part of sustainable forest management practices. Stora Enso strives to minimise negative socio-environmental impacts, maximise positive influence, and maintain a constructive community dialogue that ensures a long-term social license to operate.

Progress

Value created in communities

Communities near to Stora Enso's operations are supported through community development programmes and initiatives, with monetary and in-kind donations, and employee volunteering. Stora Enso encourages its employees to engage in supporting local communities through volunteering, and employees are offered the possibility to use eight hours of paid working time each year for volunteer work. In 2023, the Group's employees spent a total of 2,294 hours for volunteer work, equivalent to 57 weeks of working time.

In 2023, the majority of the voluntary community investment was allocated to Brazil to build resilience in local indigenous and farming communities through economic support and investments in education. Stora Enso continued to support emergency relief efforts through donations as well as donating towards the development of young leaders.

Stora Enso has a significant impact on the livelihoods of the local communities through direct and indirect employment. In 2023, Stora Enso employed approximately 21,000 individuals directly as well as employing a significant number of people indirectly. By purchasing from approximately 19,000 forest owners and sourcing from over 20,000 suppliers, Stora Enso helps to generate income for hundreds of local businesses and develop local infrastructure.

As a significant taxpayer in its operating countries, Stora Enso supports the sustainable development of societies and local businesses. For more information about the Group's economic value creation, see Consolidated sustainability figures and country-by-country tax reporting.

As part of managing its environmental impact and contributing to local communities, Stora Enso has, for example, partnered with WWF and Tornator to enhance forest streams in Finland. In 2023, the organisations joined forces to build spawning grounds for endangered trout and restored hundreds of meters of freshwater habitats with the help of nearly 90 volunteers from Stora Enso.

Community consultations and land use

Local communities are consulted during the planning and decision-making stages of new investments. Community consultations, including Free, Prior and Informed Consent (FPIC), are a key element in Stora Enso's human rights due diligence and forestry operations, especially concerning land leasing and indigenous peoples' rights.

In Bahia, Brazil, Stora Enso's 50% joint operation with Veracel maintains good relations with local Pataxó and Tupinambá indigenous communities. Some of the indigenous communities are calling for the expansion of the Barra Velha Indian Reserve. The extension would cover hundreds of land properties, including 3,219 hectares of land acquired by Veracel prior to the indigenous people's first claim made to the land. At the end of 2023, this case was pending decision by the Ministry of Justice. Veracel remains committed to complying fully with the ministry's eventual decision.

Ways of working

The community development programmes and initiatives defined in Stora Enso's Community Investment Guidelines are categorised under three strategic focus areas: Education, Environment, and Resilient Local Communities. Projects are managed and funded locally to ensure that the communities close to the Group's operations are the main beneficiaries, and local stakeholders are involved in the planning process to ensure the right benefits reach affected communities. The principles for donations and employee volunteering follow the same three strategic focus areas.

The Group's tree plantations and land holdings are an integral part of local land use, and therefore sustainable land use practices are defined specifically for each location. Stora Enso is a major private forest owner in Sweden and a significant forestry

Targets and performance

Increase the percentage of working hours and in-kind donations in the total Community Investment (CI) to 70% by 2023, while also increasing the total CI

Key Performance Indicator (KPI)	2023	2022	2021
Community Investment (CI): % of working hours and in-kind in the total CI	39%	41%	42%

Not achieved – in 2023, the Community Investment target was closed. A new measurement reflecting the decentralised operating model is under consideration.

Key actions to drive performance

- Continued focus on building community resilience to the impacts of climate change and natural or man-made disasters
- Employee volunteering promoted to increase employee engagement and support to local communities
- Community consultations to enhance accountability, transparency, and engagement

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

operator in both Finland and Sweden. Stora Enso acknowledges its responsibilities concerning the rights of the indigenous Sámi people residing in areas situated on or adjacent to its land or where the Group sources wood. Firmly established practices are in place for engaging in dialogue, and local Sámi communities are always consulted before undertaking any forestry operations.

Mitigating adverse impacts on communities
Stora Enso takes precautionary and systematic action to mitigate and remedy potential adverse environmental and social impacts on local stakeholders in community development and/or monitoring. These include:

- Due diligence, in which the Company evaluates the impact that current or potential business operations may have on local communities and the environment. Community consultations are a key element of this work. For more information, see Human rights.
- Third-party certified management systems in place at production units that apply international standards such as ISO 14001, ISO 45001 and ISO 50001.
- Third-party forest management certification for the Group's own forestry operations and suppliers, such as FSC and PEFC, which also include community considerations as a prerequisite.
- When necessary, restructuring processes and the closure of operations are realised in cooperation with the authorities to support communities through related changes and to create opportunities for new business initiatives. Read more in the 'Our people' section, Community engagement.
- Grievance mechanisms are available to communities close to the Group's operations, read more in Human rights.

Long-term commitments with local communities in Brazil and Uruguay

The Pataxó and Tupinambá communities represent almost 25,000 indigenous people in Veracel, Brazil. In collaboration with indigenous communities, Veracel's community liaison team plans activities that promote active dialogue and seek to preserve traditional culture. Activities range from awareness building on environmental topics to supporting educational programmes and cultural incentives.

In Montes del Plata, Uruguay, the extensive community engagement programme includes, for example providing additional income to local farmers by enabling them to integrate eucalyptus plantations into their farms, and promoting cattle grazing and honey production on company lands.

Sustainable sourcing

In a world marked by geopolitical tensions and rising costs, businesses and supply chains face heightened uncertainty on a global scale. Additionally, stakeholders and EU regulations are calling for enhanced supply chain transparency. Sustainable supply chains play a pivotal role in advancing human rights, fair labour practices, ethical business conduct, and environmental responsibility. Stora Enso has, as a business with over 20,000 suppliers around the world, a significant influence within global supply chains. The Group's commitment to sustainable sourcing is underpinned by a comprehensive tendering process, proactive supplier engagement, strong risk management, and third-party supplier audits.

Progress

Emissions reductions in the supply chain

In 2023, Stora Enso took further steps in reducing CO_2e emissions within the supply chain. The Group continued with accelerated efforts to automate its Scope 3 emissions accounting and increased the requirement for suppliers to submit primary data as part of the tendering process. Notably, the proportion of primary data for sourced chemicals now covers 49% of the CO_2e emissions of the respective category. Stora Enso continues to engage with suppliers to gain greater visibility of their emissions reduction roadmaps and reduction targets.

Downstream transportation represents 14% of the Group's total Scope 3 CO_2e emissions. Stora Enso works closely with logistics partners to identify and implement low-emission transport solutions for sold products to customers. An example of this is the shift from truck to intermodal rail deliveries which generates an approximate 65% reduction in emissions per tonne transported.

Stora Enso also continued to expand the usage of electric solutions, such as electric trucks and electric forklifts in terminals. Other measures include the optimisation of the logistics network and efficiency measures, such as high load utilisation. Furthermore, the Group has taken an active decision to use biofuel to lower emissions in both maritime and land transport.

Supplier risk identification and audits

A thorough understanding of suppliers' sustainability risk exposure, coupled with well-structured preventive and mitigation actions, is key to conducting sustainable sourcing activities.

During the year, Stora Enso initiated a pilot programme to introduce a new sustainability risk identification tool aimed at enhancing its visibility on supplier sustainability risk exposure on both country and industry level. The pilot was conducted in collaboration with a third-party provider of sustainability risk data. Key findings included identification of potential new, high-risk purchasing categories and countries. In response to the findings, Stora Enso conducted internal assessments to pinpoint gaps in its existing risk identification processes and to improve the proactive prevention of sustainability violations within the supplier base. Emphasis was placed specifically on the evaluation of the tier 1 supplier base, and in-depth evaluations of specific purchasing categories where heightened attention was deemed necessary. Based on the outcomes of the risk identification process, Stora Enso selected suppliers identified as being higher risk for third-party audits.

Stora Enso has also carried out deep-dive assessments to improve controls for two of its high-risk supply chains, see further details in Human rights.

During 2023, 25 Supplier Code of Conduct (SCoC) audits were conducted, primarily in China, with the majority relating to contracted manufacturing and labour agencies. Similar to previous years, the audits revealed non-conformities, related in particular to working hours, basic worker's rights, and emergency preparedness. Stora Enso formulated corrective action plans for all cases with necessary follow-up. In addition, 22 Health, Safety, Environment, and Quality (HSEQ) audits were conducted in 2023 mainly in Finland connected to contractors working on-site at our facilities.

Ways of working

The Supplier Code of Conduct is the cornerstone of the Group's approach to responsible sourcing. It is a legally binding document that imposes sustainability requirements on the Group's suppliers concerning human and labour rights, occupational health and safety, climate change, biodiversity, ethical recruitment, and reasonable remuneration for employees. Stora Enso's commitment to the responsible sourcing of wood and fiber from sustainably managed forests and tree plantations is described in more detail in Sustainable forestry and biodiversity.

Stora Enso's safety reporting tool, SMART4Safety, provides a platform to continuously monitor all contractor incidents at the Group's units, to recognise patterns, and to identify those with an unacceptably high accident performance compared to peers. If such behaviour is identified, Stora Enso takes action to mitigate it. Read more about the Group's safety work in Safety.

Targets and performance

Maintaining the proportion of total supplier spend covered by SCoC, including all categories and regions, at a minimum of 95%

Key Performance Indicator (KPI)	2023	2022	2021
% of supplier spend covered by the Supplier Code of Conduct (SCoC)	95%	96%	96%

Achieved – slight decline in the coverage level of the SCoC, but performance remains on target.

Key actions to drive performance

- Continuous work to ensure high coverage for the Supplier Code of Conduct (SCoC)
- Systematic reduction of CO_2e emissions in the supply chain through incentives, training and knowledge sharing, and co-operation with suppliers
- Improvements in digitalising Scope 3 emissions accounting for improved data accuracy and data-driven decision-making
- Ensuring that processes and tools are in place for the responsible sourcing of wood fiber

For a full set of performance indicators and accounting principles, see the Consolidated sustainability figures.

Screening and selection of suppliers

To engage in business with Stora Enso, all prospective suppliers are required to undergo a pre-qualification process, which occurs during the tendering stage or, at the latest, prior to the drafting of a contract. To pre-qualify, suppliers must complete a questionnaire, submit confirmation of their compliance with the SCoC, provide data on their safety and CO_2 performance, and complete a safety management online training called 'Safety Trail'. The sustainability criteria are used to help make more balanced sourcing decisions and create incentives for suppliers to invest in sustainability performance.

To complement the SCoC, Stora Enso has launched practical guidance for suppliers to support them in the implementation and interpretation of the SCoC requirements, and to share best practices. To place greater emphasis on climate action, Stora Enso also provides an e-learning course for suppliers covering topics such as practical guidance on calculating GHG emissions and urging suppliers to reduce their emissions by setting ambitious emission targets.

Corrective actions for non-conformity

Whenever a suspected SCoC non-conformity is identified during supplier visits or audits, or brought to the Group's attention through grievance channels, Stora Enso initiates a thorough investigation. In cases of non-conformity, Stora Enso takes a collaborative approach by working with the supplier to implement a corrective action plan. This plan requires the supplier's commitment, and Stora Enso's purchasers monitor its execution. Should a supplier fail to implement the necessary corrective actions, Stora Enso engages in discussions to understand the reasons behind this and, if required, escalates these discussions to higher management. In cases where the level of criticality is deemed high, or if a supplier demonstrates an unwillingness to improve its performance, the business relationship is terminated.

Payment terms

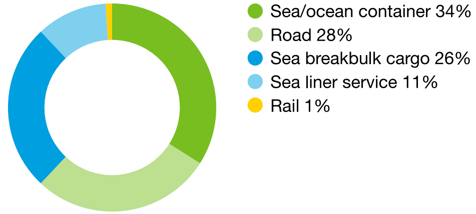
Stora Enso pays additional attention to small and medium-size suppliers when applying its standard payment terms, for example, with a shorter payment timeframe to help them remain financially stable.

Shift to electric truck at Skoghall in Sweden

In 2023, Stora Enso collaborated with a freight company to launch the use of an electric truck for the transportation of products from the Skoghall production site to the local warehouse, spanning a distance of 8.5 km. This transition from biofuel to green electricity is expected to reduce CO_2e emissions by 93%, while also decreasing noise levels and air pollution due to minimal exhaust emissions.

Transportation and distribution of products to customers

650,000 tonnes CO_2e in total[1]



[1] Excludes Beihai production site.

Policies and guidelines

Stora Enso's wide range of policies and guidelines state the commitment to responsible practices through out the business operations. For publicly available documents, see storaenso.com.

Sustainability topic	Relevant policies and guidelines
Overarching policy for all sustainability topics	The Stora Enso Code
Climate change: emissions	• Policy for Energy and Climate Change • Environmental Guidelines • Supplier Code of Conduct • Practical Guidance for Stora Enso's Suppliers*
Sustainable forestry and biodiversity	• Wood and Fiber Sourcing and Land Management Policy • Environmental Guidelines • Supplier Code of Conduct
Circularity	• Stora Enso Circular Design Guidelines • Stora Enso Environmental Guidelines • Supplier Code of Conduct • Practical Guidance for Stora Enso's Suppliers* • Sustainable Sourcing Policy* • Sustainable Sourcing Guidelines*
Materials, residuals, and waste	• Environmental Guidelines • Wood and Fiber Sourcing and Land Management Policy • Supplier Code of Conduct • Practical Guidance for Stora Enso's Suppliers* • Sustainable Sourcing Policy* • Sustainable Sourcing Guideline*
Energy	• Policy for Energy and Climate Change • Environmental Guidelines • Supplier Code of Conduct • Practical Guidance for Stora Enso's Suppliers*
Water	• Environmental Guidelines • Wood and Fiber Sourcing and Land Management Policy

Sustainability topic	Relevant policies and guidelines
Employees	• Supplier Code of Conduct • Minimum Human Resources Requirements for labour conditions* • Global Framework Agreement • Diversity Policy* • Human Rights Policy • Human Rights Guidelines • Occupational Health and Safety Policy
Safety	• Occupational Health and Safety Policy • Supplier Code of Conduct • Global Framework Agreement • Human Rights Policy • Human Rights Guidelines
Business ethics	• Business Practice Policy • Data Privacy Policy* • Supplier Code of Conduct
Human rights**	• Human Rights Policy • Supplier Code of Conduct • Human Rights Guidelines • Environmental Guidelines
Community	• Human Rights Policy • Human Rights Guidelines • Sponsorship and Donations Policy* • Community Investment Guidelines* • Volunteering Guidelines*
Sustainable sourcing	• Sustainable Sourcing Policy* • Logistics Policy* • Sustainable Sourcing Guideline*, Logistics Guideline* • Practical Guidance for Stora Enso's Suppliers*

* Internal documents not available online.

** Continuous or periodic monitoring of human rights due diligence with:
• Stora Enso Code
• Business Practice Policy
• Minimum Human Resources Requirements for labour conditions
• Supplier Code of Conduct
• Safety standards and tools for all units
• Grievance mechanisms

Consolidation of sustainability statements

Data boundaries

Unless otherwise stated, the Group's consolidated performance figures expressed in this report relate to the parent company, Stora Enso Oyj, and all companies in which the Group holds over 50% of the voting rights, directly or indirectly. In addition, the reporting on human rights, community, occupational safety, and sustainable forestry and biodiversity includes the joint operations at Veracel in Brazil and Montes del Plata in Uruguay. This is due to their materiality to the Group's sustainability impacts and stakeholder interest in relation to these sustainability topics.

The Group's consolidated environmental and energy figures include production units. The water and energy intensity figures normalised per tonne of sales production exclude Stora Enso's wood product and packaging converting units. This is due to their low impact on the Group's consolidated water and energy performance and different metrics for sales production (cubic metre and square metre, respectively), compared with water and energy-intensive board, pulp, and paper units (in tonnes).

In the Group's environmental and energy reporting, divestments and closures are managed according to the international Greenhouse Gas Protocol. This means that, when necessary, figures for historical performance are restated following the removal of divested units from the baseline or the addition of acquired units to the baseline. However, closed units are included in the environmental targets, energy targets, and trend calculation baselines, as per internationally accepted rules.

Consolidated Human Resources (HR) figures exclude employees of the joint operations at Montes del Plata and Veracel. The HR figures cover permanent and temporary employees and are expressed as a year-end headcount.

Certain administrative functions and sales offices are not included in the Group's consolidated occupational health and safety (OHS) figures due to limited data availability related to a relatively small headcount and lower occupational safety risk compared to production units.

When financial figures are reported as part of the sustainability statements, the figures are retrieved from the audited financial reporting based on the International Financial Reporting Standards (IFRS) as applicable.

Stora Enso's Greenhouse Gas (GHG) emissions are reported in accordance with the Greenhouse Gas Protocol.

Significant changes during 2023

During the year, Stora Enso completed the divestment of its paper units Hylte and Nymölla in Sweden and Maxau in Germany, as well as its wood products sawmill in Amsterdam, the Netherlands. The Group's sustainability statements for 2023 exclude these divestments, which were completed by the year-end.

Stora Enso also announced the closure of the Sunila pulp mill in Finland, the Näpi sawmill in Estonia and the De Hoop packaging site in the Netherlands. The Sunila and De Hoop production sites were closed during the second half of the year. Following the announcement of the Näpi sawmill closure in June 2023, Stora Enso has systematically ceased all ongoing operations at the site. In December, Stora Enso signed an agreement to sell the land, buildings, and further processing machinery to a local producer. The 2023 report includes data on the closed units.

The acquisition of De Jong Packaging was completed in the beginning of January 2023. De Jong Packaging was added to the Group's consolidation as of 2023.

For more information on the impact on employees of the Group's restructuring during the year, see Employees, Support for responsible exists and restructuring situations. For more information on acquisitions and disposals, see Financials, note 4. Operating capital. For information on the Group's investments in strategic growth areas, see Financials, Investments and capital expenditure.

In accordance with the GRI Standards

Stora Enso's sustainability reporting is prepared in accordance with the GRI Sustainability Reporting Standards. The reporting covers all the General Disclosures as well as the topic-specific disclosures deemed material. The GRI Content Index lists Stora Enso's disclosures with reference to the GRI Standards and refers to the location where these issues are addressed. The references are complemented with additional clarifications and reasons for omission as necessary.

Factors that render sustainability topics material to the Group can occur beyond the scope of its owned operations, or may only be material to some of the Group's operations or locations. If the reporting is prepared with specific data boundaries, this is specified in the accounting principles for the respective disclosure (see Consolidated sustainability figures).

Application of SASB Standards

Stora Enso also reports in accordance with the standards of the Sustainability Accounting Standards Board (SASB). The reporting is based on Forest Management and Containers & Packaging sector standards. For more information, see Stora Enso in capital markets and the SASB content index.

External assurance

Stora Enso's sustainability reporting has been verified by an independent third-party assurance provider in accordance with the voluntary external assurance practices followed in sustainability reporting. The assurance report can be found in the Assurance Statement at the end of this Sustainability reporting section. PricewaterhouseCoopers has provided a level of Limited Assurance with GRI Standards serving as criteria covering the sustainability reporting as defined in Sustainability approach, governance, and stakeholders based on an assessment of materiality and risk. Since 2015, a level of Reasonable Assurance with GHG Protocol as criteria has been provided for Stora Enso's reporting on direct and indirect Greenhouse Gas (GHG) emissions (Scope 1 and 2).

The UN Global Compact

Stora Enso supports the ten principles of the United Nations Global Compact, an initiative set up in year 2000 to encourage businesses worldwide to embed sustainability into their operations. The Group respects and promotes these principles throughout its operations and addresses its Communication on Progress via the UN Global Compact website, as a public record of its commitment.

UN GLOBAL COMPACT
COMMUNICATION ON PROGRESS

This is our **Communication on Progress** in implementing the principles of the **United Nations Global Compact** and supporting broader UN goals.

We welcome feedback on its contents.

Sustainability data by unit

This table presents unit-specific information on environmental performance, production, certificates, and number of employees.

					Certificates																Fossil CO_2 emissions								Water	
	Number of employees[a]	Production capacity[b]	Products	Recovered fiber[c]	ISO 9001	ISO 14001	ISO 45001	ISO 50001	ISO 22000	FSSC 22000	ISO 28000	FDA	FSC® CoC	PEFC/CFCC CoC	BRC	Process waste to landfill	Hazardous waste[d]	SO_2[e]	NO_x as NO_2	Direct, CO_2[f]	Indirect CO_2[f]	CO_2 on-site transport[f]	Carbon neutral CO_2, biomass fuels[f]	COD	AOX	Phosphorus	Nitrogen	Total water withdrawal	Process water discharges
Unit		1,000 t														t	t	t	t	t	t	t	t	t	t	t	t	1,000 m^3	1,000 m^3
Belgium																													
Langerbrugge[h]	344	555	④	x	x	x	x	x					x	x		32,120	86	8	260	176,688	9,430	1,460	505,810	1,007	1.1	4.3	23.3	8,392	6,372
Roeselare	13	g)	③													0	0				26	18							
China																													
Beihai[h]	452	630	①		x	x	x	x		x			x	x		303	77	150	161	369,852	5,730	1,011	92,066	265		2.2	24.4	8,554	7,640
Dongguan	499	30*	③		x	x	x						x			0	26				3,868			0		0	0	8	8
Qian´an[h]	532	20*	③		x	x	x						x			0	2				4,850	8		0		0	0	46	0
Wujin[h]	456	20*	③		x	x	x									0	59					6		0				24	24
Estonia																													
Tallinn	32	15*	③		x	x	x		x		x		x			0	1			77		7						1	
Finland																													
Anjala/Ingerois	553	435/310	④ ①		x	x	x	x		x[i]			x	x		0	136	6	214	62,306	0	231	162,554	1,237		1.6	43.2	24,030	7,695
Enocell	272	630	②		x	x	x	x					x	x		3,651	36	97	672	38,665	0	108	1,109,504	8,456	49.5	2.9	37.8	55,609	19,372
Heinola Fluting	226	300	①		x	x	x	x	x				x	x		738	254	396	219	102,486	0	136	176,100	1,143		2.1	16.1	10,048	1,473
Imatra	1,148	1,685	① ②		x	x	x	x	x	x		x	x	x		157	553	58	1,499	146,440	0	1,165	1,962,610	13,290	51.0	11.5	179.4	87,145	54,603
Kristiinankaupunki	58	25*	③		x	x	x	x	x	x			x	x		0	2	1		117	0	24						1	1
Lahti	278	140*	③		x	x	x	x	x	x			x	x		0	398				3,588	166		5		0	0.4	29	19
Oulu	360	450	① ②		x	x	x	x	x	x			x	x		40	182	25	741	10,226	0	919	796,187	1,484	0	2.9	28.8	30,187	14,547
Sunila[j]	219	375	② ⑤		x	x	x	x					x	x		1,634	64	42	151	13,123	0	313	253,493	2,130	9.3	2.3	11.8	15,759	5,787
Varkaus	283	405	① ②	x	x	x	x	x	x				x	x		2,264	51	125	371	42,927	0	466	661,839	2,200		3.9	57.3	27,840	16,362
Germany																													
Augsburg	17	g)	③										x			0	0			398	64	11						3	
Heidelberg	155	g)	③		x	x							x			0	0			746	614	94						1	
Sausenheim	184	g)	③		x	x							x			0	0			2,377	1,452	42						9	3
St. Ingbert	9	g)	③		x	x										0	0			27	71							0	0
Latvia																													
Riga	174	120*	③		x	x	x	x	x		x		x			0	47		2	1,962		147						17	17
Lithuania																													
Kaunas	56	20*	③		x	x	x		x		x		x			0	1				73	34						1	
Netherlands																													
Aalsmeer	50	g)	③										x			0	0			3	159								
De Lier	398	g)	③										x		x	0	6			7,822	5,811	296						43	0
Dronten	47	g)	③										x		x	0	0				255								
Eerbeek De Hoop[j]	163	380	①	x	x	x	x	x					x			272	40		60	91,993	3,076	252	2,577	157		2.0	9.0	1,350	1,100
Eerbeek Felco	28	g)	③		x								x			0	195			132	0							2	1

					Certificates															Fossil CO_2 emissions								Water	
	Number of employees[a)]	Production capacity[b)]	Products	Recovered fiber[c)]	ISO 9001	ISO 14001	ISO 45001	ISO 50001	ISO 22000	FSSC 22000	ISO 28000	FDA	FSC® CoC	PEFC/CFCC CoC	BRC	Process waste to landfill	Hazardous waste[d)]	SO_2[e)]	NO_x as NO_2	Direct CO_2[f)]	Indirect CO_2[f)]	CO_2 on-site transport[f)]	Carbon neutral CO_2, biomass fuels[f)]	COD	AOX	Phosphorus	Nitrogen	Total water withdrawal	Process water discharges
Unit		**1,000 t**														**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**1,000 m^3**	**1,000 m^3**
Eerbeek Rudico	32	g)	③		x											0	13			93	0								
Roosendaal	64	g)	③										x		x	0	0			19	270								
Venlo	15	g)	③												x	0	0			38	176								
Poland																													
Łódz[h)]	254	130*	③		x	x	x			x	x		x	x		0	1	0	2	2,401	1,248	77						19	10
Mosina[h)]	93	20*	③		x	x	x			x	x		x	x		0	75			241		29						1	1
Ostrołeka Containerboard[k)]	752	780	① ④	x	x	x	x		x				x	x		0	50	55	442	201,231	120	1,263	447,067	842		4.4	70.4	13,883	9,235
Ostrołęka Corrugated[k)]	272	140*	③		x	x	x			x	x		x	x		0	2				3,761	82							
Tychy	184	120*	③		x	x	x			x	x		x	x		0	3			2,623		93						19	12
Sweden																													
Falu Rödfärg	l)		⑥		x	x										0	10,770			461		15						21	
Fors	487	455	①		x	x	x	x		x			x	x		0	54	7	95		82		217,579	1,555	0.3	1.3	26.0	5,648	4,351
Hylte Formed Fiber	58	60**	③		x											0	0				1	0		2				133	58
Jönköping	168	100*	③		x	x	x		x	x			x	x		0	38			252	411	20						18	2
Skene	60	20*	③		x	x	x						x	x		0	102				4	0						6	6
Skoghall	640	945	①		x	x	x	x		x			x	x		5,554	935	148	430	59,963	129	1,601	898,912	8,793	16.0	10.7	78.8	38,703	26,477
Skoghall (Forshaga)	114	120	①		x	x	x	x		x		x	x	x		0	8			857	3	115						8	0
Skutskär	440	545	②		x	x	x	x					x	x		0	131	104	713		21	2,170	1,241,919	3,760	20.8	13.9	95.6	53,259	18,764
Vikingstad	60	85*	③		x	x	x			x			x	x		0	0			800	56							19	19
United Kingdom																													
Ellesmere Port	42		③													0	0				149								
Total board, pulp, paper, converted products		9,000[m)]														46,732	14,398	1,221	6,031	1,337,345	45,501	12,380	8,528,218	46,325	148	66	702	380,835	193,959
Total, wood products		n)																											
Wood Products units[n)]					n)	n)	n)	n)	n)	n)	n)	n)	n)	n)	n)	3,980	1,387	15	388	4,456	5,446	19,532	411,884						
Grand total																													
All units																**50,712**	**15,785**	**1,236**	**6,419**	**1,341,801**	**50,948**	**31,912**	**8,940,102**	**46,325**	**148**	**66**	**702**	**380,835**	**193,959**

a) Yearly average as full-time equivalents.
b) Production capacities of integrated pulp, paper, and board mills only include paper, board, and barrier coating production capacities.
c) Mills using recovered fibre as raw material (fully or partially).
d) Reported on the basis of country-specific definitions applied in national regulations.
e) Total sulphur is reported as sulphur dioxode (SO_2) equilevant, but includes all sulphurous compounds.
f) CO_2 figures are calculated using the WRI/WBCSD Greenhouse Gas Protocol and Scope 2 Guidance.
g) Capacities of the acquired units excluded for 2023.
h) Unit located in region with high baseline water stress according to the WRI Water Aqueduct Tool.
i) FSSC 22000 for board production at Ingerois.
j) The Sunila and Eerbeek DeHoop production sites were closed during the second half of the year.
k) Water discharges reported together from both Ostrołeka units.
l) Does not have its own personnel but hires personnel from Stora Enso AB.
m) Excluding total capacities for corrugated board 935 million m^2, consumer packaging 70 m^2 and formed fiber 60 million pieces.
n) See separate table on the next page for Wood Products units.

The divestment of Nymölla mill was completed in January 2023, Maxau mill in March 2023, Hylte Paper in April 2023, and Hylte Circular Solutions in November 2023. Hence the units are not presented in this 'Sustainability data by unit' table.

Products:
① board and packaging paper
② market pulp
③ converted products (e.g. cores, corrugated board, formed fibre, granules)
④ paper
⑤ lignin
⑥ red paint pigment

The figure 0 (zero) in the table signifies that such discharges, emissions, or waste did not occur or they were below the Group's reporting threshold. Where cells are left blank, this signifies that the parameter is considered as not relevant for that unit.

Certificate documents can be found at storaenso.com/certificates.

* million m^2
** million pcs

		Capacities						Certificates														
	Number of employees[a)]	Sawn products	Further processed	CLT	Wood pellets	LVL	ISO 9001	ISO 14001	ISO 45001	ISO 50001	FSC® CoC	PEFC CoC	SBP	Process waste to landfill	Hazardous waste[b)]	SO_2	NO_x as NO_2	Direct CO_2[c)]	Indirect CO_2[c)]	CO_2, on-site transportation[c)]	Carbon neutral CO_2 from biomass[c)]
Unit		**1,000 m^3**	**1,000 m^3**	**1,000 m^3**	**1,000 t**	**1,000 m^3**								**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**
Wood Products units																					
Austria																					
Bad St. Leonhard	262	360	105	80			x	x	x	x	x	x		0	50		3			881	
Brand	207	440	295				x	x	x	x	x	x		0	39	0.0	5			1,542	
Ybbs	410	700	450	110			x	x	x	x	x	x		0	97		7			2,407	
Czech Republic																					
Planá	238	390	220				x	x	x	x	x	x		347	19	0.8	29			1,614	25,309
Ždírec	441	580	220	40	80		x	x	x	x	x	x		3,633	36	0.9	142			2,128	128,645
Estonia																					
Imavere	296	350	160		100		x	x	x	x	x	x	x	0	47	4.9	49			1,533	56,203
Näpi[d)]	73	50	180		25		x	x	x	x	x	x		0	40	0.3	3	7		205	3,203
Finland																					
Honkalahti	130	310	70				x	x	x	x	x	x		0	26	1.1	18	97	0	787	31,602
Uimaharju[e)]	86	240					x	x	x	x	x	x		0	7		0	0	471	615	
Varkaus	154	260	120		30	85	x	x	x	x	x	x		0	16				2,600	856	
Veitsiluoto	54	200					x	x	x	x	x	x		0	0	0.0	0	0	0	494	
Latvia																					
Launkalne	209	270	70		50		x	x	x	x	x	x		0	6	0.1	35	1,612		1,393	37,259
Lithuania																					
Alytus	273	210	115				x	x	x	x	x	x		0	34	1.8	15			1,027	26,579
Poland																					
Murow	292	300	210				x	x	x	x	x	x		0	925	2.7	21			1,196	28,736
Sweden																					
Ala	140	400	50		100		x	x	x	x	x	x		0	37	2.0	60		10	1,612	74,348
Gruvön	208	370	150	80	100		x	x	x	x	x	x		0	7	0.5	3	2,740	2,366	1,243	
Wood Products units total		**5,430**	**2,415**	**310**	**485**	**85**								**3,980**	**1,387**	**15**	**388**	**4,456**	**5,446**	**19,532**	**411,884**

a) Yearly average as full-time equivalents.
b) Reporting is based on country-specific definitions applied in national regulations.
c) All CO_2 figures are calculated using the WRI/WBCSD Greenhouse Gas Protocol and Scope 2 Guidance.
d) Operations at the Näpi sawmill were ceased during the second half of the year.
e) Uimaharju sawmill belongs to division Biomaterials.

The divestment of Amsterdam DYI (Do It Yourself) unit was completed in August 2023. Hence the unit is not presented in this 'Sustainability data by unit' table.

Certificate documents can be found at storaenso.com/certificates.

The figure 0 (zero) in the table signifies that such discharges, emissions, or waste did not occur or they were below the Group's reporting threshold. Where cells are left blank, this signifies that the parameter is considered as not relevant for that unit.

Consolidated sustainability figures

Climate change: emissions

Accounting principles

In its greenhouse gas (GHG) accounting, Stora Enso follows the three standards provided by the Greenhouse Gas Protocol of the World Resource Institute and the World Business Council for Sustainable Development: the 'GHG Corporate Accounting and Reporting Standard', the 'GHG Protocol Scope 2 Guidance', and the 'Corporate Value Chain (Scope 3) Accounting and Reporting Standard'. Stora Enso uses the operational control approach to consolidate these standards. The science-based targets to reduce GHG emissions are reported as a percentage change from the baseline, which is annually updated to reflect the current Company structure.

Scope 1 and 2 emissions include direct and indirect GHG emissions, calculated as fossil CO_2 equivalents (CO_2e), from all production units, excluding joint operations. In addition to CO_2, other relevant GHG emissions for Stora Enso are methane (CH_4) and nitrous oxide (N_2O), which are generated when using fossil and biomass fuels in the units' power boilers. These gases are converted to CO_2e using respective global warming potential based on the fourth assessment report of the Intergovernmental Panel on Climate Change (IPCC), or fuel-specific CO_2 emission factors based on analysis at the site.

Scope 2 GHG emissions are calculated based on purchased electricity and heat. The CO_2 emission factors used for purchased energy largely follow the market-based methodology, which means that almost all units apply CO_2 factors provided by their energy suppliers. When these are not available, the Group applies the country specific residual mix factor. In the absence of residual mix factors, the most recent location-based factors provided by the International Energy Agency (IEA) are used. Scope 2 includes the trading of Guarantees of Origin for electricity.

Scope 3 emissions include fossil CO_2e emissions from other sources along the value chain of all production units. Stora Enso applies an activity-based methodology for Scope 3 accounting, which means that the emissions are estimated based on the volumes of sourced inputs and the delivered products. Material emission categories included in Scope 3 emissions are reviewed annually.

Stora Enso's carbon footprint

	Unit	2023	2022	2021
Reduction of production units' absolute fossil CO_2e emissions (Scope 1 and 2)	%	-41%	-27%	-13%
Reduction of absolute fossil CO_2e emissions in supply chain, transportation and customer operations (Scope 3)	%	-34%	-24%	3%
Scope 1: Direct emissions from operations[1]	CO_2-eq, million tonnes	1.47	1.80	2.15
Scope 2: Emissions from purchased energy consumed in operations[1, 2]	CO_2-eq, million tonnes	0.05	0.08	0.10
Scope 3: Emissions from other sources along the value chain	CO_2-eq, million tonnes			
Harvesting and wood transportation	CO_2-eq, million tonnes	0.33	0.38	0.42
Fuels and energy (production and transportation)	CO_2-eq, million tonnes	0.31	0.39	0.44
Purchased materials (production and transportation)	CO_2-eq, million tonnes	1.68	2.01	2.23
Transportation and distribution of products to customers	CO_2-eq, million tonnes	0.68	0.79	0.89
Processing of products by customers	CO_2-eq, million tonnes	1.95	2.13	3.74
Scope 3 total[1]	CO_2-eq, million tonnes	4.95	5.69	7.72
	CO_2-eq, million tonnes	**6.47**	**7.57**	**9.97**

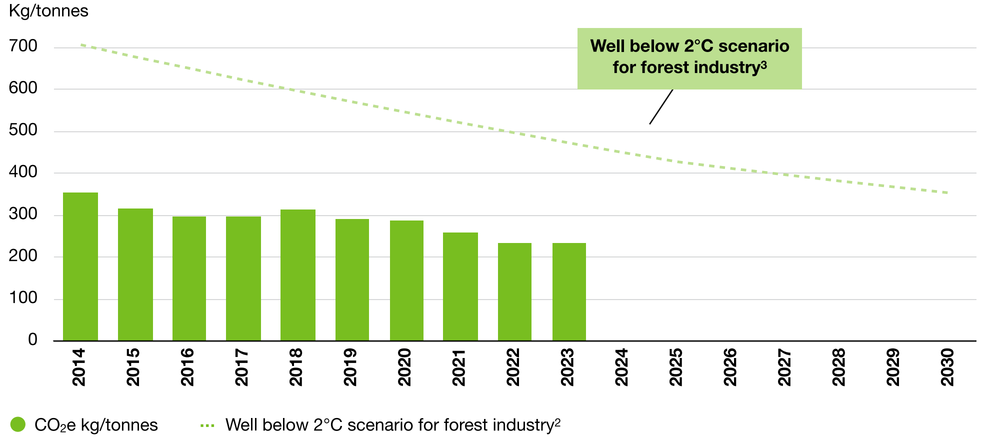
[1] All historical figures are restated due to structural changes or additional data after the previous annual report. Restatement led to changes in the historical figures. Total emissions changed from 10.14 to 9.97 in 2021, and 7.97 to 7.57 in 2022. Baseline 2019, which is not presented in this table, changed from 10.87 to 10.04.
[2] The CO_2 factors used for purchased energy (Scope 2) largely follow the market-based methodology, which means that almost all Stora Enso units apply CO_2 factors provided by their energy suppliers. When applying available residual factors, location-based Scope 2 emissions for 2023 are 0.51 million tonnes of CO_2 equivalents (0.60 million tonnes in 2022).

Stora Enso's carbon footprint 2019–2023[1, 2]

	Fossil CO_2 equivalent (million tonnes)					Trend
	2019	2020	2021	2022	2023	2019-2023
Scope 1	2.29	2.09	2.15	1.80	1.47	-36%
Scope 2[3]	0.29	0.19	0.10	0.08	0.05	-83%
Scope 3	7.46	7.20	7.72	5.69	4.95	-34%
Total emissions	**10.04**	**9.48**	**9.97**	**7.57**	**6.47**	**-36%**

[1] Covers Stora Enso production units. Excluding joint operations. Includes the trading of Guarantees of Origin for electricity.
[2] All historical figures are restated due to structural changes or additional data after the previous report. For more information, see Consolidation of sustainability statements.
[3] The CO_2 factors we use for purchased energy (Scope 2) largely follow the market-based methodology, which means that almost all our units apply CO_2 factors provided by their energy suppliers. When applying available residual factors, location-based Scope 2 emissions for 2023 are 0.51 million tonnes of CO_2 equivalents (0.60 million tonnes in 2022).

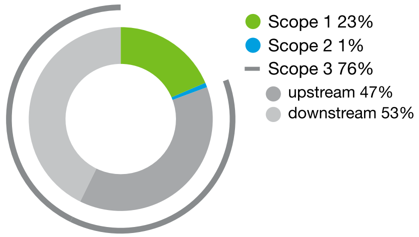
Stora Enso's Scope 1 & 2 emissions in relation to production[1, 2]



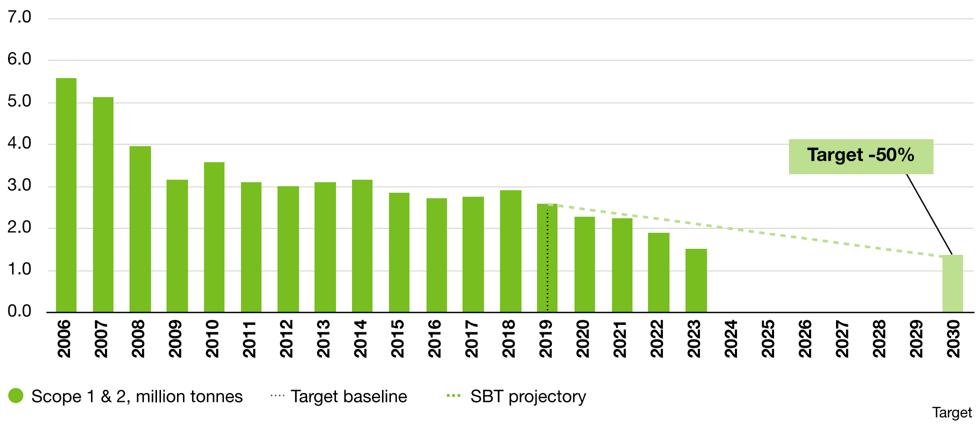
Scope 1 & 2	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Kg/tonnes	355	315	296	296	314	292	288	260	233	233

[1] Covers direct and indirect Greenhouse Gas (GHG) emissions as fossil CO_2 equivalents (Scope 1 & 2) from Stora Enso's board, pulp, and paper mills. Excluding joint operations, corrugated units and wood products. Includes trading of Guarantees of Origin of electricity. Normalised figures are reported per unit of sales production of board, pulp, and paper.
[2] GHG reduction pathway for well below 2°C scenario as CO_2e kg/tonne, based on information from the Transition Pathway Initiative (TPI)* including scenarios data from the Energy Technology Perspectives report by the International Energy Agency.
[3] Historical figures are restated due to additional data or organisational changes after the previous annual report. Historical data from acquired companies has been incorporated into the 2019 baseline and the subsequent years.
* Asset owner-led initiative supported by Grantham Research Institute and London School of Economics.

Distribution of GHG emissions 2023
% of total GHG emissions



Stora Enso's Scope 1 & 2 CO_2e emissions[1, 2, 3]



Scope 1+2	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Target 2030
Million tonnes	5.59	5.12	3.95	3.16	3.59	3.10	3.00	3.11	3.15	2.84	2.73	2.76	2.91	2.58	2.28	2.25	1.88	1.52	-50%

[1] Covers direct and indirect Greenhouse Gas (GHG) emissions as fossil CO_2 equivalents (Scope 1 & 2) from Stora Enso's production units. Excluding joint operations. Includes trading of Guarantees of Origin of electricity.
[2] GHG emissions from own operations (Scope 1 & 2) have been verified at reasonable assurance level by the Group's external auditor since 2015.
[3] Historical figures are restated due to additional data or organisational changes after the previous annual report. Historical data from acquired companies has been incorporated into the 2019 baseline and the subsequent years.

Sustainable forestry and biodiversity

Accounting principles

Figures for land areas, their forest certification coverage, carbon sink, and storage include Stora Enso's own forest assets. For more information, see note 4.2 Forest assets. The joint operations Veracel in Brazil and Montes del Plata in Uruguay, and the equity-accounted investment in Tornator, Finland, are consolidated based on Stora Enso's ownership stakes in these companies.

Wood procurement and its forest certification coverage include total amounts of wood (roundwood and chips) procured within regions for delivery to Stora Enso's units (million m^3, solid under bark). Figures include 50% of the wood procurement of the 50% owned joint operations Veracel and Montes del Plata.

Accounting methods of forest carbon sinks and storage are not standardised, and the selected method and reporting period impact the results. Stora Enso has estimated the carbon sequestration by the Group's own productive forests using historical data as an annual average over the past three years. In sustainably managed forests, carbon sink and storage levels are maintained or increased over the forests' management cycle. During this cycle, harvesting and natural disturbances, growth rates related to forest ages and types, and potential other events result in short-term variations in the carbon sinks and storage.

Biodiversity indicators include the compliance ratios of inspected harvesting sites against Stora Enso's specific biodiversity indicators for Sweden, Finland, and the Baltics. The consolidated ratios across the three regions are weighted averages using the harvested volumes in each region as a weight. Approach applied for 2023 is different than in 2022, where weighting was done based on number of harvesting sites in region. Historical figures are restated for comparability, no material impact on results.

Compliance rate of biodiversity impact indicators[1]	Unit	2023	2022	2021
High stumps	%	84%	71%	70%
Ground deadwood	%	81%	84%	92%
Soil and water	%	96%	95%	86%
Habitats	%	98%	85%	89%
Tree retention	%	87%	87%	89%
Buffer zones	%	91%	93%	n/a
Total	%	**90%**	**86%**	**87%**

[1] Historical figures are restated due to a change in the accounting method. No material impact on results.

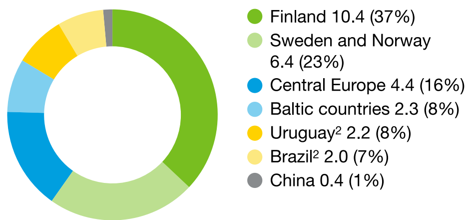
Key forest related figures	Unit	2023	2022	2021
Owned or leased lands	million ha	2.02	2.01	2.01
Total amount of wood delivered to Stora Enso's sites	million m^3	28.1	35.1	37.6
% of third-party certified wood of total wood supply	%	81%	80%	77%
% of wood from own sources or long-term supply agreements	%	36%	30%	28%
% of wood from managed semi-natural forests in Europe	%	84%	87%	88%
% of wood from tree plantations	%	16%	13%	12%
% of the owned and leased lands in wood production and harvesting covered by forest certification schemes	%	99%	99%	99%
Annual CO_2 sequestration in owned or leased productive forest lands, 3-years annual average	million tonnes	4.3	5.3	5.0
Total CO_2 stored in Stora Enso's productive forest as of 31.12.2023	million tonnes	285	285	283

Annual forest growth and harvesting and total standing stock[1]	Unit	2023	2022	2021
Estimated annual forest growth	million m³ fo	12.8	13.6	13.2
Stora Enso's own forests, Sweden		5.8	5.8	5.8
Tornator (41%)		1.5	1.5	1.4
Guangxi		1.3	1.3	1.6
Montes del Plata (50%)		2.0	3.2	2.6
Veracel (50%)		2.2	1.8	1.8
Annual harvesting	million m³ fo	10.5	10.7	9.9
Stora Enso's own forests, Sweden		4.2	4.6	4.4
Tornator (41%)		1.4	1.3	1.3
Guangxi		1.2	1.2	1.3
Montes del Plata (50%)		2.3	1.8	1.6
Veracel (50%)		1.3	1.7	1.2
Total standing stock	million m³ fo	208.4	208.1	207.0
Stora Enso's own forests, Sweden		149.7	150.5	150.5
Tornator (41%)		33.4	32.8	32.7
Guangxi		4.3	4.1	4.9
Montes del Plata (50%)		15.0	15.5	13.9
Veracel (50%)		6.1	5.2	4.9

[1] Figures cover productive area. Million m³ fo refers to million forest cubic meters.

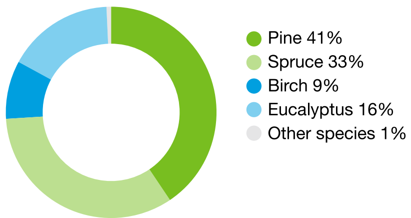
Wood procurement by region[1]

28.1 million m³



[1] Total amounts of wood (roundwood and chips) procured within these regions for delivery to the Group's production sites (million m³, solid under bark).
[2] Figures for Brazil and Uruguay include 50% of the wood procurement of the Group's joint operations Veracel and Montes del Plata.

Wood procurement by species



Forests, plantations and lands as of 31 December 2023[1]

Unit	Area	Certification coverage	Details of local landscapes and protected areas
Owned lands			
Swedish forest holdings	1,383,000 ha, of which 1,139,000 productive forest land	PEFC and FSC for 1,383,000 ha	Protected areas total to 448,000 ha and consist of productive or non-productive land which has been set-aside from wood production and infrastructure development either voluntarily or by legal requirements.
Montes del Plata plantations and lands, Uruguay (50% owned joint operation with Arauco)	190,000 ha, of which 110,000 ha planted for pulp production	PEFC and FSC for 190,000 ha	Protected areas total to 77,000 ha and consist of remnants of native ecosystems, such as grasslands and riparian forests, within the company's lands. Local landscape consists mainly of pasturelands and agricultural fields.
Veracel plantations and lands, Bahia, Brazil (50% owned joint operation with Suzano)	209,000 ha, of which 82,000 ha planted for pulp production	CERFLOR (PEFC) for 188,000 ha; FSC for 188,000 ha	Protected areas total to 105,000 ha, including a 6,000 ha Private Natural Heritage Reserve, and mostly consist of native forest remnants at different stages of regeneration. Local landscape consists of pasturelands and agricultural fields cleared from Atlantic rainforest between the 1950s and 1980s.
Tornator (41%-owned associated company)			
Finland	677,000 ha, of which 606,000 productive forest land	PEFC for 677,000 ha and FSC for 677,000 ha	Protected areas total to 62,000 ha and consist of productive and non-productive land which has been set-aside from harvesting either voluntarily or by legal requirements.
Estonia	65,000 ha, of which 57,000 productive forest land	PEFC for 65,000 ha and FSC for 65,000 ha	Protected areas total to 2,600 ha.
Romania	12,000 ha, of which 12,000 productive forest land	PEFC for 12,000 ha and FSC for 12,000 ha	Protected areas total to 160 ha.
Leased lands			
Plantations and lands, Guangxi, China	70,000 ha, of which 61,000 ha planted	Chinese Forest Certification Council certificate (PEFC) for 70,000 ha; FSC for 70,000 ha	Protected areas total to 3,700 ha and consist of buffer zones and other important areas for protection of watersheds and native flora and fauna. No pristine ecosystems are found in the leased lands. Local mosaic landscape includes agricultural crop fields, forest plantations, and settlements.
Montes del Plata	86,000 ha, of which 74,000 ha planted	PEFC and FSC for 80,000 ha	Protected areas total 11,000 ha and consist of remnants of native ecosystems, such as grasslands and riparian forests. Local landscape consists mainly of pasturelands and agricultural fields. In most of the leased areas, protected areas are excluded from lease agreements.
Veracel	23,000 ha, of which 9,000 ha planted	CERFLOR (PEFC) for 14,000 ha; FSC for 14,000 ha	Protected areas total to 10,000 ha and consist of native forest remnants at different stages of regeneration.

[1] Reported as total areas of the companies. Stora Enso's share corresponds to the ownership share. Includes operations where Stora Enso's shareholding is significant and the size of the area exceeds 1,000 hectares.

Circularity, materials, residuals, and waste

Accounting principles

Product circularity is calculated based on the technical recyclability of products and their production volumes consolidated as tonnes. Technical recyclability is defined by international standards and tests when available, such as CEPI (Confederation of European Paper Industries) and PTS (Papiertechnische Stiftung), and in the absence of these, by Stora Enso's own tests that prove recyclability. The reporting scope includes Stora Enso's packaging, pulp, paper, and solid wood products as well as biochemical by-products.

Material use by type covers renewable and non-renewable process raw materials used for products and their packaging as delivered to Stora Enso's production units, including joint operations. In 2023, approximately 96% of the materials were renewable: wood, recycled board and paper, and starch. For recycled board and paper and purchased paper and pulp, 90% of the weight is estimated as renewable content. Other process raw materials are largely or entirely non-renewable: pigments and fillers, chemicals, and plastics. Wood is converted from delivered cubic meters to fresh tonnes (including water content) by using an average conversion factor for tree species processed by Stora Enso. Plastics used for products and their packaging include fossil-based virgin plastics 45,900 tonnes, bio-based virgin plastics 3,900 tonnes, and recycled plastics 630 tonnes.

Residuals and waste in the Group's production processes are measured by the process residuals utilisation rate, covering process waste and residuals, such as ash, sludge, chips, and wood waste from production units. Utilisation includes energy generation, landscaping, landfill construction, road construction, pulp manufacturing, brick and cement manufacturing, and agricultural use, as well as new approaches and products. The scope excludes sawdust and wood cutting savings for internal pellets production. Tall oil, turpentine, lignin, sodium biosulphite, biocomposite, and soap, are considered products and therefore excluded. The figures cover process-related residuals and waste from all production units, excluding joint operations. Residuals and waste that do not relate to production processes are reported separately. The figures are consolidated as dry tonnes.

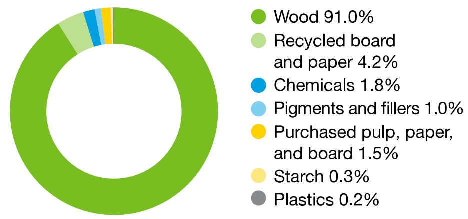
Utilisation rate for Paper for Recycling (PfR) is calculated by dividing the total deliveries of PfR to Group's units by the total production of board and paper, following the definition of CEPI.

Key figures for circularity, materials, residuals, and waste	Unit	2023	2022	2021
% of technically recyclable products	%	94%	94%	94%
Process residuals utilisation rate	%	99%	99%	98%
Total process material use, (fresh tonnes)	million tonnes	32.8	40.9	41.1
Share of renewable materials in total process material use	%	96%	96%	95%
Process waste and residuals generated, (dry tonnes)[1]	million tonnes	3.7	4.1	3.4
- of which recycled and used internally or externally	%	99%	99%	98%
- of which landfilled	%	1 %	1%	2%
Hazardous waste[1, 2]	tonnes	5,020	6,380	7,970
Sludge, classified as hazardous waste[3]	tonnes	10,770	6,890	10,140
Process waste sent to on-site storage facilities[1]	tonnes	43,460	48,870	59,920
Non-process related waste, recycled	tonnes	100,240	30,600	26,750
Non-process related waste, to landfill[1, 4]	tonnes	100,020	4,540	5,050
Usage of Paper for Recycling (PfR)[1]	million tonnes	1.4	1.3	1.4
PfR utilisation rate in paper and board production[1]	%	28%	23%	23%

[1] Historical figures are restated due to structural changes or additional data after the previous annual report.
[2] Including oils, solvents, paints, laboratory chemicals and batteries that are transported and processed by authorised contractors.
[3] Generated at the disused Falun copper mine in Sweden and handled by an authorised contractor.
[4] The comparability of the figure for 2023 is impacted by 93,400 tonnes of contaminated soil to landfill resulting from the conversion project at the Oulu site in Finland.

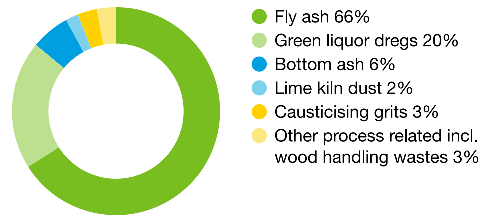
Material use by type, %

32.8 million tonnes



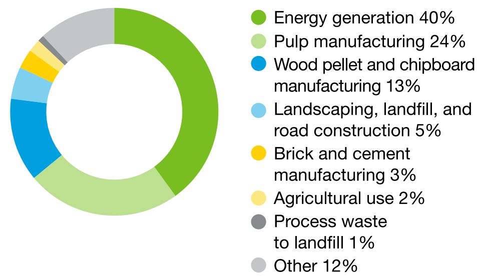
Process waste to landfill

51 thousand tonnes



Utilisation of process waste and residual materials

3.7 million tonnes



Energy

Accounting principles

Unless otherwise stated, the energy figures cover all of Stora Enso's production units, excluding joint operations. Energy consumption figures mostly exclude real estate facilities due their low materiality, as well as heat used for electricity generation, sold energy, and on-site transportation. Local factors are used at the units when calculating the energy content of the used fuels. The majority of Stora Enso's heat consumption is consumed in the form of steam.

Electricity purchased from Pohjolan Voima Oyj (PVO) – where Stora Enso is a minority shareholder with a 15.7% ownership stake – is counted in own electricity generation. Projected energy savings include savings from the investments for which the reporting year is the first year with a full year impact. The energy saving is reported as a percentage reduction compared to the total energy consumption during the year without efficiency investments. In general, the full-year impact of an energy saving investment is apparent in the following year after implementation. The projected energy savings exclude packaging converting units and joint operations.

For other local air emissions, reporting is based on unit-specific direct measurement and calculations of emissions.

Key figures for energy	Unit	2023	2022	2021
Total energy consumption[1]	TWh	22.82	30.20	33.78
Heat consumption[1]	TWh	16.2	21.1	23.2
Electricity consumption[1]	TWh	6.6	9.1	10.6
Total energy consumption, MWh/tonne of saleable production[1]	MWh/tonne	3.72	3.71	3.83
Total fuel consumption	TWh	29.3	37.5	41.2
Sold heat, external	TWh	0.4	0.6	0.8
Sold electricity, external[2]	TWh	0.6	0.1	0.1
Share of own electricity generation in total electricity consumption	%	79%	63%	58%

[1] Includes only board, pulp and paper units due to the metric for normalisation (tonne).
[2] Historical figures are restated. Figure for 2022 changed from 0.2 to 0.1 TWh and figure for 2021 from 0.3 to 0.1 TWh.

District heating to local communities	Unit	2023	2022	2021
Number of sites generating energy for		11	14	14
Local district heating systems	%	77%	87%	91%
Industrial partners	%	23%	13%	9%

Local air emissions	Unit	2023	2022	2021
SO_2 emissions[1]	tonnes	1,240	1,590	1,720
NOx emission[1]	tonnes	6,420	7,480	8,270
Emissions of fine particles[1]	tonnes	1,170	1,380	1,110
VOC emissions[1]	tonnes	1,460	1,640	1,600
ODS, ozone-depleting substances	kg	1,082	N/A	N/A

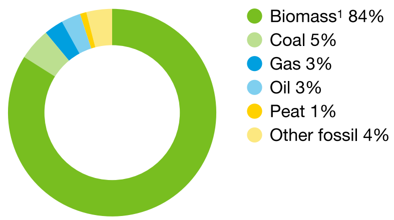
[1] Historical figures are restated due to structural changes or additional data after the previous annual report. Due to the restatement, historical figures are approximately lower than reported in 2022.

Projected total energy savings	Unit	2023	2022	2021
Projected energy savings, % (MWh saved/ MWh total energy used, electricity, heat, and fuels)	%	-0.7%	-1.1%	-0.6%
Projected annual energy savings	GWh	173	370	211
Investments	%	81%	95%	64%
Operations	%	2%	4%	35%
Other	%	17%	1%	1%

Energy and water efficiency fund	Unit	2023	2022	2021
Energy and water efficiency fund, total size	EUR million	14	10	11
Number of projects financed		35	29	37
Projected annual energy savings	GWh	161	84	163
Projected annual water savings	million m^3	3.0	2.7	1.9
Equivalent of Stora Enso's energy consumption[1]	%	0.7%	0.3%	0.4%

[1] Includes board, pulp, and paper units.

Fuels



[1] Biomass corresponds to renewable energy.

Water

Accounting principles

Total water withdrawal includes process water and cooling and non-contact water intakes by all industrial units as cubic metres (m^3). Process water discharges include the discharges of all industrial units as cubic metres (m^3). The water withdrawal and discharges are normalised by dividing water m^3 with the total production of board, pulp, and paper as saleable tonnes (t) during the same period. In 2022, the Group implemented a standardised procedure to report water at board, pulp, and paper units, where cooling and process water flows are measured in different positions at the units. Due to this, the calculated figures do not always correspond to the measured figures of total water withdrawal. The Group continuously improves the accuracy of water reporting and consolidation of data.

The reported water consumption includes estimated water in products, residuals, and waste, as well as volumes of evaporated water to air from process water cooling towers, from wastewater treatment plants and from cooling towers for non-contact water at the Group's mills. Sawmills, corrugated production units, and joint operations are excluded from the consumption figures. Historical figures are restated due to organisational changes or reporting corrections after the previous report. The calculation of water consumption builds on the Confederation of European Paper Industries' (CEPI) method of describing water use and consumption, and the Swedish Environmental Research Institute's (IVL) report on Water Profile for the Swedish forest industry.

Board, pulp, and paper production sites monitor process water discharges, amounts of suspended solids, chemical oxygen demand, total organic carbon, phosphorous, nitrogen and absorbable organic halogen compounds, and water temperature and pH. Monitoring and reporting are conducted daily, monthly, or annually depending on the sites' operations and environmental permits.

Water withdrawal, consumption, and discharges[1]	Unit	2023	2022	2021
Total water withdrawal	million m^3	385	433	457
Process water withdrawal	million m^3	216	234	260
Cooling water (net) withdrawal	million m^3	166	190	196
Total water withdrawal per saleable tonne of board, pulp, and paper	m^3/tonne	61	57	54
Water consumption[2]	million m^3	15	16	18
Water consumption[2]	m^3/tonne	2.4	2.1	2.1
Process water discharges	million m^3	197	224	236
Process water discharge per saleable tonne of board, pulp, and paper	m^3/tonne	35	34	33

[1] All historical figures are restated due to structural changes after the previous annual report. Due to the restatement, the historical figures are approximately 15% lower than reported in 2022.
[2] Water consumption data from De Hoop unit not available for years 2022 and 2021.

Water effluents[1]	Unit	2023	2022	2021
Nitrogen	tonnes	708	747	932
Phosphorus	tonnes	66	77	75
Chemical oxygen demand	tonnes	46,340	59,090	67,040
Suspended solids	tonnes	4,660	5,030	6,170
Adsorbable organic compounds (AOX)	tonnes	148	214	206

[1] All historical figures are restated due to structural changes after the previous annual report. Water effluents data from De Hoop unit not available for years 2022 and 2021.

Environmental incidents

Accounting principles

Reporting includes environmental incidents involving non-compliance with environmental legislation or permits, or a significant stakeholder concern related to environmental performance. Reporting covers production units and forestry operations, excluding joint operations. For an overview of environmental incidents and non-compliances, see Environmental incidents. In 2023, Stora Enso paid 34,900 EUR in environmental fines and penalties. 6,500 EUR of the fines were related to incidents in 2023, 10,900 EUR to incidents in 2022, and 17,400 EUR to incidents in 2021.

Environmental incidents	2023	2022	2021
Number of significant non-compliance events[1]	14	16	8

[1] Historical figures are restated due to additional data after the previous annual report. The figure for 2022 changed from 15 to 16.

Employees

Accounting principles

Stora Enso's employee figures reflect the end-of-year situation, except the average number of full-time equivalents (FTE), and the employee turnover. The average number of full-time equivalents is calculated as an average of full-time equivalent per month and includes 50% of the employees at Veracel in Brazil and at Montes del Plata in Uruguay. The headcount in the employee turnover formula is based on average monthly headcount.

The share of females managers is calculated as the headcount of all permanent managers with at least one direct report. The manager must be permanent, but the subordinates can be temporary or permanent. Excludes joint operations.

In addition to own employees, Stora Enso's units typically have contractor employees working at the sites. Annual maintenance also creates a peak in the number of contractor workers at the Group's production units for a short period. Many of the production units, particularly in Finland and Sweden, also have a systematic approach to employing students as interns for shorter periods during the summer holiday season. Stora Enso also relies on contractors in its De Jong units, and forestry operations and Packaging units in China. The number of contractor employees is not consolidated on Group level.

The median annual total compensation for all employees excludes the President and CEO. 2023 data includes only base salary, and excludes the De Jong Packaging Group units and joint operations. System development is ongoing to ensure better data coverage going forward. No comparative data available due to a system change in 2023.

Female employees' compensation compared to male employees' compensation is calculated as a weighted average within each country's employee categories, as applicable. Includes the four largest countries in terms of the total number of employees.

Stora Enso's lowest wages as compared to local minimum wages are presented for locations chosen based on an internal assessment including any human rights risks, compared to minimum wages set at the national, state, or provincial level as applicable. The ratio shows how many times larger the Group's lowest wage is, compared to the local minimum wage. The figures for Brazil and Uruguay include the employees of the 50% owned joint operations Veracel and Montes del Plata.

Key employee related figures	Unit	2023	2022	2021
Average number of full-time equivalents (FTEs)		20,822	21,790	23,071
Number of temporary employees		1,882	1,214	990
% of female employees among all employees		25%	25%	24%
% of female managers among all managers		24%	23%	23%
Women in the Group Leadership Team		4 out of 11	4 out of 11	5 out of 13
Women in the Board of Directors		4 out of 8	3 out of 9	3 out of 9
Age groups, all employees %[1]				
Up to 29	%	13%	14%	13%
30-49	%	55%	53%	54%
50 and over	%	33%	33%	33%
Average number of training hours per employee per year		18	21	26
Average number of training hours per production worker per year[2]		22	26	27
Employee turnover	%	11%	14%	13%
Ratio of the annual total compensation for the President and CEO to the median compensation for all employees[3]		25.8	n/a	n/a

[1] Age groups updated in 2023 due to system change. Historical figures are restated.
[2] Due to system change, average number of training hours per production worker for 2023 excludes Sweden.
[3] Compensation data includes only base salary. Historical figures not available due to system change.

Female employees' compensation compared to male employees' compensation[1]	Unit	2023	2022	2021
China	%	100%	92%	92%
Finland	%	97%	93%	92%
Poland	%	99%	91%	91%
Sweden	%	100%	100%	99%

[1] Ratios are weighted averages based on gender salary comparisons within each country's employee categories (career levels).

Stora Enso's lowest wages compared to local minimum wages[1]	Unit	2023	2022	2021
Brazil		1.1	1.1	1.1
China		1.0	1.0	1.0
Estonia		1.6	1.5	1.6
Latvia		1.5	1.7	1.6
Lithuania		1.2	1.2	1.3
Poland		1.1	1.1	1.0
Uruguay		1.5	1.6	1.5

[1] Stora Enso's lowest wages compared to local minimum wages are presented for locations chosen based on an internal assessment including any human rights risks, compared to minimum wages set at the national, state or provincial level as applicable. The ratio shows how many times larger the Group's lowest wage is, compared to the local minimum wage. The figures for Brazil and Uruguay include the employees of the 50% joint operations in Veracel and Montes del Plata.

Employee distribution and turnover[1]

	China		Finland		Poland		Sweden		Group total
	Female	Male	Female	Male	Female	Male	Female	Male	
Number of employees	**980 (41%)**	**1,420 (59%)**	**1,120 (21%)**	**4,140 (79%)**	**420 (22%)**	**1,480 (78%)**	**900 (25%)**	**2,710 (75%)**	**18,810**
Up to 29	120	240	110	370	60	150	110	360	13%
30–49	850	1,110	570	2,010	270	860	480	1,190	55%
50 and over	20	80	440	1,740	100	480	320	1,170	33%
Number of hires[2]	**30 (33%)**	**60 (67%)**	**80 (23%)**	**270 (77%)**	**60 (40%)**	**90 (60%)**	**90 (30%)**	**210 (70%)**	**1,390**
Up to 29	10	30	30	90	10	30	30	70	34%
30–49	10	30	40	140	40	50	50	100	53%
50 and over	0	0	10	40	0	10	10	40	12%
Number of leavings[3]	**160 (50%)**	**160 (50%)**	**90 (24%)**	**290 (76%)**	**60 (29%)**	**150 (71%)**	**100 (23%)**	**340 (77%)**	**2,200**
Up to 29	20	30	10	30	10	20	20	50	17%
30–49	130	110	60	140	20	60	50	120	51%
50 and over	10	20	30	130	30	70	40	160	32%
Employee turnover	**15%**	**11%**	**7%**	**7%**	**13%**	**10%**	**10%**	**12%**	**11%**

[1] Figures for the four largest countries in terms of the total number of employees and year-end headcount. Rounded to the nearest 10. Age groups updated in 2023 due to system change.
[2] Hires: number of permanent employees joining the Company. Excludes hires due to acquisitions.
[3] Leavings: number of permanent employees leaving voluntarily or due to restructuring, retirement, or death. Excludes leavings due to divestments.

Safety

Accounting principles

Stora Enso reports incidents and accidents using international Occupational Health and Safety (OHSA) definitions when reporting Total Recordable Incident (TRI) and Lost-Time Injury (LTI) rates. This allows the reported rates to be better aligned with international standards and enables future benchmarking with peers and companies in other sectors. The reported TRI and LTI rates show the number of recordable and lost-time incidents as per one million hours worked for own employees. The joint operations Veracel and Montes del Plata are fully consolidated due to the inherent nature of occupational safety. TRI and LTI rates for 2023 exclude the De Jong Packaging Group units due to availability of data.

Stora Enso also monitors contractor accidents in separate categories for on-site accidents and logistics incidents. Certain administrative functions and sales offices are currently excluded from the Group's safety figures due to data availability related to a relatively small headcount and lower occupational safety risk compared to production units. Stora Enso uses the Total Recordable Incident (TRI) rate as its main key lagging performance indicator (KPI), as this provides a comprehensive overview of safety performance by also including less severe accidents.

Key figures for safety	Unit	2023	2022	2021
Total recordable incident (TRI) rate		4.7	5.9	6.2
Fatalities in Stora Enso's premises[1]		0	3	1
Lost-time injury (LTI) rate		4.0	4.9	5.0
Illness-related absence, %	%	3.7%	4.1%	3.8%
Number of employees covered by certified safety management system		17,720	17,850	16,320
% of all employees	%	87%	93%	90%

[1] Covers Stora Enso's own and contractor workers in Stora Enso's premises or under Stora Enso's supervision.

Five-year TRI and LTI trend	2023	2022	2021	2020	2019
Total recordable incident (TRI) rate[1]	4.7	5.9	6.2	6.1	7.0
Lost-time injury (LTI) rate[1]	4.0	4.9	5.0	5.1	5.6

[1] Stora Enso's own employees, including joint operations.

Business ethics

Accounting principles

Stora Enso's Ethics and Compliance Index, which was introduced in 2022, is calculated as an average of five Ethics and Compliance-related questions in 'Engage', the annual employee survey. These questions are related to the Group's code of conduct, the Stora Enso Code. The maximum rating is 10.

The compliance control of the critical business partner review KPI monitors the number of due diligence and review processes that have been initiated within the third-party tool between 1 January to 31 December each year. The compliance control of the Ethics and Compliance Self-assessment Tool KPI monitors the number of units that have been covered by this tool each year. The compliance control of code of conduct training, COMPLY training, and data privacy training KPIs all monitor the percentage of active employees who have completed the e-learning programme at the end of each year.

Key figures for business ethics	Unit	2023	2022	2021
Ethics and Compliance Index		8.9	8.7	n/a
Compliance control: no. of critical business partners reviewed through a third-party tool		63	90	119
Compliance control: no. of teams using Compliance Self-Assessment Tool		155	135	149
Code of conduct training completed, no. of employees		18,240	19,296	n/a
Code of conduct training completed (31 Dec), all employees	%	94%	92%	n/a
Code of conduct training completed (31 Dec), office workers	%	95%	97%	95%
Code of conduct training completed (31 Dec), production workers	%	93%	89%	n/a
% of target group employees to complete the COMPLY compliance training	%	94%	97%	99%
% of office workers to complete training on data privacy	%	93%	98%	96%

Non-compliance cases	Unit	2023	2022	2021
Potential non-compliance cases reported		131	153	117
Investigations of potential non-compliance cases closed by ECMC and DC[1]		163	140	98
of which, identified proven cases leading to disciplinary action and/or legal action		30	44	26
No. of closed cases resulting in termination of business relationships[2]		6	17	11
No. of proven closed cases related to discrimination, harassment and/or bullying		7	12	11
No. of proven closed cases related to fraud and/or corruption		9	13	9

[1] Including cases reported in previous years. From October 2023, the Disciplinary Committee (DC) has the sole responsibility of the closing of compliance investigations. Previously Ethics and Compliance Management Committee (ECMC).
[2] Including cases involving more than one employee being dismissed.

Breakdown of potential non-compliance cases	Unit	2023	2022	2021
Anti-trust		2	3	1
Conflict of interest		6	8	10
Corruption		12	27	18
Fraud		6	9	10
Discrimination, harassment and/or bullying		25	46	46
Working conditions		39	10	11
Health and safety		5	10	5
Other		36	40	16
Total		**131**	**153**	**117**

Human rights

Accounting principles

The chapter Human rights summarises how human rights are integrated into the Company's business activities along the value chain, policies, and processes. The accounting principles for progress on salient issues is described in the corresponding sections of the 'Consolidated sustainability figures'. The Supplier Ethical Data Exchange (Sedex) is an ethical trade membership organisation. Audits are counted based on the audit date. Stora Enso's audit cycle is three years.

Key figures for human rights	Unit	2023	2022	2021
Number of production units registered in Sedex[1]		21	26	29
Ratio of production units registered in Sedex	%	34%	49%	48%
Ratio of units audited by SMETA within the past three years[2]	%	57%	53%	N/A
Ratio of joint operations registered in Sedex	%	100%	100%	100%
Ratio of joint operations audited by SMETA within the past three years	%	100%	100%	50%

[1] Supplier Ethical Data Exchange (Sedex) is a platform where companies share sustainability information with customers on unit level.
[2] Sedex Member Ethical Data Audits (SMETA)

Community

Accounting principles

Unless otherwise stated, Stora Enso's community investment includes monetary, time, and in-kind donations converted to euros from all operations. Employee working time for community projects is converted to euros based on country-specific salary averages. 50% joint operations in Brazil and Uruguay are consolidated following Stora Enso's ownership share. The KPI on the share of volunteer work and in-kind contributions excludes the 50% joint operations due the nature of community investment projects in these countries, where programmes cover wider societal issues with long-term investment needs.

Key figures for community	Unit	2023	2022	2021
Community Investment (CI): % of working hours and in-kind in the total CI	%	39%	41%	42%
Total amount of voluntary Community Investment converted to EUR	EUR million	1.6	2.0	2.0
Total amount of working hours spent by Stora Enso's employees in volunteer work		2,294	3,396	1,432
equivalent of no. of weeks of working time		57	85	36

Voluntary community investment by investment area[1]	Unit	2023	2022	2021
Total in EUR	EUR million	1.6	2.0	2.0
Education	%	15%	13%	20%
Emergency relief	%	6%	23%	11%
Environment	%	4%	4%	6%
Resilient local communities[2]	%	71%	54%	58%
Other	%	4%	6%	5%

[1] Total community investment includes cash, working hours, and in-kind as defined in the B4SI framework. Including 50% of joint operations Veracel in Brazil and Montes del Plata in Uruguay.
[2] Resilient local communities include B4SI framework areas of Economic development, Social welfare, Healthy lifestyle, and Arts and Culture.

Economic value for Stora Enso's stakeholders (EUR million)	Economic value	2023	2022	2021
Customers	Sales	9,396	11,680	10,164
Suppliers	Payments to suppliers	7,016	8,127	6,875
	Capital expenditure	1,125	778	666
Employees	Wages and benefits	1,275	1,315	1,351
Creditors	Interest	181	125	127
Public sector	Income taxes paid[1]	85	178	136
Shareholders	Dividends[2]	473	434	237

[1] For more information, see Stora Enso as a taxpayer.
[2] As disclosed in the Financials, Statement of changes in equity.

Sustainable sourcing

Accounting principles

Stora Enso measures the proportion of total supplier spend covered by its Supplier Code of Conduct (SCoC) for all categories and divisions. The SCoC applies to all Stora Enso's sourcing categories globally. Joint operations, intellectual property rights (IPR), leasing fees, financial trading, government fees such as customs, and wood purchases from private individual forest owners are not obliged to accept the SCoC. The total supplier spend excludes the above listed items.

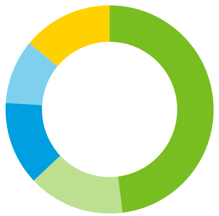
As of 2022, suppliers are required to provide both safety and CO_2 emission information. High-risk suppliers' spend and respective audit coverage includes the spend towards suppliers with heightened sustainability risks as identified by the Company's country and category risk assessment.

Key figures for sustainable sourcing	Unit	2023	2022	2021
% of supplier spend covered by the Supplier Code of Conduct (SCoC)	%	95%	96%	96%
No. of suppliers audited through third-party sustainability audits[1]		49	54	70
% of identified high-risk suppliers, by spend, covered by third-party sustainability audits	%	48%	53%	54%
No. of supplier contract terminated due to occupational safety issues		2	0	1
No. of supplier contract not renewed due to misconduct related to business ethics		2	5	1

[1] Figure for 2022 has been restated to include the HSEQ (Health, Safety, Environment and Quality) audits.

Breakdown of raw material and service costs

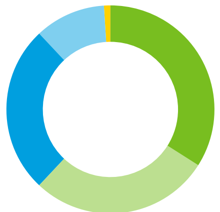
% of total variable costs



[1] Wood, Paper for Recycling, and purchased pulp.

Transportation and distribution of products to customers

650,000 tonnes CO_2e in total[1]



[1] Excludes Beihai production site.

Stora Enso as a taxpayer

Stora Enso aims to be transparent with respect to economic value generation. For this purpose, Stora Enso makes a voluntary commitment to provide information on the Group's tax approach and details of the corporate income taxes paid by the Group. Beginning in 2023, Stora Enso has adopted the GRI 207 standard as the framework for its tax disclosure. This means that the Group describes its tax policy and approach to tax and explains its processes around tax governance, controls, and risk management. Moreover, Stora Enso describes how it engages with stakeholders and deals with any concerns there may be related to tax. The Group also discloses the corporate income taxes paid and accrued, and other financial information according to the reporting requirements of the GRI 207-4 standard on country-by-country information.

Tax policy

The Stora Enso Tax Policy addresses the Group's tax strategy, including approach to tax, tax governance, compliance, tax risk management and tax authority co-operation. The Tax Policy has been approved by the President and CEO of Stora Enso and is reviewed annually. This report discusses the principles of the Tax Policy.

Approach to tax

As a responsible and prudent taxpayer, Stora Enso is committed to ensuring that the Group observes the letter and the spirit of applicable tax laws, rules and regulations, including international transfer pricing guidelines and local legislation in all jurisdictions where it conducts business activities or has otherwise any tax obligation. In addition to legal and regulatory requirements, the tax principles comply with Stora Enso's values to 'Lead' and 'Do what's right'.

The strategic priorities of Stora Enso's tax function are confirmed annually by the Group CFO. Integrated business partnering and inspired people with the right skills are at the core of Stora Enso's tax strategy. This is the basis for ensuring tax compliance with streamlined processes and advanced technology, and facilitating an early detection of tax risks, regulation changes, and improvement opportunities.

Stora Enso seeks to ensure that the tax strategy is aligned with the Group's business and commercial strategy. Stora Enso only undertakes tax planning that is duly aligned to economic activity and does not take aggressive tax planning positions. This means that all tax decisions are made in response to commercial activity, and tax is one of many other factors that are considered when making business decisions. Stora Enso has an obligation to manage tax costs as part of the Company's financial responsibility to societies and shareholders. Stora Enso may therefore respond to tax incentives and exemptions granted by governments on reasonable grounds, and currently has operations in countries that offer favourable tax treatments, where their location also is justified by sound commercial considerations.

Stora Enso has operations in the following locations that offer favourable tax treatments:

- The joint operation Montes del Plata operates a pulp mill in a Special Economic Zone with favourable tax treatment in Uruguay. As of 2024 the operations may become subject to additional tax in accordance with the minimum tax legislation having entered into force in multiple jurisdictions following the OECD Pillar Two rules.
- Stora Enso's two forestry companies in Guangxi, China are entitled to exemption from corporate income tax from forestry income and value added tax on their sales, and Stora Enso's related industrial company is entitled to reduced corporate income tax rate until 2025. In December 2022, Stora Enso initiated a sales process for a possible divestment of these forestry and consumer board production operations.
- Stora Enso conducts business, mainly consisting of sales support services, in the United Arab Emirates, Singapore, and Hong Kong.
- AS Stora Enso Latvija has been granted a corporate income tax credit relating to an investment project. The credit was fully utilised in 2023 and not available for future years.

Stora Enso's tax strategies are based on the Group's business. Stora Enso only undertakes tax planning that is duly aligned with economic activity.

Stora Enso follows the GRI 207 standard as the model for its tax disclosure.

The EU public Country-by-Country Reporting and GRI 207

The EU public Country-by-Country (CbC) Reporting Directive, effective from the financial year 2024, will lay out similar disclosure requirements regarding group companies in the EU countries as the GRI 207. However, Stora Enso has chosen to disclose country-by-country information already for 2023. The voluntary disclosure covers all countries of operation, instead of only the EU countries.

The financial information in GRI 207 is unconsolidated and presents the sum of the legal entities' local IFRS reported balances in each country. Group level IFRS and consolidation adjustments, such as elimination of Group internal transactions, are excluded from the figures reported below. Therefore the financial information is different to what is presented in the consolidated Financials Statements for 2023.

For more information about taxes, see note 2.5 Income taxes.

Tax governance, control, and risk management

Stora Enso acts, as part of protecting shareholder value, with integrity in all tax matters. The Group's Tax team, reporting to the Group CFO, works closely with the businesses and other internal stakeholders to identify and manage business and compliance tax risks to ensure a sustainable yet business feasible platform for operations. In addition to performing the mandatory Group level tax disclosure processes, the Tax team consolidates annual and quarterly tax reporting describing the Group's tax position to shareholders and other stakeholders. The Group's Tax team regularly reports key tax matters to the Group Leadership Team and the Finance and Audit Committee of the Board of Directors.

Tax affairs are managed under an extensive set of Group policies such as Stora Enso Code, Business Practice Policy, Supplier Code of Conduct, and Tax Policy. Stora Enso's internal allocation of responsibilities of tax matters and the engagement of external resources are described in the internal tax responsibility guidelines. Internal stakeholders are continuously trained on tax-related matters in order to enhance capabilities and improve overall tax compliance and quality of tax reporting. Compliance processes are subject to internal controls, and tax risks are annually reviewed as part of the Group's enterprise risk management process. The Tax team is involved in business changes already in the planning phase to ensure the alignment and appropriate compliance of tax rules and regulations. The Tax team monitors changes in tax legislation and regularly reviews tax affairs and risks with stakeholders to ensure that Stora Enso can sufficiently identify, assess, and mitigate tax risk.

In case employees have any concerns about unethical or unlawful behaviour or the Company's integrity, the anonymous Speak Up Hotline can be used to report any suspected cases also regarding tax matters. All reported cases will be subject to an established investigation and reporting process, with proven cases leading to actions.

The Group's tax disclosures are included in the assurance process of the Annual Statements. This 'Stora Enso as a taxpayer' report is subject to limited assurance.

Stakeholder engagement and concerns related to tax

Stora Enso's commitment to tax transparency is also reflected in the Group's relationships with tax authorities and governments. To build confidence whenever possible, Stora Enso seeks to work positively, proactively and openly with tax authorities on a global basis, utilising transparent advance processes in order to minimise potential disputes. Stora Enso also works with government representatives, mainly through associations, by providing corporate views and impacts at request to aid law-making and implementation. Stora Enso readily responds to investor enquiries, and constantly follows the development of tax sustainability and transparency expectations.

Country-by-country reporting of income taxes in 2023: How to read the report

The country-by country data is reported as required in the GRI 207-4 standard. However, while the reporting required in GRI 207-4 is based on the data in Stora Enso's consolidated Financial Statements, the reporting is unconsolidated and does not fully reconcile with the consolidated Financial Statements. The financial information in the CbC report is the sum of the legal entities' local standalone IFRS reported balances in each country. Group level consolidation adjustments, such as elimination of group internal transactions, are excluded. Due to this the financial information is different than what is presented in the consolidated financial statements for 2023. Also, the definitions used in the GRI 207 may differ from the standard definitions used in other reporting areas.

Country-by-country information for financial year 2023

MEUR	Unrelated parties tevenue[1]	Related parties revenue in other tax jurisdictions[2]	Result before income tax[3]	Income tax paid (on cash basis)[4]	Income tax accrued (current year)[5]	Number of employees[6]	Tangible assets (other than cash and equivalents)[7]	Primary activity in jurisdiction[8]	Main reasons for differences between current tax accrued and tax as per statutory rate[9]
Australia	111	1	2	2	0	32	30	Sales	
China	571	31	-83	0	0	2,547	1,050	Manufacturing, sales, support services, forestry	Loss
Hong Kong	25	1	0	0	0	7	0	Support services	
India	0	0	0	0	0	5	0	Support services	
Japan	0	2	0	0	0	12	0	Sales, support services	
Singapore	0	3	0	0	0	14	0	Support services	
Austria	350	78	18	8	4	1,017	123	Manufacturing, sales	
Belgium	326	57	30	7	9	501	146	Manufacturing, sales	
Germany	236	46	107	3	1	585	39	Manufacturing, sales	
Estonia	139	109	37	1	1	713	40	Manufacturing, sales, support services	Taxation not based on profit
Spain	0	2	0	0	0	13	0	Support services	
Finland	4,131	1,229	-652	23	0	5,587	2,433	Manufacturing, R&D, procurement, sales, group management	Loss
France	42	6	-1	0	0	29	4	Sales, support services	
Italy	0	8	5	2	1	27	0	Support services	
Lithuania	61	45	4	2	1	344	20	Manufacturing, sales	
Latvia	77	89	15	1	1	402	52	Manufacturing, sales	Taxation not based on profit
Netherlands	504	108	138	7	10	906	370	Manufacturing, sales, support services	Non-taxable internal dividends
Portugal	0	1	0	0	0	1	0	Support services	
Slovenia	28	0	1	0	0	5	1	Sales	
Slovakia	0	1	0	0	0	2	0	Procurement	
Czech Republic	244	92	12	7	2	1,158	152	Manufacturing, sales	
Denmark	17	4	0	0	0	5	0	Support services	
Poland	471	118	39	11	11	1,997	451	Manufacturing, sales	
Sweden	2,145	1,060	-896	5	0	3,904	7,345	Manufacturing, R&D, procurement, sales, group management, forest ownership	Temporary differences
United Kingdom	245	6	6	2	1	83	31	Sales, support services	
Norway	17	84	0	0	0	3	5	Procurement	
Turkey	0	0	0	0	0	2	0	Support services	
Ukraine	0	0	0	0	0	1	0	Support services	
Mexico	0	1	0	0	0	14	0	Support services	
United States	96	5	2	0	0	30	21	Sales, support services	
United Arab Emirates	0	1	0	0	0	8	0	Support services	
South Africa	0	0	0	0	0	3	0	Support services	
Brazil	6	182	-3	2	2	549	323	Manufacturing, forestry	
Uruguay	41	403	171	7	7	312	1,611	Manufacturing, forestry	Favourable tax treatment
Stora Enso Group	**9,881**	**3,774**	**-1,048**	**89**	**51**	**20,822**	**14,247**		

Names of the resident entities can be found in note 6.2 Group companies in the Financial report.
[1] Revenues from third-party sales is the total amount of revenue from domestic and foreign external parties of the entities in the jurisdiction.
[2] Revenues from intra-group transactions with other tax jurisdictions provides the total amount of cross-border revenue from other group entities.
[3] Profit/loss before tax is the total amount of the group entities' profit or loss before tax in the jurisdiction, as reported under IFRS. The reported amounts include temporary and permanent differences between accounting and taxation, such as non-taxable dividends from other group companies, and thus do not represent the taxable income on which taxes are calculated in the jurisdiction's taxation.
[4] Corporate income tax paid on a cash basis contains the total of corporate income taxes paid during the reported period by the companies in the jurisdiction to the home jurisdiction and all other jurisdictions. The amount contains tax payments for previous years and excess payments refundable in following years.
[5] Corporate income tax accrued on profit/loss is the IFRS reported current tax expense of the reported period. The amounts do not include deferred taxes from temporary differences and tax losses, and thus do not represent the total tax expense of the entities in the income statement. The amounts do not contain taxes from previous periods.
[6] Number of employees is the total average number of employees in the jurisdiction during the year.
[7] Tangible assets other than cash and cash equivalents states the total of IFRS reported values of tangible assets in the entities of the jurisdiction.
[8] Primary activities in the jurisdiction lists the main activities of all group entities in the jurisdiction.
[9] Reasons for differences between income tax accrued and tax as per statutory rate explains the main reasons for the difference between the reported corporate income tax accrued for the year (5), and the amount of tax when applying the jurisdiction's statutory corporate income tax rate to the profit/loss before tax (3). The reasons for differences may come from several sources, many of which are reporting technical. For example, profit/loss before tax (3) may contain items that will become taxable earlier or later than they are recognised in bookkeeping, creating timing differences on which deferred tax is recognised. In addition, differences may be due to utilization of tax losses or incurring new loss, for which deferred tax is also normally recognised. However, as per the standard, the accrued income tax (5) is reported here excluding deferred taxes, which creates a timing related difference between tax accrued and tax as per the statutory rate. Other main reasons for differences listed in this column may be tax exempt items such as group internal dividends, costs not deductible for tax purposes, favourable tax treatments (see previous page), and taxes from previous years.

Independent practitioner's Assurance Report on sustainability reporting

To the Board of Directors and Group Leadership Team of Stora Enso Oyj

Introduction

We have been engaged by the Board of Directors and Group Leadership Team of Stora Enso Oyj (hereinafter also the "Stora Enso") to perform a limited assurance engagement on Stora Enso's sustainability reporting disclosed as part of the Annual Report 2023, EU taxonomy reporting and Stora Enso as a taxpayer reporting 2023, and reasonable assurance on Stora Enso's direct and indirect (Scope 1 + 2) fossil CO_2 emissions as disclosed in the sustainability reporting (hereafter sustainability reporting) for the reporting period from 1 January 2023 to 31 December 2023. Stora Enso has defined the scope of its sustainability reporting on pages 63, 77 and 118 in this report.

The GHG emissions inventory includes data for Stora Enso's Production units, excluding joint operations. Scope 1 and Scope 2 emissions are verified with reasonable assurance and Scope 3 emission categories: harvesting and wood transportation, fuels and energy (production and transportation), purchased materials (production and transportation), transportation and distribution of products to customers globally, processing of products by customers, with limited assurance.

Management's responsibility

The Board of Directors and Group Leadership Team of Stora Enso are responsible for preparing the sustainability reporting in accordance with the applicable reporting criteria. The criteria are explained on pages 63, 77 and 118 in this report, and consist of, the Global Reporting Initiative (GRI) Sustainability Reporting Standards which are applicable to the Stora Enso's sustainability reporting, the Greenhouse Gas Protocol for CO_2 emissions, Regulation (EU) 2020/852 and supplementing delegated acts as well as the Reporting Criteria as set out in the Company's reporting instructions. The Board of Directors and Group Leadership Team of Stora Enso are also responsible for such internal control as the management determines is necessary to enable the preparation of the sustainability information that is free from material misstatement, whether due to fraud or error.

Practitioner's independence, other ethical requirements and quality management

We have complied with the independence and other ethical requirements of the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants (IESBA code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

PricewaterhouseCoopers Oy applies International Standard on Quality Management (ISQM) 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Practitioner's responsibility

Our responsibility is to express a limited assurance conclusion on the sustainability information and a reasonable assurance on Scope 1 and 2 fossil CO_2 based on the procedures we have performed and the evidence we have obtained.

We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (revised) "Assurance Engagements Other than Audits or Reviews of Historical Financial Information", to provide limited assurance on the Sustainability reporting as a whole, including EU taxonomy reporting, and in accordance with ISAE 3410, "Assurance Engagements on Greenhouse Gas Statements", to provide reasonable assurance on direct and indirect (Scopes 1 + 2) fossil CO_2 emissions as disclosed in the sustainability reporting. These standards require that we plan and perform the engagement to obtain appropriate level of assurance that the information examined is free from material misstatement.

The objective of assurance is to obtain reasonable assurance that the information is free of material misstatements. A reasonable assurance engagement includes examining, on a test basis, evidence supporting the information for the assurance of fossil CO_2 in the sustainability report. We have evaluated the effectiveness of internal controls and the processes for collecting and consolidating fossil CO_2 emissions data, and performed testing on a sample basis to evaluate whether the fossil CO_2 emissions are reported according to the Reporting Criteria.

In a limited assurance engagement, the evidence-gathering procedures are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement. An assurance engagement involves performing procedures to obtain evidence about the amounts and other information in the sustainability information. The procedures selected depend on the practitioner's judgment, including an assessment of the risks of material misstatement of the sustainability information.

Our work consisted of, amongst others, the following procedures:

- Interviewing members of the Group Leadership Team of Stora Enso.
- Visiting Stora Enso's sites in Anjalankoski, Imatra, and Sausenheim.
- Interviewing employees responsible for collecting and reporting the information at the Group level.
- Assessing how Group employees apply the reporting instructions and procedures of Stora Enso.
- Testing the accuracy and completeness of the information from original documents and systems on a sample basis.
- Testing the consolidation of information and performing recalculations on a sample basis.
- Considering the disclosure and presentation of the sustainability information.

Reasonable assurance opinion

We have conducted a reasonable assurance engagement on Stora Enso's direct and indirect (Scopes 1 + 2) fossil CO_2 emissions for the year ended 31 December 2023.

In our opinion, Stora Enso's direct and indirect (Scopes 1 + 2) fossil CO_2 emissions have, in all material respects, been prepared in accordance with the reporting criteria.

Limited assurance conclusion

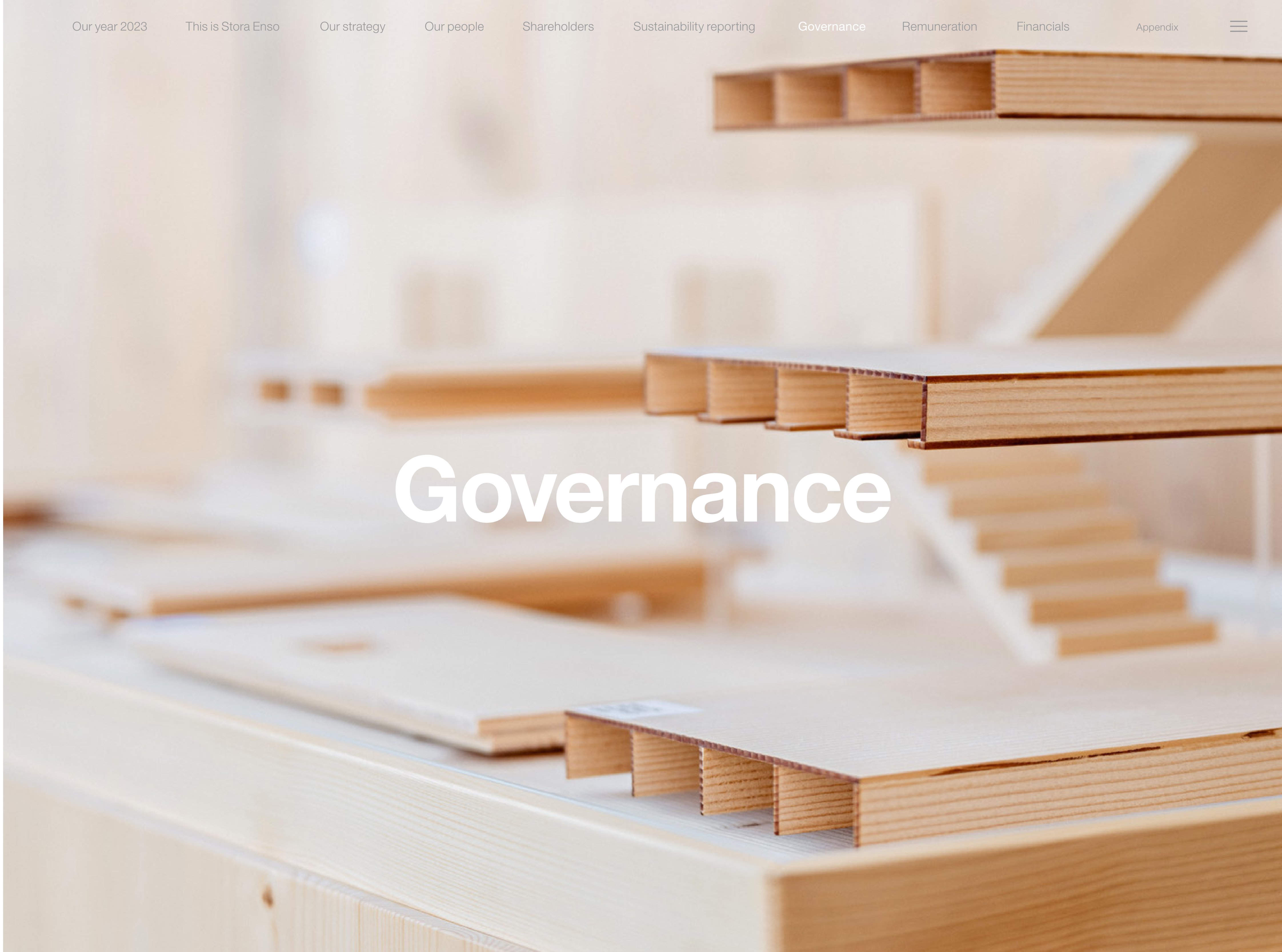
We have conducted a limited assurance engagement on Stora Enso's sustainability reporting for the year ended 31 December 2023.

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that sustainability reporting, including EU Taxonomy reporting and Stora Enso as a taxpayer reporting is not prepared, in all material respects, in accordance with the Reporting criteria.

When reading our assurance report, the inherent limitations to the accuracy and completeness of sustainability information should be taken into consideration.

Our assurance report has been prepared in accordance with the terms of our engagement. We do not accept, or assume responsibility to anyone else, except to Stora Enso for our work, for this report, or for the conclusion that we have reached.

Helsinki 12 February 2024
PricewaterhouseCoopers Oy
Samuli Perälä, Authorised Public Accountant (KHT)



Governance

Corporate Governance in Stora Enso 2023

The duties of the various bodies within Stora Enso Oyj ("Stora Enso" or the "Company") are determined by the laws of Finland and by the Company's corporate governance policy, which complies with the Finnish Companies Act and the Finnish Securities Market Act. The rules and recommendations of the Nasdaq Helsinki Oy and Nasdaq Stockholm AB stock exchanges are also followed, where applicable. The corporate governance policy is approved by the Board of Directors ("Board").

Stora Enso complies with the Finnish Corporate Governance Code 2020 issued by the Securities Market Association (the "Code"). The Code is available at cgfinland.fi. Stora Enso also complies with the Swedish Corporate Governance Code ("Swedish Code"), with the exception of the deviations listed in Appendix 1 of this Corporate Governance Report. The deviations are due to differences between Swedish and Finnish legislation, governance code rules and practices, and in these cases Stora Enso follows the practice in its domicile. The Swedish Code is issued by the Swedish Corporate Governance Board and is available at corporategovernanceboard.se.

This Corporate Governance Report is available as a PDF document at storaenso.com/investors/governance.

General governance issues

The Board and the President and CEO are responsible for the management of the Company, the roles and responsibilities of which are described in more detail later in this report. Other governance bodies have an assisting and supporting role.

The Stora Enso group prepares Consolidated financial statements and Interim Reports conforming to International Financial Reporting Standards (IFRS Accounting Standards), and publishes Annual Financial Statements as well as Interim Reports in Finnish and English. Stora Enso Oyj prepares its Financial statements in accordance with the Finnish Accounting Act.

The Company's head office is in Helsinki, Finland, and it also has head office functions in Stockholm, Sweden.

Stora Enso has one statutory auditor elected by the shareholders at the Annual General Meeting (AGM).

To the maximum extent possible, corporate actions and corporate records are taken and recorded in English.

Objectives and composition of governance bodies

The shareholders exercise their ownership rights through the shareholders' meetings. The decision-making bodies responsible for managing the Company are the Board and the CEO, while the Group Leadership Team (GLT) supports the CEO in managing the Company.

The day-to-day operational responsibility rests with the GLT members and their operation teams are supported by various staff and service functions.

Governance bodies

Shareholders' meetings

The Annual General Meeting of shareholders (AGM) is held annually to present detailed information about the Company's performance and to deal with matters such as adopting the annual accounts, setting the dividend (or distribution of funds) and its payment, and appointing the Chair, Vice Chair, and the members of the Board of Directors, as well as the Auditor.

Shareholders may exercise their voting rights and take part in the decision-making process of Stora Enso by participating in shareholders' meetings. Shareholders also have the right to ask the Company's management and Board of Directors questions at shareholders' meetings. Major decisions are taken by the shareholders at Annual or Extraordinary General Meetings. At a shareholders' meeting, each A share and every ten R shares carry one vote. Shareholders may also exercise their decision-making rights by means of pre-voting, which has been offered by the Company as a means of exercising voting rights since 2020.

The Board of Directors convenes a shareholders' meeting by publishing a notice of the meeting at the Company's website not more than three months before the last day for advance notice of attendance mentioned in the notice of the meeting and not less than three weeks before the date of the meeting. In addition, the Company publishes details on the date and location of the meeting, together with the address of the Company's website, in at least two Finnish and two Swedish newspapers. Other regulatory notices to the shareholders are delivered in the same way.

The AGM shall be held annually by the end of June in Helsinki, Finland. The Finnish Companies Act and Stora Enso's Articles of Association specify in detail that the following matters have to be dealt with at the AGM:

- presentation and adoption of the annual accounts
- presentation of the Board of Directors report and the Auditor's report
- use of the result and distribution of funds to the shareholders
- resolution concerning discharge of the members of the Board and the CEO from liability
- presentation of the remuneration policy and/or report
- decision on the number and the remuneration of the members of the Board and the Auditor
- election of the Chair, Vice Chair, and other members of the Board and the Auditor
- any other matters notified separately in the notice of the meeting.

In addition, the AGM shall take decisions on matters proposed by the Board of Directors. A shareholder may also propose items for inclusion in the agenda provided that they are within the authority of the shareholders' meeting and the Board of Directors was asked to include the items in the agenda no later than on the date set out by the Company, which must be not earlier than four weeks before the publication of the notice of the meeting and which will be announced at the Company's website no later than by the end of the financial year preceding the AGM.

An Extraordinary General Meeting of Shareholders is convened when considered necessary by the Board of Directors or when requested in writing by the Auditor or shareholders together holding a minimum of one tenth of all the shares to discuss a specified matter which they have indicated.

In 2023

Stora Enso's AGM was held on 16 March 2023 in Helsinki, Finland. Of all issued and outstanding shares in the Company, a total of 69.3% of all shares (68.6% in 2022) and a total of 85.9% of all votes (83.8%) were represented at the meeting, with 94.2% of all A shares (91.4%) and 62.2% of all R shares (62.1%) represented. All Board members and most of the GLT members as well as Company's Auditor were present at the meeting. The AGM, in addition to regular matters, authorised the Board to decide on a share issue or share repurchase covering a maximum of 2,000,000 R shares in order to carry out the Company's compensation or remuneration schemes.
No Extraordinary General Meetings of Shareholders were convened in 2023.

Shareholders' Nomination Board

Shareholders at the Annual General Meeting (AGM) have established a Shareholders' Nomination Board to exist until otherwise decided, and to annually prepare proposals to the shareholders' meeting concerning:

- the number of members of the Board;
- the Chair, Vice Chair, and other members of the Board;
- the remuneration for the Chair, Vice Chair, and members of the Board;
- the remuneration for the Chair and members of the committees of the Board.

The AGM has approved the Charter of the Shareholders' Nomination Board and shall approve any proposed amendments of the Charter, other than technical updates.

The Shareholder's Nomination Board according to its Charter comprises four members:

- the Chair of the Board;
- the Vice Chair of the Board;
- two members appointed annually by the two largest shareholders (one each) as of 31 August.

The Board through its Chair shall ensure that the annual appointment of the members to the Shareholders' Nomination Board is carried out as set out in the Charter as decided by the AGM. The Board Chair shall annually convene the first meeting of the Shareholders' Nomination Board, which shall elect its Chair amongst its members that are annually appointed by the Company's two largest shareholders.

The Shareholders' Nomination Board shall serve until further notice, unless the AGM decides otherwise. Its members are elected annually, and their term of office shall end when new members are elected to replace them.

In 2023

The Shareholders' Nomination Board comprised four members: Kari Jordan (Chair of the Board), Håkan Buskhe (Vice Chair of the Board) and two other members appointed by the two largest shareholders, namely Jouko Karvinen (Solidium Oy) and Marcus Wallenberg (FAM AB). Until 6 September 2023 Solidium was represented by Reima Rytsölä. Marcus Wallenberg was elected Chair of the Shareholders' Nomination Board.

The main tasks of the Shareholders' Nomination Board were to prepare the proposals for the AGM 2024 concerning Board members and their remuneration. During its working period 2023–2024, the Shareholders' Nomination Board convened three (3) times. Each member of the Shareholders' Nomination Board attended all the meetings. Kari Jordan and Håkan Buskhe did not participate in the preparations or the decision-making regarding Board remuneration.

In its proposal for the AGM 2024, the Shareholders' Nomination Board proposes that of the current members of the Board of Directors Håkan Buskhe, Elisabeth Fleuriot, Helena Hedblom, Astrid Hermann, Kari Jordan, Christiane Kuehne and Richard Nilsson be re-elected members of the Board of Directors until the end of the following AGM and that Reima Rytsölä be elected new member of the Board of Directors for the same term of office. It is proposed that Kari Jordan be elected Chair of the Board and Håkan Buskhe Vice Chair of the Board. Antti Mäkinen has informed the Shareholders' Nomination Board that he is not available for re-election. The Shareholders' Nomination Board also proposes that the annual remuneration for the Chair, Vice Chair, and members of the Board of Directors, as well as for the Chairs and members of Board Committees be increased by three percent.

For the purpose of carrying out its tasks, the Shareholders' Nomination Board has received the results of the self-evaluation of the Board of Directors as well as the assessment of each director's independence of the Company and of significant shareholders. The Shareholders' Nomination Board has taken the results of the Board evaluation and the requirements relating to director independence into account in its work. The Shareholders' Nomination Board further considers the principles of the Board Diversity Policy in preparing its proposal. The Shareholders' Nomination Board has a Charter that defines its tasks and responsibilities in more detail.

Remuneration

No remuneration is paid for members of the Shareholders' Nomination Board as decided by the AGM. The Shareholders' Nomination Board Charter is presented at storaenso.com/investors/governance.

Composition of the Shareholders' Nomination Board in 2023

Kari Jordan[1], member	**Håkan Buskhe[1], member**
Chair of Stora Enso's Board of Directors	Vice Chair of Stora Enso's Board of Directors
Marcus Wallenberg, Chair	**Jouko Karvinen, member[2]**
Chair of Stora Enso's Shareholders' Nomination Board. Born 1956. B.Sc. (Foreign Service). Chair of the Board of Directors of FAM AB.	Member of Stora Enso's Shareholders' Nomination Board. Born 1957. M.Sc. (Tech.). Chair of the Board of Directors of Solidium Oy.

[1] Curriculum vitae of Kari Jordan and Håkan Buskhe, see chapter Members of the Board of Directors.
[2] Until 6 September 2023 Solidium was represented by Reima Rytsölä.

Board of Directors

Stora Enso is managed by the Board acting in accordance with the Finnish Companies Act as well as other applicable legislation.

According to the Company's Articles of Association, the Board comprises six to eleven ordinary members appointed by the shareholders at the AGM for a one-year term. The majority of the directors shall be independent of the Company. In addition, at least two of the directors comprising this majority shall be independent of significant shareholders of the Company. A significant shareholder is a shareholder that holds at least 10% of all the Company's shares or the votes carried by all the shares or a shareholder that has the right or the obligation to purchase the corresponding number of already issued shares. The independence is evaluated annually in accordance with the Finnish Corporate Governance Code.

All directors are required to deal at arm's length with the Company and its subsidiaries and to disclose circumstances that might be perceived as a conflict of interest.

The shareholders at the AGM decide the remuneration of the Board members (including the remuneration of the members of the Board committees).

The Board supervises the operation and management of Stora Enso and decides on significant matters relating to strategy, investments, organisation, and finance.

The Board is responsible for overseeing management and for the proper organisation of the Company's operations. Likewise, it is responsible for overseeing the proper supervision of accounting and the control of financial and sustainability matters.

The Board has defined a working order, the principles of which are published in chapter Working order of the Board in this report and at storaenso.com/investors/governance.

The AGM elects the Chair and Vice Chair of the Board. Should the Chair or Vice Chair of the Board of Directors resign or become otherwise unable to act as Chair or Vice Chair during their term of office, the Board may elect a new Chair or Vice Chair from among its members for the remaining term of office.

The Board annually agrees on focus areas for the Board's work during the upcoming year constituting the Board Agenda.

The Board appoints the CEO, Chief Financial Officer (CFO), and other GLT members. The Board approves the main organisational structure of the Company.

The Board reviews and determines the remuneration of the CEO, which is described in the Annual Report and on the Company's website. The Board and each of its Committees evaluates its performance annually. The results of the Board's evaluation are reviewed by the Board and shall be communicated to the Shareholders' Nomination Board, which shall take the results of the Board evaluation into account in its work. The Board also reviews the corporate governance policy annually and amends it when required.

The Board's work is supported through its committees – the Financial and Audit Committee, the People and Culture Committee and the Sustainability and Ethics Committee. Each committee's Chair and members are appointed by the Board annually.

The Board meets at least five times a year. The Board members meet regularly without management in connection with the Board meetings.

Board Diversity Policy

The Company has established a Board Diversity Policy setting out the principles concerning the diversity of the Board. The Shareholders' Nomination Board shall, in connection with preparing its proposals for the nomination of directors to the AGM, consider the principles of the Company's Board Diversity Policy.

Directors shall be nominated on the basis of their merits and with consideration of the benefits of diversity and the principles that the Company refers to as Diversity of Thought, including, but not limited to, criteria of diversity such as gender, age, nationality, and individual differences both in professional and personal experiences. The merits of directors include knowledge of the operational environment of the Company, its markets and of the industry within which it operates, and may include elements such as financial, sustainability or other specific competency, geographical representation, and business background as required in order to achieve the appropriate balance of diversity, skills, experience, and expertise of the Board collectively. The foremost criteria for nominating director candidates shall be the candidates' skills and experiences, industrial knowledge as well as personal qualities and integrity.

The composition of the Board as a whole shall reflect the requirements set by the Company operations and its development stage. The number of directors and the composition of the Board shall be such that they enable the Board to see to its duties efficiently. Both genders shall be represented on the Board and the aim of the Company shall be to strive towards a good and balanced gender distribution.

The Shareholders' Nomination Board has taken the principles of the Board Diversity Policy into account in its work. The Shareholders' Nomination Board finds that the composition of the Board as proposed to the AGM 2024 reflects diversity and a good variety of skills and experiences among the Board members following the principles set out in the Board Diversity Policy. The aim of the Shareholders' Nomination Board going forward is to maintain a good and balanced gender distribution.

The Board Diversity Policy is presented at storaenso.com/investors/governance.

In 2023

The Board had eight members at the end of 2023, all of them independent of the Company. The Board members are also independent of significant shareholders of the Company with the exception of Håkan Buskhe (CEO of FAM AB) and Richard Nilsson (Investment Director at FAM AB).

The Board members nominated at the AGM in 2023 were Kari Jordan (Chair), Håkan Buskhe (Vice Chair), Elisabeth Fleuriot, Helena Hedblom, Astrid Hermann, Christiane Kuehne, Antti Mäkinen, Richard Nilsson and Hans Sohlström. Hans Sohlström was a member of the Board until his appointment as President and CEO on 18 September 2023. The Board convened 12 times during the year. The members' participation rate in meetings amounted to 99%.

The Board has conducted an internal self-evaluation relating to the Board's work, which together with the evaluation of the Board members' independence has been provided to the Shareholders' Nomination Board for information. Overall assessment of the Board's work and performance has been effective and positive. The Board has worked according to all applicable rules and regulations. For detailed information about the Board members and their share ownerships, see chapter Members of the Board of Directors.

Remuneration

Board remuneration is decided by the AGM each year. The AGM 2023 decided on an annual remuneration of EUR 209,000 for the Board Chair, EUR 118,000 for the Vice Chair and EUR 81,000 for other members, which is paid partly in Company shares as set out in the resolution of the AGM. In addition, remuneration may be paid based on Board Committee memberships.

Board Diversity in 2023

During 2023, the Board has been composed of 8–9 members representing five different nationalities and a diverse range of experience from global companies and industrial sectors. All Board members have university degrees from different fields such as engineering, technology, finance, and law. All members have vast experience from global companies either from earlier operative positions or through board memberships. A detailed description of the educational and professional backgrounds of the Board members can be found in chapter Members of the Board of Directors.

The Board members represent a good knowledge of the operational environment of the Company as well as particular experience of amongst others sustainability, ESG, financial competence, and the business environment relevant to the operations of the Company. At the end of 2023 the age of the Board members varied from 50 years to 68 years and the Board was composed of four women and four men.

In 2023, the Shareholders' Nomination Board has considered its previous evaluation of competencies that may be further strengthened in the long-term Board succession planning. In its proposal for the AGM 2024, the Shareholders' Nomination Board has proposed a Board composition that includes four (4) women and four (4) men in the age range of 50 years to 68 years and representing a total of five different nationalities. The proposed new Board member Reima Rytsölä would bring strong finance and industry competence and experience to the Board, and would, in the view of the Shareholders' Nomination Board, add strong value to the Board as a collective.

The aim of the Shareholders' Nomination Board going forward is to maintain a good and balanced gender distribution.

Working order of the Board

The working order describes the working practices of the Board. A summary of key contents is presented below.

Board meetings

- occur regularly, at least five times a year, according to a schedule decided in advance;
- special Board meetings, if requested by a Board member or the CEO, are held within 14 days of the date of request;
- agenda and material shall be delivered to Board members one week before the meeting.

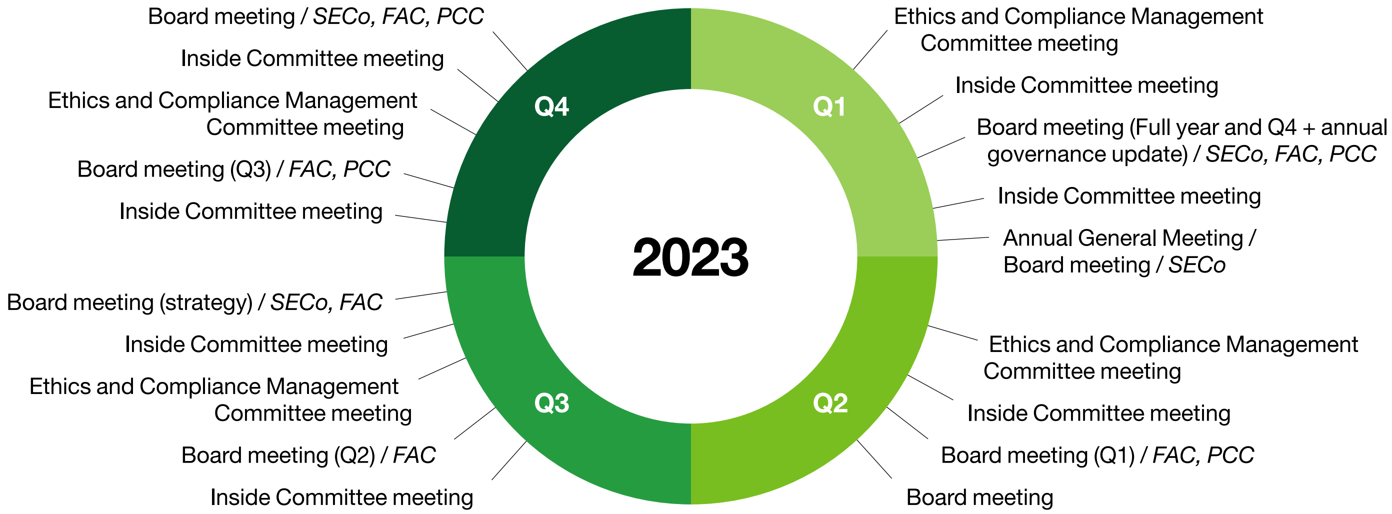
Information

- the Board shall receive information monthly concerning financial performance, the market situation, and significant events within the Company's and the group's operations;
- Board members shall be informed about all significant events immediately.

Matters to be handled at Board meetings

- matters specified by the Finnish Companies Act;
- approval of business strategy;
- organisational and personnel matters:
  - decisions concerning the basic top management organisation;
  - decisions concerning the composition of the GLT;
  - remuneration of the CEO;
  - appointment and dismissal of the CEO and approval of heads of divisions and other members based on the CEO's proposal belonging to the GLT;
  - appointment of Committee Chairs and members;
  - remuneration of GLT members based on the CEO's proposal;
  - review talent management and succession planning process (in particular the CEO);
- economic and financial matters:
  - approval and review of the annual budget;
  - approval of loans and guarantees, excluding intra-group loans and guarantees;
  - approval of share repurchases, if any, as well as the report of share repurchases;
  - approval of Group Risk Management Policy according to the Financial and Audit Committee's proposal;
- investment matters:
  - approval of the investment policy of the group;
  - approval of major investments;
  - approval of major divestments;
  - receive relevant analyst meeting presentations and analyst reports;
- other matters:
  - report of the CEO on the group's operations;
  - reports of the Financial and Audit Committee, People and Culture Committee, and Sustainability and Ethics Committee by the chairs of the respective committees. The recommendations and proposals by the Shareholders' Nomination Board shall be reported to the Board by the Chair of the Board;
  - approval and regular review of the Corporate Governance Policy and the charters of the Board Committees;
  - annual self-assessment of Board work and performance as well as independence;
- other matters submitted by a member of the Board or the CEO.

The Board of Directors' and management's annual working cycle



SECo = Sustainability and Ethics Committee
FAC = Financial and Audit Committee
PCC = People and Culture Committee

Monthly
- GLT meetings
- Investment Working Group meetings
- Divisional performance meetings

Quarterly
- Meetings with auditors

Board skills matrix

	Kari Jordan	Håkan Buskhe	Elisabeth Fleuriot	Helena Hedblom	Astrid Hermann	Christiane Kuehne	Antti Mäkinen	Richard Nilsson
Qualifications and Experience								
Sustainability driven innovation			yes	yes				
Finance and Risk Management	yes	yes			yes		yes	yes
Global Business and Operative Management	yes	yes	yes	yes	yes	yes	yes	yes
Sustainability, ESG			yes	yes	yes	yes		
Governance & Compliance	yes		yes		yes	yes	yes	yes
Business Leadership	yes	yes	yes	yes		yes	yes	yes
Industry Experience	yes	yes						yes
Strategic planning	yes	yes	yes	yes	yes	yes	yes	yes
Branding and Communications			yes			yes		
Cyber security/IT & Digitalisation		yes			yes			
Emerging Markets			yes	yes		yes		
Additional Qualifications and Information								
Director since	2022	2020	2013	2021	2023	2017	2018	2014
Independent of Company	yes	yes	yes	yes	yes	yes	yes	yes
Independent of Owners	yes	no	yes	yes	yes	yes	yes	no
FAC membership 2023			Member		Member			Chair
SECo membership 2023				Member		Chair		
PCC membership 2023	Chair	Member					Member	
Other current listed Boards*	1	1	0	0	0	0	1	1

Principal Skills (out of 8 Directors)

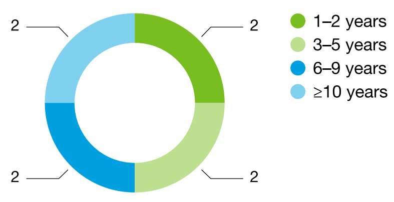
Sustainability driven innovation	2
Finance and Risk Management	5
Global Business and Operative Management	8
Sustainability, ESG	4
Governance & Compliance	6
Business Leadership	7
Industry Experience	3
Strategic planning	8
Branding and Communications	2
Cyber security/IT & Digitalisation	2
Emerging Markets	3

yes no *at 31 December 2023

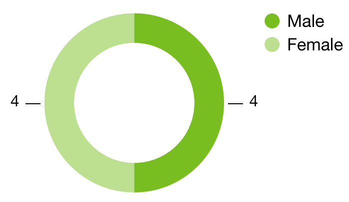
The table sets out the primary skills of each Board member. The fact that an item is not highlighted for a Board member does not mean that such member does not possess that qualification or skill.

Board diversity in figures

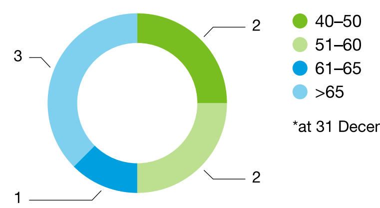
Tenure
Number of persons



Gender
Number of persons



Age*
Number of persons



*at 31 December 2023

Board committees

The tasks and responsibilities of the Board committees are defined in their charters, which are approved by the Board. All the committees evaluate their performance annually, are allowed to use external consultants and experts when necessary, and shall have access to all information required. Each committee's Chair and members are appointed by the Board annually.

Financial and Audit Committee

The Board has a Financial and Audit Committee to support the Board in maintaining the integrity of the Company's financial and sustainability reporting and the Board's control functions. It regularly reviews and monitors the system of internal control and internal audit as well as its efficiency, the management and reporting of financial risks, the audit process, the Company's procedures for monitoring related party transactions, the annual corporate governance report, and the Report of the Board of Directors including non-financial information. It makes recommendations regarding the appointment of external auditor for the Parent Company and the main subsidiaries, and monitors the auditor's independence.

The Committee comprises three to five Board members who are independent of and not affiliated with the Company. The members of the Committee must have sufficient expertise and experience to be able to challenge and evaluate the Company's internal accounting function and internal and external audit functions. At least one member must have the relevant expertise in accounting and auditing as required by the applicable regulation. The Financial and Audit Committee meets regularly, at least four times a year. The Committee members meet the external and internal auditors regularly without the management being present. The Chair of the Committee presents a report on each Financial and Audit Committee meeting to the Board. The tasks and responsibilities of the Financial and Audit Committee are defined in its charter, which is approved by the Board. Financial and Audit Committee members may receive remuneration solely based on their role as directors. The compensation is decided by the shareholders at the AGM.

In 2023

The Financial and Audit Committee comprised three members: Richard Nilsson (Chair), Elisabeth Fleuriot and Astrid Hermann.[1] The Committee convened six times. The members' participation rate in meetings amounted to 94%.

The main task of the Committee is to support the Board in maintaining the integrity of Stora Enso's financial reporting and the Board's control functions. To fulfil its task, the Committee regularly reviews the Company's system of internal control, management, and reporting of financial and enterprise risks, as well as the audit process. During the year the Committee continued to follow-up the forest land and Finnish power asset valuations. Also, the Committee reviewed the market guidance principles, and followed up the preparation and implementation of the Corporate Sustainability Reporting Directive (CSRD). In addition, the Committee reviewed finance plans, and material non-recurring items, including items relating to activities such as mergers & acquisitions and restructurings. In addition, the Committee further reviews relevant material compliance related cases relating to the integrity of financial reporting or fraud investigations that have been reported to Internal Audit and Ethics and Compliance during the year.

Remuneration

Chair EUR 22,600 per annum and member EUR 15,900 per annum as decided by the AGM.

The Financial and Audit Committee Charter is presented at storaenso.com/investors/governance.

[1] The Committee prior to the AGM on 16 March 2023 comprised the following three members: Richard Nilsson (Chair), Elisabeth Fleuriot and Hock Goh.

People and Culture Committee

The Board has a People and Culture Committee which is responsible for recommending and evaluating executive nominations and remunerations (including reviewing and recommending the CEO's remuneration), evaluating the performance of the CEO, and making recommendations to the Board relating to management remuneration issues generally, including equity incentive remuneration plans. The People and Culture Committee also reviews the Remuneration Report and the Remuneration Policy. There is a People and Culture Committee representative present at the AGM to answer questions relating to management remuneration. The Board appoints the CEO and approves his/her remuneration as well as the nomination and compensation of other members of the Group Leadership Team (GLT).

The Committee comprises three to four Board members who are independent of and not affiliated with the Company. The People and Culture Committee meets regularly, at least once a year. The Chair of the People and Culture Committee presents a report on each People and Culture Committee meeting to the Board. The tasks and responsibilities of the People and Culture Committee are defined in its charter, which is approved by the Board. People and Culture Committee members may receive remuneration solely based on their role as directors. The compensation is decided by the shareholders at the AGM.

In 2023

The People and Culture Committee comprised three members: Kari Jordan (Chair), Håkan Buskhe and Antti Mäkinen.[1] The Committee convened four times. The members' participation rate in meetings amounted to 92%.

The main task of the Committee is to recommend, evaluate, and propose executive nominations and remunerations, review the Company's remuneration reporting, and to make recommendations to the Board relating to management remuneration in general, including short- and long-term incentive programmes.

Remuneration

Chair EUR 11,300 and member EUR 6,800 per annum as decided by the AGM.

The People and Culture Committee Charter is presented at storaenso.com/investors/governance.

[1] The Committee prior to the AGM on 16 March 2023 comprised the following three members: Antti Mäkinen (Chair), Håkan Buskhe and Kari Jordan.

Sustainability and Ethics Committee

The Board has a Sustainability and Ethics Committee which is responsible for overseeing the Company's sustainability and ethical business conduct, its strive to be a responsible corporate citizen, and its contribution to sustainable development. The Committee regularly reviews Stora Enso's Sustainability Strategy and Ethics and Compliance Strategy and, in accordance with Stora Enso's corporate governance structure, oversees their effective implementation as well as reviews the Company's external sustainability reporting. In its work the Committee takes into consideration Stora Enso's Purpose and Values as well as the Stora Enso Code and Business Practice Policy. The topics of the Committee meetings include safety, sustainability (in particular, climate change, circularity and biodiversity) and ethics.

The Committee comprises two to four Board members who are nominated annually by the Board. The members are independent of and not affiliated with the Company. At least one

Committee member is expected to have sufficient prior knowledge and experience in handling sustainability and ethics matters.

The Committee meets regularly, at least twice a year. The Chair of the Committee presents a report on each Sustainability and Ethics Committee meeting to the Board. The tasks and responsibilities of the Committee are defined in its charter, which is approved by the Board. Sustainability and Ethics Committee members may receive remuneration solely based on their role as directors. The compensation is decided by the shareholders at the AGM.

In 2023

The Sustainability and Ethics Committee comprised two members: Christiane Kuehne (Chair), and Helena Hedblom.[1] The Committee convened four times. The members' participation rate in meetings amounted to 100%.

The Committee in each of its meetings reviews the areas relevant for the Committee's work, including safety and sustainability matters, as well as ethics and compliance matters. The Committee further reviews safety status and sustainability and ethics and compliance KPI's, sustainability reporting, as well as relevant sustainability and safety initiatives and processes carried out during the year. In 2023 the main topics were Health and Safety, Water, Transformation programme and Corporate Sustainability Reporting Directive (CSRD) implementation. In addition, an important part of the Committee's work consisted of overseeing reported compliance cases.

Remuneration

Chair EUR 11,300 and member EUR 6,800 per annum as decided by the AGM.

The Sustainability and Ethics Committee Charter is presented at storaenso.com/investors/governance.

[1] The Committee prior to appointment of new CEO on 18 September 2023 comprised the following three members: Christiane Kuehne (Chair), Helena Hedblom and Hans Sohlström.

Management of the Company

Chief Executive Officer (CEO)

The CEO is in charge of the day-to-day management of the Company in accordance with the Finnish Companies Act and the instructions and orders issued by the Board. It is the duty of the CEO to ensure that the Company's accounting principles comply with the law and that financial matters are handled in a reliable manner.

The Board approves the main organisation, including the functions reporting to the CEO. At the end of 2023 the CEO was directly in charge of the following functions, which also reported to him:

- Divisions (Packaging Materials, Packaging Solutions, Biomaterials, Wood Products and Forest)
- CFO Office (responsible for Accounting, Controlling, Internal Audit, Investor Relations, Information and Cyber Security, Global Business Services, Tax, Treasury)
- Brand and Communications
- People and Culture
- Legal, General Counsel
- Strategy and Innovation (responsible for Innovation and R&D, special strategic projects, Corporate Finance and M&A, Investment Process, Energy Services, Enterprise Risk Management, Corporate Affairs)
- Sustainability

The CEO is also responsible for preparatory work with regard to Board meetings. In addition, the CEO supervises decisions regarding key personnel and other important operational matters. One of the GLT members acts as deputy to the CEO as defined in the Finnish Companies Act.

Group Leadership Team as at 31 December 2023

President and CEO[1] Hans Sohlström	**CFO, Deputy to the CEO, Country Manager Finland** Seppo Parvi

Packaging Materials Hannu Kasurinen	**Packaging Solutions**[2] Ad Smit	**Biomaterials** Johanna Hagelberg	**Wood Products** Lars Völkel	**Forest, Country Manager Sweden** Per Lyrvall
People and Culture, Brand and Communications[3] Katariina Kravi		**Legal**[4] Micaela Thorström	**Strategy and Innovation** Tobias Báärnman	**Sustainability**[5] Annette Stube

[1] Annica Bresky, President and CEO, was a member of GLT until 18 September 2023.
[2] David Ekberg, EVP, Packaging Solutions, was a member of GLT until 30 November 2023.
[3] René Hansen, EVP, Head of Brand and Communications, was a member of GLT until 4 May 2023. Katariina Kravi, acting Head of Brand and Communications 4 May 2023–1 February 2024. The function is called People and Communication as of 1 February 2024 and is headed by Katariina Kravi, EVP, People and Communication.
[4] Christian Swartling, acting General Counsel until 31 March 2023, was not a member of GLT.
[5] Annette Stube, EVP, Sustainability, member of GLT until 31 December 2023. Tobias Bäärnman, acting Head of Sustainability 1 January 2024–1 February 2024. Strategy and Sustainability have been combined into one function as of 1 February 2024 and is headed by Tobias Bäärnman, EVP, Strategy and Sustainability.

Minna Björkman, EVP Sourcing and Logistics, was a member of GLT until 31 October 2023. Representation of Sourcing and Logistics has been removed from the Group Leadership Team.

Group Leadership Team (GLT)
The GLT is chaired by the CEO. The GLT members are appointed by the CEO and approved by the Board. At the 2023 year end, the eleven GLT members were the CEO, the CFO, the heads of the divisions, People and Culture, Legal (who is also General Counsel), Strategy and Innovation, and Sustainability. Sourcing was represented in GLT 1 January–31 October 2023.

The GLT assists the CEO in supervising the Group and divisional performance against agreed targets, portfolio strategy, ensuring the availability and value-creating allocation of Group funds and capital, and statutory, governance, compliance, and listing issues and policies.

The GLT meets regularly every month, and as required.

In 2023
The GLT had 11 members at the end of 2023. The GLT convened 16 times during the year. Important items on the agenda in 2023 were financial performance, safety, strategy and transformation, sustainability, reviewing the operations of the Group, planning and following up investment and other strategic projects, digitalisation, and preparatory work for Board meetings.

Divisions and other functions
The divisions are responsible for their respective line of business and are organised and resourced to deal with all business issues. The CEO steers the divisions through in monthly performance meetings (including innovations) as well as the GLT meetings.

Strategic investment projects are approved on the group level following the mandate by the CEO and Board of Directors. Each Division will in addition be granted an annual allocation intended for smaller annual replacement and development needs in relation to investments. All projects are reviewed by the Investment Working Group (IWG) comprising group and division representatives and headed by the CFO (in addition, the allocation proposals are made by IWG).

Innovation and R&D is organised in two structures. On the group level, the long-term research and company-wide collaborations with academia and external R&D providers are managed by a small team of experts. The innovation related to current and future offering of the businesses are executed within the divisions to drive market and customer focus.

At Stora Enso, sustainability work is led by the Executive Vice President (EVP) responsible for Sustainability, who reports directly to the CEO and is part of the Group Leadership Team (GLT). The CEO holds the ultimate responsibility for the successful implementation of Company's sustainability agenda. Everyday sustainability topics are managed by the Group Sustainability team together with the People and Culture and Legal functions, and Stora Enso's five divisions. Each of the business divisions has its own Head of Sustainability. The everyday implementation of Stora Enso's sustainability agenda is the responsibility of line management supported by functional experts at all levels. Stora Enso's sustainability work during 2023 was steered by the Sustainability Council, which included Heads of Sustainability from the divisions. Chaired by the EVP, Sustainability, its work involves identifying longer-term opportunities and challenges that may require a Group-wide response as well as sharing of good practices. The Sustainability Council met nine times during 2023. Both the GLT and the Board of Directors are regularly informed about sustainability progress and other topical issues.

The Company has User Boards for certain cross-functional service functions (Logistics, IT, Energy and parts of Wood Supply). These User Boards consist of representatives of the divisions using these services. The User Boards supervise and steer the operations of the respective functions.

The Company has established proper disclosure policies and controls, and a process for quarterly and other ongoing reporting.

Other supervisory bodies and norms

Auditor
The AGM annually elects one auditor for Stora Enso. The Financial and Audit Committee monitors the auditor selection process and gives its recommendation as to who should serve as the auditor to the Board for the purpose of making the proposal to the shareholders at the AGM. The auditor shall be an authorised public accounting firm, which appoints the responsible auditor.

Auditor's fees and services

	Year Ended 31 December	
EUR million	**2023**	**2022**
Audit fees	4	4
Audit-related	0	0
Tax fees	0	0
Other fees	0	0
Total	**5**	**4**

In 2023
On the recommendation of the Financial and Audit Committee, the Board proposed that PricewaterhouseCoopers Oy be re-elected auditor by the AGM 2023 for the sixth year as the Company's auditors. The AGM 2023 elected PricewaterhouseCoopers Oy as auditor for a term of office expiring at the end of the AGM 2024.

Internal Audit
Group Internal Audit is an independent, objective assurance and advisory activity designed to add value and improve the operations of Stora Enso. The Internal Audit helps the organisation to accomplish its objectives by providing a systematic, disciplined approach to evaluate and improve the effectiveness of internal control environment, risk management and governance processes.

Internal Audit reports regularly about the status of the audits and key audit findings to the Financial and Audit Committee, the Board of Directors. Internal Audit reports also on annual basis key findings related to sustainability, ethics, compliance and safety to Stora Enso Sustainability and Ethics Committee. Administratively, the Head of Internal Audit reports to the Stora Enso CFO and functionally to CEO. The Financial and Audit Committee approves the appointment of the Head of the Internal Audit following the recommendation by the CEO. Head of Internal Audit is a member of the Ethics and Compliance Management Committee.

Internal Audit annual plan is created on risk- and assurance-based method and focuses on the key risk areas. In approved audit areas the compliance of Stora Enso key policies and guidelines is prioritized. Internal Audit co-operates with other assurance functions during the year in order to avoid overlapping work with other assurance activities, and to be able to identify possible gaps in assurance activities. During the year, the Internal Audit executes possible special engagements based on a separate request and agreed with management and the Financial and Audit Committee. The Financial and Audit Committee approves the Internal Audit Annual Plan, Budget and Internal Audit Charter including purpose and objective of the work.

Ethics and Compliance Management Committee
Stora Enso's Ethics and Compliance Management Committee supervises and monitors legal and regulatory ethics and compliance related policies, the implementation and maintenance of processes and tools regarding the same, and concrete compliance cases of principle interest. The Ethics and Compliance Management Committee consists of the General Counsel (Chair), CEO, CFO, Head of People and Culture, Head of Communications and the Head of Internal Audit, with the SVP, Ethics and Compliance being the secretary. The Ethics and Compliance Management Committee shall convene at least four times every year.

Ethics and Compliance
Stora Enso is committed to taking responsibility for its actions, to complying with all applicable laws and regulations wherever it operates, and to creating and maintaining ethical relationships with its customers, suppliers and other stakeholders. The Stora Enso Code is a single set of values defined for all employees to provide guidance on the Company's approach to ethical business practices, environmental values, and human and labour rights. These same values are applied wherever Stora Enso operates. The Business Practice Policy complements the Code, and sets further out Stora Enso's approach to ethical business practices and describes the processes for reporting on violations thereof. Continuous e-learning, communication, face-to-face training, and sign-off are organised in order to ensure that these are part of the everyday decision-making and activities at Stora Enso.

In order to enhance the supervision and monitoring of legal and regulatory compliance related policies and issues, Stora Enso has established its Ethics and Compliance Management Committee. In addition, Compliance Forums, comprising heads of key functions in divisions, group functions and Chinese operations play an important role in risk assessing and monitoring compliance within their respective areas. The Compliance Forums use the Ethics and Compliance Self-Assessment Tool (T.E.S.T.) to give them a better overview of the progress their units are making in policy implementation, compliance measures taken, and possible gaps and risks in compliance. The results of the T.E.S.T. are covered in Compliance Forums and action plan are developed and followed up, accordingly.

Stora Enso's employees are encouraged to report any suspected cases of misconduct or unethical behaviour to their own supervisor, or to People and Culture or Legal functions. Stora Enso uses an additional external service, the reporting channel Speak Up, through which employees and any third party globally can anonymously report potential non-compliance cases by phone, mail, or online. This service, which covers all of Stora Enso's units, is available 24/7. All cases are upon completion reported to both the Ethics and Compliance Management Committee (from October 2023 the Disciplinary Committee) and the Board of Directors' Sustainability and Ethics Committee. In addition, cases related to fraud or the integrity of financial reporting are also reported to the Financial and Audit Committee.

Insider administration
The Company complies with the EU and Finnish insider regulation as well as the guidelines of Nasdaq Helsinki Oy. The Company's internal insider guidelines are published and distributed throughout the group. Stora Enso's legal function and the General Counsel are responsible for the procedures relating to inside administration, including monitoring compliance with applicable regulation, the keeping of inside lists, and internal training. The Company has established an Inside Committee composed of the CEO, CFO as well as representatives of Strategy and Innovation, IR and Legal for the purpose of continuously reviewing pending projects and the existence of inside information in the Company.

The Company expects the management and all its employees to act in the way required of an insider. All unpublished information relating to the Company's present and future business operations shall be kept strictly confidential.

Persons discharging managerial responsibilities (PDMR's) in Stora Enso are the members of the Board, the CEO and the CFO, as well as other members of the Group Leadership Team (GLT). PDMR's, as well as their closely related persons, are subject to a duty to notify the Company and the Finnish Financial Supervisory Authority of all transactions with the securities of the Company.

The Company also keeps a list of persons that are involved in the preparation of interim reports and financial results, which is approved by the General Counsel (Closed Period List). Persons included in the list are, e.g., members of the Division management teams, key business leaders in the Divisions, members of Financial Communications and Investor Relations, as well as the heads and certain team members of Treasury, Group Accounting and Controlling and Legal.

Persons who participate in the development and preparation of a project that constitutes inside information, are considered project specific insiders. A separate project-specific insider register is established when required by the decision of the General Counsel.

The insider guidelines do not permit Stora Enso PDMR's or persons involved in the preparation of interim reports or financial results and entered into the Closed Period List to buy or sell any of the Company's securities (i.e., shares, options and synthetic options) during the closed period defined below or when they possess information that could have a material impact on the Stora Enso share price.

Closed period
Stora Enso's closed period starts when the reporting period ends or 30 days prior to the announcement of the results, whichever is earlier, and lasts until the results are announced. The dates are published in the financial calendar at storaenso.com/calendar.

During the closed periods, Stora Enso PDMR's or persons entered into the Company's Closed Period List are not allowed to trade in Company securities.

Guidelines for Related Party Transactions
The principles applicable to the monitoring of Stora Enso related party transactions are set out in Stora Enso's Guideline for Related Party Transactions. The Guideline defines Stora Enso related parties and sets out the decision-making order and principles for monitoring related party transactions, including a description of Stora Enso internal controls with regards to related party transactions. Information on material transactions with related parties is set out in note 6.3 of Stora Enso's consolidated financial statements.

Stora Enso business activities may include regular or less frequent transactions with related parties. Transactions with related parties shall always promote the purpose of the Company and be concluded on acceptable terms and in the interest of the Company, as well as in compliance with prevailing regulation. Internal controls have been designed to ensure that related party transactions are duly monitored and identified.

Related party transactions, which are part of the ordinary course of business and undertaken on market terms are approved in accordance with the Company's internal guidelines. Any transaction which would not meet these terms must be reported to the Financial and Audit Committee and be approved by the Board of Directors. The Board of Directors is responsible for overseeing the processes established for monitoring related party transactions.

Internal control and risk management related to financial reporting

Internal control over financial reporting
The system of internal control related to financial reporting in the Stora Enso group is based upon the framework issued by the Committee of Sponsoring Organisations (COSO) and comprises five principal components of internal control: the control environment, risk assessment, control activities, information and communication, and monitoring.

The internal controls related to financial reporting are designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with applicable laws and regulations, generally accepted accounting principles, and other requirements for listed companies.

Control environment
Stora Enso's control environment sets the tone of the organisation providing the company purpose and values, policies, processes and structures as a foundation for carrying out internal control across the organisation. Stora Enso has a formal Code that sets forth its rules.
To complement the Code, Stora Enso has a Business Practice Policy which further sets out the Company's approach to ethical business practices. All employees are expected to comply with the Code and the Business Practice Policy. Continuous e-learning, face-to-face training and sign-off are organised in order to ensure that these are part of the everyday decision-making and activities at Stora Enso.

The Board, supported by the Financial and Audit Committee, has the overall responsibility for setting up an effective system of internal control and risk management. Responsibility for maintaining effective risk management and internal controls over financial reporting is delegated to the CEO. The GLT and senior management issue corporate guidelines in accordance with Stora Enso's policy management process. These guidelines stipulate responsibilities and authority and constitute the control environment for specific areas, such as legal, sustainability, people and culture, finance as well as for sourcing and logistics. Internal control responsibilities have been described in Stora Enso's Internal Control Policy which also outlines the responsibilities of the first and second line of defence. Internal control function is divided into Group and division functions. Group Internal Control function, under the supervision of CFO and Group Controller, is responsible for internal control governance, processes, tools and internal control reporting over financial reporting, whereas division internal control functions are responsible for executing the internal control processes in divisions. Divisions, various support and service functions are accountable for operating effective internal controls.

Risk assessment
Stora Enso's management specifies objectives relating to the preparation of financial statements. The Company applies a process to establish the overall materiality and to identify significant financial statements accounts and disclosures. Relevant objectives and risks for processes are identified and evaluated to determine Stora Enso's minimum internal control requirements for all business units and group functions. The assessment of risks includes, as one part of the assessment, risks related to fraud and irregularities as well as the risk of loss or the misappropriation of assets. Information on the development of essential risk areas and executed and planned activities in these areas are regularly communicated to the Financial and Audit Committee.

Control activities
Stora Enso's control activities are the policies, guidelines, procedures and organisational structures in place to ensure that management directives are carried out and that necessary action is taken to address risks related to the achievement of objectives relating to financial reporting. Stora Enso's minimum internal control requirements are aimed at preventing, detecting, and correcting material accounting and disclosure errors and irregularities and are performed on all company levels. They include a range of activities such as approvals, authorisations, verifications, reconciliations, reviews of operating performance, the security of assets, and the segregation of duties, as well as general IT controls.

Information and communication
The Company's information and communication channels support the completeness and correctness of financial reporting. For example, the management communicates information about Stora Enso's financial reporting objectives, financial control requirements, policies and procedures regarding accounting and financial reporting to all employees concerned.
The management also communicates regular updates and briefings regarding changes in accounting policies and reporting and disclosure requirements. Subsidiaries and operational units make regular financial and management reports to the management, including the analysis of and comments on financial performance and risks. The Board receives monthly financial reports. The Company has internal and external procedures for the anonymous reporting of violations related to accounting, internal controls, and auditing matters.

Monitoring
The Company's financial performance is reviewed at each Board meeting. The Financial and Audit Committee reviews all Interim Reports and the Board approves them before they are released by the CEO. The annual financial statements and the Report of the Board of Directors are reviewed by the Financial and Audit Committee and approved by the Board. The effectiveness of the process for assessing risks and the execution of control activities are monitored continuously at various levels. Information on the development of essential risk areas and executed and planned activities in these areas are regularly communicated to the Financial and Audit Committee. Monitoring involves both formal and informal procedures applied by management, including reviews of results which are compared against the set budgets and plans, analytical procedures, and key performance indicators. Stora Enso Group Internal Control function monitors control design and control operating effectiveness and prepares quarterly internal control reporting to management.

In addition to the Group Internal Control function, the Stora Enso Group Internal Audit has an independent oversight role on internal control over financial reporting governance.
The Internal Audit regularly evaluates the effectiveness and efficiency of Stora Enso's governance, risk management and system of internal control over financial reporting.

Members of the Board of Directors

Kari Jordan

Born 1956. M.Sc. (Econ.). Vuorineuvos (Finnish honorary title).

Position

Chair of Stora Enso's Board of Directors since March 2023. Member since March 2022. Chair of the People and Culture Committee since March 2023. Member since March 2022.

Board memberships

Chair of the Board of Outokumpu Oyj.

Principal work experience and other information

President and CEO of Metsä Group 2006–2018. CEO of Metsäliitto Cooperative 2004–2017. Various board positions and senior executive management positions in Nordea Group 1998–2004, Merita Bank 1995–2000 and OKOBANK 1987–1994 as well as other key positions in the financial sector.

Total remuneration 2023, EUR[1]	220,300
Meeting attendance	12/12
FAC attendance	
PCC attendance	4/4 ●
SECo attendance	
Shareholding in Stora Enso[2]	9,012 R shares
Independent member	Yes

Håkan Buskhe

Born 1963. M.Sc. (Eng.), Licentiate of Engineering.

Position

Vice Chair of Stora Enso's Board of Directors since March 2021. Member since June 2020. Member of the People and Culture Committee since March 2021.

Board memberships

Chair of the Board of Directors of IPCO AB. Vice Chair of the Board of AB SKF. Member of the Board of Kopparfors Skogar AB, The Grand Group, Navigare Ventures AB, Qarlbo Energy AB and the Swedish Defence University.

Principal work experience and other information

CEO of FAM AB. CEO and President of SAAB AB 2010–2019 and E.ON Nordic 2008–2010. Executive positions in E.ON Sweden 2006–2008, CEO of the logistics company Schenker North 2001–2006, as well as several positions in Storel AB 1998–2001, Carlsberg A/S 1994–1998 and Scansped AB 1988–1994.

Total remuneration 2023, EUR[1]	124,800
Meeting attendance	12/12
FAC attendance	
PCC attendance	4/4 ▲
SECo attendance	
Shareholding in Stora Enso[2]	12,069 R shares
Independent member	Yes/no[3]

Elisabeth Fleuriot

Born 1956. M.Sc. (Econ.).

Position

Member of Stora Enso's Board of Directors since April 2013. Member of the Financial and Audit Committee since March 2019.

Board memberships

Chair of the Board of Foundation Caritas.

Principal work experience and other information

Senior advisor at Astanor Venture Capital. President and CEO of Thai Union Europe Africa 2013–2017. Senior Vice President, Emerging Markets and Regional Vice President, France, Benelux, Russia and Turkey, in Kellogg Company 2001–2013. General Manager, Europe, in Yoplait, Sodiaal Group 1998–2001. Several management positions in Danone Group 1979–1997.

Total remuneration 2023, EUR[1]	96,900
Meeting attendance	12/12
FAC attendance	6/6 ▲
PCC attendance	
SECo attendance	
Shareholding in Stora Enso[2]	32,868 R shares
Independent member	Yes

Helena Hedblom

Born 1973. M.Sc. (Material Tech.).

Position

Member of Stora Enso's Board of Directors since March 2021. Member of the Sustainability and Ethics Committee since March 2021.

Board memberships

Member of the Board of Wallenberg Investments AB .

Principal work experience and other information

President and CEO of Epiroc since 2020. Prior to her current position she was Senior Executive Vice President Mining and Infrastructure at Epiroc. Various General Management and Research and development positions in Atlas Copco, since 2017 President for Atlas Copco's Mining and Rock Excavation Technique business area.

Total remuneration 2023, EUR[1]	87,800
Meeting attendance	12/12
FAC attendance	
PCC attendance	
SECo attendance	4/4 ▲
Shareholding in Stora Enso[2]	6,356 R shares
Independent member	Yes

FAC Financial and Audit Committee
PCC People and Culture Committee
SECo Sustainability and Ethics Committee

• Chair ▲ Member

[1]Detailed description of remuneration for Board and Committee memberships as decided by the AGM in 2023 can be found in the Remuneration Report.

[2]Shares held by Board members and related parties.

[3]Håkan Buskhe is independent of the company but not of its significant shareholders due to his position as the CEO of FAM AB.

[4]Meetings attended out of the meetings held after election as Board member.

[5]Meetings attended out of the meetings held after election as FAC member.

The independence is evaluated in accordance with Recommendation 10 of the Finnish Corporate Governance Code 2020. The full recommendation can be found at cgfinland.fi. A significant shareholder according to the recommendation is a shareholder that holds at least 10% of all company shares or the votes carried by all the shares or a shareholder that has the right or the obligation to purchase the corresponding number of already issued shares.

Astrid Hermann

Born 1973. B.Sc. (Business and MBA).

Position

Member of Stora Enso's Board of Directors since March 2023. Member of the Financial and Audit Committee since March 2023.

Board memberships

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Principal work experience and other information

CFO of Beiersdorf AG since 2021. Prior to that several managerial finance roles at Colgate-Palmolive 2004–2020 and at The Clorox Company 1997–2004.

Total remuneration 2023, EUR[1]	96,900
Meeting attendance	9/10[4]
FAC attendance	4/5[5] ▲
PCC attendance	
SECo attendance	
Shareholding in Stora Enso[2]	2,839 R shares
Independent member	Yes

Christiane Kuehne

Born 1955. LL.M., B.B.A.

Position

Member of Stora Enso's Board of Directors since April 2017. Chair of the Sustainability and Ethics Committee since March 2019.

Board memberships

Member of the Board of James Finlays Ltd, Wetter Foundation and Foundation Pierre du Bois.

Principal work experience and other information

Operative roles within the Nestlé Group 1977–2015. Her last operative role at Nestlé was as Senior Vice President Strategic Business Unit Food with strategic responsibility for the food business of Nestlé at global level.

Total remuneration 2023, EUR[1]	92,300
Meeting attendance	12/12
FAC attendance	
PCC attendance	
SECo attendance	4/4 ●
Shareholding in Stora Enso[2]	17,429 R shares
Independent member	Yes

Antti Mäkinen

Born 1961. LL.M.

Position

Member of Stora Enso's Board of Directors since March 2018 (Chair March 2021–March 2023). Member of the People and Culture Committee since March 2019 (Chair March 2021–March 2023).

Board memberships

Chair of the Board of Sampo Oyj. Member of the Board of Rake Oy.

Principal work experience and other information

CEO of Solidium Oy 2017–2022. Several leading management positions within Nordea Corporate & Investment Banking, most notably as Head of Corporate Finance in Finland, Head of Strategic Coverage unit and as Co-Head for Corporate & Investment Banking, Finland 2010–2017. CEO of eQ Corporation and its main subsidiary eQ Bank Ltd. 2005–2009.

Total remuneration 2023, EUR[1]	87,800
Meeting attendance	12/12
FAC attendance	
PCC attendance	3/4 ▲
SECo attendance	
Shareholding in Stora Enso[2]	19,415 R shares
Independent member	Yes

Richard Nilsson

Born 1970. B.Sc. (BA and Econ.).

Position

Member of Stora Enso's Board of Directors since April 2014. Chair of the Financial and Audit Committee since April 2016 and member since April 2015.

Board memberships

Member of the Board of IPCO AB and group companies, Cinder Invest AB, AB SKF and Tbox Sweden AB. Member of the supervisory Board of GROPYUS AG.

Principal work experience and other information

Investment Director at FAM AB since 2022. Investment Manager at FAM AB 2008–2022. Pulp & paper research analyst at SEB Enskilda 2000–2008, Alfred Berg 1995–2000 and Handelsbanken 1994–1995.

Total remuneration 2023, EUR[1]	103,600
Meeting attendance	12/12
FAC attendance	6/6 ●
PCC attendance	
SECo attendance	
Shareholding in Stora Enso[2]	29 971 R shares directly, 127 A shares and 236 R shares through related persons (spouse)
Independent member	Yes/no[3]

FAC Financial and Audit Committee
PCC People and Culture Committee
SECo Sustainability and Ethics Committee

● Chair ▲ Member

[1]Detailed description of remuneration for Board and Committee memberships as decided by the AGM in 2023 can be found in the Remuneration Report.

[2]Shares held by Board members and related parties.

[3]Richard Nilsson is independent of the company but not of its significant shareholders due to his employment at FAM AB.

[4]Meetings attended out of the meetings held after election as Board member.

[5]Meetings attended out of the meetings held after election as FAC member.

The independence is evaluated in accordance with Recommendation 10 of the Finnish Corporate Governance Code 2020. The full recommendation can be found at cgfinland.fi. A significant shareholder according to the recommendation is a shareholder that holds at least 10% of all company shares or the votes carried by all the shares or a shareholder that has the right or the obligation to purchase the corresponding number of already issued shares.

Hock Goh was Member of Stora Enso's Board of Directors since April 2012 until his resignation on 16 March 2023. Goh has participated in all Board and relevant Committee meetings held during 2023 prior to his resignation. He was independent of the company and the significant shareholders.

Hans Sohlström was Member of Stora Enso's Board of Directors since March 2021 until his resignation on 18 September 2023. Sohlström has participated in all Board and relevant Committee meetings held during 2023 prior to his resignation. He was independent of the company and the significant shareholders.

Members of the Group Leadership Team as at 31 December 2023

Hans Sohlström

Born 1964. M.Sc. (Tech.), M.Sc. (Econ.)

Position

President and Chief Executive Officer (CEO). Member of the GLT since 18 September 2023. Joined the company 18 September 2023.

Board memberships, principal work experience and other information

President and CEO of Ahlstrom Oyj 2018–2022. President and CEO of Ahlström Capital 2016–2018 and of Rettig Group Oy 2012–2016. Member of UPM-Kymmene Corporation's Group Executive Team since 2004, responsible for Marketing 2004–2007, New Businesses and Biofuels 2007–2008, and Corporate Relations and Development 2008–2012. In 1990–2004 several managerial positions at UPM leading profit units, mills and sales.

Member of the Board of Stora Enso Oyj 2021–2023. Member of the Board of Uponor Oyj. Member of the Advisory Council in Nordea Bank Finland and a member of the Business Council of International Chamber of Commerce Finland.

Shareholding in Stora Enso

100,620 R shares directly, 179 R shares through related persons (spouse)

Seppo Parvi

Born 1964. M.Sc. (Econ.).

Position

Chief Financial Officer (CFO), Deputy CEO, Country Manager Finland. Member of the GLT since 2014. Joined the company in 2014.

Board memberships, principal work experience and other information

CFO and EVP, Food and Medical Business Area at Ahlstrom Corporation 2009–2014. CFO for Metsä Board (M-real) 2006–2009. Prior to that various line management positions at Huhtamäki, including responsibilities such as paper manufacturing within Rigid Packaging Europe and General Manager for Turkey. Chair of the Board of the Finnish Forest Industries Federation. Deputy Chair of the Board of Pohjolan Voima Oy. Member of the Board of Ilmarinen, East Office of Finnish Industries Oy and Teollisuuden Voima Oyj.

Shareholding in Stora Enso

63,162 R shares

Tobias Bäärnman

Born 1977. M.Sc. (Econ.).

Position

Chief Strategy and Innovation Officer. Acting Head of Sustainability 1 January–1 February 2024. Executive Vice President, Strategy and Sustainability as of 1 February 2024. Member of the GLT since 2020. Joined the company in 2017.

Board memberships, principal work experience and other information

SVP Controlling, Strategy and IT for Consumer Board division 2017–2019. Prior to that Finance Director at Iggesund Paperboard and various positions at Statoil and Procter and Gamble.

Shareholding in Stora Enso

4,196 R shares

Johanna Hagelberg

Born 1972. M.Sc. (Industrial Eng. & Mgmt) and M.Sc. (Eng. and Mgmt of Manufacturing Systems).

Position

Executive Vice President, Biomaterials Division. Member of the GLT since 2014. Joined the company in 2013.

Board memberships, principal work experience and other information

EVP, Sourcing and Logistics 2014–2021. SVP Sourcing, Stora Enso Printing and Living 2013–2014. Chief Procurement Officer at Vattenfall AB 2010–2013. Prior to that leading Sourcing positions at NCC, RSA Scandinavia and within the Automotive Industry for Scania, Saab and General Motors. Member of the Board of Höegh Autoliners AS, Montes del Plata and Veracel.

Shareholding in Stora Enso

35,645 R shares

Hannu Kasurinen

Born 1963. M.Sc. (Econ.).

Position

Executive Vice President, Packaging Materials Division. Member of the GLT since 2019. Joined the company in 1993.

Board memberships, principal work experience and other information

Several leadership positions in Stora Enso, including EVP and SVP, Liquid Packaging and Carton Board in Consumer Board Division, Group Treasurer, SVP of Strategy and EVP of Wood Products Division.

Shareholding in Stora Enso

52,736 R shares

Katariina Kravi

Born 1967. LL.M., Trained on the Bench.

Position

Executive Vice President, People and Culture. Acting Head of Brand and Communications 4 May 2023–1 February 2024. Executive Vice President, People and Communication as of 1 February 2024. Member of the GLT since 2020. Joined the company in 2020.

Board memberships, principal work experience and other information

EVP, HR and Chief People and Culture Officer at Tieto Oyj 2012–2020. Prior to that several HR management positions at Nokia. Vice Chair of the Board of Elisa Oyj. Member of the supervisory board of Varma Mutual Pension Insurance Company.

Shareholding in Stora Enso

10,383 R shares

Per Lyrvall

Born 1959. LL.M.

Position

Executive Vice President, Forest Division. Country Manager Sweden since 2013. Member of the GLT since 2012. Joined the company in 1994.

Board memberships, principal work experience and other information

EVP, Legal, General Counsel 2008–2022. Legal Counsel 1994–2008. Prior to joining Stora Enso legal positions at Swedish courts, law firms and Assi Domän. Member of the Board of Antidoping Sverige AB and the Swedish Forest Industry Association (Skogsindustrierna).

Shareholding in Stora Enso

82,886 R shares directly, 1,257 R shares through related persons (spouse)

Ad Smit

Born 1963. HEAO CE.

Position

Executive Vice President, Packaging Solutions Division. Member of the GLT since 1 December 2023. Joined the company in 2023.

Board memberships, principal work experience and other information

Head of Business Unit Western Europe within Stora Enso's Packaging Solutions division January–November 2023. CEO of De Jong Packaging Group 2012–2023. Prior to that various Managing Director positions leading packaging divisions and units at Smurfit Kappa Group. Member of the Supervisory Board of Clondalkin Group and Noteboom Textiles.

Shareholding in Stora Enso

0

Annette Stube

Born 1967. Master's degree in psychology.

Position

Executive Vice President, Sustainability until 31 December 2023. Member of the GLT since 2020. Joined the company in 2020.

Board memberships, principal work experience and other information

Head of Sustainability in A.P. Moller-Maersk 2008–2020. Prior to that Director of Sustainability programmes in Novo Nordisk.

Shareholding in Stora Enso

9,054 R shares

Micaela Thorström

Born 1976. LL.M.

Position

Executive Vice President, Legal and General Counsel as of April 2023. Member of the GLT since April 2023. Joined the Company in 2015.

Board memberships, principal work experience and other information

VP Group Legal 2022–2023. Legal Counsel 2015–2022. Prior to joining Stora Enso several senior-level positions at Finnish companies and law firms such as PricewaterhouseCoopers, Hannes Snellman, Lindholm Wallgren Attorneys and Roschier.

Shareholding in Stora Enso

0

Lars Völkel

Born 1975. M.Sc. (BA).

Position

Executive Vice President, Wood Products Division. Member of the GLT since 2020. Joined the company in 2020.

Board memberships, principal work experience and other information

CEO of Ambibox GmbH 2018–2020. CEO of Franke Kitchen Systems 2014–2017. EVP Luxury retail & CEO of Poggenpohl at Nobia 2011–2014. Has held various managerial positions at Electrolux incl. VP Western Europe.

Shareholding in Stora Enso

16,477 R shares

Minna Björkman, EVP, Sourcing and Logistics was a member of GLT until 31 October 2023. Representation of Sourcing and Logistics has been removed from the Group Leadership Team.

Annica Bresky, President and CEO, was a member of GLT until 18 September 2023.

David Ekberg, EVP, Packaging Solutions, was a member of GLT until 30 November 2023.

René Hansen, EVP, Head of Brand and Communications, was a member of GLT until 4 May 2023.

Christian Swartling, acting General Counsel until 31 March 2023, was not a member of GLT.

Appendix 1

Due to differences between Swedish and Finnish legislation, governance code rules and corporate governance practices Stora Enso's Corporate Governance deviates in the following aspects from the Swedish Corporate Governance Code:

Rule 1.4 The company's nomination committee is to propose a chair for the annual general meeting. The proposal is to be presented in the notice of the meeting.

- According to Finnish annual general meeting (AGM) practice, the Chair of the Board of Directors opens the meeting and proposes the chair for the AGM. The proposed chair is normally an attorney-at-law.

Rule 2.1 The nomination committee is also to make proposals on the election and remuneration of the statutory auditor.

- According to the Finnish Code, the Financial and Audit Committee shall make a recommendation on the auditor election for the Board, which shall give its proposal on the matter to the AGM.

Remuneration

Remuneration

Letter from the People and Culture Committee Chair

Dear Shareholders,

I am pleased to present the 2023 Remuneration Report on behalf of the Board of Directors. This report outlines the key principles governing remuneration for the Board of Directors, President and CEO, Deputy CEO, and the decision-making process for remuneration. It also provides details on the implementation of the remuneration in 2023. This Remuneration Report has been prepared in line with the Finnish Corporate Governance Code 2020.

Our goal at Stora Enso is to offer remuneration that motivates, encourages, attracts, and retains top-tier employees. We carefully align remuneration elements with the Company's strategy and long-term financial interests. The role of the People and Culture Committee is to ensure that remuneration supports our strategic priorities, with a focus on pay-for-performance as a core element of our remuneration principles.

Throughout 2023, we were heavily impacted by a challenging macroeconomic environment, weak global growth, and high inflation. We fell behind the performance targets set for the short-term incentive (STI) plan 2023, resulting in STI earnings below the target level. The 2021 Performance Share Plan, vested at the end of 2023, achieved an outcome of 89% of the maximum opportunity. As performance measures for the plan expand over three years, the record-breaking financial performance in 2021 and 2022 impacted the total outcome of the long-term incentive plan positively. Detailed information on the vesting outcome for the share programmes is available in the section 'Long-Term Incentive (LTI) programmes for the CEO and Deputy CEO'.

In 2022, an independent third party conducted a pay equity study encompassing all office workers at Stora Enso. The study aimed to identify any unexplained gender pay gaps. While the majority of the pay praxis was found to be equal, certain unexplained pay gaps were identified. Actions to address these gaps were implemented in 2023, and we will monitor pay equity on a continued basis.

In September 2023, Hans Sohlström was appointed as President and CEO, succeeding Annica Bresky, who stepped down from the position. In accordance with the conditions outlined in the Remuneration Policy 2022, the appointment of a new CEO allows for exemptions from the Policy. The Board has decided to exercise this right in the context of nominating the new CEO to ensure full focus on profit turnaround, cash flow improvements, and enhanced competitiveness. The exemption is related to the performance periods for the CEO's STI and LTI plans, which differ from those applied to the rest of the Group. The remuneration details of the CEO and President are disclosed in this report as well as on the Company's website.

Remuneration for the Board of Directors, former CEO, and Deputy CEO in 2023 adhered to the approved Remuneration Policy.

Looking ahead to 2024

Sustainability continues to be one of our core focus areas, and since 2022, ESG measures have been part of the Company's incentive plans. Our good progress on sustainability and diversity and inclusion has also been recognised externally. The LTI 2024 plan will continue to include performance measures related to the reduction of CO_2 emissions and diversity, specifically in achieving gender balance among all managers. These objectives will be pursued alongside measures dedicated to the creation of shareholder value.

The People and Culture Committee will continue to monitor our Remuneration Policy's effectiveness and appropriateness for Stora Enso's business. By the date of this report, no clawback provisions have been used. We will ensure that the Policy continues to support the Group's strategy. In addition, when setting executive remuneration, we will carefully review the views of our shareholders and other stakeholders.

Kari Jordan
Chair of the People and Culture Committee

Introduction

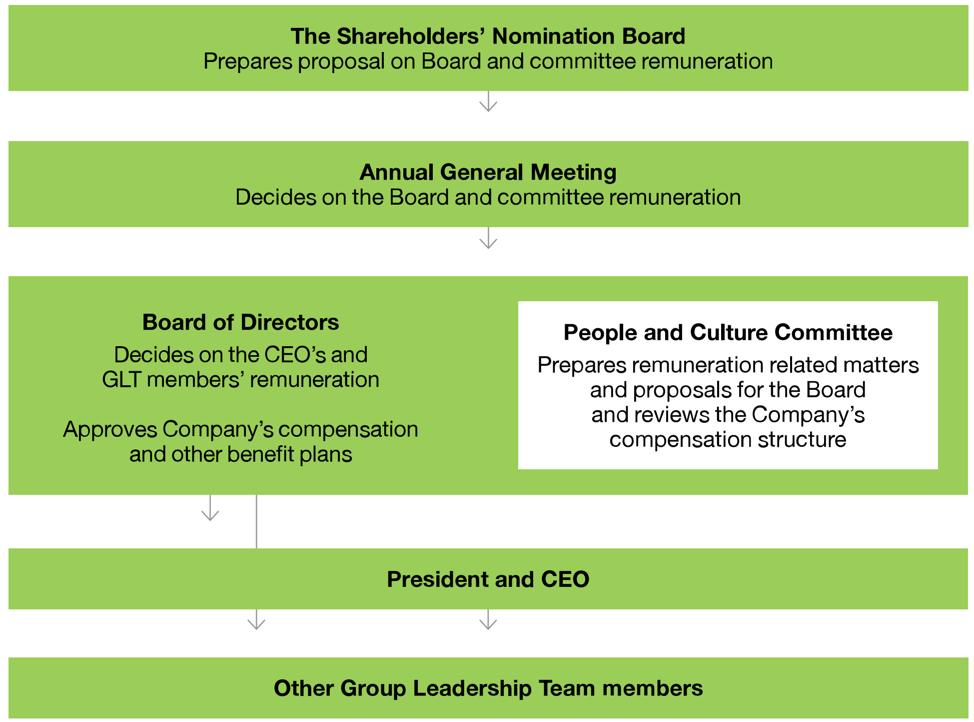
This report has been prepared in accordance with the Finnish Corporate Governance Code 2020, available at cgfinland.fi, and the requirements set forth in the Finnish Decree of the Ministry of Finance on the remuneration policy and remuneration report (608/2019), as well as other applicable regulations. Stora Enso also complies with the Swedish Corporate Governance Code ('Swedish Code'), with the exception of the deviations listed in Appendix 1 of the Corporate Governance Report. The deviations are due to differences between the Swedish and Finnish legislation, governance code rules, and practices, and in these cases Stora Enso follows the practice in its domicile. The Swedish Code is issued by the Swedish Corporate Governance Board, available at corporategovernanceboard.se. Information on the Group Leadership Team's remuneration is available in the Financial Report 2023.

Decision-making procedure

The shareholders at the Annual General Meeting (AGM) decide annually on the remuneration of the Board members (including the remuneration of the members of Board committees). The proposals for the AGM concerning the remuneration for the Chair, Vice Chair, and members of the Board, as well as the remuneration for the Chair and members of the committees of the Board, are prepared by the Company's Shareholders' Nomination Board. This Board is composed of representatives of the main shareholders of the Company as well as Board member representatives, and is described in more detail in the Corporate Governance Report. The Board representatives of the Shareholders' Nomination Board do not participate in the decision-making process related to the Board or the Board Committee remuneration.

The Board appoints the CEO and approves his/her remuneration as well as the remuneration of other Group Leadership Team (GLT) members. The Board's People and Culture Committee prepares remuneration related matters and proposals for the Board and is further responsible for ensuring that management remuneration principles are aligned with the Company's objectives and shareholder interest.

Remuneration decision-making procedure



Remuneration Policy summary

The Remuneration Policy was updated in 2022, and the summary below describes Stora Enso's main principles and the decision-making process of remuneration for the members of the Board, President and CEO, and Deputy CEO, as well as the remuneration elements. For the full Remuneration Policy, see storaenso.com.

Board remuneration

The remuneration of the members of the Board may depend on their respective roles as Chair, Vice Chair, and members of the Board or its committees. Board remuneration can be paid in cash, or in cash and shares, as further decided by the AGM.

Remuneration to the President and CEO and Deputy CEO

The total remuneration to the CEO and Deputy CEO may consist of:

- annual base salary (ABS)
- variable pay components as short-term incentives (cash when applicable)
- long term incentives (shares when applicable), and
- benefits (pension, medical and health benefits)

The purpose, operation, opportunity, and link to performance of each remuneration element is described below.

Annual Base Salary – ABS (Fixed pay)

The purpose of the base salary is to attract and retain top-tier talent to deliver on the Group's strategic priorities. There is no maximum salary limit. The CEO and Deputy CEO salary increases take into consideration average salary increases for appropriate parts of the wider workforce. Increases may be larger or applied more often at the discretion of the Board under certain circumstances, such as, but not limited to, the general development of business, financial performance, operational performance, or when required considering market practice.

Short Term Incentives – STI (Variable pay)

The purpose of the STI programme is to drive alignment against set objectives and to create engagement by setting clear measurable yearly targets that will have a direct impact on the Company performance. The Remuneration Policy defines the maximum limit for STI earnings which may range from 50% to 100% of the annual salary. The Board may annually decide on STI opportunities applied to the CEO and Deputy CEO.

The STI programme is based partly on financial metrics and partly on measurable non-financial operational metrics that are set at the beginning of each year and measured for one year.

Long Term Incentives – LTI (Variable pay)

The purpose of the LTI is to incentivise and align management with shareholder interests and the long term strategy of the Company, including the Company's sustainability approach. This is done through setting measurable, long term financial and strategic or ESG-related targets as well as by encouraging personal share ownership.

LTI consists of a Performance Share award in Stora Enso shares. LTI maximum opportunity is reviewed annually to ensure market competitiveness and link to strategy. The Board may decide on a maximum LTI opportunity from 70% to 120% of the ABS for the CEO and Deputy CEO.

The shares will vest dependent based on at least three-year financial performance criteria proposed by the People and Culture Committee and decided by the Board.

Long Term Benefits – LTB

The purpose is to stay competitive and aligned to market practice, giving the CEO and Deputy CEO the confidence of a solid insurance coverage during their term of office and the opportunity to retire at the normal retirement age.

In Finland, the contributions on top of the statutory pension shall be limited to 23.5% of pensionable salary, while in Sweden the total pension contributions shall be limited to 30% of pensionable salary. Pensionable salary consists of fixed salary and paid STI. The retirement age is 65 years.

Exemptions

The Board may decide to temporarily deviate from the Remuneration Policy, in whole or in part, in situations where it is in the long term interest of the Company. Such a situation can take place, for example, in connection with the appointment of a new CEO or Deputy CEO. Changes may apply to all payment elements, contract provisions, as well as incentive plan structures and mechanisms, their timelines, metrics, and opportunities.

Remuneration development and Company performance

Stora Enso aims to create a clear link between Company performance and variable pay. This is achieved by utilising key performance indicators and ensuring that targets are set at levels that support the achievement of Company's strategy and financial targets. The main financial indicators at Stora Enso are operational EBITDA and sales, reported also as part of the Company's quarterly and annual reviews.

The remuneration of the Board of Directors is decided by the Annual General Meeting (AGM) based on the proposal of the Shareholders' Nomination Board. The Board of Director's remuneration for the period of 2023–2024 was approved by the 2023 AGM, and the remuneration consists of a fixed annual fee based on the role in the Board (for example, Chair or Committee Member) and additional compensation for participation in Board and Committee meetings.

The compensation of the President and CEO is decided by the Board based on the evaluation and proposal by the Board's People and Culture Committee, and the Company's Remuneration Policy. The short-term incentive payments made in 2023 to the President and CEO were based on 2022 performance. The total compensation of the President and CEO generally includes base salary, benefits, pension, and short- and long-term incentives paid during the evaluation period.

The table 'Five-year development of paid remuneration and Company performance' shows the CEO, Deputy CEO, Board, and average employee remuneration as well as Company performance development since 2019 and up until 2023. Strong performance in 2021 and 2022 is respectively reflected in the higher remuneration in 2022 and 2023.

Five-year development of paid remuneration and Company performance

Paid remuneration, EUR thousand (before taxes)	**2023**	**2022**	**2021**	**2020**	**2019**
President and CEO[1, 2]	3,293	2,110	1,731	1,670	2,584
Deputy CEO[2]	1,468	944	872	851	885
Board member average[3]	111	108	104	106	101
Employee average[4]	46	46	44	40	39
Company performance, EUR million (unless otherwise stated)					
Operational EBIT, EUR million	342	1,891	1,528	650	1,003
Sales, EUR million	9,396	11,680	10,164	8,553	10,055
Basic earnings per share (EPS), EUR	-0.45	1.97	1.61	0.79	1.12
3-year total shareholder return rate (TSR), %[5]	-11%	9%	74%	30%	41%

[1] The amounts relate to the current President and CEO as of 18 September 2023. Remuneration prior to that date relate to previous position holders.
[2] Remuneration depends on a fixed part, such as base salary, pension and other benefits, but also to a large extent on variable pay parts that may result in higher or lower total remuneration year-to-year.
[3] Total Board member fees divided by number of Board members.
[4] The total wages and salaries paid to Stora Enso employees divided by the average number of employees.
[5] 3-year absolute total shareholder return (cumulative) with dividends reinvested.

Annual report on remuneration 2023

Remuneration presented in this report is either earned and paid during 2023, or earned in 2023 and due to be paid in 2024.

During 2023, there has been no recovery of paid or reduction of outstanding awards in respect of the President and CEO or Deputy CEO. In connection with the appointment of the new CEO, the Board has deviated from the current Remuneration Policy. The exemption is related to the performance periods for the CEO's STI and LTI plans, which differ from the performance periods applied to the rest of the Group. Exemptions, such as the appointment of the CEO, have been duly listed as possible deviations from the Policy.

Board remuneration in 2023

The AGM in 2023 resolved that the members of the Board of Directors will be paid as follows:

Board remuneration summary

EUR thousand (before taxes)	2023	2022
Chair	209	203
Vice Chair	118	115
Board member	81	79

Pursuant to the decision by the Annual General Meeting 2023, the annual remuneration for the members of the Board has been paid in Company shares and cash so that 40% was paid in Stora Enso R shares purchased on the Board members' behalf on the market, at a price determined in public trading, and the rest in cash. The shares were purchased within two weeks of the AGM 2023. The Company has paid all costs and transfer tax related to the purchase of the Company shares. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.

In addition, the AGM decided that the following annual remuneration be paid to the members of the Board Committees:

- for the Chair of the Financial and Audit Committee EUR 22,600, and
- for the members of the Financial and Audit Committee EUR 15,900 each,
- for the Chair of the People and Culture Committee EUR 11,300, and
- for the members of the People and Culture Committee EUR 6,800 each,
- for the Chair of the Sustainability and Ethics Committee EUR 11,300, and
- for the members of the Sustainability and Ethics Committee EUR 6,800 each.

Board Remuneration and Committee Memberships

	2023				2022
EUR thousand (before taxes)	**Committee memberships**	**Cash**	**Shares**	**Total**	**Total**
Board members at 31 December 2023					
Kari Jordan, Chair	People and Culture, Nomination[2]	135	85	220	86
Håkan Buskhe, Vice Chair	People and Culture, Nomination[2]	77	48	125	122
Elisabeth Fleuriot	Financial and Audit	64	33	97	94
Helena Hedblom	Sustainability and Ethics	55	33	88	86
Astrid Hermann (member since March 2023)	Financial and Audit	64	33	97	-
Christiane Kuehne	Sustainability and Ethics	60	33	93	90
Antti Mäkinen	People and Culture	55	33	88	214
Richard Nilsson	Financial and Audit	71	33	104	101
Former Board members					
Hock Goh (until 16 March 2023)	Financial and Audit	-	-	-	94
Hans Sohlström (until 18 Sept 2023)	Sustainability and Ethics	55	33	88	86
Total remuneration as Directors[1, 3]		**636**	**364**	**1,000**	**972**

[1] 40% of the Board remuneration in 2023, excluding Committee remuneration, was paid in Stora Enso R shares purchased from the market and distributed as follows: to Chair 7,326 R shares, Vice Chair 4,136 R shares, and members 2,839 R shares each. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.
[2] Stora Enso's Shareholders' Nomination Board has been appointed by the AGM in 2016 to exist until otherwise decided. The Shareholders' Nomination Board according to its Charter as approved by the AGM comprises of four members: the Chair and Vice Chair of the Board of Directors, as well as two members appointed by the two largest shareholders (one each) as of 31 August each year. No separate remuneration is paid to the members of the Nomination Board.
[3] The Company additionally pays the transfer tax for share purchases for each member, in line with AGM decision, which amount is considered also taxable income for each member.

CEO and Deputy CEO remuneration

The compensation of the President and CEO and Deputy CEO is decided by the Board based on the proposal by the Board's People and Culture Committee and the Company's Remuneration Policy. The total compensation of the President and CEO generally includes base salary, benefits, pension, and short and long term incentives paid during the evaluation period.

In 2023, the short-term incentive earning opportunity has remained unchanged at 50% of the annual gross base salary on a target level and 100% on a maximum level.

The short-term incentive to be paid in 2024 is low, reflecting the challenging business environment in 2023. LTI 2021 performance measures expanded over three years, and record-breaking financial performance during 2021 and 2022 impacted the total outcome positively.

The new CEO Hans Sohlström started on 18 September 2023, and the Board has carefully evaluated his total remuneration. The CEO remuneration is described below and at storaenso.com.

CEO and Deputy CEO remuneration

	CEO remuneration[1]		Former CEO remuneration[1]		Deputy CEO remuneration	
EUR (before taxes)	**Paid in 2023**	**Paid in 2022**	**Paid in 2023**	**Paid in 2022**	**Paid in 2023**	**Paid in 2022**
Annual base salary	289,613	-	668,516 earned and paid fixed salary	953,127 earned and paid fixed salary	475,301 earned and paid fixed salary	447,474 earned and paid in fixed salary
Short-term incentives[2]	-	-	845,000 based on 2022 performance period	648,000 based on 2021 performance period	300,000 based on 2022 performance period	191,000 based on 2021 performance period
Long-term incentives[2]	-	-	987,000 Performance Share Plan 2020–2022 outcome 100%	0 Performance Share Plan 2019–2021 outcome 0%	333,000 Performance Share Plan 2020–2022 outcome 100%	0 Performance Share Plan 2019–2021 outcome 0%
Other benefits	Mobile phone included in the annual base salary	-	26,000 Holiday pay, mobile phone, car and insurance	32,000 Holiday pay, mobile phone, car, and insurance	38,000 Holiday pay, mobile phone, car and insurance	36,000 Holiday pay, mobile phone, car, and insurance
Pension	48,000 Retirement age and pension contributions as per Finnish pension legislation.	-	428,000 Defined contribution pension plan with 30% contributions of pensionable salary. Retirement age 65	477,000 Defined contribution pension plan with 30% contributions of pensionable salary. Retirement age 65	322,000 Finnish pension and supplementary defined contribution pension plan with 23.5% contributions of pensionable salary. Retirement age 65	270,000 Finnish pension legislation and supplementary defined contribution pension plan with 23.5% contributions of pensionable salary. Retirement age 65
Total earned remuneration (paid)	338,000	-	2,955,000[3]	2,110,000	1,468,000	944,000
Earned proportion of fixed to variable remuneration (paid)	Fixed compensation 100%	-	Fixed compensation 38% Variable compensation 62%	Fixed compensation 69% Variable compensation 31%	Fixed compensation 57% Variable compensation 43%	Fixed compensation 80% Variable compensation 20%
Termination of assignment	Notice period of six months with severance payment of twelve months salary on termination by the Company, but with no contractual payments on any change of control.					
Severance payment	-	-	933,000, payable in 2024	-	-	-

[1] Annica Bresky until 18 September 2023 and Hans Sohlström as of 18 September 2023.
[2] Amounts are reported according to payment year and relate to the performance in the previous year(s).
[3] Paid from Stora Enso AB and Stora Enso Oyj according to actual days worked in Sweden and Finland.

Short Term Incentive (STI) programme for the CEO and Deputy CEO

The CEO and Deputy CEO are entitled to an STI programme decided by the Board each year.

STI performance period 2022 (paid in 2023)

The STI payment made in 2023 was based on performance and targets related to 2022. The targets were set for the full year, and the Board defined the maximum STI earning for 2022 to be 100% of the fixed annual salary for the CEO and 80% for the Deputy CEO. The Board evaluated the performance against the targets set, and the earned payment was paid in April 2023 according to Company practices.

	Description of criteria	Weighting	Performance (0–100%)	STI payout
Former CEO	Sales growth, EBITDA	70%	88%	EUR 845,000
	Fixed costs, CO_2 reduction, safety	20%		
	Individual metrics / targets	10%		
Deputy CEO	Sales growth, EBITDA	70%	85%	EUR 300,000
	Fixed costs, CO_2 reduction, safety	20%		
	Individual metrics / targets	10%		

STI performance period 2023 (payable in 2024)

The STI payment to be made in 2024 is based on performance and targets related to 2023. The targets were set for the full year, and the Board defined the maximum STI earning for 2023 to be 100% of the fixed annual salary for the CEO and 80% for the Deputy CEO. The Board evaluated performance against the targets set, and the earned payment will be paid in April 2024 according to Company practices.

	Description of criteria	Weighting	Performance (0–100%)	STI payout
Former CEO	Sales growth, EBITDA	70%	22%	EUR 157,000[1]
	Fixed costs, CO_2 reduction, safety	20%		
	Individual metrics / targets	10%		
Deputy CEO	Sales growth, EBITDA	70%	42%	EUR 168,000
	Fixed costs, CO_2 reduction, safety	20%		
	Individual metrics / targets	10%		

[1]Prorated to active employment months January–September 2023

As of 18 September 2023 for the next 12 + 12 months, the current CEO is entitled to an STI programme with a maximum opportunity of 100% of the annual fixed salary for each 12-month period. The Board has decided to use its right to deviate from the Remuneration Policy regarding the timing of the CEO's STI plan. The Board will evaluate performance against the targets set, and the earned payment for the first twelve months will be paid in the fourth quarter of 2024.

	Description of criteria	Weighting	Performance (0–100%)	STI payout
CEO	Operational EBIT, other financial metrics	90%	n/a	n/a
	Safety	10%		

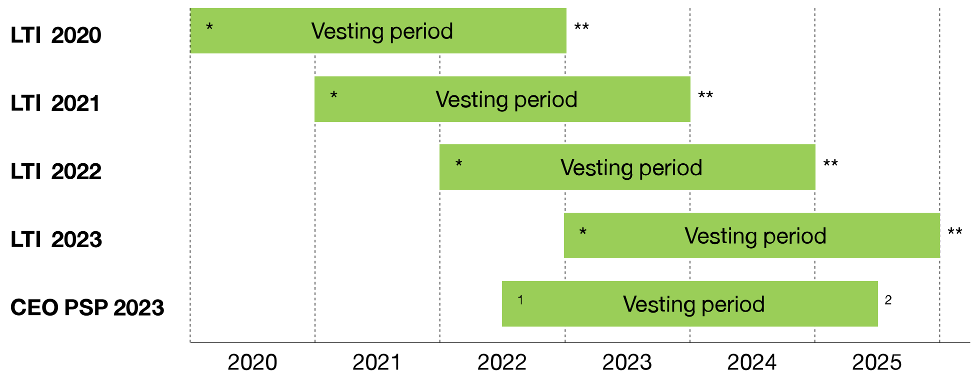
Long-term Incentive (LTI) for the CEO and Deputy CEO

The Board decides on and implements Stora Enso's long-term incentive plans and the earning opportunity for the President and CEO and the Deputy CEO. The purpose of these plans is to align the interests of the CEO and shareholders in driving the Company's long-term success. The LTI performance metrics currently include measurements related to share price development, profitability, and sustainability (ESG). For the Performance Share Plan (PSP) 2024–2026, Stora Enso continues to include ESG measures in the LTI plan (CO_2 and gender diversity).

The newly nominated CEO has a separate Performance Share Plan, which is strongly aligned with shareholder interests and Company performance. The CEO may earn a maximum of 169,420 gross shares (target 50% of maximum) based on the achievement performance criteria set by the Board. The maximum opportunity represents 100% annual base salary at the time of the share grant. The Board has decided to use its right to deviate from the Policy regarding the timing of the CEO's LTI plan. The CEO Performance Share Plan outcome will be measured at the end of the third quarter in 2025, and the plan has cliff vesting in one instalment. The CEO is not eligible to participate in the Performance Share Plan 2024–2026.

Stora Enso recommends and expects the CEO and other Group Leadership Team members to hold Stora Enso shares at a value corresponding to at least one annual base salary. Stora Enso shares received as remuneration are therefore recommended not to be sold until this level has been reached. The current Group Leadership Team share ownership is available on the Company's website.

Share-based compensation plan



Date of grant:
* 1 March [1] 18 September

Date of vest:
** 1 March [2] 30 September

Summary of LTI plans and performance

	Plan type	Plan name	Performance period	Share delivery year	Performance criteria[1]	Awarded shares pcs	Performance outcome	Shares paid/earned gross pcs[2]
CEO	**Performance Share Plan**	CEO Performance Share Plan	18 September 2023–30 September 2025	2025	Balance sheet, capital expenditure, strategy, and sustainability	169,420	-	-
Former CEO	**Performance Share Plan**	LTI 2020	1 January 2020 to 31 December 2022	2023	EVA, EPS	75,080	100%	75,080
		LTI 2021	1 January 2021 to 31 December 2023	2024	EVA, EPS	57,387	89%	51,011[3]
		LTI 2022	1 January 2022 to 31 December 2024	2025	EPS, Rel. TSR, CO_2, Diversity	65,430	-	21,810[4]
		LTI 2023	1 January 2023 to 31 December 2025	2026	EPS, Rel. TSR, CO_2, Diversity	82,520	-	-
Deputy CEO	**Performance Share Plan**	LTI 2020	1 January 2020 to 31 December 2022	2023	EVA, EPS	25,340	100%	25,340
		LTI 2021	1 January 2021 to 31 December 2023	2024	EVA, EPS	18,514	89%	16,457[3]
		LTI 2022	1 January 2022 to 31 December 2024	2025	EPS, Rel. TSR, CO_2, Diversity	24,970	-	-
		LTI 2023	1 January 2023 to 31 December 2025	2026	EPS, Rel. TSR, CO_2, Diversity	36,190	-	-
		LTI 2024	1 January 2024 to 31 December 2026	2027	EPS, TSR, CO_2, Diversity	40,260	-	-

[1] Economic Value Added (EVA), Earnings per Share (EPS), Relative TSR (Rel. TSR), Total Shareholder Return (TSR).
[2] The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.
[3] The final value of the vested shares will depend on the share price on vesting date of 1 March 2024.
[4] As a termination benefit, 21,810 shares will be paid as cash payment in 2024.

Financials

Financials

Financials

● Audited ● Limited assurance

In this report: The official audited financial statements in Finnish are available on the company website storaenso.com/download-centre

Report of the Board of Directors

Financials

Introduction to Stora Enso

Part of the global bioeconomy, Stora Enso is a business-to-business company and a leading provider of renewable products in packaging, biomaterials, and wooden construction, and one of the largest private forest owners in the world. Sustainability is integral in Stora Enso's business strategy, it is at the core of what we do. Stora Enso contributes to the transition towards a biobased circular economy in three areas where it has the biggest impact and opportunities: climate change, biodiversity, and circularity.

We create value with our low-carbon and recyclable fiber-based products, through which we support our customers in meeting the demand for renewable sustainable products.

Stora Enso had 20,822 employees on average during 2023. The Group sales in 2023 were EUR 9.4 billion, with an operational EBIT of EUR 342 million. Stora Enso shares are listed at the Helsinki (STEAV, STERV) and Stockholm (STE A, STE R) stock exchanges. In addition, the shares are traded on OTC Markets (OTCQX) in the USA as ADRs and ordinary shares (SEOAY, SEOFF, SEOJF).

Markets and deliveries

Demand for cartonboard declined during 2023, with some regional exceptions. Market conditions took a negative turn as excess inventories from the 2022 boom were destocked in combination with weak underlying consumption due to the economic headwinds. Demand, though muted, in the Asian region was stronger than in the more mature European and North American markets.

Containerboard demand remained weak in 2023. The economy-wide destocking cycle continued longer than anticipated, retail sales remained stagnant and global manufacturing weakness burdened the packaging sector. Containerboard demand declined in all regions excluding Asia, driven by China and India. In Europe, the demand contracted to pre-pandemic levels.

The European paper demand continued to decline significantly, driven by structural demand erosion and destocking of inventories in the whole value chain.

The European corrugated market faced challenges partly driven by weak retail demand, especially in food, beverage, and E-commerce segments. The weakness of the European manufacturing sector continued to drag down corrugated box demand. Overall, the European corrugated demand is estimated to have declined by 5% in 2023.

Global demand for chemical market pulp rebounded to 3% in 2023. Demand for hardwood pulp grew 5%, whereas softwood pulp demand increased 0.5%. Demand for unbleached kraft pulp (UKP) dropped, whereas demand for fluff pulp continued strong. The majority of the growth was concentrated in Asia, especially China, where pulp buyers restocked their market pulp inventories with low priced pulp. However, the real pulp consumption in downstream markets did not necessarily reflect the boost in demand. Demand in North America and Europe was subdued due to a slow economy and high inflation.

The global chemical market pulp capacity increased by 2% in 2023. The hardwood capacity increased by 5%, thanks to new capacity ramping up in South America. Due to temporary and permanent capacity closures, softwood capacity declined by 1.5% and UKP by 9%. The overall shipment-to-capacity balance stood at 91%, 2 percent-points up from 2022.

Global pulp inventories were elevated for the first half of the year but were considered balanced towards the end of year. Softwood pulp inventories reached their all-time high reading before balancing by the end of the year. Hardwood pulp inventories declined strongly in the spring following a demand boost from China.

After the strong markets during 2021–2022, the global sawn wood consumption decreased in 2023 by 3% according to FEA (Forest Economic Advisors), with above average declines experienced in Europe and the USA. Throughout 2023, market supply exceeded demand, which added pressure on prices in all markets. High inflation and interest rates caused market uncertainties and lowered customer confidence, which resulted in reduced volumes of building permits and housing starts. Curtailments of supply started to improve the market balance during the second half of 2023, supported by lower inventory levels.

Estimated consumption of board, pulp, sawn softwood, and paper in 2023

Tonnes, million	Europe	North America	Asia and Oceania
Consumer board	9.1	8.8	32.7
Containerboard	33.9	31.8	94.9
Corrugated board (billion m^2)[1]	10.5	n/a	n/a
Chemical market pulp	15.3	7.5	40.2
Sawn softwood (million m^3)	82.0	97.0	74.9
Newsprint	2.7	1.1	5.2
Uncoated magazine paper	1.5	0.7	0.1

[1] European focus markets (Baltics, Benelux, FI, PL, SE)
Source: Afry, CEPI, Numera, PPPC, Stora Enso, Forest Economic Advisors (FEA)

Production and external deliveries

	2023	2022	Change % 2023–2022
Board deliveries[1], 1,000 tonnes	3,927	4,294	-8.6%
Board production[1], 1,000 tonnes	4,185	4,682	-10.6%
Corrugated packaging European deliveries, million m^2	1,167	741	57.5%
Corrugated packaging European production, million m^2	1,094	771	41.9%
Market pulp deliveries, 1,000 tonnes	2,220	2,374	-6.5%
Wood products deliveries, 1,000 m^3	3,897	4,397	-11.4%
Wood deliveries, 1,000 m^3	13,667	13,304	2.7%
Paper deliveries, 1,000 tonnes	761	1,924	-60.5%
Paper production, 1,000 tonnes	752	1,926	-60.9%

[1] Includes consumer board and containerboard volumes.

The Group's board deliveries totalled 3,927,000 tonnes, which was 368,000 tonnes, or 8.6% lower compared to a year ago. Corrugated packaging European deliveries increased by 426 million m^2 or 57.5% to 1,167 million m^2 due to acquisition of De Jong Packaging Group. Market pulp deliveries decreased by 153,000 tonnes, or 6.5%, to 2,220,000 tonnes. Wood product deliveries decreased by 499,000 m^3 or 11.4% to 3,897,000 m^3. Wood deliveries increased by 363,000 m^3 or 2.7% to 13,667,000 m^3. Paper deliveries totalled 761,000 tonnes, down 1,163,000 tonnes, or 60.5%, from 2022, driven by the structural changes.

Alternative performance measures

The alternative performance measures used by Stora Enso are explained in the chapter Alternative performance measures.

Financials

Financial results – Group

Group sales decreased by 20% year-on-year to EUR 9,396 (11,680) million mainly due to lower sales prices and volumes as well as divestments partly offset by acquisition of De Jong Packaging Group. Operational EBIT was EUR 342 (1,891) million, and the operational EBIT margin was 3.6%. Operational EBIT decreased mainly due to decreased sales prices and volumes as well as increased variable costs especially wood costs. Earnings per share decreased by 123% to EUR -0.45 (1.97) and earnings per share excluding fair valuations decreased by 147% to EUR -0.73 (1.55).

The IFRS operating result includes a positive net effect of EUR 194 (positive 195) million from biological asset valuation from subsidiaries and joint operations. The positive impact comes mainly from the increase in fair valuation in Stora Enso owned forests in Sweden, mostly driven by higher market prices. There is also a positive net effect of EUR 56 (positive 168) million from Stora Enso's share of net financial items, taxes and biological asset valuation of associated companies. The positive impact comes mainly from increase in fair valuation in Finnish forests, through Stora Enso's 41% investment in Tornator.

Tangible and intangible asset (including goodwill) impairments amounted to EUR 776 (114) million.

The items affecting comparability (IAC) had a negative impact of EUR 895 (245) million on IFRS operating result. The main IACs in 2023 relate to the impairments in Packaging Materials, Biomaterials, Wood Products and segment Other, restructurings related to Sunila, De Hoop, Anjala and Kvarnsveden sites and Group functions and Packaging Materials division as well as disposal of Nymölla, Maxau, Hylte and Wood Products DIY sites and biocomposite business. The IACs in 2022 mainly relate to the disposal of Russian operations as well as impairments and other costs related to upcoming paper site disposals. Fair valuations and non-operational items (FV) had a positive net impact on the IFRS operating result of EUR 231 (363) million. The main IAC and FV items are presented in the chapter Alternative Performance Measures.

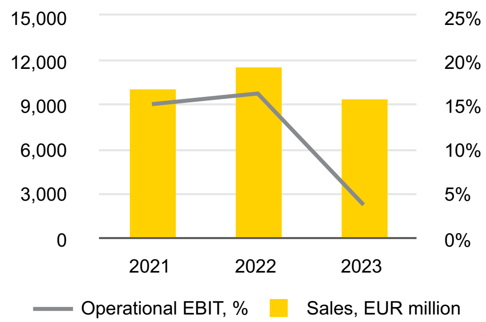
The IFRS operating result was EUR -322 (2,009) million.

Key figures

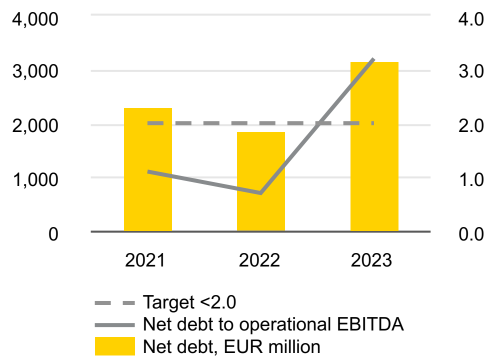
	2023	2022	2021
Sales, EUR million	9,396	11,680	10,164
Operational EBIT, EUR million	342	1,891	1,528
Operational EBIT margin	3.6%	16.2%	15.0%
Operating result (IFRS), EUR million	-322	2,009	1,568
Operating result margin (IFRS)	-3.4%	17.2%	15.4%
Return on equity (ROE)	-3.8%	13.3%	13.0%
Operational ROCE	2.4%	13.7%	12.5%
Operational ROCE excl. Forest division	1.0%	20.4%	17.7%
Net debt/equity ratio	0.29	0.15	0.22
EPS (basic), EUR	-0.45	1.97	1.61
EPS excluding FV, EUR	-0.73	1.55	1.19
Dividend and distribution per share[1], EUR	0.10	0.60	0.55
Payout ratio, excluding FV	-13.7%	38.6%	46.3%
Payout ratio (IFRS)	-22.1%	30.5%	34.3%
Dividend and distribution yield, (R share)	0.8%	4.6%	3.4%
Price/earnings (R share), excluding FV	-17.17	8.46	13.60
Equity per share, EUR	13.93	15.89	13.55
Market capitalisation 31 Dec, EUR million	9,864	10,503	12,809
Closing price 31 Dec, A share, EUR	12.45	13.90	16.60
Closing price 31 Dec, R share, EUR	12.53	13.15	16.14
Average price, A share, EUR	12.82	16.58	16.68
Average price, R share, EUR	11.93	16.12	15.70
Number of shares 31 Dec (thousands)	788,620	788,620	788,620
Trading volume A shares (thousands)	968	1,174	1,750
% of total number of A shares	0,5 %	0.7%	1.0%
Trading volume R shares (thousands)	476,654	455,952	422,493
% of total number of R shares	77,8 %	74.5%	69.0%
Average number of shares, basic (thousands)	788,620	788,620	788,620
Average number of shares, diluted (thousands)	789,714	789,391	789,126

[1] It is proposed that the Board would be authorised to decide on an additional dividend payment of a maximum of EUR 0.20.The authorisation would be valid until 31 December 2024. See the Board of Directors' proposal for dividend distribution.

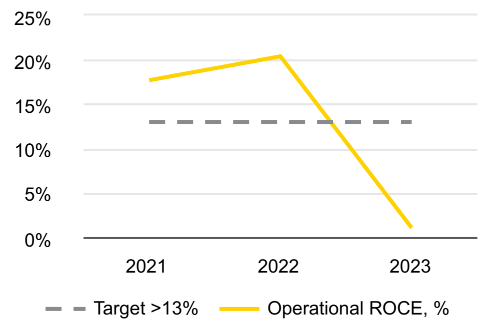
Sales and operational EBIT margin



Net debt to operational EBITDA



Operational ROCE excl. Forest



Net financial expenses at EUR 173 (151) million were EUR 23 million higher than a year ago. Net interest expenses, at EUR 113 million, increased by EUR 8 million as a result of higher interest rates on borrowings and higher amount of gross debt. Other net financial expenses, at EUR 38 million, were EUR 6 million lower, mainly due to the higher write-down of Russia related loan receivables and loss allowance included in the comparison period figures. The net foreign exchange impact in respect of cash equivalents, interest-bearing assets and liabilities and related foreign-currency hedges amounted to a loss of EUR 22 (loss of EUR 1) million, mainly due to revaluation of foreign currency net debt in subsidiaries located in China.

The net tax totalled EUR 64 (-322) million, equivalent to an effective tax rate of 13.0% (17.3%), as described in more detail in note 2.5 Income taxes.

The loss attributable to non-controlling interests was EUR 74 (loss of EUR 13) million, leaving a loss of EUR 357 (gain of EUR 1,550) million attributable to Company shareholders.

Earnings per share excluding fair valuations were EUR -0.73 (1.55). Operational return on capital employed was 2.4% (13.7%).

The Group capital employed was EUR 14,056 million on 31 December 2023, an decrease of EUR 300 million, mainly due to impairments and change in the fair valuation of energy assets (PVO) partly offset by acquisition of De Jong Packaging, investment projects and increase of the fair valuation of forest assets.

Breakdown of capital employed change

EUR million	Capital Employed
31 December 2022	**14,356**
Capital expenditure excluding investments in biological assets less depreciation	521
Investments in biological assets less depletion of capitalised silviculture costs	-5
Impairments and reversal of impairments	-770
Fair valuation of forest assets	241
Unlisted securities (mainly PVO)	-627
Associated companies	94
Net liabilities in defined benefit plans	-31
Operative working capital and other interest-free items, net	-344
Emission rights	-85
Net tax liabilities	170
Acquisition of subsidiary companies	818
Disposal of subsidiary companies	-227
Translation difference	-60
Other changes	4
31 December 2023	**14,056**

Financing

Cash flow from operations was EUR 954 (1,873) million and cash flow after investing activities was EUR -40 (1,162) million. Working capital decreased by EUR 300 (increased 461) million, inventories decreased by EUR 328 million and trade receivables by EUR 389 million. Trade payables decreased by EUR 352 million and thus had a negative impact on working capital. Payments related to the previously recognised provisions were EUR 53 million.

Operative cash flow

EUR million	2023	2022
Operational EBITDA	989	2,529
IAC on operational EBITDA	-126	-133
Other adjustments	-210	-62
Change in working capital	300	-461
Cash flow from operations	**954**	**1,873**
Cash spent on fixed and biological assets	-989	-705
Acquisitions of associated companies	-5	-7
Cash flow after investing activities	**-40**	**1,162**

As at 31 December 2023, Group net interest-bearing liabilities were EUR 3,167 (1,853) million. The increase in net interest-bearing liabilities was mainly driven by the acquisition of the De Jong Packaging Group and other significant investments such as the consumer board investment at the Oulu site in Finland. Cash and cash equivalents net of bank overdrafts increased to EUR 2,464 (1,917) million. The net debt/equity ratio at 31 December 2023 increased to 0.29 (0.15). The ratio of net debt to the last 12 months' operational EBITDA increased to 3.2 (0.7) due to higher net debt and lower operational EBITDA. The average interest rate on borrowings for the full year 2023 increased to 3.7% (3.3%) with a run-rate of 4.0% as per the end of the fourth quarter.

In May 2023, Stora Enso issued two EUR 500 million green bonds with 3- and 6.25-year maturities. In November 2023, Stora Enso issued new SEK green bonds with nominal value of SEK 6,100 million, equal to EUR proceeds of 524 million at the transaction date FX rate. The SEK green bonds feature several tranches with the maturities ranging from 2025 to 2028. Later in December 2023 the Company also completed a private placement of SEK 425 million with maturity in 2033. This was equal to EUR proceeds of 38 million at the transaction date FX rate.

In addition, during the year, the Company re-financed altogether EUR 550 million of its bilateral loans and committed credit facility, and also drew bilateral loans of EUR 200 million in total that were arranged but undrawn at the end of 2022. The existing loans were extended by one to two years and new terms also include extension options. The Company also arranged a new EUR 100 million bilateral loan with a 1.5-year maturity and a 1-year extension option during the second quarter. In the fourth quarter a one-year extension was signed to the revolving credit facility of EUR 700 million to extend its maturity to 2028.

Stora Enso had in total EUR 800 million committed undrawn credit facilities as per 31 December 2023. Additionally, the Company has access to EUR 1,100 million statutory pension premium loans in Finland.

The fair valuation of cash flow hedges and equity investments fair valued through other comprehensive income decreased equity by EUR 647 (increased by EUR 563) million. The decrease is mainly due to a lower fair valuation of the Group's shareholding in Pohjolan Voima Oy (PVO), explained especially by lower electricity price forecasts.

At the end of the year, the ratings for Stora Enso's rated bonds were as follows:

Rating agency	Long/short-term rating	Valid from
Fitch Ratings	BBB- (stable)	4 August 2023
Moody's	Baa3 (stable) / P-3	17 November 2023

Financials

Financial results – Segments

Packaging Materials division

The Packaging Materials division is a global leader and expert in circular packaging providing premium packaging materials based on virgin and recycled fiber. Stora Enso helps customers replace fossil-based materials with low-carbon, renewable and recyclable alternatives for their food, beverage and transport packaging with a wide selection of base boards and barrier coatings.

EUR million	2023	2022
Sales	4,557	5,496
Operational EBITDA	267	993
Operational EBITDA margin	5.9%	18.1%
Operational EBIT	-57	655
Operational EBIT margin	-1.3%	11.9%
Fair valuations and non-operational items (FV)[1]	12	7
Items affecting comparability (IAC)[1]	-597	-9
Operating result (IFRS)	-642	653
Operating capital, average	3,580	3,512
Operational ROOC	-1.6%	18.6%
Cash flow from operations	370	823
Cash flow after investing activities	-235	488
Board deliveries, 1,000 tonnes	4,963	5,425
Board production, 1,000 tonnes	4,843	5,502

[1] The IAC for 2023 included impairments of fixed assets of EUR -228 million for the Oulu containerboard unit, EUR -202 million for China operations, EUR -12 million for the Anjala site's paper assets, EUR -26 million of goodwill impairments related to the Anjala and De Hoop sites, restructuring costs related to De Hoop site closure of EUR -79 million, closing down one paper line at Anjala site of EUR -26 million, restructuring program in division management and support functions of EU -12 million and other restructuring costs of EUR -9 million, and other IAC cases of -3 million. The IAC for 2022 included EUR -4 million expenses from disposal of Russian operations, EUR -5 million of restructuring expenses and EUR -1 million other cases. The fair valuations for 2023 included non-operational fair valuation changes of biological assets of EUR 12 (7) million. Comparative figures have been restated as described in the release from 29 March 2023.

The Packaging Materials division was hit by unprecedented market conditions and sales declined by 17%, to 4,557 (5,496) million. This was driven by lower prices and volumes for containerboard and paper, and lower volumes for consumer board. The containerboard market remained weak throughout the year, while the consumer board market started to soften during Q1 and stabilised at a low level in Q4.

Operational EBIT dropped from all time high level to EUR -57 (655) million, driven by lower volumes and prices. Variable costs in many categories declined compared to a year ago, but overall remained higher year-on-year driven by increased wood costs.

Packaging Solutions division

The Packaging Solutions division is a packaging converter that provides premium fiber-based packaging products and services used by leading brands across multiple market areas, including retail, e-commerce, fresh produce, and industrial applications. The division also provides design and sustainability services for customers to optimise material use, logistics and to reduce CO2 emissions.

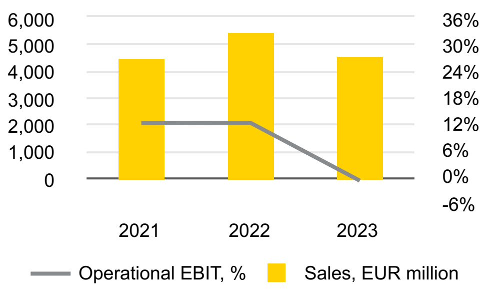
EUR million	2023	2022
Sales	1,077	727
Operational EBITDA	111	42
Operational EBITDA margin	10.3%	5.7%
Operational EBIT	43	16
Operational EBIT margin	4.0%	2.2%
Items affecting comparability (IAC)[1]	-26	-98
Operating result (IFRS)	17	-81
Operating capital, average	874	204
Operational ROOC	4.9%	7.9%
Cash flow from operations	145	11
Cash flow after investing activities	62	-14
Corrugated packaging European deliveries, million m^2	1,178	767
Corrugated packaging European production, million m^2	1,094	771

[1] The IAC for 2023 included EUR -19 million restructuring costs in China and EUR -16 million related to the acquisition of De Jong Packaging Group, and EUR -1 million other cases. The IAC for 2022 included EUR -93 million related to the disposal of Russian operations, EUR -4 million restructuring costs, EUR -2 million fixed asset impairments and EUR -1 million other cases. Comparative figures have been restated as described in the release from 29 March 2023.

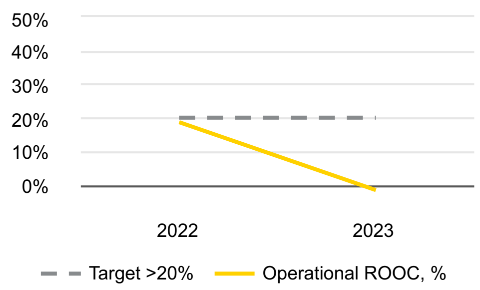
Packaging Solutions division sales were at an all-time high of EUR 1,077 (727) million, up 48%, driven by the acquisition of De Jong Packaging Group

Operational EBIT was EUR 43 (16) million. Lower raw material prices had a positive impact on the margins. The integration of De Jong Packaging Group proceeded well and contributed positively to the result.

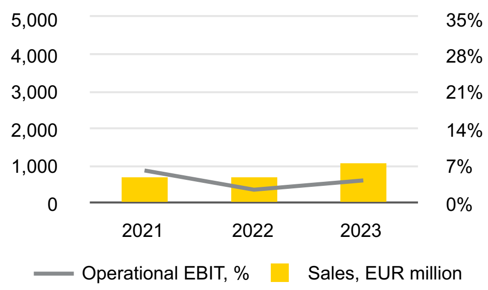
Sales and operational EBIT
Packaging Materials



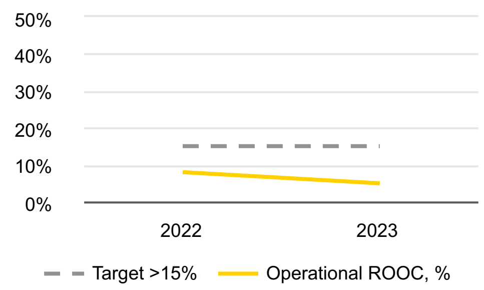
Operational ROOC
Packaging Materials



Sales and operational EBIT
Packaging Solutions



Operational ROOC
Packaging Solutions



Financials

Biomaterials division

The Biomaterials division's business opportunities are strongly driven by the need to replace fossil-based and other non-renewable materials. Stora Enso uses all fractions of a tree to develop new biobased solutions for various applications. The division's long-term growth is driven by new products and innovations, while pulp continues to be the foundation.

EUR million	2023	2022
Sales	1,587	2,180
Operational EBITDA	256	822
Operational EBITDA margin	16.1%	37.7%
Operational EBIT	118	687
Operational EBIT margin	7.4%	31.5%
Fair valuations and non-operational items (FV)[1]	25	-17
Items affecting comparability (IAC)[1]	-224	-2
Operating result (IFRS)	-81	668
Operating capital, average	2,625	2,715
Operational ROOC	4.5%	25.3%
Cash flow from operations	431	682
Cash flow after investing activities	234	536
Pulp deliveries, 1,000 tonnes	2,277	2,554

[1] The IAC for 2023 included restructuring expenses from the closure of the Sunila pulp production of EUR -116 million, impairments of fixed assets of EUR -59 million for the Uimaharju site, impairment of goodwill of EUR -44 million for the Nordic Mills CGU, EUR -4 million of other cases. The fair valuations for 2023 included non-operational fair valuation changes of biological assets of EUR 25 (-17) million.

Biomaterials division sales were EUR 1,587 (2,180) million, down 27% from all-time high sales in 2022, due to significantly lower pulp sales prices in all grades and lower sales volumes, due to market-related curtailments and the closure of the Sunila site in Finland announced in September 2023. Market conditions were challenging with lower demand.

Operational EBIT at EUR 118 (687) million decreased by 83%, mainly due to significantly lower sales prices and volumes. Operational EBIT was negatively impacted by significantly higher variable costs, mainly for wood.

Wood Products division

The Wood Products division is Europe's largest sawn timber producer and a leading provider of sustainable wood-based solutions for the global construction industry. Additionally, it offers window and door components, and co-products such as pellets made from wood residuals.

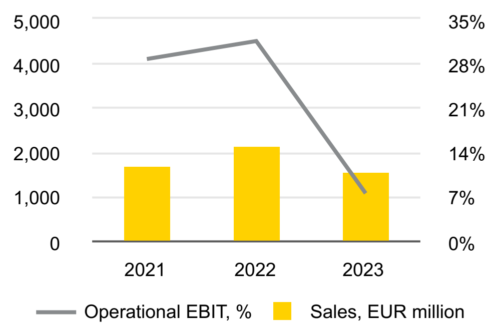
EUR million	2023	2022
Sales	1,580	2,195
Operational EBITDA	-17	356
Operational EBITDA margin	-1.0%	16.2%
Operational EBIT	-64	309
Operational EBIT margin	-4.1%	14.1%
Items affecting comparability (IAC)[1]	-22	-56
Operating result (IFRS)	-86	253
Operating capital, average	687	714
Operational ROOC	-9.3%	43.2%
Cash flow from operations	43	346
Cash flow after investing activities	3	264
Wood products deliveries, 1,000 m^3	3,727	4,235

[1] The IAC for 2023 included impairments of fixed assets of EUR -7 million for the Veitsiluoto site, EUR -4 million for the Launkalne site, EUR -5 million for the Honkalahti site, EUR -4 million impact from disposal of Näpi site and EUR -3 million from disposal of Wood Products DIY unit, EUR 1 million other cases. The IAC for 2022 was related to disposal of Russian operations.

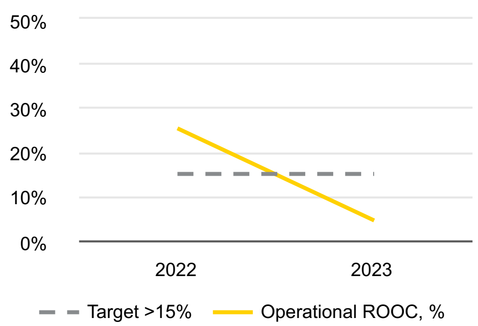
Wood Products division sales were EUR 1,580 (2,195) million, down 28%, due to the weakened market demand and clearly lower sales prices. Weakness in construction industry resulted in decline in building permits and project starts, and reduced the demand of the division's products through the year. To balance the lower demand, production curtailments were implemented.

Operational EBIT was weak, at EUR -64 (309) million, a decrease of 121%. The negative impact of sales prices and volumes could not be compensated by the division's actions to lower the fixed costs.

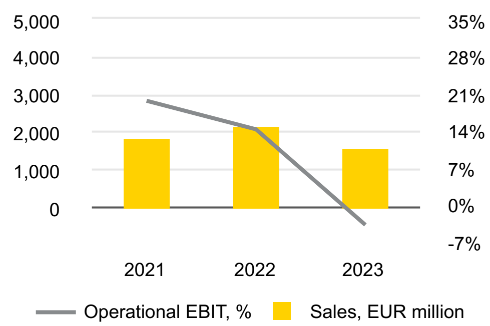
Sales and operational EBIT
Biomaterials



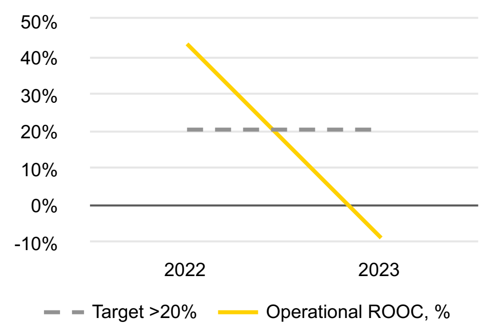
Operational ROOC
Biomaterials



Sales and operational EBIT
Wood Products



Operational ROOC
Wood Products



Forest division

The Forest division is responsible for wood sourcing for Stora Enso's Nordic and Baltic operations and B2B customers. It manages the Group's forest assets in Sweden and a 41% share of Tornator, whose forests are mainly located in Finland. The division's operations are based on sustainable forest management from planning and logistics to harvesting and forest regeneration.

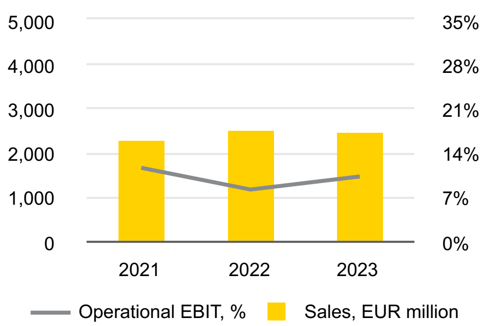
EUR million	2023	2022
Sales	2,490	2,519
Operational EBITDA	305	256
Operational EBITDA margin	12.2%	10.2%
Operational EBIT	253	204
Operational EBIT margin	10.2%	8.1%
Fair valuations and non-operational items (FV)[1]	206	367
Items affecting comparability (IAC)[1]	2	-48
Operating result (IFRS)	461	523
Capital employed, average	5,740	5,518
Operational ROCE	4.4%	3.7%
Cash flow from operations	70	146
Cash flow after investing activities	19	91
Wood deliveries, 1,000 m^3	32,401	38,217
Operational fair value change of biological assets	120	87

[1] The IAC for 2023 included a reversal of land related impairment of EUR 5 million and other provision updates of EUR -3 million. The IAC for 2022 included land related impairment of EUR -5 million and EUR -43 million related disposal of Russian operations. The fair valuations for 2023 included non-operational fair valuation changes of biological assets of EUR 156 (201) million, non-operational items of associated companies of EUR 56 (169) million, and EUR -5 (-3) million impact from adjustments for differences between fair value and acquisition cost of forest assets upon disposal.

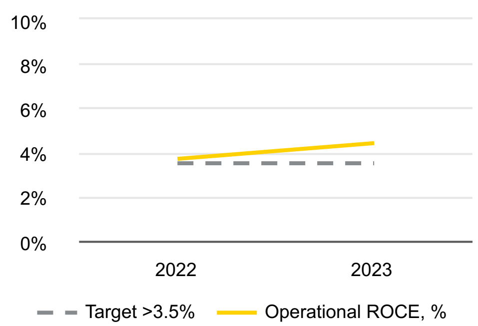
Forest division sales were EUR 2,490 (2,519) million, down 1%. Higher sales prices were offset by lower demand.

Operational EBIT at EUR 253 (204) million increased by 24%. The increase was due to the strong operational performance and higher sales prices in the Group's own forest assets.

Sales and operational EBIT
Forest



Operational ROCE
Forest



Other

The segment Other includes the divested paper sites until the completion of the divestments, the reporting of the emerging businesses (including Formed Fiber and Selfly Stores), as well as Stora Enso's shareholding in the energy company Pohjolan Voima (PVO), and the Group's shared services and administration.

EUR million	2023	2022
Sales	964	2,150
Operational EBITDA	18	102
Operational EBITDA margin	1.9%	4.7%
Operational EBIT	1	63
Operational EBIT margin	0.1%	2.9%
Fair valuations and non-operational items (FV)[1]	-13	6
Items affecting comparability (IAC)[1]	-28	-33
Operating result (IFRS)	-41	36
Cash flow from operations	-105	-136
Cash flow after investing activities	-123	-203

[1] The IAC for 2023 included EUR 29 million related to restructuring of Kvarnsveden, EUR 9 million to restructuring of Veitsiluoto, and EUR -15 million to restructuring of Group Functions, EUR 52 million related to disposal of Maxau, EUR -30 million to disposal of Nymölla, EUR -45 million to disposal of Hylte, EUR -14 million to disposal of biocomposite business, and EUR -6 million on disposal transactions costs, EUR -14 million related to fixed asset impairments in Group Operations unit and EUR 6 million related to environmental provision updates. The IAC for 2022 included EUR 13 million related to restructuring of Kvarnsveden, EUR -10 million to restructuring of Veitsiluoto, EUR -28 million on impairments, transaction cost and other items related to paper site disposals of Nymölla, Hylte and Maxau, EUR -13 million related updates in environmental provisions, EUR 8 million on Kvarnsveden site disposal, EUR -1 million related to disposal of Russian operations and EUR -1 million other cases. The fair valuations for 2023 included non-cash income and expenses related to CO_2 emission rights and liabilities of EUR -13 (6) million.
Comparative figures have been restated as described in our release from 29 March 2023.

Sales for the segment Other were at EUR 964 (2,150) million and operational EBIT EUR 1 (63) million. The reduction from the previous year was mainly driven by the sale of the paper production units in Sweden and Germany.

storaenso

Financials

Investments and capital expenditure

Additions to fixed and biological assets including internal costs capitalised in 2023 totalled EUR 1,125 (778) million. The total amount includes additions in biological assets of EUR 71 (77) million.

In February, Stora Enso announced approximately EUR 30 million investment in its Heinola Fluting site in Finland to renew the energy set-up and process equipment. After the investment, the site can replace also the remaining fossil-based fuels with renewable bioenergy. This will reduce the site's fossil-based greenhouse gas emissions by more than 90%.

In June, Stora Enso and Tetra Pak completed the investment in increasing the recycling capacity of beverage cartons in Poland. The total investment was EUR 29 million, of which Stora Enso's share was EUR 17 million. A new repulping line was built at the Ostrołęka site recovering the carton fibers.

The EUR 21 million investment, announced in June 2021, to improve the competitiveness and environmental performance of the Anjalankoski production sites was completed during the third quarter of 2023.

The expansion of board production capacity, announced in 2021, at the Skoghall site in Sweden was completed in November. Following the investment, the annual packaging board production increased by approximately 100,000 tonnes to over 900,000 tonnes. The site started to deliver commercial quality in liquid packaging board (LPB) and coated unbleached kraft (CUK) according to plan.

The EUR 10 million investment, decided in April 2022, at the Enocell site, Finland, was completed during the fourth quarter of 2023. The investment reduced annual operational CO_2 emissions replacing fossil-based fuel oil with renewable pitch oil made from trees. This complements the main energy source, sawdust powder, utilising 100% bio energy.

The EUR 1 billion investment at the Oulu site in Finland to convert the remaining idle paper machine into a high-volume consumer board line is moving ahead according to schedule. Production is expected to start during 2025. The investment supports the Group's growth strategy in renewable packaging by providing new volume for growing packaging segments. The targeted end-use segments are food and beverage packaging, especially frozen and chilled, and dry and fast food, mainly in Europe and North America.

During the year, Stora Enso completed a feasibility study regarding the conversion of one of the two paper line at its Langerbrugge site in Belgium into a high-volume recycled containerboard line, and decided to postpone the decision regarding the possible future conversion, until there are more favourable market conditions for containerboard.

The other main projects ongoing at the end of 2023 were De Lier site expansion in the Netherlands and improvements of fluff pulp production at the Skutskär site in Sweden.

Changes in the Group structure

The acquisition of De Jong Packaging Group, based in the Netherlands, for an enterprise value of EUR 1,020 million was completed in January 2023.

Stora Enso finalised the divestment of its paper assets in 2023. The divestment of the Nymölla paper site in Sweden to Sylvamo was completed in January, the divestment of the Maxau site in Germany to Schwarz Produktion was completed in March and the divestment of the Hylte site in Sweden to Sweden Timber was completed in April. The Anjala paper mill in Finland and the Langerbrugge paper mill in the Netherlands were retained in the Group.

During the year, Stora Enso closed down its Sunila pulp production and lignin extraction unit in Finland, the De Hoop containerboard site in the Netherlands, one containerboard line at its Ostrołęka site in Poland, and the Näpi sawmill in Estonia.

Stora Enso is in the process of divesting its consumer packaging site and forestry operations in Guangxi, China.

Innovation, research and development

Stora Enso's total spend on innovation, research and development in 2023 was EUR 114 (112) million, equivalent to 1.2% (1.0%) of total sales. Research and development work is a basic element for staying relevant and competitive towards customers. In 2023, Stora Enso employed approximately 330 people in research and development. The responsibility of product innovations and development of services is with the business divisions.

Stora Enso's growth focus is on the development of sustainable packaging applications to replace plastic-based materials; bio-based barriers solutions for packaging; innovative biomaterials or high-end applications; and the development of sustainable wooden-based materials and components which store carbon and improve energy efficiency of buildings.

Stora Enso's long-term science and research priority is to address the early research at universities and institutes for enabling breakthroughs and competence build-up to meet the needs of the divisions. The Group Innovation and R&D is working closely with the strategic partner universities, research institutes and excellence centers to get answers to central scientific questions related to renewable materials.

Intellectual property (IP) is an important tool to support Stora Enso's development of innovative products and processes and safeguarding the Group's intellectual assets. During 2023, Stora Enso continued to strengthen its patent portfolio by applying for patents for 83 new innovations. The focus of the new patent filings was within the Biomaterials, Packaging Materials and Packaging Solutions divisions. The Biomaterials division has new patent filings related to Lignode, biobinders, biofoam, and circular chemicals. The Packaging Materials division continues to strengthen the patent portfolio with filings related to barriers, board technology and circular packaging. The Packaging Solutions division has new patent filings related to, for example, formed fiber and packaging design. Stora Enso's patent portfolio amounts to over 3,500 applications and granted patents.

Non-financial information

Requirements of non-financial information reporting according to the Finnish Accounting Act are reported below. The scope of the reporting includes those non-financial topics that relate to the Group's key risks.

Risks and policy principles related to these topics are additionally described in the chapters Risks and Risk Management, Task Force on Climate-related Financial Disclosures (TCFD), and Task Force on Nature-related Financial Disclosures (TNFD).

Business model

Stora Enso is one of the leading providers of renewable products in packaging, biomaterials, and wooden construction, and one of the largest private forest owners in the world. Sustainability is embedded in the Group's strategy and responsible business practices. Stora Enso contributes to the transition towards a circular bioeconomy in the three areas where it has the biggest impact and opportunities: climate change, biodiversity, and circularity. A description of Stora Enso's business model is presented at the beginning of the Report of the Board of Directors.

Stora Enso acknowledges the importance of the United Nations Sustainable Development Goals (SDGs) and supports all seventeen SDGs. The SDGs 'Responsible consumption and production' (goal 12), 'Climate action' (goal 13), and 'Life on land' (goal 15) have been identified as the most relevant, where the Group has the largest impact through its own operations and products.

Sustainability governance

Sustainability is a key element of Stora Enso's corporate governance owned by the Board of Directors, the President and Chief Executive Officer (CEO), and the Group Leadership Team (GLT). The CEO carries the ultimate responsibility for the implementation of the sustainability agenda. Sustainability work is led by the Executive Vice President, Sustainability, who reports directly to the CEO and is part of the Group Leadership Team (GLT). The Board of Directors' Sustainability and Ethics Committee oversees the implementation of Stora Enso's sustainability agenda, and Ethics and Compliance Strategy. The Committee met four times in 2023.

Stora Enso's Sustainability Policy describes the Group's overall approach to sustainability and the governance model. The Code of Conduct and other policies, guidelines, and statements on specific sustainability topics further elaborate the approach, while also guiding the Group's employees in their everyday work. These documents are available at storaenso.com/sustainability.

More information about Stora Enso's approach to sustainability is available in the sections Our strategy, Our people, and Sustainability reporting.

Environmental matters

Climate change

Key policy: Policy for Energy and Climate change

Stora Enso's science-based target is to reduce absolute Scope 1 and 2 CO_2e emissions from operations by 50% by 2030 from the 2019 baseline, in line with the 1.5-degree scenario. Stora Enso is also committed to reducing absolute Scope 3 CO_2e emissions by 50% by 2030 from the 2019 baseline.

In 2023, Stora Enso's absolute CO_2e emissions (Scope 1 and 2) were 41% lower than the baseline level (27%[1] lower in 2022). The Group's CO_2e emissions elsewhere along the value chain (Scope 3) were 34% lower than the baseline level (24%[1] lower in 2022). During 2023, the emissions in all three Scope categories decreased mainly as a consequence of lower production volumes as well as site and production line closures.

Sustainable forestry and biodiversity

Key policy: Wood and Fiber Sourcing and Land Management Policy

Stora Enso is committed to achieving a net-positive impact on biodiversity in its own forests and plantations by 2050 through active biodiversity management. The Group steers its biodiversity actions through a Biodiversity Leadership Programme to improve biodiversity at species, habitat, and landscape levels. Progress is monitored with science-based impact indicators reported in the chapter Sustainable forestry and biodiversity of the Sustainability reporting section.

Stora Enso uses its own forest in Sweden as a platform for continuously developing new biodiversity management practices to be adapted to local conditions and implemented in different geographical areas when feasible. Measures to be developed, tested, and used in the Group's own forests in Sweden include: application of digital tools to improve accuracy of planning and operations; increasing amount of deadwood and broad-leaved trees, especially birch; continuous cover forestry in suitable areas; and increasing use of controlled burning in forest regeneration.

Currently, Stora Enso follows its progress on sustainable forestry with a key performance indicator that measures the proportion of land in wood production and harvesting owned or leased by Stora Enso covered by forest certification schemes. At the end of 2023, Stora Enso's owned or leased lands covered a total area of 2.02 million hectares (2.01 million hectares in 2022). The majority of Stora Enso's owned or leased lands are located in Sweden. For more details, see note 4.2 Forest assets. The Group's target is to maintain the high level of 96%, and in 2023, the certification coverage amounted to 99% (99%[2] in 2022). Certain purchased areas in Stora Enso's joint operations in Brazil and Uruguay were in the certification process but not yet certified by the end of 2023.

In 2023, the total amount of wood (including roundwood and wood chips) delivered to Stora Enso's production sites was 28.1 million m^3 (solid under bark) (35.1 million m^3 in 2022). The proportion of third-party certified wood in the Group's total wood supply was 81% (80%).

Circularity

Key policy: Circular Design Guidelines

Stora Enso is committed to circular material flows that help to minimise waste and combat climate change. The target is to achieve 100% technically recyclable products by 2030. By the end of 2023, 94% (94% in 2022) of the Group's products were recyclable.[3]

Water

Key policy: Environmental Guidelines

Stora Enso constantly strives to improve its water performance through targeted investments. As of 2023, a new Group goal was set to reduce specific process water discharges per saleable tonne (m^3 tonne) by 17% from the 2019 baseline (36 m^3/tonne) by 2030. In 2023, the process water discharges were 35 m^3/tonne (34 m^3 in 2022), with a 3% decrease from the baseline.

For total water withdrawal, the target is to maintain a decreasing trend from the 2016 baseline (60m^3/tonne). In 2023, total water withdrawal was 61 m^3 per saleable tonne (57 m^3 in 2022). Lower production volumes are currently adversely affecting the performance per saleable tonne, as a regular water flow needs to be maintained, particularly in wastewater treatment.

Social and employee matters

Employees

Key policies: Minimum Human Resources Requirements for labour conditions

On 31 December 2023, there were 19,842 (20,879) employees in the Group. The average number of employees in 2023 was 20,822, which is 969 less than the average number in 2022. The figures include 50% of the employees at Veracel in Brazil and Montes del Plata in Uruguay. Read more in the chapter Employees in the Sustainability reporting section.

Personnel expenses totalled EUR 1,275 (1,315) million or 13.6% of sales. Wages and salaries were EUR 962 (996) million, pension costs EUR 147 (152) million, and other employer costs amounted to EUR 162 (160) million.

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[1] Comparative figures are restated due to structural changes or additional data after previous annual report.
[2] Reporting on total land area and its forest certification coverage aligned with financial reporting on forests assets. For more information, see note 4.2
[3] Based on the technical recyclability of products and their production volumes consolidated as tonnes. Technical recyclability is defined by international standards and tests, when available, and in absence of these, by Stora Enso's own tests that prove recyclability. The reporting scope includes Stora Enso's packaging, pulp, paper, and solid wood products as well as biochemical by-products.

Financials

At the end of 2023, the Group's top four countries in respect to the number of employees were Finland, Sweden, China, and Poland. 25% (25%) of all employees were women. Stora Enso's target is to increase the share of female managers among all managers to 25% by the end of 2024. By the end of 2023, 24% of managers were female (23%).

Personnel turnover in 2023 was 11% (14%). Illness-related absenteeism amounted to 3.7% (4.1%) of total theoretical working hours.

The Group's wages in relation to local minimum wages are presented in the chapter Consolidated sustainability figures in the Sustainability reporting section. Remuneration to the Board of Directors and executive management is described in note 3.2 Board and executive remuneration.

Safety

Key policy: Health and Safety Policy

In 2023, the Total Recordable Incident (TRI) rate was 4.7 (5.9). The milestone of 4.9 for 2023 was achieved by prioritising preventive safety measures and reinforcing divisions' accountability on improving performance. In 2023, Stora Enso introduced a new leading safety indicator, the 'Safety Engagement Rate', focused on preventive safety management. In 2023, no fatal injuries occurred at Stora Enso's sites.

Sustainable sourcing

Key policy: Supplier Code of Conduct (SCoC)

Stora Enso's key performance indicator for responsible sourcing measures the proportion of Group's total supplier spend covered by the Supplier Code of Conduct (SCoC), including all categories and regions. Stora Enso's target is to maintain a minimum coverage level of 95% of supplier spend covered by the SCoC. By the end of 2023, 95% of Stora Enso's total spend on materials, goods, and services was duly covered (96% at the end of 2022).

Respect for human rights

Key policy: Human Rights Policy and Guidelines

Stora Enso's commitment to respect human rights covers all the Group's operations, including employees, contractors, suppliers, and neighbouring communities. In addition to the Group's commitment to the UN Guiding Principles on Business and Human Rights, Stora Enso's annual Slavery and Human Trafficking Statement is available at storaenso.com/sustainability.

While Stora Enso considers all human rights to be important and respects them, the human rights identified as most salient remain the primary focus. This includes the following topics:

- Health and safety
- Fair labour (fair employment conditions, freedom from forced labour, freedom of association, non-discrimination, and non-harassment)
- Land and natural resource rights acquisition and management
- Grievance mechanisms
- Children's rights (relevant to the forest sector)

In 2023, Stora Enso shared best practices and adapted existing processes to embed the outcomes of the three human rights due diligence deep-dive projects initiated in 2022. The projects were carried out together with a third-party consultancy, with the aim of improving risk identification and controls for two high-risk supply chains, as well as the due diligence processes in the Group's own operations. Read more in chapter Human Rights in the Sustainability reporting section.

During 2023, Stora Enso continued to address land and natural resource rights in Guangxi, China and Bahia, Brazil.

Guangxi, China

Stora Enso leases 69,700 (73,100) hectares of land in Guangxi province China, of which 53,400 (53,400) hectares is leased from state-owned forest farms. The remaining 16,300 (19,700) hectares, or 23% (27%) of the total area, is social land leased from village collectives, individual households, and local forest farms.

Parts of the land leased by Stora Enso have been occupied for up to ten years for the purpose of growing crops and trees on a small scale. In some cases, the occupiers are claiming rights to the land based on historical land ownership documents that have been superseded by state ownership in successive land reform processes. Recovery of occupied land continued in 2023, with 7,132 (6,124) hectares of land still under occupation at the end of the year. As announced in December 2022, Stora Enso has initiated a sales process for a divestment of its consumer board production site and forestry operations in Beihai, China.

Bahia, Brazil

In Bahia, Brazil, work continued on the Sustainable Settlement Initiative launched in 2012 to provide farming land and educational support for local families in the landless people's social movements. In 2018, Veracel signed a new agreement with the social landless movements to complement the earlier agreed Sustainable Settlement Initiative.

At the end of 2023, 139 (182) hectares or 0.1% (0.2%) of productive land owned by Veracel remained occupied by movements not involved in the agreements.

At the end of 2023, the total land area owned by Veracel was 209,000 (210,000) hectares, of which 82,000 (82,000) hectares are used for growing eucalyptus for pulp production. Approximately half of Veracel's lands are dedicated to protecting local biodiversity by restoring and conserving the natural Atlantic rainforest.

Anti-corruption and bribery matters

Key policies: Business Practice Policy, the Stora Enso Code (Code of Conduct)

A total of 131 (153 in 2022) potential non-compliance cases were reported in 2023. During the past years, there has been a significant increase in reported misconduct cases, which is likely due to a greater external and internal focus on ethical conduct, compliance, and voicing concerns. A total of 163 (140) investigations of potential non-compliance were completed, which also included open cases from previous years. Proven cases leading to disciplinary action, legal action and/or process improvements were identified in 30 (44) of the investigations. Based on the Group's categorisation, 9 (13) of the proven cases were related to corruption and/or fraud, resulting in employee dismissal or a disciplinary process. While Stora Enso continues to enforce zero tolerance for corruption, none of the proven cases had a material impact on the Company.

Furthermore, 7 (12) of the proven cases were related to discrimination, harassment and/or bullying. Remediation plans have been or are being implemented together with relevant management representatives.

Financials

Environmental investments and liabilities

In 2023 Stora Enso's environmental investments amounted to EUR 132 (82) million. These investments were mainly to improve the quality of air and water, to enhance resource and energy efficiency, and to minimise the risk of accidental spills.

Stora Enso's environmental costs in 2023 excluding interest and including depreciation totalled EUR 240 (243) million. These costs include taxes, fees, refunds, permit-related costs, and repair and maintenance costs, as well as wastewater treatment chemicals and certain other materials.

Provisions for environmental remediation amounted to EUR 63 (73) million at 31 December 2023, details of which are in note 4.9 Provisions. There are currently no active or pending legal claims concerning environmental issues that could have a material adverse effect on Stora Enso's financial position.

EU Taxonomy

To meet the EU's climate and energy targets for 2030 and reach the objectives of the European Green Deal, a classification system for sustainable economic activities called EU Taxonomy was introduced in 2020. Large companies are obligated to report the share of Taxonomy-eligibility and Taxonomy-alignment in their operations. Taxonomy-eligibility describes if an economic activity is included in the scope of activities recognised in the EU Taxonomy Regulation. Taxonomy-alignment describes if an economic activity is sustainable based on the technical screening criteria for substantial contribution and do-no-significant harm specified for the activity. Taxonomy-aligned activity needs to be also carried out in compliance with the minimum safeguards, thus to respect basic human rights and follow good business conduct rules.

In 2023 EU Taxonomy was expanded to four remaining environmental objectives with the EU Environmental Delegated Act and with amendments to Climate Delegated Act. The amendments did not bring major impact on Stora Enso's Taxonomy-eligibility. The forest industry is not at the core of the current legislation and therefore the Group has only few activities to report on. From Stora Enso's main products, the wood-based solutions for construction industry are included in the EU Taxonomy through their contribution to buildings' energy efficiency. Other main products, production of pulp, consumer board, containerboard and corrugated packaging, are out of the scope of the EU Taxonomy and therefore the reported Taxonomy-eligible KPIs are low.

Accounting principles

The EU Taxonomy KPIs, turnover, capex and opex, are presented in separate tables as defined in the regulation. The total turnover is the Group's total sales, as presented in the line of sales, in consolidated income statement, and rental income in 2023, which respectively include the IFRS 15 and the IFRS 16 income according to the EU Taxonomy turnover definition. The external sales connected to the economic activities are reported under Taxonomy-eligible turnover. The total capex is the Group's total capital expenditure in 2023, as presented in the line of additions, excluding goodwill additions, in note 4.1 Intangible assets, property, plant and equipment and right of use assets, and note 4.2 Forest assets. The Taxonomy-eligible capex are the investments related to the assets or processes associated with the respective economic activities. The total opex covers the maintenance expenses, short-term lease costs, non-capitalised research and development costs and silviculture costs at the Group level. The Taxonomy-eligible opex include the corresponding direct non-capitalised costs related to the economic activities.

Double counting is avoided by having a clear cost structure in reporting which ensures that the profit centers and cost elements are separate for each activity. In reporting the activities do not overlap between environmental objectives.

Taxonomy eligible and aligned activities

Stora Enso has identified seven eligible activities to report in the EU Taxonomy in the conducted yearly exercise. The eligibility and alignment assessments have been carried out based on the best interpretation of the Taxonomy Regulation and the available guidelines from the European Commission. In case of unclarities, the conservative approach has been chosen. The assessments and the data are covered by external assurance.

1.3 Forest management

Taxonomy-eligible forest management includes Stora Enso's own forest activities in Sweden where the Group has full control over the activity. Tree plantations in South America and China are not included in the activity. Of Stora Enso's Swedish forests, 100% are certified under certification systems (PEFC or FSC) which lays the foundation for sustainable forest management. Stora Enso considers its forest management practices aligned with EU Taxonomy, but has been unable to fulfill the third party verification requirement described in forest management substantial contribution criteria (section 4. Audit). Stora Enso has been actively searching a partner who is capable of conducting EU Taxonomy compliant verification and will continue the search. Until then the Group reports its forest management as eligible but not-aligned in EU Taxonomy.

The output of the activity, the grown wood, is used mostly internally in Stora Enso's own operations. The forest management turnover in the EU Taxonomy includes the sale of externally sold roundwood and forest residuals.

1.4 Conservation forestry

In Brazil, Stora Enso's 50% owned joint operation Veracel has dedicated more than half of its land for the protection and restoration of biological biodiversity in natural Atlantic rainforest. The forest is excluded from the harvesting activities. Stora Enso considers the conservation practises aligned with EU Taxonomy, but has been unable to fulfil the third party verification requirement described in conservation forestry substantial contribution criteria (section 4. Audit). The activity is thus reported as eligible but not- aligned. Costs from the conservation operations are reported in opex.

2.4 Remediation of contaminated sites and areas

Remediation projects of contaminated sites and areas are related to discontinued operations and mill closures at Stora Enso sites. The expenses related to the environmental remediation work carried out are included in the reported opex.

3.4 Manufacture of batteries

Stora Enso's pilot plant costs and research and development expenses related to hard carbon innovation are included in Taxonomy-eligible opex. Turnover for the activity is expected within future years. The alignment assessment is done based on the predicted future industrial scale operations and production which will be aligned with the technical screening criteria of 3.4 Manufacture of batteries once started. For more information on Lignode® by Stora Enso, see the Group's website storaenso.com/lignode.

3.5 Manufacture of energy efficiency equipment for buildings

Stora Enso produces wood-based solutions for the construction industry. As Stora Enso is not a manufacturer of the end products, the compliance with the substantial contribution was assessed based on the knowledge of the end use and the energy efficiency related regulations in the primary market areas. The external sales related to the share of production that is estimated to end up for doors, windows, roofing and external wall systems, is included under the EU Taxonomy turnover. The same share is used in the allocation of the related capex and opex for the activity.

4.20 Cogeneration of heat/cool and power from bioenergy

Wood residuals and by-products from the pulp process are used for energy production. The bioenergy generated from biobased feedstock is considered eligible in the EU Taxonomy reporting. The turnover includes the external sales of the excess electricity and heat which is not consumed internally. The largest single capex item in the reporting is the investment to bioenergy production at the Oulu production site, expected to be in use 2025.

7.6 Installation, maintenance and repair of renewable energy technologies

The installation of renewable energy technologies is considered eligible in the EU Taxonomy reporting. The reported capex includes the investments in the installation of solar panels at Stora Enso sites.

Minimum safeguards

Minimum safeguards were assessed in Group-level from two angles: by reviewing the company processes for human rights, corruption, taxation and fair competition to determine that the adequate processes and controls are in place, and by investigating that there are no known breaches or violations existing in the parent company, in its subsidiaries or by senior management. The Group considers its processes to be at a robust level and with no violations to meet the alignment with the minimum safeguards. Read more in the following chapters in the Sustainability reporting section: Human rights, Business ethics, and Stora Enso as a taxpayer.

Financials

Proportion of Turnover from products or services associated with Taxonomy-aligned economic activities 2023

EUR million

				Substantial contribution criteria						DNSH criteria ('Does Not Significantly Harm')									
Economic Activities	Code	Turnover	Proportion of turnover year 2023	Climate change mitigation	Climate change adaptation	Water	Pollution	Circular Economy	Biodiversity	Climate change mitigation	Climate change adaptation	Water	Pollution	Circular Economy	Biodiversity	Minimum safeguards	Proportion of Taxonomy aligned or eligible turnover year 2022	Category enabling activity	Category transitional activity
		EUR	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
Forest management	CCM 1.3																100%		
Manufacture of energy efficiency equipment for buildings	CCM 3.5	413	4.4%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	Y	Y	Y	Y	Y	100%	E	
Cogeneration of heat/cool and power from bioenergy	CCM 4.20	41	0.4%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	Y	Y	n/a	Y	Y	96.6%		
Turnover of environmentally sustainable activities (Taxonomy-aligned) (A.1)		**454**	**4.8%**	**100%**													**99.7%**		
Of which Enabling		413	4.4%	100%													78.3 %	E	
Of which Transitional																			T
A.2. Taxonomy-Eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																			
Forest management	CCM 1.3	118	1.3 %														—%		
Cogeneration of heat/cool and power from bioenergy	CCM 4.20	2	0.0 %														3.4 %		
Turnover of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		**119**	**1.3%**														**0.3 %**		
A.Turnover of Taxonomy eligible activities (A.1+A.2)		**574**	**6.1%**														**100 %**		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
Turnover of Taxonomy-non-eligible activities		8,836	93.9%																
TOTAL[1]		**9,410**	**100%**																

[1] In the EU Taxonomy, turnover includes also rental income, therefore the figure differs slightly from the Group total sales.

Y – Yes, Taxonomy-eligible and Taxonomy-aligned activity with the relevant environmental objective
N – No, Taxonomy-eligible but not Taxonomy-aligned activity with the relevant environmental objective
N/EL – not eligible, Taxonomy non-eligible activity for the relevant environmental objective

Financials

Proportion of capex from products or services associated with Taxonomy-aligned economic activities 2023

EUR million

				Substantial contribution criteria						DNSH criteria ('Does Not Significantly Harm')									
Economic Activities	**Code**	**Capex**	**Proportion of capex year 2023**	**Climate change mitigation**	**Climate change adaptation**	**Water**	**Pollution**	**Circular Economy**	**Biodiversity**	**Climate change mitigation**	**Climate change adaptation**	**Water**	**Pollution**	**Circular Economy**	**Biodiversity**	**Minimum safeguards**	**Proportion of Taxonomy aligned or eligible capex year 2022**	**Category enabling activity**	**Category transitional activity**
		EUR	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
Forest management	CCM 1.3																100%		
Manufacture of batteries	CCM 3.4	—	0.0%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	Y	Y	Y	Y	Y	100%	E	
Manufacture of energy efficiency equipment for buildings	CCM 3.5	4	0.4%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	Y	Y	Y	Y	Y	100%	E	
District heating/cooling distribution	CCM 4.15																100%		
Cogeneration of heat/cool and power from bioenergy	CCM 4.20	57	5.1%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	Y	Y	n/a	Y	Y	70.1%		
Installation, maintenance and repair of renewable energy technologies	CCM 7.6	3	0.3%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	n/a	n/a	n/a	n/a	Y	—%	E	
Capex of environmentally sustainable activities (Taxonomy-aligned) (A.1)		**64**	**5.7%**	**100%**													**94.3%**		
Of which Enabling		7	0.6%	100%													54.9 %	E	
Of which Transitional																			T
A.2. Taxonomy-Eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																			
Forest management	CCM 1.3	7	0.6%														—%		
Cogeneration of heat/cool and power from bioenergy	CCM 4.20	4	0.3 %														29.9 %		
Capex of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activites) (A.2)		**10**	**0.9%**														**5.7 %**		
A.Capex of Taxonomy eligible activities (A.1+A.2)		**75**	**6.6%**														**100 %**		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
Capex of Taxonomy-non-eligible activities		1,051	93.4%																
TOTAL		**1,125**	**100%**																

Y – Yes, Taxonomy-eligible and Taxonomy-aligned activity with the relevant environmental objective
N – No, Taxonomy-eligible but not Taxonomy-aligned activity with the relevant environmental objective
N/EL – not eligible, Taxonomy non-eligible activity for the relevant environmental objective

Proportion of opex from products or services associated with Taxonomy-aligned economic activities 2023

EUR million				Substantial contribution criteria						DNSH criteria ('Does Not Significantly Harm')									
Economic Activities	**Code**	**Opex**	**Proportion of opex year 2023**	**Climate change mitigation**	**Climate change adaptation**	**Water**	**Pollution**	**Circular Economy**	**Biodiversity**	**Climate change mitigation**	**Climate change adaptation**	**Water**	**Pollution**	**Circular Economy**	**Biodiversity**	**Minimum safeguards**	**Proportion of Taxonomy aligned or eligible opex year 2022**	**Category enabling activity**	**Category transition al activity**
		EUR	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N		E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
Forest management	CCM 1.3																100%		
Conservation forestry	CCM 1.4																100%		
Remediation of contaminated sites and areas	PPC 2.4	6	0.7%	n/a	n/a	n/a	Y	n/a	n/a	Y	Y	Y	n/a	Y	Y	Y	—%		
Manufacture of batteries	CCM 3.4	21	2.6%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	Y	Y	Y	Y	Y	100%	E	
Manufacture of energy efficiency equipment for buildings	CCM 3.5	20	2.5%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	Y	Y	Y	Y	Y	100%	E	
Cogeneration of heat/cool and power from bioenergy	CCM 4.20	32	4.1%	Y	N	n/a	n/a	n/a	n/a	n/a	Y	Y	Y	n/a	Y	Y	52.9%		
Opex of environmentally sustainable activities (Taxonomy-aligned) (A.1)		**78**	**9.9%**	**92.7%**			**7.3%**										**82.9%**		
Of which Enabling		41	5.2%	100%													45.0 %	E	
Of which Transitional																			T
A.2. Taxonomy-Eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																			
Forest management	CCM 1.3	23	2.9%														—%		
Conservation forestry	CCM 1.4	1	0.1 %														— %		
Cogeneration of heat/cool and power from bioenergy	CCM 4.20	6	0.7 %														47.1 %		
Opex of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activites) (A.2)		**30**	**3.8%**														**17.1 %**		
A.Opex of Taxonomy eligible activities (A.1+A.2)		**108**	**13.7%**														**100 %**		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
Opex of Taxonomy-non-eligible activities		681	86.3%																
TOTAL		**790**	**100%**																

Y – Yes, Taxonomy-eligible and Taxonomy-aligned activity with the relevant environmental objective
N – No, Taxonomy-eligible but not Taxonomy-aligned activity with the relevant environmental objective
N/EL – not eligible, Taxonomy non-eligible activity for the relevant environmental objective

Financials

Risks and risk management

Our approach to risk management

Risk is an integral element of business and corporate governance, and it is characterised by both threats and opportunities, which may have an impact on future performance and the financial results of Stora Enso, as well as on its ability to meet certain social and environmental objectives. Stora Enso is committed to ensuring that systematic, holistic and proactive management of risks and opportunities is among its organisational core capabilities, and that a culture is fostered where both are carefully considered in all business decisions. Through consistent application of dynamic risk analysis and scenario planning, Stora Enso enhances opportunities and manages risk in order to reduce threats which may prevent the Group from reaching its business goals.

Risk governance

Stora Enso defines risk as the effect of uncertainty on the Group's ability to meet organisational values, objectives and goals. The Group Risk Policy, which is approved by the Board of Directors, sets out the overall approach to governance and the management of risks in accordance with the COSO (Committee of Sponsoring Organizations) framework and in line with the ISO 31000 standard. The Board retains the ultimate responsibility for the overall risk management process and for determining predominantly through Group policies the appropriate and acceptable level of risk.

The Board has established a Financial and Audit Committee to provide support to the Board in monitoring the adequacy of the risk management process within Stora Enso, and specifically regarding the management and reporting of financial risks. This oversight scope includes also monitoring of the cybersecurity risk. The Sustainability and Ethics Committee is responsible for overseeing the company's sustainability and ethical business conduct, its strive to be a responsible corporate citizen, and its contribution to sustainable development.

The head of Enterprise Risk Management, reporting to the Chief Strategy and Innovation Officer, is responsible for the design, development and monitoring of the top-down implementation of the Group risk management framework. Each division and Group function head, together with their respective management teams, are responsible for process execution and cascading the framework and guidelines further down in the organisation. The Internal Audit unit evaluates the effectiveness and efficiency of the Stora Enso risk management process.

Risk management process

Risk management is embedded in all decision-making processes, with holistic risk assessments conducted also as part of all significant investment decisions. In connection with the annual strategy process, business divisions and group service and support functions conduct a holistic baseline risk assessment, linked to their key objectives. Specific guidance regarding the risk management process is outlined in the enterprise risk management instructions.

Business entities and functions identify the sources of risk events including changes in circumstances and their causes and potential consequences. Stora Enso's risk model outlines the overall risk universe which is used to support holistic risk identification and risk consolidation, while also providing taxonomy as well as consistency in risk terminology.

Risk analysis involves developing an understanding of the risk to provide an input for risk evaluation. The purpose of risk evaluation is to determine the risk priorities and to support decision making to determine which risks require treatment/actions. Risks are assessed in terms of their impact and likelihood of occurrence, often based on specific risk scenarios. The effectiveness of existing risk reduction is factored in to define the residual risk level. Pre-defined impact scales consider financial, safety and reputational impacts, on both a quantitative and qualitative basis.

Risk treatment involves selecting one or more risk management option, such as avoidance, reduction, sharing or retention. Additional risk mitigation actions are determined for risks which exceed the perceived risk tolerance incorporating the assignment of responsibility, schedule and timetable of the risk response actions.

Following the annual baseline assessment, prioritised and emerging risks, as well as the corresponding risk mitigation and business continuity plans related to those risks, are reviewed in divisional business review meetings on a semi-annual basis.

Despite the measures taken to manage risks and mitigate the impact of risks, and while some of the risks remain beyond the direct control of the management, there can be no absolute assurance that risks, if they occur, will not have a materially adverse effect on Stora Enso's business, financial condition, operating profit or ability to meet financial obligations.

Main risks

Reputation

Reputational risks often reflect the combined impacts of many other types of risks and could be a consequence of incidents or non-compliant behaviour of employees, contractors, suppliers or other business partners. This includes failure to comply with norms, laws and regulations, or policy documents. Damage to Stora Enso's reputation and brand may result in a loss of investor and customer confidence leading to higher cost of capital and decreased revenues.

Mitigation measures and opportunities

Policies such as the Stora Enso Code and Supplier Code of Conduct ensure that the Board has oversight. Continuous and mandatory training sessions for employees and, on occasion, suppliers guarantees that the policies are being implemented, and audits are conducted to monitor that Stora Enso's requirements are met. Stora Enso has established a Speak Up Hotline, through which employees and any third party globally can anonymously report potential non-compliance cases. All reported cases are subject to an established investigation and reporting process, with proven cases leading to actions. Stora Enso continuously engages with its stakeholders to enhance relationships, to respond to developing needs and to inform its strategy.

Macroeconomy, geopolitics, and currency rates

Changes in global economic conditions, such as sharp market corrections and foreign exchange volatility, could have a negative and material impact on Stora Enso's profit, cash flows and financial position.

Stora Enso is exposed to several financial market risks that the Group is responsible for managing under policies approved by the Board of Directors. The objective is to achieve cost-effective funding in Group companies and manage financial risks by using financial instruments to reduce earnings volatility. The main exposures for the Group, besides currency risk, are interest rate risk, liquidity risk, refinancing risk, commodity price risk and credit risk. Financial risks are discussed in detail in note 5.1 Financial risk management.

Financials

Mitigation measures and opportunities

Stora Enso has a diversified portfolio of businesses which mitigates exposure to any one country or product segment. The external environment is continuously monitored and planning assumptions take account of important near- to medium-term and long-term drivers and risks related to key macro-economic factors. The compliance to the Board-approved risk appetite is closely monitored and cash flow and liquidity are actively managed. Stora Enso hedges 15–60% of the highly probable 12-month net foreign exchange flows in main currency pairs. Currency translation risk is reduced by funding assets, whenever economically possible, in the same currency as the asset. The divisions regularly monitor their order flows and other leading indicators, where available, so that they may respond quickly to a deterioration in trading conditions. In the event of a significant deterioration in general economic condition and in main leading economic indicators, the Group has a possibility to implement cost reduction measures to offset the impact on margins from deterioration in sales.

Competition and market demand

The packaging, pulp, paper and wood products industries are mature, capital intensive and highly competitive. Stora Enso's principal competitors include several large international forest products companies and numerous regional and more specialised competitors. Customer demand is influenced by the general economic conditions and inventory levels and affects product price levels. Product prices, which tend to be cyclical, are affected by capacity utilisation, which decreases in times of economic slowdowns. Changes in prices differ between products and geographic regions.

The following table shows the operating profit sensitivity to a +/- 10% change in either price or volume for different segments based on figures for 2023.

Operating profit: Impact of changes +/- 10%, EUR million

Segments	Price	Volume
Packaging Materials	434	110
Packaging Solutions	107	43
Biomaterials	143	52
Wood Products	152	32
Forest	246	6

Mitigation measures and opportunities

The ability to respond to changes in product demand and consumer preferences and to develop new products on a competitive and economic basis calls for innovation, continuous capacity management and structural development. The risks related to factors such as demand, price, competition and customers are regularly monitored by each division and unit as a routine part of business management. These risks are also continuously monitored and evaluated on a Group level to gain a perspective of the Group's total asset portfolio and overall long-term profitability potential.

Stora Enso, as one of the biggest private forest owners in the world, also benefits from a strategic renewable resource base. The Group's expertise in wood and wood based renewable materials is focused on responding to changing customer and consumer preferences, driven by climate change. Products based on renewable materials with a low carbon footprint help customers and society at large to reduce CO_2 emissions by providing an alternative to solutions based on fossil fuels or other non-renewable materials.

Sourcing

Increasing input costs or availability of materials, goods and services may adversely affect Stora Enso's profitability. Securing access to reliable low-cost supplies and proactively managing costs and productivity are of key importance. Reliance on outside suppliers for energy also makes Stora Enso susceptible to changes in energy market prices. There is also an increased risk of disturbances in the supply chain due to cyber incidents, political instability and other drivers related to global trade. The following table shows Stora Enso's major cost items.

Composition of costs in 2023

Operative costs	% of costs	% of sales
Logistics and commissions	10%	10%
Manufacturing costs		
Fiber	33%	32%
Chemicals and fillers	9%	8%
Energy	7%	7%
Material	10%	9%
Personnel	14%	14%
Other	11%	11%
Depreciation	6%	6%
Total costs and sales	**100%**	**97%**
Total operative costs and sales in EUR million	**9,130**	**9,396**
Associated companies, operational		76
Operational EBIT (EUR million)		**342**

In many areas Stora Enso is dependent on suppliers and their ability to deliver a product or a service at the right time and of the right quality. The most important products are fiber, chemicals and energy, and machinery and equipment in capital investment projects. Increased demand for carbon neutral primary and secondary biomass fuels may increase energy costs. The most important services are transport and various outsourced business support services. For some of these inputs, the limited number of suppliers is a risk.

Mitigation measures and opportunities

Input cost volatility is closely monitored at the business unit, divisional and group level and a consistent long-term energy risk management is applied. The price and supply risks are mitigated through increased own generation, shareholding in competitive power assets such as PVO/TVO, physical long-term contracts and financial derivatives. Stora Enso hedges price risks in raw material and end-product markets and supports the development of financial hedging markets. A wide range of suppliers are used and monitored to avoid situations that might jeopardise continued production, business transactions or development projects.

Suppliers and subcontractors must also comply with Stora Enso's sustainability requirements as they are part of Stora Enso's value chain. The sustainability requirements for suppliers and audit schemes cover raw materials, and other goods and services procured. Suppliers are assessed for risks related to environmental, social and business practices through our internal risk assessment tool. Supplier code of conduct audits are conducted on high-risk suppliers and findings from such audits are followed-up. Suppliers should have the possibility to mitigate, but where necessary, the supplier contract would be terminated.

Stora Enso also has an opportunity to add value and bring innovation to its business globally by building strong and measurable relationships with the best suppliers as well as enforcing

Financials

harmonised sourcing processes to increase capabilities, increase tender quality to reduce cost, and develop sustainable suppliers.

Regulatory changes

Stora Enso's businesses may be affected by political or regulatory developments in any of the countries and jurisdictions where it operates, including changes to forest, biodiversity, environmental, fiscal, tax or other regulatory regimes. Potential impacts include higher costs and capital expenditure to meet new requirements, the expropriation of assets, imposition of royalties or other taxes targeted at the industry, and requirements for local ownership or beneficiation.

The EU Green Deal and its climate targets for 2030 and 2050 have resulted in a proliferation of future legislation which have been further advanced in 2022 and may impact Stora Enso's future operations. The policy initiatives from the European Commission will include policies and legislation on areas such as EU Forest and Biodiversity strategies, the Renewable Energy Directive, EU Emission Trading System (ETS), Sustainable products initiative, Packaging and Packaging waste revision as well as EU taxonomy.

Political decisions on forest resources, could limit the availability of wood, increase costs and reduce investment opportunities.

Stora Enso has been granted various investment subsidies and has given certain investment commitments in different countries e.g. Finland, China and Sweden. If committed planning conditions are not met, local officials may pursue administrative measures to reclaim some of the formerly granted investment subsidies or to impose penalties on Stora Enso, and the outcome of such a process could result in a negative financial impact on Stora Enso.

Mitigation measures and opportunities

Active monitoring of regulatory and political developments in the countries where Stora Enso operates as well as participation in policy development mainly through industry associations and other partnership programmes are important risk mitigation regarding regulatory changes. Regulatory changes can also bring significant opportunities by driving market growth for sustainable products and create competitive advantage through resource efficiency and renewability.

Climate change – physical impacts

Long-term (25–30 years) changes in precipitation patterns, periods of drought, frequent extreme weather events and higher average temperatures that increase the risk of forest fires and insect outbreaks, could cause damage to operations, forests and tree plantations, affecting forests asset values and regional wood prices. Milder winters could also have an impact on the harvesting and transport of wood and related costs in northern regions. More frequent extreme weather events also increase the risk of disruptions in the production, logistics and supply of raw materials and energy.

During 2023, focus was on deep dives into specific physical risk impacts and further developing transition scenarios. Read more in the following TCFD chapter, and in an index table available at storaenso.com.

Mitigation measures and opportunities

Physical risks are to a great extent subject to risk transfer and thereby within the cover of Stora Enso's property and business interruption insurance programs. With regards to forest and plantation assets, Stora Enso benefits from strategic resilience through geographical diversification within the asset portfolio. Diligent plantation planning is ensured to avoid frost sensitive areas and R&D programmes are applied to increase tolerance to extreme temperatures. Stora Enso maintains a diversity of forest types and structures and enforces diversification in wood sourcing. Wood harvesting in soft soils involves the implementation of best practices guidelines.

Nordic forests in Finland and Sweden could also benefit from increased heat summation and longer growing seasons, leading to acceleration in forest growth with direct positive impact on the value of own forest assets and an indirect impact related to market wood availability and costs.

Biodiversity

Stora Enso's forestry and industrial sites impact on biodiversity. At the same time, Stora Enso's business depends on raw material natural capital inputs, such as wood and fresh water. These raw materials are supported by soil quality alongside ecosystem services for bioremediation, forest disease and pest control, and climate regulation, among others. Biodiversity loss can have a negative impact on the value of Stora Enso's forest assets, increase risks of shortages in wood supply and damage reputation. Read more in the TNFD chapter.

Mitigation measures and opportunities

Stora Enso is committed to achieving a net-positive impact on biodiversity in its own forests and plantations by 2050. Biodiversity management is an integral part of Stora Enso's forest management practices, and the Group strive to do more than just to mitigate biodiversity loss. Operations are supported by digitalisation as well as continuous research and innovation to develop the forestry operations and to provide the best value to Stora Enso's customers and other stakeholders. The Group knows the origin of all the wood it uses, and 99% of the land that it owns or manage is covered by forest certification schemes. Stora Enso engages in collaboration with various stakeholders with the aim to protect ecosystems and safeguard natural resources.

People and capabilities

Competition for personnel is intense and Stora Enso may, in the long term, not be successful in attracting or retaining qualified personnel. The loss of key employees, the inability to attract new or adequately trained employees, or a delay in hiring key personnel could seriously harm Stora Enso's business and impede reaching the Group's strategic objectives. Labour market disruptions and strikes, especially in times of restructuring and redundancies due to divestments and mill closures or during labour market negotiations, could also have adverse material effects on Stora Enso's business, financial position and profitability.

Mitigation measures and opportunities

Stora Enso manages the risks and loss of key talents through a combination of different actions. Some of the activities aim towards making the Stora Enso employer brand better known both internally and externally, globalising some of the remuneration practices and intensifying the efforts to identify and develop talents. Finally, the Group actively focuses on talent and management assessments, including succession planning for key positions. The majority of employees are represented by labour unions under several collective agreements in different countries where Stora Enso operates, thus relations with unions are of high importance to manage labour disruption risks.

Stora Enso recognises the opportunity of skilled and dedicated employees being essential for success. Engaged high performing people enable the implementation of transformation strategy and commercial success.

Financials

Personal safety – employees and wider workforce

Failure to maintain high levels of safety management can result in harm to Stora Enso's employees and contractors, and also to communities near our operations and the environment. Impacts in addition to physical injury, health effects and environmental damage could include liability to employees or third parties, damage to reputation, or an inability to attract and retain skilled employees. Government authorities could additionally enforce the closure of our operations on a temporary basis.

Personnel safety and security can never be compromised and, thus, Stora Enso must be aware of potential safety risks and provide adequate guidelines to people for managing risks related to, for example, travelling, working and living in countries with security or crime concerns.

Mitigation measures and opportunities

Stora Enso's goal is to provide an accident-free workplace. Encouraging a group-wide safety culture means that everyone is responsible for making every workday healthy and safe – from top management and throughout the Group. The approach to safety extends to contractors, suppliers, and on-site visitors. Everyone is encouraged to give feedback and provide ideas on how to further improve safety. Additionally, safety is promoted among contractors and suppliers through a dedicated e-learning. The Group also emphasise the importance of safety by asking suppliers for information on their safety performance in the tendering process.

Stora Enso's Health and Safety Policy defines the objectives for safety management, as well as a governance model on how to manage health and safety topics in practice and how to integrate them into annual planning and reporting.

Leading health and safety performance can potentially strengthen the brand as an employer, as well as improved engagement, efficiency and productivity.

Physical assets

The installed capacity of Stora Enso's production facilities have an inherent risk of potential for failure or off-specification operations, which could result in poor product quality, unplanned production downtime, lower output or increased production costs. It may also impact the Group's ability to meet delivery commitments and the business plan. In some instances, the risks are the result of inherent design deficiencies, failures in the mode of operation or operating practices. The most significant asset risks lie predominantly in integrated pulp and board production and related energy generation.

Mitigation measures and opportunities

Protecting production assets and business results is a high priority for Stora Enso. This is achieved through structured methods of identifying, measuring and controlling different types of process risk and exposure. Divisional risk specialists manage this process together with insurance companies and other loss prevention specialists. Each year a number of technical risk inspections are carried out at production units. Risk improvement programmes and cost-benefit analyses of proposed investments are managed via internal reporting and risk assessment tools. Internal and external property loss prevention guidelines, fire loss control assessments, key machinery risk assessments and specific loss prevention programmes are also utilised. Planned stoppages for maintenance and other work are important to keep machinery in good order. Preventive maintenance programmes and spare part criticality analyses are utilized to secure the high availability and efficiency of key machinery.

Product safety and compliance

Some of our products are used for package liquids and food consumer products, so any defects could affect health or packaging functions and result in costly product recalls. Wood products are incorporated into buildings, and this may involve product liability resulting from failures in structural design, product selection or installation. Failure to ensure product safety could result in product recalls involving significant costs including compensation for indirect costs of customers, and reputational damage.

Mitigation measures and opportunities

The mills producing food and drink contact products have established certified hygiene management systems based on risk and hazard analysis. To ensure the safety of its products, Stora Enso actively participates in CEPI (Confederation of European Paper Industry) working groups on chemical and product safety. In addition, Stora Enso mills have certified relevant ISO quality management systems. Furthermore, contractual liability limitation and insurance protection are used to limit the risk exposure to Stora Enso.

The Group recognises the opportunity of differentiation and value creation through superior product quality and the highest level of product conformity.

Information technology, security, and digitalisation

Stora Enso is dependent on IT systems for both internal and external communications and for the day-to-day management of its operations. Information systems, personnel and facilities are subject to cyber security risk, such as ransomware. In addition, accidental disclosure of confidential information due to a failure to follow information handling guidelines or due to an accident or criminal act may result in financial damage, penalties, disrupted or delayed launch of new lines of business or ventures, loss of customer and market confidence, loss of research secrets, breach of data privacy regulation and other business critical information.

Mitigation measures and opportunities

The management of risks is actively pursued in the Information Risk Management System and best practice change management and project methodologies are applied. We actively work to prevent cybercrime. A number of security controls have been implemented to strengthen the protection of confidential information and to facilitate compliance with international regulations.

Opportunities may arise from efficient operations, performance optimisation, innovative product offerings, and new customer services through digitisation and sophisticated IT systems, as well as new technologies offering significant potential for higher level of process optimisation and automatisation, generating new business and enhanced value propositions for customers and consumers.

Strategic investments

To succeed with the implementation of its strategy, Stora Enso has to understand the needs of its customers and find the best way to serve them with the right offering and with the right production asset portfolio. Failure to complete strategic projects in accordance with the agreed schedule, budget or specifications can, therefore, have serious impacts on the Group's financial performance. Significant, unforeseen changes in costs or an inability to sell the envisaged volumes or achieve planned price levels may prevent Stora Enso from achieving its business goals.

Mitigation measures and opportunities

Risks are mitigated through profound and detailed pre-feasibility and feasibility studies which are prepared for each large investment. Investment guidelines stipulate the process, governance, risk assessment, management and monitoring procedures for strategic projects, including climate related risk factors. The guidelines also require that the calculation of potential cost and income for CO_2 emissions as part of the investment proposal, Environmental and Social Impact Assessments (ESIAs) are conducted for all new projects that could cause significant adverse effects in local communities. Post completion audits are carried out for all significant investments.

Mergers, acquisitions, and divestments

Failure to realise the expected benefits from an acquisition of a company or asset can have serious financial impacts on Stora Enso. The Group can also find itself liable for past acts or omissions of the acquired business, without any adequate right of redress. Failure to achieve expected values from the sales of assets or deliveries beyond the expected receipt of funds may also impact the Group's financial position. Divestments or business restructuring may involve additional costs due to historical and unaccounted liabilities as well as reputational impacts.

Mitigation measures and opportunities

Rigorous M&A guidelines, including due diligence procedures are applied to the evaluation and execution of all acquisitions. Structured governance and policies such as the policy for responsible right-sizing, are followed when making restructuring decisions. A strong balance sheet and cash flow enable value enhancing M&A, when the timing and opportunity are right.

Ethics and compliance

Stora Enso operates in a highly regulated business area and is, thereby, exposed to risks related to breach of applicable laws and regulations associated to e.g. capital markets regulation, company and tax laws, customs, environment, human rights, and safety, as well as areas covered by policies such as the Stora Enso Code and Business Practice Policy, e.g. fraud, anti-trust, corruption, conflict of interests and other misconduct. Breaches may lead to high compliance and remediation costs including prosecution costs, fines, penalties, and contractual, financial and reputational damage.

Mitigation measures and opportunities

Stora Enso's Ethics and Compliance Programme, which includes policy setting, promoting values, training, knowledge sharing and grievance mechanisms, is continuously updated and developed. Other compliance mechanisms include Stora Enso Group's internal control system and Internal Audit assurance, as well as Supplier Code of Conduct in supplier contracts, risk assessments, trainings and audits. In response to capital markets regulations, Stora Enso's Disclosure Policy emphasises the importance of transparency, credibility, responsibility, proactivity and interaction.

Environmental risks are minimised through environmental management systems and environmental due diligence for acquisitions and divestments, and indemnification agreements where effective and appropriate remediation projects are required. Special remediation projects related to discontinued activities and mill closures are executed based on risk assessments.

Focus on ethics in a wider sense, not mere compliance with laws and regulations, promotes a value-driven and more successful business, fosters accountability and enhances corporate reputation.

Climate-related financial disclosures (TCFD)

The Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) recommends a framework for disclosing climate-related risks and opportunities. Stora Enso's disclosures with reference to TCFD recommendations are listed in an index table, available for downloading at storaenso.com, with references to those locations where these issues are addressed in the Group's annual reporting.

Scenario analysis in 2023

Aligned with the TCFD recommendations, Stora Enso utilises scenarios to assess the impacts of climate change.

During 2023, the focus was on deep dives to specific physical risk impacts and further developing transition scenarios.

Scenario analysis during the previous years

In 2020, Stora Enso developed a scenario analysis with the qualitative assessment of the physical climate impacts on the Nordic forests and the Group's business until 2050. This work was based on the Business-As-Usual scenario by the International Panel for Climate Change (RCP 8.5 scenario) that would deliver a temperature increase of 4–5 degrees by the end of the century. The climate change attributes considered were pests, diseases, droughts, wildfires, floods, periods of frost, water scarcity, changes to precipitation patterns, rise in sea level and changing temperatures. In 2021, the work with physical climate impacts continued by a deeper analysis of measures improving resiliency of the forests against the negative impacts of global warming. Results showed that sustainable forest management practices as well as possibilities to monitor and to react to events such as forest fires and diseases, play an important role in mitigating the negative impacts of climate change.

During 2021, Stora Enso 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. The scenario work also showed that potential new regulations and market mechanisms motivated by the ambitions to limit climate change and its effects on the society and environment could impact Stora Enso's operating costs by limiting wood harvesting volumes or forest management practices as well as increasing greenhouse gas emission costs and energy prices. Sustainable product initiatives and requirements may also have an impact on the Group's future market access, product demand growth and product development requirements.

During 2022, a quantitative resilience analysis was conducted for tree plantations in South America against three global Shared Socioeconomic Pathway (SSP) scenarios: SSP1-1.9 (Sustainability – Taking the Green Road), SSP2-4.5 (Regional Rivalry – a Rocky Road) and SSP5-8.5 (Fossil-fuelled Development – Taking the Highway). Results show a relative resilience of Stora Enso's tree plantations in all the three scenarios. Financial impacts are not expected to be material in SSP1-1.9 and SSP2-4.5 scenarios but in SSP5-8.5 scenario the growth conditions of tree plantations would be affected resulting in potentially material financial impacts.

Nature-related financial disclosures (TNFD)

The Taskforce on Nature-related Financial Disclosures (TNFD) is a market-led and science-based initiative supported by national governments, businesses, and financial institutions worldwide. The TNFD's mission is to help companies responding to the global acceleration of nature loss as an increasing source of risk to businesses and providers of financial capital. The TNFD Recommendations and Additional Guidance are there to support organisations to report and act on evolving nature-related issues. The recommendations support the outcomes of the agreed Kunming-Montreal Global Biodiversity Framework and hope to support a shift in global financial flows away from businesses and business activities that lead to nature-negative outcomes and towards those that support nature-positive outcomes. The version 1.0 of the TNFD recommendations, published in September 2023, build on the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations and are consistent with other standards including the International Sustainability Standards Board (ISSB), IFRS Sustainability Disclosure Standards, the Global Reporting Initiative (GRI) and the European Sustainability Reporting Standards (ESRS). The TNFD includes 14 recommended disclosures that extend or add to those included in the TCFD recommendations' disclosures which support integrated climate and nature reporting.

Stora Enso's business depends on several raw material natural capital inputs, such as wood and fresh water, and are supported by soil quality, alongside ecosystem services for bioremediation, forest disease and pest control, and climate regulation, among others.
The Group's dependency on and responsibility for nature is explored, for instance, through its Biodiversity Leadership Programme to support the Group's commitment to achieve a net positive impact on biodiversity in Stora Enso's own forests and plantations through active biodiversity management to align with the society's expectations and goals for nature positive actions. Stora Enso expects the TNFD's recommendations to help the Group to further evolve current nature-related disclosures, based on building on the Group's existing processes, over the coming years.

As part of the work, Stora Enso piloted the draft TNFD recommendations and parts of the Locate, Evaluate, Assess and Prepare (LEAP) approach by undertaking a biodiversity screening in the supply chain of the Biomaterials division. The pilot was undertaken to help prepare for future disclosure requirements, and anticipated investor and market interest on the potential biodiversity risks and opportunities across the supply chain. This pilot focused on transparency in selected chemicals, logistics and energy sub-categories of the supply-chain. High-level findings included that the Group's current nature-related risks included: policy and legal risks in relation to forestry legislation, potential reputational risks and location-based risks associated with the functioning of underpinning natural capital assets and supply chain operations.

In addition to nature-related risks, potential nature-related opportunities were also identified including the development of nature-based solutions and recognition of the multiple nature-related benefits associated with different types of ecosystems. The pilot provides the starting point for further qualitative and quantitative assessments of Stora Enso's business activities and supply chains to prioritise areas for action across the Group by applying an adapted process to other supply chains. For further details about the pilot, please see the case study at littlblueresearch.com.

Stora Enso has participated in the WBCSD's TNFD pilot project 'Roadmap to Nature Positive' which provides an analysis for forest products value chain having high impact on nature. The Group also contributed to the development of TNFD Additional Guidance for the Forest Sector by the WBCSD Forest Solutions Group. Stora Enso is a member of Mistra's research programme BIOPATH, hosted by the Swedish University of Lund, which aims to identify pathways for efficient alignment of the financial system with the requirements of biodiversity.

As announced by the TNFD in January 2024, after the reporting date, Stora Enso has signed up as a 'TNFD Early Adopter' which means that Stora Enso intend to adopt the recommendations and publish its first TNFD-aligned report in the financial year 2024.

Corporate governance in Stora Enso

Stora Enso complies with the Finnish Corporate Governance Code 2020 issued by the Securities Market Association (the "Code"). The Code is available at cgfinland.fi. Stora Enso also complies with the Swedish Corporate Governance Code ("Swedish Code"), with the exception of the deviations listed in Appendix 1 of the Corporate Governance part of this report. The deviations are due to differences between Swedish and Finnish legislation, governance code rules and practices, and in these cases Stora Enso follows the practice in its domicile. The Swedish Code is issued by the Swedish Corporate Governance Board and is available at corporategovernanceboard.se.

Legal proceedings

Contingent liabilities

Stora Enso has undertaken significant restructuring actions in recent years which have included the divestment of companies, sale of assets and mill closures. These transactions include a risk of possible environmental or other obligations the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. A provision has been recognised for obligations for which the related amount can be estimated reliably and for which the related future cost is considered to be at least probable.

Stora Enso is party to legal proceedings that arise in the ordinary course of business and which primarily involve claims arising out of commercial law. The management does not consider that liabilities related to such proceedings before insurance recoveries, if any, are likely to be material to the Group's financial condition or results of operations.

Veracel

On 11 July 2008, Stora Enso announced that a federal judge in Brazil had issued a decision claiming that the permits issued by the State of Bahia for the operations of Stora Enso's joint operations company Veracel were not valid. The judge also ordered Veracel to take certain actions, including reforestation with native trees on part of Veracel's plantations and a possible fine of, at the time of the decision, BRL 20 (EUR 4) million. Veracel disputes the decision and has filed an appeal against it. Veracel operates in full compliance with all Brazilian laws and has obtained all the necessary environmental and operating licences for its industrial and forestry activities from the relevant authorities. In November 2008, a Federal Court suspended the effects of the decision. No provisions have been recorded in Veracel's or Stora Enso's accounts for the reforestation or the possible fine.

Changes in the Group management

Micaela Thorström was appointed EVP Legal and General Counsel and a member of the Group Leadership Team as of 1 April 2023.

René Hansen EVP, Brand and Communications and a member of the Group Leadership Team, left his position at Stora Enso in May 2023.

Annette Stube, Executive Vice President Sustainability, and a member of the Group Leadership Team, left her position at Stora Enso in December 2023.

Minna Björkman, Executive Vice President Sourcing and Logistics, and a member of the Group Leadership Team (GLT), left her position in the GLT to assume a business leadership role in Stora Enso's Packaging Materials division in November 2023.

Ad Smit started as Executive Vice President of the Packaging Solutions division and a member of the Group Leadership Team in December 2023. Prior to that, he led the Business Unit Western Europe within Stora Enso's Packaging Solutions division.

David Ekberg left his position as Executive Vice President of the Packaging Solutions division on 30 November 2023.

Share capital

Stora Enso Oyj's shares are divided into A and R shares. The A and R shares entitle holders to the same dividend but different number of votes. Each A share and every ten R shares carry one vote at a shareholders' meeting. However, each shareholder has at least one vote. During 2023, a total of 7,364 A shares converted into R shares were recorded in the Finnish Trade Register.

Number of shares as at 31 December 2023

	A shares	R shares	Total
Number of shares	176,230,916	612,389,071	788,619,987
Number of votes (at least)	176,230,916	61,238,907	237,469,823

Board of Directors is authorised to decide on the repurchase and on the issuance of Stora Enso R shares. The amount of shares to be issued or repurchased shall not exceed a total of 2,000,000 R shares, corresponding to approximately 0.25% of all shares and 0.33% of all R shares.

Major shareholders as of 31 December 2023

	By voting power	A shares	R shares	% of shares	% of votes
1	Solidium Oy[1]	62,655,036	21,792,540	10,7 %	27,3 %
2	FAM AB[2]	63,123,386	17,000,000	10,2 %	27,3 %
3	Social Insurance Institution of Finland	23,825,086	—	3,0 %	10,0 %
4	Ilmarinen Mutual Pension Insurance Company	4,159,992	15,290,638	2,5 %	2,4 %
5	Varma Mutual Pension Insurance Company	5,163,018	1,140,874	0,8 %	2,2 %
6	MP-Bolagen i Vetlanda AB	4,885,000	1,000,000	0,7 %	2,1 %
7	Elo Mutual Pension Insurance Company	2,010,000	9,987,000	1,5 %	1,3 %
8	Bergslaget's Healthcare Foundation	626,269	1,609,483	0,3 %	0,3 %
9	The State Pension Fund	—	5,600,000	0,7 %	0,2 %
10	The Society of Swedish Literature in Finland	—	3,000,000	0,4 %	0,1 %
11	Avanza Pension Insurance	142,664	1,372,515	0,2 %	0,1 %
12	OP Finland Fund	—	2,549,753	0,3 %	0,1 %
13	Danske Invest Finnish Equity Fund	—	2,435,000	0,3 %	0,1 %
14	Unionen (Swedish trade union)	—	2,312,750	0,3 %	0,1 %
15	EVLI Finland Select Fund	—	1,940,000	0,2 %	0,1 %
	Total	**166,590,451**	**87,030,553**	**32,2 %**	**73,8 %**
	Nominee-registered shares[3]	75,045,090	487,121,848	71,3 %	52,1 %

[1] Entirely owned by the Finnish State
[2] As confirmed to Stora Enso
[3] According to Euroclear Finland
The list has been compiled by the Company on the basis of shareholder information obtained from Euroclear Finland, Euroclear Sweden and a database managed by Citibank, N.A (Citi). This information includes only directly registered holdings, thus certain holdings (which may be substantial) of shares held in nominee or brokerage accounts are not included. The list is therefore incomplete.

Share distribution as at 31 December 2023

By size of holding, A share[1)]	Shareholders	% of shareholders	Shares	% of shares
1–100	7,111	59.83%	273,712	0.16%
101–1,000	4,211	35.43%	1,474,615	0.84%
1,001–10,000	529	4.45%	1,222,373	0.69%
10,001–100,000	24	0.20%	559,602	0.32%
100,001–1,000,000	2	0.02%	347,113	0.20%
1,000,001–	8	0.07%	172,353,501	97.80%
Total	**11,885**	**100.00%**	**176,230,916**	**100.00%**

By size of holding, R share[1)]	Shareholders	% of shareholders	Shares	% of shares
1–100	17,659	37.87%	840,387	0.14%
101–1,000	22,681	48.64%	8,919,537	1.45%
1,001–10,000	5,813	12.47%	15,389,391	2.51%
10,001–100,000	408	0.88%	10,699,825	1.75%
100,001–1,000,000	47	0.10%	16,081,788	2.63%
1,000,001–	23	0.05%	560,458,143	91.53%
Total	**46,631**	**100.00%**	**612,389,071**	**100.00%**

1) According to Euroclear Finland. This list includes only directly registered shares in Euroclear Finland. E.g. Stora Enso's Swedish shareholders are listed under their nominee bank in this list. Therefore, this listing is not comparable with the table Major shareholders as of 31 December 2023

Financials

Ownership distribution as at 31 December 2023

	% of shares	% of votes
Solidium Oy[1]	10.7%	27.3%
FAM AB[2]	10.2%	27.3%
Social Insurance Institution of Finland (KELA)	3.0%	10.0%
Finnish institutions (excl. Solidium and KELA)	11.0%	8.1%
Swedish institutions (excl. FAM)	1.1%	0.9%
Finnish private shareholders	3.9%	2.4%
Swedish private shareholders	3.0%	2.2%
ADR holders	1.6%	0.5%
Under nominee names (non-Finnish/non-Swedish shareholders)	55.4%	21.3%

[1] Entirely owned by the Finnish State
[2] As confirmed to Stora Enso

Short-term outlook

Stora Enso expects market conditions to remain uncertain in 2024, with ongoing pressure on demand, prices and margins. However, there are some positive signs such as increasing pulp prices, declining global pulp inventories, less customer destocking, and lower inflation and interest rates.

The first quarter is not expected to show a significant market improvement following a historical low fourth quarter in 2023 and a slow recovery. All variable costs continued to ease in the fourth quarter, except for wood, which are expected to follow similar trends also in the first quarter this year. The potential risk of logistical challenges from the Red Sea area could disrupt the flow of goods and increase costs.

During the second half of 2023, Stora Enso implemented significant restructuring measures to enhance its financial performance going forward. These included the closure of sites and production lines, the sale of assets, the adoption of a more decentralised operating model, and a reduction of employees by approximately 1,150. These actions are expected to improve the Group's cost competitiveness and streamline its organisation, leading to a stronger financial performance in the years to come.

Guidance

Stora Enso's full year 2024 operational EBIT is expected to be higher than for the full year 2023, EUR 342 million.

Short-term risks and uncertainties

Risk is characterised by both threats and opportunities, which may affect future performance and the financial results of Stora Enso, reputation, as well as its ability to meet certain social and environmental objectives.

The geopolitical unrest could have an adverse impact on the Group. Retaliatory measures, conflict-related risks to people, operations, trade credit, cyber security, supply, and demand, could also affect the Group negatively.

The risk of a prolonged global economic downturn and recession, continued high inflation, as well as sudden interest rate increases, currency fluctuations, trade union strike actions, and logistical chain disruptions could all adversely affect the Group's profits, cash flow and financial position, as well as access to material, flow of goods and transport.

The challenging and rapidly changing macroeconomic and geopolitical disruption may increase cost, add complexity and lower short-term visibility. A slow market recovery might further impact market demand, prices, profit margin and volumes of the Group's products. New capacity and volume entering the market might distort demand, volumes, inventories and pricing, with the risk of a deepening margin squeeze. Moreover, forced capacity cuts might further impact on profitability.

There is a risk of continued high interest rates along with increased price volatility for raw materials such as wood, chemicals, other components and energy in Europe. The continued tight wood market could cause increased costs, limit harvesting and cause disruptions such as delays and/or lack of wood supply to the Group's production sites.

Stora Enso has been granted various investment subsidies and has given certain investment commitments in several countries e.g., Finland, China and Sweden. If commitments to planning conditions are not met, local officials may pursue administrative measures to reclaim some of the formerly granted investment subsidies or to impose penalties on Stora Enso, the outcome of such a process could result in adverse financial impact on Stora Enso.

Sensitivity analysis

Energy sensitivity analysis: the direct effect of a 10% change in electricity and fossil fuel market prices would have an impact of approximately EUR 5 million on operational EBIT for the next 12 months.

Wood sensitivity analysis: the direct effect of a 10% change in wood prices would have an impact of approximately EUR 200 million on operational EBIT for the next 12 months.

Pulp sensitivity analysis: the direct effect of a 10% change in pulp market prices would have an impact of approximately EUR 120 million on operational EBIT for the next 12 months.

Chemical and filler sensitivity analysis: the direct effect of a 10% change in chemical and filler prices would have an impact of approximately EUR 54 million on operational EBIT for the next 12 months.

Foreign exchange rates transaction risk sensitivity analysis for the next twelve months: the direct effect on operational EBIT of a 10% strengthening in the value of the US dollar, Swedish krona and British pound would be approximately positive EUR 81 million, negative EUR 9 million and positive EUR 9 million annual impact, respectively. Weakening of the currencies would have the opposite impact. These numbers are net of hedges and assuming no changes occur other than a single currency exchange rate movement in an exposure currency.

The Group's consolidated income statement on operational EBIT level is exposed to a foreign-currency translation risk worth approximately EUR 179 million expense exposure in Brazilian real (BRL) and approximately EUR 67 million income exposure in Chinese Renminbi (CNY). These exposures arise from the foreign subsidiaries and joint operations located in Brazil and China, respectively. For these exposures a 10% strengthening in the value of a foreign currency would have a negative EUR 18 million and a positive EUR 7 million impact on operational EBIT, respectively.

Annual General Meeting

Stora Enso Oyj's Annual General Meeting (AGM) will be held on Wednesday 20 March 2024 at 16:00 EET at the Marina Congress Center in Helsinki, Finland. More information is available at storaenso.com/agm

Proposal for the distribution of dividend

The Board of Directors proposes to the AGM that a dividend of EUR 0.10 per share be distributed on the basis of the balance sheet adopted for the year 2023. In addition, the Board of Directors proposes that the AGM would authorise the Board of Directors to decide at its discretion on the payment of an additional dividend up to a maximum of EUR 0.20 per share. The authorisation would be valid until 31 December 2024.

The Board of Directors has assessed the Company's financial situation and liquidity before making the proposal. There have been no material changes in the parent company's financial position since 31 December 2023, the liquidity of the parent company remains good and the proposed dividend does not risk the solvency of the Company. Stora Enso's policy is to distribute 50% of earnings per share (EPS) excluding fair valuation over the cycle. In 2023, EPS excluding fair valuation was EUR -0.73.

The Parent company distributable shareholders' equity on 31 December 2023 amounted to EUR 1,542,290,968.57 including the profit for the period of EUR 44,769,653.04. The Board of Directors proposes to the Annual General Meeting of the Company that the distributable funds be used as follows: A dividend of EUR 0.10 per share from the distributable shareholders' equity to be distributed on 788,619,987 shares, not to exceed EUR 78,861,998.70, which would leave EUR 1,463,428,969.87 in distributable shareholders' equity.

It is proposed that the Board may at its discretion decide on a second dividend instalment of a maximum of EUR 0.20 latest during the fourth quarter of 2024, which would lead to a further decrease in distributable shareholders' equity of EUR 157,723,997.40, leaving EUR 1,305,704,972.47 in distributable shareholders' equity.

The first dividend instalment would be paid to shareholders who on the record date of the dividend payment, 22 March 2024, are recorded in the shareholders' register maintained by Euroclear Finland Oy or in the separate register of shareholders maintained by Euroclear Sweden AB for Euroclear Sweden registered shares. Dividends payable to Euroclear Sweden registered shares will be forwarded by Euroclear Sweden AB and paid in Swedish crowns. Dividends payable to ADR holders will be forwarded by Citibank N.A. and paid in US dollars.

The Board of Directors proposes to the AGM that the first instalment of the dividend be paid on or about 4 April 2024.

Financials

Alternative performance measures

According to the European Securities and Markets Authority (ESMA) Guidelines, an alternative performance measure is understood as a financial measure of historical or future financial performance, financial position, or cash flows, not defined under IFRS. Used together with the IFRS measures, alternative performance measures provide meaningful supplemental information to the management, investors, analysts and other parties with regards to the financial development of the business operations.

Alternative performance measures	Definition	Purpose
Operating result (IFRS)	Net result for the period excluding income tax and net financial items (finance costs).	Used in combination with below measures to determine the profitability of the Group.
Operational EBIT	Operating result (IFRS) excluding items affecting comparability (IAC) and fair valuations and non-operational items (FV) of the line-by-line consolidated entities and Stora Enso's share of operating result excluding IAC and FV of its associated companies.	The Group's key non-IFRS performance metric, which is used to evaluate the performance of operating segments and, in combination with below ratios, to steer allocation of resources to them.
Operational EBITDA	Operating result (IFRS) excluding silviculture costs and damage to forests, fixed asset depreciation and impairment, IACs and FV. The definition includes the respective items of subsidiaries, joint arrangements and associated companies.	Used by management to analyse the business and, from time-to-time, for short term and long-term target setting.
Operational return on capital employed, operational ROCE, LTM[3] (%)	$\frac{\text{Operational EBIT}^{3}}{\text{Capital employed}^{1}} \times 100$	Used for long-term Group financial targets setting.
Operational return on operating capital, operational ROOC, LTM[3] (%)	$\frac{\text{Operational EBIT}^{3}}{\text{Operating capital}^{1}} \times 100$	Used for long-term divisional financial targets setting.
Return on equity, ROE, LTM[3] (%)	$\frac{\text{Net result for the period}}{\text{Total equity}^{1}} \times 100$	A measure of the profitability in relation to equity.
Net debt	Interest-bearing liabilities – interest-bearing assets, marked with "I" in the statement of financial position.	Used for long-term Group financial targets setting.
Net debt/equity ratio	$\frac{\text{Net debt}}{\text{Equity}^{2}}$	Used for long-term Group financial targets setting.
Net debt/last 12 months' operational EBITDA ratio	$\frac{\text{Net debt}}{\text{LTM operational EBITDA}}$	Used for long-term Group financial targets setting.
Earnings per share (EPS) excluding FV	Net result for the period excluding fair valuations and non-operational items after tax divided by the weighted average number of shares	Stora Enso's dividend policy is to distribute 50% of earnings per share (EPS) excluding fair valuation over the cycle.
Operating capital and capital employed	Operating capital is comprised of items marked with "O" in the statement of financial position. Capital employed = Operating capital – Net tax liabilities. Net tax liabilities are marked with "T" in the statement of financial position.	Used for long-term Group financial targets setting.
Items affecting comparability (IAC)	The most common IAC are significant capital gains and losses, impairments or impairment reversals, disposal gains and losses relating to Group companies, provisions for planned restructurings, environmental provisions, changes in depreciation due to restructuring and penalties. Items affecting comparability are normally disclosed individually if they exceed one cent per share.	Represent certain significant items, identified by the management, considered not indicative of the operating business performance due to their nature and/or frequency.
Fair valuations and non-operational items (FV)	Fair valuations and non-operational items include non-cash income and expenses related to CO_2 emission rights and liabilities, non-operational fair valuation changes of biological assets, adjustments for differences between fair value and acquisition cost of forest assets upon disposal and the Group's share of income tax and net financial items of associated companies. Non-operational fair value changes of biological assets reflect changes made to valuation assumptions and parameters. The adjustments for differences between fair value and acquisition cost of forest assets upon disposal are a result of the fact that the cumulative non-operational fair valuation changes of disposed forest assets were included in previous periods in IFRS operating result (biological assets) and other comprehensive income (forest land) and are included in operational EBIT only at the disposal date (for non-strategic forest assets disposals).	Represent adjustments for certain items considered by the management less relevant for understanding operating business performance. These adjustments result in differences in the recognition and measurement principles applicable under IFRS.
Operational fair value change of biological assets	Operational fair value changes of biological assets contain all other fair value changes (see above about non-operational fair value changes of biological assets), mainly due to inflation and differences in actual harvesting levels compared to the harvesting plan.	The long-term value change of the growing forests is an important component of the forestry business profitability.
Cash flow from operations (non-IFRS) and Cash flow after investing activities (non-IFRS)	Cash flow from operations (non-IFRS) is equal to Net cash provided by operating activities (IFRS) before cash flows related to financial items and income taxes. Cash flow after investing activities (non-IFRS) is equal to Cash flow from operations (non-IFRS) minus cash spent on intangible assets, property, plant and equipment, and biological assets and acquisitions of associated companies.	These are measures of cash generation, working capital efficiency and capital expenditure outflows.
Capital expenditure	Capital expenditure on fixed assets includes investments in and acquisitions of tangible and intangible assets as well as internally generated assets and capitalised borrowing costs, net of any related subsidies. Capital expenditure on leased assets includes new capitalised leasing contracts. Capital expenditure on biological assets consists of acquisitions of biological assets and capitalisation of costs directly linked to growing trees in plantation forests. The cash flow impact of capital expenditure is presented in cash flow from investing activities, excluding lease capex, where the cash flow impact is based on paid lease liabilities and presented in cash flow from financing and operating activities.	A measure of the operating business investments capitalised as tangible and intangibles assets.
Fixed costs	Maintenance, personnel and other administration type of costs, excluding IAC and FV.	A measure of the costs that are less variable in nature.

[1] Average for the last five quarter ends [2] Attributable to the owners of the Parent [3] Last 12 months prior to the end of reporting period

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Financials

Changes in the calculation of operational ROCE and ROOC

Presenting return measures based on the last 12 months is an effective way to analyse the most recent financial data on an annualised basis and is considered more suitable for tracking the development of long-term targets.

From Q1/2023 onwards, Stora Enso presents the operational return on capital employed (operational ROCE) based on the last 12 months prior to the end of the reporting period. This is calculated by dividing the operational EBIT of the last 12 months with the average capital employed. The average capital employed for the last 12 months is determined as the average of the published capital employed of the last five quarter-ends.

Similarly, the return on operating capital (operational ROOC) for the divisions and the return on equity (ROE) for the Group will be based on the last 12 months prior to the end of the reporting period.

The presentation of operational ROCE, operational ROOC and ROE based on quarter or year-to-date figures has been discontinued.

Reconciliation of key figures

EUR million	2023	2022	2021
Operational EBIT	342	1,891	1,528
Capital employed, average	14,230	13,795	12,243
Operational ROCE	**2.4%**	**13.7 %**	**12.5 %**
Operational EBIT excl. Forest division	89	1,687	1,262
Capital employed excl. Forest division, average	8,490	8,276	7,120
Operational ROCE excl. Forest division	**1.0%**	**20.4%**	**17.7%**
Net result for the period	-431	1,536	1,268
Total equity, average	11,413	11,532	9,730
Return on equity (ROE)	**-3.8%**	**13.3%**	**13,0 %**
Net debt	3,167	1,853	2,309
Operational EBITDA	989	2,529	2,184
Net debt to operational EBITDA ratio	**3.2**	**0.7**	**1.1**

Earnings per share (EPS) excl. fair valuation

EUR million	2023	2022	2021
Earnings per share (EPS) excl. FV EUR			
Net result for the period attributable to owners of the Parent	-357	1,550	1,266
FV on net result for the period attributable to owners of the Parent	218	324	330
Net result for the period attributable to owners of the parent excl. FV	**-575**	**1,225**	**936**
Average number of shares	789	789	789
Earnings per share (EPS) excl. FV EUR	-0.73	1.55	1.19

Reconciliation of operational profitability

EUR million	2023	2022	2021
Operational EBITDA	989	2,529	2,184
Depreciation and silviculture costs of associated companies	-11	-11	-11
Silviculture costs[1]	-102	-100	-89
Depreciation and impairment excl. IAC	-534	-527	-555
Operational EBIT	**342**	**1,891**	**1,528**
Fair valuations and non-operational items	231	363	394
Items affecting comparability (IAC)	-895	-245	-354
Operating result (IFRS)	**-322**	**2,009**	**1,568**

[1] Including damages to forests

Segment share of operational EBIT, IAC, fair valuations and non-operational items and operating profit/loss

	Operational EBIT		IAC, fair valuations and non-operational items		Operating profit/loss	
EUR million	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**
Packaging Materials	-57	655	-585	-2	-642	653
Packaging Solutions	43	16	-27	-98	17	-81
Biomaterials	118	687	-199	-19	-81	668
Wood Products	-64	309	-22	-56	-86	253
Forest	253	204	208	319	461	523
Other	1	63	-42	-27	-41	36
Total	**342**	**1,891**	**-664**	**118**	**-322**	**2,009**
Net financial items					-173	-151
Profit before Tax					**-495**	**1,858**
Income tax expense					64	-322
Net Profit					**-431**	**1,536**

Items affecting comparability in 2023

EUR million	2023
Impairments - Packaging Materials	-468
Impairments - Biomaterials	-103
Impairments - Wood Products	-16
Impairments - Segment Other	-14
Impairment reversal - Forest	5
Disposal of Nymölla	-30
Disposal of Hylte	-45
Disposal of Maxau	52
Disposal of biocomposite business	-15
Disposal of Wood Products DIY unit	-4
Disposals related transaction costs	-6
Acquisition of De Jong Packaging Group	-16
Closure of Sunila pulp mill	-116
Closure of De Hoop	-79
Restructuring - Anjala	-26
Restructuring - Packaging Materials	-21
Restructuring - Packaging Solutions	-10
Restructuring - Wood Products	-5
Restructuring - Biomaterials	-4
Restructuring - Group functions	-15
Restructuring (2021 announced) - Kvarnsveden	29
Restructuring (2021 announced) - Veitsiluoto	9
Updates in environmental provisions	-5
Other items	-2
Total	**-895**

Items affecting comparability in 2022

EUR million	2022
Disposal of Russian operations - Packaging Solutions	-93
Disposal of Russian operations - Wood Products	-56
Disposal of Russian operations - Forest	-43
Disposal of Russian operations - other divisions	-6
Impairments, transaction costs and other items related to the upcoming paper site disposals (Nymölla, Hylte and Maxau)	-28
Disposal of Kvarnsveden site	8
Impairments - Forest	-5
Impairments - Segment Other	-2
Restructuring (2021 announced) - Kvarnsveden	13
Restructuring (2021 announced) - Veitsiluoto	-10
Restructuring - Packaging Materials	-4
Restructuring - Packaging Solutions	-5
Restructuring - Biomaterials	-4
Updates in environmental provisions (mainly closed Finnish sites	-13
Other items	-3
Total	**-245**

Fair valuations and non-operational items in 2023 and 2022

EUR million	2023	2022
Non-operational fair valuation changes of biological assets, Packaging Materials	12	7
Non-operational fair valuation changes of biological assets, Biomaterials	25	-17
Non-operational fair valuation changes of biological assets, Forest	156	201
Non-cash income and expenses related to CO_2 emission rights and liabilities, Other	-13	6
Non-operational items of associated companies, Forest	56	169
Adjustments for differences between fair value and acquisition cost of forest assets upon disposal, Forest	-5	-3
Total	**231**	**363**

Calculation of net debt

EUR million	31 Dec 2023	31 Dec 2022
Listed securities	9	8
Non-current interest-bearing receivables	76	120
Current interest-bearing receivables	64	77
Cash and cash equivalents	2,464	1,917
Interest-bearing assets	**2,613**	**2,122**
Non-current interest-bearing liabilities	4,446	2,792
Current portion of non-current debt	286	667
Current interest-bearing liabilities	476	513
Interest-bearing liabilities held-for-sale	571	4
Interest-bearing liabilities	**5,780**	**3,976**
Net debt	**3,167**	**1,853**

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Financials

Consolidated financial statements

Consolidated income statement

EUR million	Note	Year ended 31 December 2023	2022
Sales	2.1	**9,396**	**11,680**
Other operating income	2.2	378	326
Changes in inventories of finished goods and work in progress		-209	258
Materials and services		-6,133	-6,979
Freight and sales commissions		-883	-1,148
Personnel expenses	3.1	-1,275	-1,315
Other operating expenses	2.2	-638	-594
Share of results of associated companies	4.3	136	221
Change in net value of biological assets	4.2	209	195
Depreciation, amortisation and impairment charges	2.3	-1,303	-635
Operating result	2.1	**-322**	**2,009**
Financial income	2.4	91	40
Financial expense	2.4	-264	-191
Result before Tax		**-495**	**1,858**
Income tax	2.5	64	-322
Net result for the year		**-431**	**1,536**
Attributable to			
Owners of the Parent	5.5	-357	1,550
Non-controlling Interests	5.7	-74	-13
Net result for the year		**-431**	**1,536**
Earnings per share			
Basic earnings per share, EUR	2.6	-0.45	1.97
Diluted earnings per share, EUR	2.6	-0.45	1.96

Consolidated statement of comprehensive income

EUR million	Note	Year ended 31 December 2023	2022
Net result for the year		**-431**	**1,536**
Other Comprehensive Income (OCI)			
Items that will not be reclassified to profit and loss			
Equity instruments at fair value through OCI	4.4	-645	519
Actuarial gains and losses on defined benefit plans	3.3	-52	147
Revaluation of forest land	4.2	-49	259
Share of OCI of associated companies	4.3	-23	58
Income tax relating to items that will not be reclassified	2.5	22	-77
		-748	**906**
Items that may be reclassified subsequently to profit and loss			
Cumulative translation adjustment (CTA)	5.6	56	-197
Net investment hedges and loans	5.6	-15	-27
Cash flow hedges and cost of hedging	5.4	-1	52
Share of OCI of non-controlling interests (NCI)	5.7	5	0
Income tax relating to items that may be reclassified	2.5	-1	-6
		44	**-177**
Total comprehensive income		**-1,135**	**2,265**
Attributable to			
Owners of the Parent		-1,066	2,278
Non-controlling interests	5.7	-69	-13
Total comprehensive income		**-1,135**	**2,265**

The accompanying Notes are an integral part of these consolidated financial statements.

Financials

Consolidated statement of financial position

EUR million		Note	As at 31 December 2023	2022
Assets				
Goodwill	O	4.1	505	244
Other intangible assets	O	4.1	283	121
Property, plant and equipment	O	4.1	4,544	4,860
Right-of-use assets	O	4.1	323	418
			5,656	**5,643**
Forest assets	O	4.2	6,921	6,846
Biological assets	O	4.2	4,652	4,531
Forest land	O	4.2	2,269	2,315
Emission rights	O	4.5	108	123
Investments in associated companies	O	4.3	926	832
Listed securities	I	4.4	9	8
Unlisted securities	O	4.4	810	1,437
Non-current interest-bearing receivables	I	5.3	76	120
Deferred tax assets	T	2.5	134	74
Other non-current assets	O	4.5	58	38
Non-current assets			**14,699**	**15,120**
Inventories	O	4.6	1,466	1,810
Tax receivables	T		31	11
Operative receivables	O	4.7	1,191	1,473
Interest-bearing receivables	I	5.3	64	77
Cash and cash equivalents	I		2,464	1,917
Current assets			**5,216**	**5,287**
Assets held for sale		6.1	839	514
Total assets			**20,754**	**20,922**

EUR million		Note	As at 31 December 2023	2022
Equity and liabilities				
Share capital		5.5	1,342	1,342
Share premium			77	77
Invested non-restricted equity fund			633	633
Fair value reserve			2,293	3,002
Cumulative translation adjustment		5.6	-375	-415
Retained earnings			7,015	7,893
Equity attributable to owners of the Parent			**10,985**	**12,532**
Non-controlling Interests		5.7	-97	-30
Total equity			**10,889**	**12,502**
Post-employment benefit obligations	O	3.3	217	159
Provisions	O	4.9	83	81
Deferred tax liabilities	T	2.5	1,433	1,443
Non-current interest-bearing liabilities	I	5.3	4,446	2,792
Non-current operative liabilities	O	4.8	11	11
Non-current liabilities			**6,190**	**4,486**
Current portion of non-current debt	I	5.3	286	667
Interest-bearing liabilities	I	5.3	476	513
Provisions	O	4.9	85	43
Operative liabilities	O	4.8	2,112	2,410
Tax liabilities	T	2.5	45	64
Current liabilities			**3,004**	**3,697**
Liabilities related to assets held for sale		6.1	671	237
Total liabilities			**9,865**	**8,419**
Total equity and liabilities			**20,754**	**20,922**

Items designated "O" comprise Operating Capital, items designated "I" comprise Interest-bearing Net Liabilities, items designated "T" comprise Net Tax Liabilities.
The accompanying Notes are an integral part of these consolidated financial statements.

Consolidated cash flow statement

EUR million	Note	2023	2022
		Year ended 31 December	
Cash flow from operating activities			
Net result for the year		-431	1,536
Adjustments and reversal of non-cash items:			
Taxes	2.5	-64	322
Depreciation and impairment charges	2.3	1,303	635
Change in value of biological assets	4.2	-209	-195
Change in fair value of share awards		-2	7
Share of results of associated companies	4.3	-136	-221
CTA and profits and losses on sale of fixed assets and investments[1]	2.2	-20	52
Net financial items	2.4	173	151
Other adjustments		16	22
Dividends received from associated companies	4.3	25	25
Interest received		64	13
Interest paid		-149	-119
Other financial items, net		-31	-7
Income taxes paid	2.5	-85	-178
Change in net working capital, net of businesses acquired or sold		300	-461
Net cash provided by operating activities		**752**	**1,582**
Cash flow from investing activities			
Acquisition of subsidiary shares and business operations, net of acquired cash	6.1	-584	0
Acquisition of shares in associated companies	4.3	-5	-7
Acquisition of unlisted securities	4.4	-18	-11
Cash flow on disposal of subsidiary shares and business operations, net of disposed cash	6.1	237	-77
Cash flow on disposal of shares in associated companies	4.3	0	10
Cash flow on disposal of intangible assets and property, plant and equipment	4.1	47	17
Capital expenditure	2.1, 4.1	-897	-603
Investment in biological assets	4.2	-92	-101
Proceeds from/payment of non-current receivables, net		-1	31
Net cash used in investing activities		**-1,313**	**-742**

EUR million	Note	2023	2022
		Year ended 31 December	
Cash flow from financing activities			
Proceeds from issue of new long-term debt	5.3	2,006	366
Repayment of long-term debt and lease liabilities	5.3	-716	-390
Change in short-term interest-bearing liabilities	5.3	272	9
Dividends paid		-472	-434
Purchase of own shares		-6	-1
Net cash used in financing activities		**1,084**	**-450**
Net change in cash and cash equivalents		523	389
Translation adjustment		24	48
Net cash and cash equivalents at beginning of year		1,917	1,480
Net cash and cash equivalents at year end		**2,464**	**1,917**
Cash and cash equivalents at year end[2]		**2,464**	**1,917**
Bank overdrafts at year end		**0**	**0**
Net cash and cash equivalents at year end		**2,464**	**1,917**

[1] CTA = Cumulative Translation Adjustment
[2] Cash and cash equivalents comprise cash-in-hand, deposits held at call with banks and other liquid investments with original maturity of less than three months. Bank overdrafts are included in current liabilities.
The accompanying Notes are an integral part of these consolidated financial statements.

Financials

Consolidated cash flow statement

Supplemental cash flow information

		Year ended 31 December	
EUR million	**Note**	**2023**	**2022**
Change in net working capital consists of:			
Change in inventories		328	-454
Change in interest-free receivables:			
Current		347	-165
Non-current		-19	-1
Change in interest-free liabilities:			
Current		-355	163
Non-current		-2	-3
Change in net working capital, net of businesses acquired or sold		**300**	**-461**
Cash and cash equivalents consist of:			
Cash on hand and at banks		825	1,272
Cash equivalents		1,639	646
Cash and cash equivalents		**2,464**	**1,917**
Non-cash investing activities			
Total capital expenditure excluding right-of-use assets		946	656
Amounts paid		-897	-603
Non-cash part of additions to intangible assets and property, plant and equipment		**49**	**53**
Cash flow on acquisitions of subsidiaries and business operations			
Purchase consideration on acquisitions, cash part	6.1	-612	0
Cash and cash equivalents in acquired companies, net of bank overdraft	6.1	27	0
Net cash flow on acquisition		**-584**	**0**
Cash flow on disposals of subsidiaries and business operations			
Cash part of the consideration	6.1	266	13
Cash and cash equivalents in divested companies	6.1	-29	-90
Net cash flow from disposal		**237**	**-77**

The accompanying Notes are an integral part of these consolidated financial statements.

Financials

Statement of changes in equity

					Fair value reserve								
EUR million	**Share capital**	**Share premium and reserve fund**	**Invested non-restricted equity fund**	**Treasury shares**	**Equity instruments through OCI**	**Cash flow hedges**	**Revaluation reserve**	**OCI of associated companies**	**CTA and net investment hedges and loans**	**Retained earnings**	**Attributable to owners of the parent**	**Non-controlling interests**	**Total**
Balance at 1 January 2022	**1,342**	**77**	**633**	**—**	**778**	**-4**	**1,373**	**29**	**-195**	**6,650**	**10,683**	**-16**	**10,666**
Net result for the year	—	—	—	—	—	—	—	—	—	1,550	1,550	-13	1,536
OCI before tax	—	—	—	—	519	52	259	58	-224	147	812	—	812
Income tax relating to OCI	—	—	—	—	1	-9	-53	—	3	-25	-83	—	-83
Total Comprehensive Income	**—**	**—**	**—**	**—**	**520**	**43**	**206**	**58**	**-220**	**1,672**	**2,278**	**-13**	**2,265**
Dividend	—	—	—	—	—	—	—	—	—	-434	-434	—	-434
Acquisitions and disposals	—	—	—	—	—	—	—	—	—	—	—	—	—
Purchase of treasury shares	—	—	—	-1	—	—	—	—	—	—	-1	—	-1
Share-based payments	—	—	—	1	—	—	—	—	—	5	6	—	6
Balance at 31 December 2022	**1,342**	**77**	**633**	**—**	**1,298**	**39**	**1,579**	**87**	**-415**	**7,893**	**12,532**	**-30**	**12,502**
Net result for the year	—	—	—	—	—	—	—	—	—	-357	-357	-74	-431
OCI before tax	—	—	—	—	-645	-1	-49	-23	41	-52	-730	5	-726
Income tax relating to OCI	—	—	—	—	—	—	10	—	—	12	22	—	22
Total Comprehensive Income	**—**	**—**	**—**	**—**	**-645**	**-1**	**-39**	**-23**	**41**	**-397**	**-1,066**	**-69**	**-1,135**
Dividend	—	—	—	—	—	—	—	—	—	-473	-473	—	-473
Acquisitions and disposals	—	—	—	—	—	—	—	—	—	—	—	2	2
Purchase of treasury shares	—	—	—	-6	—	—	—	—	—	—	-6	—	-6
Share-based payments	—	—	—	6	—	—	—	—	—	-8	-2	—	-2
Balance at 31 December 2023	**1,342**	**77**	**633**	**—**	**653**	**38**	**1,540**	**63**	**-375**	**7,015**	**10,985**	**-97**	**10,889**

CTA = Cumulative Translation Adjustment, NCI = Non-controlling Interests, OCI = Other Comprehensive Income

Financials

Notes to the consolidated financial statements

1 Basis for reporting

1.1 Accounting principles

Principal activities

Stora Enso Oyj ("the Company") is a Finnish public limited liability company organised under the laws of the Republic of Finland and with its registered address at Salmisaarenaukio 2, 00180 Helsinki. Its shares are currently listed on Nasdaq Helsinki and Stockholm. The operations of Stora Enso Oyj and its subsidiaries (together "Stora Enso" or "the Group") are organised into the following reportable segments: Packaging Materials, Packaging Solutions, Biomaterials, Wood Products, Forest and segment Other. The Group's main market is Europe.

The Financial Statements were authorised for issue by the Board of Directors on 31 January 2024.

Basis of preparation

The consolidated financial statements of Stora Enso have been prepared in accordance with IFRS Accounting Standards as adopted by the European Union. The consolidated financial statements of Stora Enso have been prepared according to the historical cost convention, except as disclosed in the accounting policies. The detailed accounting principles are explained in the related notes with a few exceptions where the accounting principles are presented in this note. The consolidated financial statements are presented in euros, which is the parent company's functional currency.

All figures in these consolidated financial statements have been rounded to the nearest million, unless otherwise stated. Therefore, figures in this report may not add up precisely to the totals presented and may vary from previously published financial information.

New and amended standards and interpretations adopted in 2023

The Group has applied the following new and amended standards and interpretations which are effective from 1 January 2023:

- Amendments to IAS 1 Presentation of Financial Statements: Disclosure of Accounting policies. The amendment requires entities to disclose their material accounting policy information rather than their significant accounting policies. The effective date is 1 January 2023. The amendment had a minor impact on the disclosures.
- Amendments to IAS 8 Accounting policies, Changes in Accounting Estimates and Errors: Definition of Accounting Estimates. The amendments introduce the definition of accounting estimates and includes other amendments to IAS 8 to help entities distinguish changes in accounting estimates from changes in accounting policies. The effective date is 1 January 2023. The amendment did not have a significant impact on the Group.
- Amendments to IAS 12 Income Taxes: Deferred Tax related to Assets and Liabilities arising from a Single Transaction. The amendments clarify how entities account for deferred tax on transactions such as leases and decommissioning obligations. The main change is related to the initial recognition exemption and is in accordance with the amendment; the initial recognition exemption does not apply to transactions in which equal amounts of deductible and taxable temporary differences arise on initial recognition. The effective date is 1 January 2023. The amendment did not have a significant impact on the Group.
- Amendment to IAS 12 Income taxes: Pillar Two rules. The amendment includes 1) a mandatory temporary exception to IAS 12 meaning that an entity does not recognise or disclose information about deferred tax assets and liabilities related to Pillar Two, and a requirement to disclose that the exception has been applied; 2) a requirement to disclose separately the current tax expense (income) related to Pillar Two; and 3) for periods in which Pillar Two legislation is enacted or substantively enacted, but not yet in effect, a requirement to disclose the known or reasonably estimable information about the entity's exposure to Pillar Two income taxes. The effective date is 1 January 2023. The Group has applied the exception and provides an estimate of the impact of Pillar Two in note 2.5 Income taxes.
- Other standards, standard amendments and interpretations did not have any significant impact on the Group's consolidated financial statements or disclosures.

Changes in segment reporting

Due to the divestments and reorganisation of retained Paper division operations, Stora Enso's segment reporting was changed as of 1 January 2023. The Paper division was discontinued and not reported as a separate segment from 1 January 2023 onwards. The paper sites divested in 2023 (Maxau, Nymölla and Hylte) together with all previously sold and closed sites are reported as part of the segment Other. The retained sites Langerbrugge and Anjala are reported as part of the Packaging Materials division.

As of 1 January 2023, emerging business related units in the Packaging Solutions division were moved to the segment Other. These units include Formed Fiber, Circular Solutions (biocomposites) and Selfly Store.

The comparative figures have been restated accordingly. As of 1 January 2023, the reportable segments are Packaging Materials, Packaging Solutions, Biomaterials, Wood Products, Forest, and segment Other.

Consolidation principles

The consolidated financial statements include the parent company, Stora Enso Oyj, and all companies controlled by the Group. Control is defined as when the Group:

- has power over the investee,
- is exposed, or has rights, to variable returns from its involvement with the investee; and
- has the ability to use its power to affect its returns.

If facts and circumstances indicate that there are changes to the three elements of control listed above the Group reassess whether or not it controls an investee. Acquired companies are accounted for under the acquisition method whereby they are included in the consolidated financial statements from the date the control over the subsidiary is obtained, whereas, conversely, disposed companies are included up to the date when the control is lost. The subsidiaries and joint operations are listed in note 6.2 Group companies.

All intercompany transactions, receivables, liabilities and unrealised profits,

Financials

as well as intragroup profit distributions, are eliminated. Accounting policies for subsidiaries, joint arrangements and associated companies are adjusted where necessary to ensure consistency with the policies adopted by Stora Enso.

Associated companies over which Stora Enso exercises significant influence are accounted for by using the equity method. These companies are investments in which the Group has significant influence, but which it does not control. Significant influence means the power to participate in the financial and operating policy decisions of the company without control or joint control over those policies. More detailed information is presented in note 4.3 Associates.

Joint control is the contractually agreed sharing of control of the joint arrangement, which exists only when decisions on relevant activities require the unanimous consent of the parties sharing control. Joint operations are joint arrangements, whereby the partners who have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement. Joint ventures are joint arrangements, whereby the partners who have joint control of the arrangement have rights to the net assets of the joint arrangement.

The Group has two joint operations, Veracel and Montes del Plata. In both companies, Stora Enso's ownership is 50%. The arrangements are based on shareholders' agreements, which give Stora Enso rights to a share of returns and make the Group indirectly liable for the liabilities, as its ability to pay for the pulp is used to finance debts. In relation to its interest in joint operations, the Group recognises its share of assets, liabilities, revenues, expenses and cash flows of the joint operation. The share is determined based on rights to the assets and obligations for the liabilities of each joint operator.

- Veracel is a jointly owned company of Stora Enso and Suzano located in Brazil. The pulp mill produces 1.2 million tonnes of bleached eucalyptus hard wood pulp per year and both owners are entitled to half of the mill's output. The eucalyptus is sourced mostly from the company's own forest plantations. The mill commenced production in 2005.
- Montes del Plata is a jointly owned company of Stora Enso and Arauco located in Uruguay. The Montes del Plata Pulp Mill's annual capacity is 1.4 million tonnes of bleached eucalyptus hard wood pulp and Stora Enso's part, 0.7 million tonnes, is sold entirely as market pulp. The eucalyptus is sourced mostly from the company's own forest plantations. The mill commenced production in 2014.

Revenue recognition

Sales comprise products, raw materials and services less indirect sales tax and discounts, and are adjusted for cash flow hedging result on sales in foreign currencies. Sales are recognised after Stora Enso has transferred the control of goods and services to a customer and the Group retains neither a continuing right to dispose of the goods, nor effective control of those goods; usually, this means that sales are recorded upon the delivery of goods to customers in accordance with the agreed terms of delivery.

Stora Enso's terms of delivery are based on Incoterms 2020, which are the official rules for the interpretation of trade terms as issued by the International Chamber of Commerce (ICC). The main categories of the terms covering Group sales are:

- "D" terms, under which the group is obliged to deliver the goods to the buyer at the agreed place in the manner specified in the chosen rule, in which case the point of sale is the moment of delivery to the buyer.
- "C" terms, whereby the Group arranges and pays for the external carriage and certain other costs, though the Group ceases to be responsible for the goods once they have been handed over to the carrier in accordance with the relevant term. The point of sale is thus the handing over of the goods to the carrier contracted by the seller for the carriage to the agreed destination.
- "F" terms, being where the buyer arranges and pays for the carriage, thus the point of sale is the handing over of the goods to the carrier contracted by the buyer at the agreed point.

Where local rules may result in invoices being raised in advance of the above, the effect of this revenue advancement is quantified, and an adjustment is made accordingly. Stora Enso's sales mainly comprise sales of products and the revenue is typically recognised at a point in time when Stora Enso transfers control of these products to a customer. Revenues from services are recognised over time once the service has been performed. More detailed information regarding Stora Enso's principal activities from which the Group generates its revenue and disaggregation of revenue is presented in note 2.1 Segment information.

Foreign currency transactions

Transactions in foreign currencies are recorded at the rate of exchange prevailing at the transaction date, but at the end of the month foreign-currency-denominated receivables and liabilities are translated using the month-end exchange rate. Foreign exchange differences for operating items are presented in the appropriate income statement line in the operating profit, and, for financial assets and liabilities, they are presented in the financial items in the consolidated income statement, except when deferred in equity as qualifying cash flow hedges, net investment hedges or net investment loans. Translation differences on non-monetary financial assets, such as equities classified at fair value through other comprehensive income (FVTOCI), are included in equity.

Foreign currency translations

The income statements of Group companies with functional and presentational currencies other than the euro are translated into the Group reporting currency using the average exchange rates of the year, whereas the statements of the financial position of these companies are translated using the exchange rates at the reporting date. The Group is exposed to currency risks arising from exchange rate fluctuations on the value of its net investment in non-euro foreign entities. Exchange differences arising from the retranslation of net investments in foreign entities that are non-euro foreign subsidiaries, joint operations or associated companies and of financial instruments that are designated to hedge such investments, are recorded directly in equity as cumulative translation adjustment (CTA). See note 5.6 Cumulative translation adjustment and equity hedging for more details.

Future standard changes endorsed by the EU but not yet effective in 2023

- Amendments to IAS 1 Presentation of Financial Statements: Information about long-term debt with covenants. IAS 1 requires a company to classify debt as non-current only if the company can avoid settling the debt in the 12 months after the reporting date. However, a company's ability to do so is often subject to complying with covenants. The amendments specify that covenants to be complied with after the reporting date do not affect the classification of debt as current or non-current at the reporting date. Instead, the amendments require a company to disclose information about these covenants in the notes to the financial statements. The effective date is 1 January 2024. The Group is evaluating the impact of the amendments and expects that the amendment does not have significant impact.

- Amendments to IAS 1 Presentation of Financial Statements: Classification of liabilities as current or non-current. The amendments clarify a criterion for classifying a liability as non-current. The amendments specify that an entity's right to defer settlement must exist at the end of the reporting period; clarify that classification is unaffected by management's intentions or expectations about whether the entity will exercise its right to defer settlement; clarify how lending conditions affect classification; and clarify requirements for classifying liabilities an entity will or may settle by issuing its own equity instruments. The effective date is 1 January 2024. The Group is evaluating the impact of the amendment and expects that the amendment does not have significant impact.
- Amendments to IFRS 16 Leases: Lease Liability in Sale and Leaseback. Amendment requires a seller-lessee to subsequently measure lease liabilities arising from a leaseback in a way that it does not recognise any amount of the gain or loss that relates to the right of use it retains. The new requirements do not prevent a seller-lessee from recognising in profit or loss any gain or loss relating to the partial or full termination of a lease. The effective date is 1 January 2024. The Group expects that the amendment does not have a significant impact.
- No other published standards, standard amendments or interpretations which would be expected to have any significant impact on the Group's consolidated financial statements or disclosures.

Future standard changes not yet effective and not yet endorsed by the EU in 2023

- Amendments to IAS 7 Statement of Cash Flows and IFRS 7 Financial Instruments: Disclosures: Supplier Finance Arrangements. The amendments require entities to add disclosure requirements, and 'signposts' within existing disclosure requirements that ask entities to provide qualitative and quantitative information about supplier finance arrangements. The effective date is 1 January 2024. The Group is engaged in supply chain financing and is evaluating the impact of the amendment and expects that the amendment will result in additional disclosures in the notes of the consolidated financial statements.
- Amendments to IAS 21 The Effects of Changes in Foreign Exchange Rates: Lack of Exchangeability. The amendment contains guidance to specify when a currency is exchangeable and how to determine the exchange rate when it is not. The effective date is 1 January 2025. The Group expects that the amendment does not have a significant impact.
- Other published standards, standard amendments or interpretations are not expected to have any significant impact on the Group's consolidated financial statements or disclosures.

1.2 Critical accounting estimates and judgements

The preparation of consolidated financial statements in accordance with IFRS requires management to make estimates, judgements and assumptions that affect the reported assets and liabilities, as well as the disclosure of contingent assets and liabilities at the reporting date and the reported revenues and expenses during the period. These estimates, judgments and assumptions might have a significant impact on the amounts recognised in the consolidated financial statements. The estimates are based on historical experience and various other assumptions that are believed to be reasonable and reflect management's best estimates, though actual result and timing could differ from these. The estimates, judgements and assumptions are reviewed regularly and updated if there are changes in circumstances or as a result of new information. The accounting items presented below represent those matters which include the most estimation uncertainty and exercise of judgement.

Property, plant and equipment, intangible assets and right-of-use assets

The carrying amounts of property, plant and equipment and intangible assets and right-of-use assets are assessed at each reporting date to determine whether there is any indication that an asset may be impaired. If an indicator of impairment exists, the asset's recoverable amount is determined and compared with its carrying amount. The recoverable amount of an asset is estimated as the higher of fair value less the cost of disposal and the value in use, and an impairment charge is recognised whenever the carrying amount exceeds the recoverable amount. The value in use is calculated using a discounted cash flow method which is most sensitive to the discount rate as well as the expected future cash flows. The key assumptions used in the impairment testing, are explained further in note 2.3 Depreciation, amortisation and impairment charges.

Management believes that the assigned values and useful lives, as well as the underlying assumptions, are reasonable, though different assumptions and assigned useful lives could have a significant impact on the reported amounts. For material intangible assets and property, plant and equipment in an acquisition, an external advisor makes a fair valuation of the acquired intangible assets and property, plant and equipment and assists in determining their remaining useful life.

Goodwill

Goodwill is tested per cash generating unit (CGU) or by a group of CGUs at least on an annual basis and recoverable amount is determined as the higher of fair value less cost to sell and their value in use (discounted cash flow method). Impairment is recognised if the carrying amount exceeds the recoverable amount. The discounted cash flow method uses future projections of cash flows from each of the reporting units in a CGU or a group of CGUs and includes, among other estimates, projections of future product pricing, production levels, product costs, market supply and demand, projected capital expenditures and an assumption of the weighted average cost of capital. The discount rates used reflect the best estimate of the weighted average cost of capital.

The Group has evaluated the most sensitive estimates and assumptions, which, when changed, could have a material impact on the valuation of the assets including goodwill and, therefore, could lead to an impairment. These estimates and assumptions are expected sales prices, expected operating costs and the discount rate. The key assumptions used in the impairment testing are presented in note 2.3 Depreciation, amortisation and impairment charges.

Leases

When assessing the lease term and if an extension or renewal options are included or not, the Group considers all relevant facts, circumstances and incentives that might have an impact on the assessment. Options to extend or renew the lease are included in the lease term only if it is reasonably certain that Stora Enso will exercise the option. The Group will do a reassessment, for example upon changes in circumstances, receiving new information or an occurrence of a significant event that is within the control of the lessee and might have an impact on the assessment. See note 4.1 Intangible assets, property, plant and equipment and right-of-

Financials

use assets for more details about right-of-use assets and note 5.3 Interest-bearing assets and liabilities for more details about lease liabilities.

Biological assets

The Group has biological assets in subsidiaries, joint operations and associated company. Biological assets, in the form of standing trees, are measured at fair value less the costs to sell. Fair value is determined by using discounted cash flows from continuous operations based on sustainable forest management plans taking into account the growth potential of one cycle. These discounted cash flows require estimates of growth, harvesting, sales price, costs and discount rate. In determining the fair value of biological assets, the management needs to make estimates of future price levels and trends for sales and costs, and to undertake regular surveys of the forest to establish the volumes of wood available for harvesting and their current growth rates.

See next chapter for estimates and judgement applied in valuation of Nordic forest assets and note 4.2 Forest assets for more detailed information about Nordic and plantation forest assets.

Nordic forest assets

The fair value of forest assets in the Nordics is determined using a market approach, which is based on the forest market transactions in the areas where Stora Enso's forests are located. Market prices between areas vary significantly and judgement is applied to define relevant areas for market transactions used in valuation. The valuation of the forest assets is based on detailed transaction data and price statistics as provided by market data suppliers. Market transaction data is adjusted to consider characteristics and nature of Stora Enso's forest assets and to exclude certain non-forest assets and transactions considered as outliers compared to other transactions. The valuation takes into account where the forest land is located, price levels and volume of standing stock. The value of the forest assets will be affected by changes in transaction prices and by how the volume of standing stock develops. Stora Enso is applying weighted three-year average market transaction prices and this is considered to include a sufficient amount of transactions and estimated to represent market conditions at the reporting date.

The value of the forest assets is allocated to biological assets and forest land. Allocation of the combined fair value of forest assets is based on the income approach where separate present values of expected net cash flows are calculated for both biological assets and forest land. The discount rate is determined as the rate at which the valuation based on market transaction prices matches the total forest assets combined cash flows for biological assets and forest land. The total net cash flows for each of the components include estimates in respect of future harvesting volumes, sales price levels, and cost development. See note 4.2 Forest assets for more information.

Fair value of financial instruments

Where the fair value of financial assets and liabilities cannot be derived directly from publicly quoted market prices, other valuation techniques, such as discounted cash flow models, transaction multiples, the Black and Scholes model and the Gordon model, are applied. The key judgements include future cash flows, credit risk, volatility and changes in assumptions about these factors which could affect the reported fair value of the financial instruments. Investments in debt and equity instruments of unlisted entities, such as Pohjolan Voima Oyj (PVO), represent a significant portion of the Group's assets and require management judgement, as explained in more detail in notes 4.4 Equity instruments and 5.1 Financial risk management.

Income taxes

Tax assets and liabilities are reviewed on a regular basis and balances are adjusted appropriately. The deferred tax assets, whether arising from temporary differences or from tax losses, are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised. Management considers that adequate provision has been made for future tax consequences based on the current facts, circumstances and tax laws. However, should any tax positions be challenged and not prevail, different outcomes could result and have a significant impact on the amounts reported in the consolidated financial statements. See note 2.5 Income taxes for more detailed information.

Post-employment benefits

The determination of the Group pension obligation and expense is subject to the selection of certain assumptions used by actuaries in calculating such amounts, including, among others, the discount rate, the annual rate of increase in future compensation levels and estimated lifespans. Amounts charged in the income statement are determined by independent actuaries; however, where actual results differ from the initial estimates, together with the effect of any change in assumptions or other factors, these differences are recognised directly in equity, as disclosed in the statement of comprehensive income. See note 3.3 Post-employment benefit obligations for detailed information on the assumptions used in the pension obligation calculations.

Provisions

The Group has recognised provisions for known environmental, restructuring and other obligations, where legal or constructive obligation exist as a result of past events. The amounts recognised as provisions are based on the management's best estimate of the costs required to settle the obligation. Due to uncertainty regarding the timing and amount of these costs, the actual costs might differ significantly from the original estimate. The carrying amounts of provisions are reviewed regularly and adjusted when needed to consider changes in cost estimates, regulations, applied technologies and conditions. See note 4.9 Provisions for more detailed information.

2 Financial performance

2.1 Segment information

Accounting principles

Stora Enso's reportable segments are Packaging Materials, Packaging Solutions, Biomaterials, Wood Products, Forest and the segment Other. Operating segments reflect the Group's management structure and the way financial information is regularly reviewed by Stora Enso's President and CEO who is responsible for allocating resources and assessing the performance of the operating segments. Costs, revenues, assets and liabilities are allocated to operating segments on a consistent basis. Transactions between operating segments are based on arm's length terms, and they are eliminated on consolidation. The activities of the reportable segments are:

Packaging Materials
The Packaging Materials division is a global leader and expert in circular packaging providing premium packaging materials based on virgin and recycled fiber. Stora Enso helps customers replace fossil-based materials with low-carbon, renewable and recyclable alternatives for their food, beverage and transport packaging with a wide selection of base boards and barrier coatings.

Packaging Solutions
The Packaging Solutions division is a packaging converter that provides premium fiber-based packaging products and services used by leading brands across multiple market areas, including retail, e-commerce, fresh produce, and industrial applications. The division also provides design and sustainability services for customers to optimise material use, logistics and to reduce CO2 emissions.

Biomaterials
The Biomaterials division's business opportunities are strongly driven by the need to replace fossil-based and other non-renewable materials. Stora Enso uses all fractions of a tree to develop new biobased solutions for various applications. The division's long-term growth is driven by new products and innovations, while pulp continues to be the foundation.

Wood Products
The Wood Products division is Europe's largest sawn timber producer and a leading provider of sustainable wood-based solutions for the global construction industry. Additionally, it offers window and door components, and co-products such as pellets made from wood residuals.

Forest
The Forest division is responsible for wood sourcing for Stora Enso's Nordic and Baltic operations and B2B customers. It manages the Group's forest assets in Sweden and a 41% share of Tornator, whose forests are mainly located in Finland. The division's operations are based on sustainable forest management from planning and logistics to harvesting and forest regeneration.

Segment Other
The segment Other includes the divested paper sites until the completion of the divestments, the reporting of the emerging businesses (including Formed Fiber and Selfly Stores), as well as Stora Enso's shareholding in the energy company Pohjolan Voima (PVO), and the Group's shared services and administration.

Read more about the changes in segment reporting in 2023 in the note 1.1 Accounting principles. The comparative figures for 2022 have been restated accordingly.

Operating segments 2023

EUR million	Packaging Materials	Packaging Solutions	Biomaterials	Wood Products	Forest	Other	Eliminations	Group
External sales	4,362	1,066	1,363	1,453	989	162	0	9,396
Internal sales	195	11	223	127	1,501	801	-2,859	0
Sales total	**4,557**	**1,077**	**1,587**	**1,580**	**2,490**	**964**	**-2,859**	**9,396**
Product sales								9,317
Service sales								79
Sales total								**9,396**
Operating result	-642	17	-81	-86	461	-41	49	-322
Net financial expense								-173
Income taxes								64
Result for the period								**-431**
Operative assets	3,562	1,223	2,772	855	7,906	1,189	-371	17,136
Tax receivables								166
Interest-bearing receivables								2,613
Assets held for sale								839
Total assets								**20,754**
Operative liabilities	1,059	195	321	238	549	505	-358	2,508
Tax liabilities								1,478
Interest-bearing liabilities								5,209
Liabilities related to assets held for sale								671
Total liabilities								**9,865**
Other items								
Depreciations/impairments/impairment reversals	-805	-74	-297	-67	-21	-38	0	-1,303
Capital expenditures	636	161	162	51	29	15	0	1,054
Operating capital[1]	3,243	1,028	2,451	617	7,358	684	-13	15,368
Average personnel	7,269	4,389	2,196	4,079	1,434	1,455	0	20,822

[1] Including assets held for sale and related liabilities.

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Financials

Operating segments 2022

EUR million	Packaging Materials	Packaging Solutions	Biomaterials	Wood Products	Forest	Other	Eliminations	Group
External sales	5,257	704	1,798	2,058	848	1,014	0	11,680
Internal sales	239	23	382	137	1,671	1,136	-3,589	0
Sales total	**5,496**	**727**	**2,180**	**2,195**	**2,519**	**2,150**	**-3,589**	**11,680**
Product sales								11,521
Service sales								159
Sales total								**11,680**
Operating result	653	-81	668	253	523	36	-42	2,009
Net financial expense								-151
Income taxes								-322
Result for the period								**1,536**
Operative assets	4,792	351	3,095	998	7,481	1,924	-440	18,201
Tax receivables								85
Interest-bearing receivables								2,122
Assets held for sale								514
Total assets								**20,922**
Operative liabilities	1,265	146	299	280	518	574	-377	2,704
Tax liabilities								1,507
Interest-bearing liabilities								3,972
Liabilities related to assets held for sale								237
Total liabilities								**8,419**
Other items								
Depreciations/impairments/impairment reversals	-287	-62	-110	-59	-50	-67	0	-635
Capital expenditures	363	36	121	87	35	59	0	701
Operating capital[1]	3,527	205	2,796	718	6,963	1,660	-63	15,806
Average personnel	7,113	3,865	2,135	4,445	1,412	2,822	0	21,790

[1] Including assets held for sale and related liabilities.
Comparative figures have been restated as described in the Group's release from 29 March 2023.

Financials

Geographical information

	External sales by destination		Non-current assets by country[1]		Capital expenditure by country[2]	
EUR million	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**
Austria	347	450	134	128	15	16
Baltic States	271	377	66	74	9	12
Czech Republic	189	231	193	198	8	41
Finland	664	759	2,872	2,729	587	311
France	299	449	2	2	0	0
Germany	862	1,208	34	53	9	10
Italy	453	650	0	0	1	0
Netherlands	597	317	797	9	131	7
Poland	511	733	407	379	30	35
Sweden	1,111	1,071	7,127	6,837	174	173
UK	344	444	8	0	0	0
Other Europe	901	1,245	126	135	12	16
Total Europe	**6,548**	**7,934**	**11,767**	**10,543**	**975**	**623**
China (incl. Hong Kong)	991	1,125	43	1,044	15	25
Japan	242	417	0	0	0	0
Uruguay	33	31	1,543	1,580	35	31
USA	302	397	0	32	0	0
Other countries	1,279	1,776	316	282	29	22
Total	**9,396**	**11,680**	**13,669**	**13,481**	**1,054**	**701**

[1] Non-current assets excluding assets held for sale, financial instruments and deferred tax assets.
[2] Excluding biological asset capital expenditure

2.2 Other operating income and expense

Accounting principles

Research and development
Research costs are expensed as incurred in other operating expenses in the consolidated income statement. Development costs are also expensed as incurred unless they meet the criteria to be recognised as intangible assets in accordance with IAS 38, in which case they are capitalised as intangible assets and amortised over their expected useful lives.

Government grants
Government grants relating to the purchase of property, plant and equipment are deducted from the carrying value of the asset, while the net cost is capitalised. Other government grants are recognised as income on a systematic basis over the periods necessary to match them with the related costs which they were intended to compensate.

Green certificates
Stora Enso is part of the local green energy production system which entitles selected mills in Europe to receive green certificates based on megawatt hours of green energy produced. Green certificates received are recognised at grant date market value only in the balance sheet. As such, subsequent changes in market prices do not have an impact on the income statement and the income is recognised only when certificates are sold.

Other operating income and expense

EUR million	2023	2022
Other operating income		
Emission rights allocated and disposal gains	145	177
Sale of green certificates	12	10
Gains on disposal of fixed assets	44	4
Gains on disposal of Group companies and business operations	52	18
Dividend and gain on sale of unlisted shares	1	1
Insurance compensation	8	10
CTA release	0	5
Government grants	40	16
Other[1]	76	85
Total	**378**	**326**

[1] Including rent income, fair value changes for non-hedge accounted derivatives and other items. Derivatives are discussed in more detail in note 5.4 Derivatives.

EUR million	2023	2022
Other operating expenses		
Lease expenses	43	40
Credit losses, net of reversals	9	13
Losses on disposal of fixed assets	4	0
Losses on disposal of Group companies and business operations	19	26
CTA release	56	52
Provision changes in income statement	94	31
Other[1]	414	431
Total	**638**	**594**

[1] Including expenses related to, among others, consultancy and other services, IT and telecommunications, properties and administration, audit, training, travelling, insurance, penalties, and currency translation differences on operative payables.

Materials and services include	2023	2022
Emissions rights to be delivered	82	112

The Group has recorded an other operating income of EUR 145 (177) million related to emission rights. Actual realised profits amounted to EUR 75 (59) million on the disposal of surplus rights. Under Materials and Services an expense of EUR 82 (112) million has been booked related to the cost of CO_2 emissions from production. See note 4.5 Emission rights and other non-current assets for more details related to emission rights. The income from the sale of green certificates amounted to EUR 12 (10) million.

Lease expenses include expenses relating to short-term leases of EUR 12 (12) million, low-value assets of EUR 26 (21) million and variable lease payments not included in the measurement of lease liabilities of EUR 2 (2) million. Lease expenses also include service payments included in lease contracts, which are not included in the measurement of lease liabilities.

In 2023, research and development expenses of EUR 98 (89) million were recorded.

Financials

Auditor's fees and services

EUR million	2023	2022
Audit fees	4	4
Audit-related fees	0	0
Tax fees	0	0
Other fees	0	0
Total	**5**	**4**

Aggregate fees for professional services rendered to the Group principal auditor PwC amounted to EUR 5 (4) million. Audit fees relate to the auditing of the annual financial statements or ancillary services normally provided in connection with statutory and regulatory filings. Audit-related fees are incurred for assurance and associated services that are reasonably related to the performance of the audit or for the review of financial statements.

2.3 Depreciation, amortisation and impairment charges

Accounting principles

Depreciation, amortisation and impairment charges

Depreciation or amortisation of an asset begins when it is available for use in the location and condition necessary for it to be operated in the manner intended by management. Depreciation or amortisation ceases when the asset is derecognised or classified as held for sale. Depreciation or amortisation does not cease when the asset becomes idle. Tangible and intangible assets are depreciated and amortised on a straight-line basis during their useful lives. Useful lives are reviewed annually. If an asset is disposed and the asset's book value is higher than the disposal proceeds, the difference is recognised as an impairment in the period when reliable estimate of disposal loss is available, at the latest when a binding sales contract is signed. Right-of-use (ROU) assets are depreciated using the straight line method from the commencement date of the contract to the earlier of the end of the lease term or the end of the useful life of the ROU assets.

The carrying amounts of intangible assets, property, plant and equipment and ROU assets are reviewed at each reporting date to determine whether there is any indication of impairment, whereas goodwill is tested annually. If any such indication exists, the recoverable amount is estimated as the higher of the fair value less costs of disposal and the value in use, with an impairment loss being recognised whenever the carrying amount exceeds the recoverable amount.

A previously recognised impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount, however, not to an extent higher than the carrying amount that would have existed had no impairment loss been recognised in prior years. For goodwill, however, a recognised impairment loss is not reversed.

Whilst intangible assets, property, plant and equipment and ROU assets are subject to impairment testing at the cash generating unit (CGU) level, goodwill is subject to impairment testing at the CGU level for groups of CGUs, which represents the lowest level within the Group at which goodwill is monitored for internal management purposes.

Depreciation, amortisation and impairment charges

EUR million	2023	2022
Depreciation and amortisation		
Intangible assets	41	24
Buildings and structures	76	81
Plant and equipment	349	371
Right-of-use assets	59	50
Other tangible assets	8	8
Total	**533**	**533**
Impairment		
Goodwill	85	11
Intangible assets	24	1
Buildings and structures	134	25
Plant and equipment	494	75
Right-of-use assets	33	0
Other tangible assets	6	2
Total	**776**	**114**
Reversal of impairment		
Plant and equipment	-6	-7
Total	**-6**	**-7**
Disposal gains/losses		
Gain on sale of assets	0	-10
Loss on sale of assets	0	4
Total	**0**	**-5**
Depreciation, amortisation and impairment charges	**1,303**	**635**

Impairment testing

The recoverable amount for the cash generating units (CGUs) has been determined as the higher of fair value less cost to sell and their value in use. Value in use is determined by using cash flow projections from financial estimates approved by the Board of Directors and management. The pre-tax discount rates are calculated for each CGU, taking into account the business environment of the CGU and the tax and risk profile of the country in which the cash flow is generated. The table in the goodwill impairment testing section below sets out the pre-tax discount rates used for goodwill impairment testing, which are similar to those used in the impairment testing of other intangible assets, property, plant and equipment, and ROU assets. The following assumptions were used in calculating value in use for each CGU:

- Sales price estimates in accordance with internal and external specialist analysis;
- Cash flows and discount rates were prepared in nominal terms;
- Current cost structure to remain unchanged;
- For goodwill testing, a five-year future period was used, after which the perpetuity value was determined using inflation based growth rates;
- For intangible assets, property, plant and equipment, and ROU assets testing period was the remaining expected economic life of the assets.

Property, plant and equipment, other intangible assets and ROU assets impairments

The total impairment charges on property, plant and equipment, other intangible assets and ROU assets in 2023 amounted to EUR 691 (103) million and resulted from business restructuring, Group company disposals and predictions of a weaker outlook compared to previous estimates.

In 2023, impairments were mainly related to Biomaterials and Packaging Materials divisions. Biomaterials related impairments of EUR 146 million concerned Nordic Mills CGU and are mainly related to Sunila due to the closure of pulp production site Finland and Uimaharju site due to predictions of a weaker outlook compared to previous estimates. Packaging Materials related impairments of EUR 490 million concerned mainly Containerboard Oulu CGU of EUR 228 million due to predictions of a weaker outlook compared to previous estimates, Consumer Board China CGU of EUR 202 million in connection to potential disposal transaction and based on fair value less cost to sell, and CGU De Hoop of EUR 42 million due to the closure of the site in the Netherlands.

In 2022, impairments were mainly related to Group company disposals in Russia and disposals in the Paper division. Russia related impairments of EUR 75 million concerned Wood Products Baltic and Russia CGU, Packaging Solutions Corrugated Nordics, and CEE CGU and Forest operations CGU. Paper related impairments of EUR 22 million concerned News and Office CGUs. Due to disposals, Wood Products Baltic and Russia CGU no longer exists as its own CGU. Due to segment changes in 2023, News and Office CGUs, previously part of Paper, are presented as part of the segment Other.

Goodwill impairments

In 2023, a goodwill impairment of EUR 28 million was recognised in Anjala Mill CGU and EUR 13 million in De Hoop mill CGU mainly due to restructurings in the Packaging Materials division. Additionally, a goodwill impairment of EUR 44 million was recognised in the Biomaterials division's CGU Nordic Mills, due to predictions of a weaker outlook compared to previous estimates.

Due to disposals in 2022 in the Paper division, a goodwill impairment of EUR 11 million was recognised in News and Office CGUs. Due to segment changes in 2023, News and Office CGUs, previously part of Paper, are presented as part of the segment Other.

The most material groups of CGUs containing goodwill

	2023		2022	
EUR million	Goodwill at year end	Pre-tax discount rate	Goodwill at year end[1]	Pre-tax discount rate
Packaging Solutions - Western Europe	277	9.3%	0	—
Wood Products - Southern Europe	110	11.8%	111	9.9%
Biomaterials - Nordic Mills	0	10.1%	45	8.2%
Other CGUs	119		88	
Total	**505**		**244**	

[1] Goodwill excluding assets held for sale

The calculation of value in use is highly sensitive to discount rates, sales prices and costs. Sensitivity analysis are conducted to calculate the amounts by which the value assigned to the key assumption must change in order for the unit's recoverable amount to be equal to its carrying amount for the CGUs for which a reasonably possible change in an assumption could result in an impairment. In 2023, any reasonably possible change in key assumptions would not cause carrying amount to exceed its recoverable amount.

Summary of impairments and impairment reversals per division

EUR million	2023	2022
Packaging Materials	530	0
Packaging Solutions	5	36
Biomaterials	190	0
Wood Products	20	10
Forest	1	31
Other	23	28
Total (impairment +) / (Impairment reversal -)	**770**	**107**

2.4 Net financial items

Accounting principles

Net financial items comprise net interest expenses, foreign exchange gains and losses and other financial income and expenses mainly arising from interest-bearing assets and liabilities.

Financial income and expense

EUR million	2023	2022
Net financial expense in the income statement		
Financial income	91	40
Financial expense	-264	-191
Total	**-173**	**-151**
Represented by		
Interest expense		
Interest expense from borrowings measured at amortised cost	-167	-96
Interest component of the effective hedges under cash flow hedge	9	-12
Interest expense on leases	-23	-17
Interest capitalised	7	0
Interest income on loans and receivables measured at amortised cost	61	20
Net interest expense	**-113**	**-105**
Foreign exchange gains and losses		
Currency derivatives	-12	8
Borrowings, cash equivalents, lease liabilities and other	-10	-10
Net foreign exchange gains and losses	**-22**	**-1**
Other financial income	6	2
Other financial expense		
Financial fees	-28	-8
Fair valuation losses	0	-4
Impairments of interest-bearing assets	-11	-30
Net interest on net defined benefit liabilities	-5	-3
Net other financial expense	**-38**	**-45**
Total	**-173**	**-151**

Gains and losses on derivative financial instruments are shown in note 5.4 Derivatives.

In 2023, the net interest expense increased mainly as a result of higher interest rates on borrowings and higher amount of gross debt. The negative impact was partly offset by higher interest income on loans and receivables.

The amount of interest costs capitalised during the year amounted to EUR 7 (EUR 0) million, and were mainly related to the Oulu site conversion project in Finland. The average interest rate used for capitalisation was 3.6% (-). Costs on long-term debt issues capitalised as part of non-current debt amounted to EUR 9 (6) million in the statement of financial position. During the year, EUR 2 (2) million was amortised through interest expense by using the effective interest rate method.

Exchange gains and losses for currency derivatives mainly relate to non-hedge accounted instruments fair valued in the income statement. In 2023, the amount reported as other financial income mainly consists of fair valuation gains, while other financial expense in the table above relates to net financial fees for unused committed credit facilities, guarantees, and factoring and supply chain financing programmes. Impairments of interest-bearing assets relate to receivables originating from the sale of the Russia operations in 2022 and are discussed in more detail in note 5.3 Interest-bearing assets and liabilities.

2.5 Income taxes

Accounting principles

The Group income tax expense/benefit includes taxes of Group companies based on taxable profit/loss for the period, together with tax adjustments for previous periods and the change in deferred taxes. Tax assets and liabilities reflect uncertainty related to income taxes, if any.
Deferred taxes are provided using the liability method, as measured with enacted, or substantially enacted, tax rates, to reflect the net tax effects of all temporary differences between the tax bases and the accounting bases of assets and liabilities. No deferred tax is recognised for the initial recognition of goodwill and the initial recognition of an asset or liability in a transaction which is not a business combination, and at the time of the transaction this affects neither accounting profit nor taxable profit. Deferred tax is recognised on transactions in which equal amounts of deductible and taxable temporary differences arise on initial recognition. Deferred tax assets reduce income taxes payable on taxable income in future years. The deferred tax assets, whether arising from temporary differences or from tax losses, are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised.

Tax expense

EUR million	2023	2022
Current tax	-54	-196
Deferred tax	119	-126
Total income tax	**64**	**-322**

Income tax rate reconciliation

EUR million	2023	2022
Profit before tax	**-495**	**1,858**
Tax at statutory rates applicable to profits in the country concerned[1]	121	-337
Non-deductible expenses and tax exempt income[2]	-10	-15
Valuation of deferred tax assets	-60	15
Taxes from prior years	-3	2
Changes in tax rates and tax laws	-1	0
Results from associated companies	27	44
Other	-10	-31
Total income taxes	**64**	**-322**
Effective tax rate	**13.0%**	**17.3%**
Statutory tax rate (blended)	**24.5%**	**18.2%**

[1] Includes a EUR 22 million impact from countries with tax holidays and tax benefits in 2023 and a EUR 55 million impact from tax holidays and other tax benefits in 2022.
[2] The tax value of non-deductible expenses of EUR 12 million has been netted against tax exempt income of 3 EUR million in 2023, and tax value of non-deductible expenses of EUR 16 million has been netted against tax exempt income of EUR 1 million in 2022.

The statutory tax rate is a weighted average of the statutory tax rates prevailing in jurisdictions where Stora Enso operates.

Financials

Change in deferred taxes in 2023

EUR million	Value at 1 Jan 2023	Income statement	OCI	Acquisitions / disposals	Translation difference	Value at 31 Dec 2023
Forest assets	-1,267	-54	9	0	-4	-1,315
Fixed assets	-123	58	0	-60	-3	-128
Financial instruments	-10	-2	-1	0	0	-12
Untaxed reserves	-85	77	0	0	2	-6
Pensions and provisions	26	-3	9	0	1	34
Tax losses and tax credits carried forward	74	40	0	0	-2	112
Other deferred taxes	15	2	0	-2	1	17
Total	**-1,370**	**119**	**18**	**-62**	**-4**	**-1,299**
Equity hedges and net investment loans (CTA)		0	0			
Cash flow hedging		0	0			
Change in deferred tax		**119**	**18**	**-62**	**-4**	
Assets[1]	74					134
Liabilities[1]	-1,443					-1,433

[1] Deferred tax assets and liabilities have been offset in accordance with IAS 12.
OCI = Other Comprehensive income, CTA = Cumulative Translation Adjustment

Change in deferred taxes in 2022

EUR million	Value at 1 Jan 2022	Income statement	OCI	Acquisitions / disposals[1]	Translation difference	Value at 31 Dec 2022
Forest assets	-1,268	-43	-53	0	97	-1,267
Fixed assets	-103	-44	0	17	7	-123
Financial instruments	1	-3	-8	0	0	-10
Untaxed reserves	-80	-16	0	4	7	-85
Pensions and provisions	58	-1	-25	-4	-2	26
Tax losses and tax credits carried forward	107	-34	0	0	1	74
Other deferred taxes	-2	19	0	-2	0	15
Total	**-1,287**	**-122**	**-86**	**15**	**110**	**-1,370**
Equity hedges and net investment loans (CTA)		-3	3			
Change in deferred tax		**-125**	**-83**	**15**	**110**	
Assets[2]	143					74
Liabilities[2]	-1,430					-1,443

[1] Includes assets held for sale.
[2] Deferred tax assets and liabilities have been offset in accordance with IAS 12.
OCI = Other Comprehensive income, CTA = Cumulative Translation Adjustment

The recognition of deferred tax assets is based on the Group's estimations of future taxable profits available against which the Group can utilise the benefits.

Non-recognised deferred tax assets on deductible temporary differences amounted to EUR 50 (50) million. There is no expiry date for these differences. Taxable temporary differences in respect of investments in subsidiaries, branches and associates and interests in joint operations, for which deferred tax liabilities have not been recognised amounted to EUR 428 (367) million.

Tax losses

	Tax losses carried forward		Recognised tax values		Unrecognised tax values	
EUR million	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**
Expiry within five years	88	359	9	5	13	72
Expiry after five years	326	100	60	9	6	14
No expiry	1,213	1,173	42	58	219	198
Total	**1,626**	**1,633**	**111**	**73**	**237**	**283**

At the end of 2023 tax losses of EUR 259 million related to Finland and a deferred tax asset of EUR 52 million was recognized of these tax losses. At the end of 2022, there were no material tax losses related to Finland.

Uncertain tax positions

At balance sheet date there were on-going tax audits in several jurisdictions. It is not expected that any significant additional taxes in excess of those already recorded for will arise as a result of these audits.

Impact of OECD Pillar Two model rules

The Group is within the scope of the OECD Pillar Two model rules as from 1 January 2024. The Group has no related current tax exposure for the financial year 2023. The Group applies the exception to recognising and disclosing information about deferred tax assets and liabilities related to Pillar Two income taxes, as provided in the amendments to IAS 12.

The Group has initially assessed its exposure to the legislation. Part of the Group's operation in Uruguay may become subject to the Pillar Two minimum tax. The impact of the legislation to the Group's average effective tax rate is expected to vary from year to year, and the Group estimates the tax impact in the short term to be between 0–15 million EUR per year. Estimates are based on the current understanding of the interpretation of the new rules.

2.6 Earnings per share

Accounting principles

Basic earnings per share, attributable to the owners of the parent company, are calculated by dividing the net result attributable to shareholders by the weighted average number of ordinary shares in issue during the year, excluding ordinary shares purchased by the group and held as treasury shares. Diluted earnings per share are calculated by adjusting the weighted average number of ordinary shares plus the diluted effect of all potential dilutive ordinary shares, such as shares from share-based payments.

Earnings per share

	2023	2022
Net result for the period attributable to the owners of the parent, EUR million	-357	1,550
Weighted average number of A and R shares	788,619,987	788,619,987
Weighted average number of share awards	1,094,121	771,150
Weighted diluted number of shares	789,714,108	789,391,137
Basic earnings per share, EUR	**-0.45**	**1.97**
Diluted earnings per share, EUR	**-0.45**	**1.96**

3 Employee remuneration

3.1 Personnel expenses

Personnel expenses

EUR million	2023	2022
Wages and salaries	962	996
Pension expenses	147	152
Share-based remuneration	4	8
Other statutory employer costs	139	140
Other voluntary costs	23	20
Total	**1,275**	**1,315**

Pension expenses

EUR million	2023	2022
Defined benefit plans	7	5
Defined contribution plans	140	146
Total	**147**	**152**

The average number of employees in 2023 amounted to 20,822 (21,790). Pension costs are discussed further in note 3.3 Post-employment benefit obligations.

In 2023, the expense of the share-based remuneration was EUR 4 (8) million. Share-based remuneration comprising of share awards is described in more detail in note 3.4 Employee variable compensation and equity incentive schemes. Remuneration of the Group Leadership Team and Board are described in note 3.2 Board and executive remuneration.

3.2 Board and executive remuneration

Board and committee remuneration

	2023			2022	
EUR thousand (before taxes)	**Cash**	**Value of shares**[1]	**Total**[4]	**Total**	**Committee memberships**
Board members at 31 December 2023					
Kari Jordan, Chair	135	85	220	86	People and Culture, Nomination[2,3]
Håkan Buskhe, Vice Chair	77	48	125	122	People and Culture, Nomination[2,3]
Elisabeth Fleuriot	64	33	97	94	Financial and Audit
Helena Hedblom	55	33	88	86	Sustainability and Ethics
Astrid Hermann	64	33	97	—	Financial and Audit
Christiane Kuehne	60	33	93	90	Sustainability and Ethics
Antti Mäkinen	55	33	88	214	People and Culture
Richard Nilsson	71	33	104	101	Financial and Audit
Former Board members					
Hock Goh (until 16 March, 2023)	—	—	—	94	Financial and Audit
Hans Sohlström (until 18 September, 2023)	55	33	88	86	Sustainability and Ethics
Total remuneration as Directors[1]	**636**	**364**	**1,000**	**972**	

[1]40% of the Board remuneration, excluding Committee remuneration, in 2023 was paid in Stora Enso R shares purchased from the market and distributed as follows: to Chair 7,326 R shares, Vice Chair 4,136 R shares, and members 2,839 R shares each. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.
[2] Stora Enso's Shareholders' Nomination Board has been appointed by the AGM in 2016 to exist until otherwise decided. The Shareholders' Nomination Board according to its Charter as approved by the AGM comprises of four members: the Chair and Vice Chair of the Board of Directors, as well as two members appointed by the two largest shareholders (one each) as of 31 August each year. No separate remuneration is paid to members of the Nomination Board.
[3] Marcus Wallenberg, appointed by FAM AB, is Chair of the Nomination Board. Jouko Karvinen is the member of the Shareholders' Nomination Board appointed by Solidium Oy. Kari Jordan and Håkan Buskhe were appointed as members of the Shareholders' Nomination Board in their roles as Chair and Vice Chair of the Board of Directors.
[4] The Company additionally pays the transfer tax for share purchases for each member, in line with AGM decision, which amount is considered also taxable income for each member.

Shareholders at the Annual General Meeting (AGM) have established a Shareholders' Nomination Board to exist until otherwise decided and to annually prepare proposals for the AGM's approval concerning the number of members of the Board of Directors, the Chair, Vice Chair and other members of the Board, as well as the remuneration for the Chair, Vice Chair and members of the Board and its committees.

Financials

Board share interests at 31 December 2023

	Shares held (direct and indirect ownership)	
	A	**R**
Board members at 31 December 2023		
Kari Jordan, Chair		9,012
Håkan Buskhe, Vice Chair		12,069
Elisabeth Fleuriot		32,868
Helena Hedblom		6,356
Astrid Hermann		2,839
Christiane Kuehne		17,429
Antti Mäkinen		19,415
Richard Nilsson[1]	127	30,207
Total shares held	**127**	**130,195**

[1] Spouse holds 127 of A shares and 236 of R shares

The following Board members also served in 2023

	Shares held when Board membership ended (direct and indirect)	Effective date of Board membership ending
Hock Goh	34,782	16 March 2023
Hans Sohlström[1]	16,535	18 September 2023

1 Spouse holds 179 of the shares

Group Leadership Team (GLT) remuneration and share interests

The table below includes the remuneration earned by GLT members during the year, including those shares with performance conditions that have ended and are due to vest in the coming year. The Company recommends and expects the CEO and GLT members to hold Stora Enso shares at a value corresponding to at least one annual base salary. Stora Enso shares received as remuneration are therefore recommended not to be sold until this level has been reached.

The aggregate cost of earned remuneration for GLT in 2023 amounted to EUR 12 (15) million. The total number of GLT members was 11 (11) at the year end in 2023.

In accordance with their respective pension arrangements, GLT members may retire at sixty-five years of age with pensions consistent with local practices in their respective home countries. Contracts of employment provide for six months' notice prior to termination with severance compensation of twelve months basic salary if the termination is at the Company's request.

The outcome of the financial targets relating to the Short term incentive programmes for the performance year 2023, and Long term incentive programmes for the performance years 2021 to 2023 were reviewed and confirmed by the People and Culture Committee, and approved by the Board of Directors in January 2024.

Note 3.4 Employee variable compensation and equity incentive schemes includes details of incentive schemes and share opportunity programmes for the management and staff of Stora Enso.

Group Leadership Team remuneration

	2023				2022		
EUR thousand	**CEO[2]**	**Former CEO[2]**	**Others[3,6]**	**GLT Total**	**CEO**	**Others**	**GLT Total**
Remuneration[1,5]							
Annual salary	290	669	3,656	4,615	953	4,802	5,755
Local housing (actual costs)	—	—	3	3	0	2	2
Other benefits	—	26	263	289	32	272	304
Termination benefits	—	933	300	1,233	0	0	0
Short Term Incentive programme[4]	—	157	1,024	1,181	845	2,167	3,012
Long Term Incentive programme[4]	—	912	1,652	2,564	987	2,848	3,835
	290	**2,697**	**6,898**	**9,885**	**2,817**	**10,091**	**12,908**
Pension costs							
Mandatory plans	48	428	920	1,396	477	1,154	1,631
Stora Enso voluntary plans	—	—	730	730	0	933	933
	48	**428**	**1,650**	**2,126**	**477**	**2,087**	**2,564**
Total compensation	**338**	**3,125**	**8,548**	**12,011**	**3,294**	**12,178**	**15,472**

[1] The Finnish Corporate Governance code requires companies to report remuneration that is paid or due, and due to this the figures presented in the above table do not directly reconcile with the amounts recognised as personnel expenses in the Income statement as presented in the below table Group Leadership Team remuneration in Income statement.
[2] CEO remuneration consists of remuneration delivered to Hans Sohlström as of 18 September 2023 and Annica Bresky until 18 September 2023.
[3] Includes earnings related to René Hansen until 4 May 2023, Minna Björkman until 30 September 2023 and David Ekberg until 30 November 2023. And Micaela Thorström as of 1 April 2023 and Ad Smit as of 1 December 2023.
[4] Related to amounts due at year end, which will be paid in 2024. LTI value is calculated using the 29 December 2023 closing price of EUR 12.53. The final value of the vested shares will depend on the share price on vesting date 1 March 2024.
[5] Remuneration for executives is disclosed only for the period during which they were GLT members.
[6] Remuneration of GLT members decreased in 2023 compared to 2022 mainly due to the performance outcome of variable pay programmes. The average number of GLT members during 2023 was 10.40.

Group Leadership Team remuneration in Income statement

	2023				2022		
EUR thousand	**CEO**	**Former CEO**	**Others**	**GLT Total**	**CEO**	**Others**	**GLT Total**
Salaries and other short-term employee benefits	290	852	4,946	6,088	1,830	7,243	9,073
Long Term Incentive programme[1]	137	432	1,245	1,814	714	1,581	2,295
Post-employment benefits	48	428	1,650	2,126	477	2,087	2,564
Total recognised in Income statement	**475**	**1,712**	**7,841**	**10,028**	**3,021**	**10,911**	**13,932**

[1] The costs of long-term incentive (LTI) programmes are recognised as costs over the three year vesting period based on the share price at grant date and the estimate of equity instruments that will eventually vest.

Executives other than CEO

Short term incentive (STI) programmes for management

In 2023, GLT members have STI programmes with up to a maximum of 70% or 80% of their annual fixed salary, payable the year after the performance period. 80–100% of the STI for 2023 was based on financial measures and 0–20% on individual strategic key targets.

Long term incentive (LTI) programmes for management

The 2021 programme has three one-year performance periods which are accumulated after three years. The 2022 and 2023 programmes feature performance metrics with one-year performance periods, which are accumulated after three years, as well as three-year performance periods. All three programmes will be settled in only one portion after three years, and the absolute maximum vesting level is 100% of the number of shares granted. The 2021 programme is related to performance period 2021–2023, the 2022 programme is related to performance period 2022–2024 and the 2023 programme is related to performance periods 2023–2025. The opportunity under the programmes is in Performance Shares, where the shares are vested in accordance with performance criteria proposed by the People and Culture Committee and approved by the Board of Directors.

During the year the 2023 programme was launched, in which the GLT members (in GLT at year end) can potentially receive a value corresponding to 227,130 shares before taxes, assuming the maximum vesting level during the three-year vesting period (2023–2025) is achieved. The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.

The fair value of employee services received in exchange for share-based compensation payments is accounted for in a manner that is consistent with the method of settlement and is either cash or equity settled as described in more detail in note 3.4 Employee variable compensation and equity incentive schemes. For the equity settled part, it is possible that the actual cash cost does not agree with the accounting charges because the share price is not updated at the time of the vesting. The figures in the Group Leadership Team Remuneration table refer to individuals who were executives at year end or during part of the year.

At the end of the year, the performance period for the 2021 programme ended, and will be settled in one portion after three years in March 2024, dependent on Economic Value Added (EVA) for the Stora Enso Group and Earnings Per Share (EPS) for the Stora Enso Group. The Performance Share programme resulted in a 89 % performance outcome. The number of shares due for executives (GLT members at year end) from programmes that ended during 2023 amounted to 115,580 shares. The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.

CEO

President & Chief Executive Officer – Hans Sohlström

The CEO has been employed by Stora Enso and assumed the position of CEO on 18 September 2023. He has a notice period of six months with a severance payment of twelve months salary on termination by the Company but with no contractual payments on any change of control. The CEO's pension plan and retirement age is according to the Finnish statutory TyEL plan.

Short term incentive (STI) programme for CEO

As of 18 September 2023, for the next 12+12 months, the CEO is entitled to an STI programme with a maximum opportunity of 100% of the annual fixed salary for each 12 month period.

Long term incentive (LTI) programme for CEO

As of 18 September 2023, there is a two-year CEO Performance Plan initiated with a vesting date in Q4/2025. The CEO has the potential to receive a value corresponding to a maximum of 169,420 shares before taxes. The performance targets are related to balance sheet, capital expenditure, strategy and sustainability. The CEO is not eligible to participate in LTI 2023–25 or other potential LTI programmes starting during 2024.

Former President & Chief Executive Officer – Annica Bresky

Annica Bresky was employed by Stora Enso since 1 May 2017 and assumed the position of CEO on 1 December 2019 until 18 September 2023. She had a notice period of six months with a severance payment of twelve months salary on termination by the Company. The severance payment is due to be paid in 2024. In 2023, the former CEO was entitled to an STI programme decided by the Board giving a maximum opportunity of 100% of the annual fixed salary.
The payout is prorated to employment during Jan–Sep, 2023. The former CEO participated in the 2021, 2022 and 2023 share based LTI programmes. Each programme has cliff vesting after three years. At the payout, the actual value of these plans is prorated according to active employment in the Company.

Group Leadership Team share interests

Executives in office at the year end	R shares held[1]	Shares due 2024[2]	Performance share opportunity 2025–2026[5]	Restricted share opportunity 2024–2025[5]
Hans Sohlström [6]	100,799	—	169,420	—
Seppo Parvi	63,162	16,457	61,160	—
Tobias Bäärnman	4,196	9,892	25,980	—
Johanna Hagelberg	35,645	12,047	43,520	—
Hannu Kasurinen	52,736	19,961	57,810	—
Katariina Kravi	10,383	11,945	33,600	—
Per Lyrvall [3]	84,143	15,074	47,840	—
Annette Stube	9,054	11,218	31,570	—
Ad Smit	—	—	8,168	22,722
Micaela Thorström	—	1,677	12,858	302
Lars Völkel	16,477	17,309	51,280	—
Total, serving officers[4]	**376,595**	**115,580**	**543,206**	**23,024**

1 Direct and indirect ownership. None of the GLT members holds A shares.
2 Shares due to GLT member are gross of taxes for the LTI programmes with performance periods that ended in 2023 and are due to be paid 2024. The Performance Share programme resulted in a 89% performance outcome due to be paid in 2024 partly in shares and cash. Some GLT members hold restricted shares in the Restricted Shares programme that ended in 2023 and those shares are due to be paid 2024.
3 Spouse holds 1,257 of the shares.
4 The Company recommends and expects GLT members to hold Stora Enso shares at a value corresponding to at least one annual base salary. Stora Enso shares received as remuneration are therefore recommended not to be sold until this level has been reached.
5 Potential shares to GLT members are gross of taxes for LTI programmes with performance periods that end in 2024–2025 and are due to be paid 2025–2026.
6 Spouse holds 179 of the shares.

The following Executive Officers also served in 2023	R shares held when GLT membership ended	Performance Share Awards when GLT membership ended	Restricted Share Awards when GLT membership ended	Effective date of GLT membership ending
Annica Bresky	52,594	79,197		17 September 2023
Minna Björkman	2,344	16,508	1,122	30 September 2023
David Ekberg [1]	8,830	37,820		30 November 2023
René Hansen [1]	1,462	27,100	3,400	4 May 2023

[1] Unvested shares are forfeited at end of employment

3.3 Post-employment benefit obligations

Accounting principles

Employee benefits

The Group operates a number of defined benefit and contribution plans throughout the world, the assets of which are generally held in separate trustee administered funds. Such pension and post-retirement plans are generally funded by payments from employees and by the relevant Group companies, taking into account the recommendations of independent qualified actuaries. Employer contributions to the defined contribution pension plans are charged to the consolidated income statement in the year they relate to.

For defined benefit plans, accounting values are assessed using the projected unit credit method. Under this method, the cost of providing pensions is charged to the consolidated income statement to spread the regular cost over the service lives of employees in accordance with the advice of qualified actuaries who carry out a full valuation of the plan every year in all major pension countries. The pension obligation is measured as the present value of the estimated future cash outflows using interest rates of highly rated corporate bonds or government securities, as appropriate, that match the currency and expected duration of the related liability.

The Group recognises all actuarial gains and losses arising from defined benefit plans directly in equity, as disclosed in its consolidated statement of comprehensive income. Past service costs are identified at the time of any amendments to the plans and are recognised immediately in the consolidated income statement regardless of vesting requirements. In the Group's consolidated statement of financial position, the full liability for all plan deficits is recorded.

The Group's pension expenses amounted to EUR 147 (152) million in 2023, as shown in note 3.1 Personnel expenses. Pensions are classified as defined contribution plans and defined benefit plans. The majority of the Group's pensions plans are defined contribution plans for which the charge amounted to EUR 140 (146) million. The priority of the Group is to provide defined contribution plans as its post-employment benefits.

Net defined benefit obligation reconciliation

	Defined benefit obligation		Fair value of plan assets		Net defined benefit obligation / (asset)	
EUR million	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**
At 1 January	**736**	**1,108**	**-577**	**-762**	**159**	**347**
Current service cost	7	12	0	0	7	12
Past service cost	0	-6	0	0	0	-6
Settlements	0	-7	0	7	0	0
Interest expense (+) income (-)	27	13	-22	-10	5	3
Total included in income statement	**34**	**11**	**-22**	**-3**	**12**	**9**
Actuarial changes in demographic assumptions	1	-13	0	0	1	-13
Actuarial changes in financial assumptions	31	-306	0	0	31	-306
Actuarial changes from experience adjustments	19	63	0	0	19	63
Return on plan assets[1]	0	0	-1	105	-1	105
Asset ceiling impact[1]	0	0	2	5	2	5
Total remeasurement gains (-) / losses (+) included in OCI	**52**	**-256**	**0**	**109**	**52**	**-147**
Benefit payments	-56	-54	45	41	-12	-13
Employer contributions and refunds	0	0	-20	4	-20	4
Translation difference	3	-38	-3	33	0	-5
Disposals and classification as held for sale	6	-35	-1	0	5	-35
At 31 December	**775**	**736**	**-578**	**-577**	**197**	**159**

[1] Excluding amounts included in interest expense (+) income (-)

In 2024, contributions of EUR 22 (19) million are expected to be paid to Group's defined benefit plans.

Significant actuarial assumptions used in the valuation of defined benefit obligations

	Finland		Germany		Sweden	
	2023	**2022**	**2023**	**2022**	**2023**	**2022**
Discount rate %	3.1	3.6	3.3	3.6	3.1	4.0
Future salary increase %	3.0	3.0	2.5	2.5	2.9	2.9
Future pension increase %	2.2	2.2	2.0	2.0	2.0	2.0
Duration of pension plans	8.0	8.0	8.8	10.2	12.7	13.1

Sensitivity of the defined benefit obligation

	Impact on defined benefit obligation		
	Change in assumption	**Increase in assumption**	**Decrease in assumption**
Discount rate	0.50%	Decrease by 4.9%	Increase by 5.5%
Salary growth rate	0.50%	Increase by 1.1%	Decrease by 1.0%
Pension growth rate	0.50%	Increase by 4.1%	Decrease by 3.7%
Life expectancy	1 year	Increase by 3.6%	Decrease by 3.5%

The Group defines following actuarial risks associated with defined benefit plans:

Financials

Interest risk

The obligations are assessed using market rates of high-quality corporate or government bonds to discount the obligations and are therefore subject to any volatility in the movement of the market rate. The net interest income or expense recognised in profit and loss are also calculated using the market rate of interest.

Life expectancy

In the event that members live longer than assumed, the obligations may be understated originally and a deficit may emerge if funding has not adequately provided for the increased life expectancy.

Defined benefit plan summary by country as at 31 December 2023

EUR million	Finland	Germany	Sweden	Other	Total
Present value of funded obligations	167	5	277	151	600
Present value of unfunded obligations	0	131	20	23	174
Defined benefit obligations (DBO)	**167**	**136**	**297**	**174**	**775**
Fair value of plan assets	-160	-5	-271	-142	-578
Net obligation in the balance sheet	**7**	**131**	**26**	**32**	**197**
Represented by					
Defined benefit pension plans	7	131	26	9	174
Other post-employment benefits	0	0	0	23	23
Net obligation in the balance sheet	**7**	**131**	**26**	**32**	**197**

Defined benefit plan summary by country as at 31 December 2022

EUR million	Finland	Germany	Sweden	Other	Total
Present value of funded obligations	172	3	226	163	563
Present value of unfunded obligations	0	134	15	24	173
Defined benefit obligations (DBO)	**172**	**137**	**241**	**187**	**736**
Fair value of plan assets	-157	-4	-266	-150	-577
Net obligation in the balance sheet	**15**	**134**	**-26**	**36**	**159**
Represented by					
Defined benefit pension plans	15	134	-26	13	136
Other post-employment benefits	0	0	0	23	23
Net obligation in the balance sheet	**15**	**134**	**-26**	**36**	**159**

Finland

In Finland the employees are entitled to a statutory pensions benefit determined by Employee's pension Act (TyEL). These benefits are defined as contribution benefits. They are insured with an insurance company and provide coverage for old age, disability and death. Charge in the income statement from contribution benefits is EUR 62 (64) million.

In addition, the Group has additional defined benefit plans which resulted in a charge of EUR 0 (0) million excluding finance costs. Defined benefit plans and plan assets are managed by insurance companies. Details of the exact structure and investment strategy surrounding plan assets are not available to participating employers, as the assets actually belong to the insurance companies themselves. The assets are managed in accordance with EU regulations, and also national requirements, under which there is an obligation to pay guaranteed benefits irrespective of market conditions.

Germany

German pension costs amounted to EUR 3 (6) million, of which EUR 3 (6) million related to defined contribution plans and EUR 0 (1) million to defined benefits excluding finance costs. The net defined benefit obligation amounted to EUR 131 (134) million.

Defined benefit pension plans are mainly accounted for in the statement of financial position through book reserves with some minor plans using insurance companies or independent trustees. Retirement benefits are based on years worked and salaries received during the pensionable service and the commencement of pension payments are linked to the national pension scheme's retirement age. Pensions are paid directly by the companies themselves to their former employees. The security for the pensioners is provided by the legal requirement that the book reserves held in the statement of financial position are insured up to certain limits.

Sweden

In Sweden, all blue-collar staff and part of white-collar staff are covered by defined contribution plans, the charge in the Income statement being EUR 53 (54) million. Defined benefit plans are covering the remaining white-collar staff and resulted in a charge of EUR 3 (1) million excluding finance costs. The net defined benefit obligation amounted to EUR 26 (net asset EUR -26) million. The increase in net obligation arose mainly from changes in actuarial assumptions, especially from an decrease in discount rate. Stora Enso has undertaken to pay all local legal pension obligation for the main ITP scheme to the foundation, thus the remaining obligation relates to other small plans. The long-term investment return target for the foundation is a 3% real return after tax.

Other countries

The net defined benefit obligation in the remaining countries amounted to EUR 32 (EUR 36) million. The change in net obligation arose mainly from changes in actuarial assumptions.

Plan assets

	2023				2022			
EUR million	Quoted	Unquoted	Total	% of total	Quoted	Unquoted	Total	% of total
Equity	89	7	96	17%	88	12	101	17%
Debt	41	51	92	16%	46	44	90	16%
Property	0	62	62	11%	0	55	55	9%
Cash	5	0	5	1%	10	0	10	2%
Assets held by insurance companies	0	228	228	39%	0	226	226	39%
Others	7	89	96	17%	0	96	96	17%
Total pension fund assets	**142**	**436**	**578**	**100%**	**144**	**433**	**577**	**100%**

Plan assets do not include any real estate or other assets occupied by the group or the Company's own financial instruments.

The two main financial factors affecting Group's pension obligation are changes in interest rates and inflation expectations. The aim of asset investment allocations is to neutralise these effects, secure solvency for benefit payments and maximise returns.

3.4 Employee variable compensation and equity incentive schemes

Accounting principles

Share awards

The costs of all employee-related share-based payments are charged to the consolidated income statement as personnel expenses over the vesting period.

All share-based payment transactions are classified as equity-settled share awards. The equity-settled share awards (net of tax), are measured at the fair value of the equity instruments on the grant date, and are adjusted for the present value of expected dividends. The fair value of the equity-settled share-based payments determined on the grant date is expensed on a straight-line basis over the vesting period, based on the estimate of equity instruments that will eventually vest, with a corresponding increase in equity.

Short term incentive (STI) programmes

Salaries for senior management are negotiated individually. Stora Enso has incentive plans that take into account the performance, development and results of both business units and individual employees. This performance-based variable compensation system is based on profitability as well as on attaining key business targets.

Group Executives, as well as division and business unit management have STI programmes in which the payment is calculated as a percentage of the annual base salary with a maximum level ranging from 7% to 100%. Non-management employees participate in an STI programme with a maximum incentive level of 7%. All incentives are discretionary. These performance-based programmes cover most employees globally, where allowed by local practice and regulations. For the performance year 2023, the annual incentive programmes were based on financial measures as well as targets related to operational efficiency, emission reduction, safety and individual targets. The financial success metrics in the STI programme 2023 are Sales growth and EBITDA.

Long term incentive (LTI) programmes

Since 2005, new share based programmes for executives have been launched every year. The 2021 programme, ending in 2023 and settled in 2024 has a three one-year performance periods which are accumulated after three years. The 2022 and 2023 programmes, features performance metrics with one-year performance periods which are accumulated after three years as well as three-years performance periods. All outstanding programmes will be settled in one portion after three years.

For the vast majority of awarded employees, three quarters (75%) of the opportunity under the programmes are in performance shares, where shares will vest in accordance with performance criteria proposed by the People and Culture Committee and approved by the Board of Directors. The financial performance metrics are 3-year Economic Value Added (EVA) and Earnings Per Share (EPS) for the Stora Enso Group for the 2021 programme and EPS and Relative Total Shareholder Return for the 2022 and 2023 programme, which in addition feature ESG metrics (emissions reduction and diversity). One quarter (25%) of the opportunity under the programmes are in Restricted Shares, for which vesting is only subject to continued employment. Members of the GLT have been awarded performance shares only.

Outstanding restricted and performance share opportunities before taxes are shown in the table below. The total number of shares actually transferred will be less than that shown below because a portion of shares corresponding to employees' tax obligation will be withheld to cover income tax.

Share awards at 31 December 2023

	Outstanding restricted and performance share awards at year end			
Number of shares	**2024**	**2025**	**2026**	**Total**
2021 programme	649,329			649,329
2022 programme		719,101		719,101
2023 programme			1,060,720	1,060,720
Total	**649,329**	**719,101**	**1,060,720**	**2,429,150**

The costs of the Stora Enso share-based programmes are recognised as costs over the vesting period, which is the period between the grant and vesting. The total impact of share-based programmes in the income statement amounted to an expense of EUR 4 (EUR 8) million, all of which were related to restricted and performance share awards.

Financials

4 Operating capital

4.1 Intangible assets, property, plant and equipment and right-of-use assets

Accounting principles

Goodwill

Goodwill represents future economic benefits arising from assets that are not capable of being individually identified and separately recognised by the Group on an acquisition. Goodwill is computed as the excess of the cost of an acquisition over the fair value of the Group's share of the fair value of net assets of the acquired subsidiary at the acquisition date and is allocated to those groups of cash generating units expected to benefit from the acquisition. Goodwill arising on the acquisition of non-euro foreign entities is treated as an asset of the foreign entity denominated in the local currency and translated at the closing rate.

Goodwill is not amortised but tested for impairment on an annual basis, or more frequently if there is an indication of impairment.

Other intangible assets

Intangible assets are stated at their historical cost and amortised on a straight-line basis over their expected useful lives, which usually varies from 3 to 10 years and up to 20 years for patents. An adjustment is made for any impairment. Intangible items acquired must be recognised as assets separately from goodwill if they meet the definition of an asset, are either separable or arise from contractual or other legal rights, and their fair value can be measured reliably.

The cost of development or acquisition of new software clearly associated with an identifiable asset that will be controlled by the Group and has a probable benefit exceeding its cost beyond one year is recognised as an intangible asset and will be amortised over the expected useful life of the software between 3 to 10 years.

Intangible assets recognised separately from goodwill in acquisitions consist of marketing and customer-related or contract and technology-based intangible assets. Typical marketing and customer-related assets include trademarks, trade names, service marks, collective marks, certification marks, customer lists, order or production backlogs, customer contracts and the related customer relationships. Contract and technology-based intangible assets are normally licensing and royalty agreements or patented technology and trade secrets, such as confidential formulas, processes or recipes. The initial fair value of customer contracts and related relationships is derived from expected retention rates and cash flow over the customers' remaining estimated lifetime using excess earnings method. The initial fair value of trademarks is derived from a discounted cash flow analysis using the relief from royalty method.

Property, plant and equipment

Property, plant and equipment acquired by Group companies are stated at their historical cost, which are augmented where appropriate by asset retirement costs. Assets arising on the acquisition of a new subsidiary are stated at fair value at the date of acquisition. Depreciation is computed on a straight-line basis and adjusted for any impairment and disposal charges. The carrying amount represents the cost deducted by received grants and subsidies and less the accumulated depreciation and any impairment charges. Interest costs on borrowings to finance the construction of assets are capitalised as part of the cost during the construction period when the requirements are fulfilled.

Land and water areas are not depreciated, as these are deemed to have an indefinite life, but otherwise depreciation is based on the following expected useful lives:

Asset class	Depreciation years
Buildings, industrial	10-50
Buildings, office & residential	20-50
Groundwood mills	15-20
Hydroelectric power	40
Paper, board and pulp mills, main machines	20-30
Heavy machinery	10-20
Converting factories	10-15
Sawmills	10-15
Computers	3-5
Vehicles	5
Office equipment	3-5
Railway, harbours	20-25
Forest roads	10-15
Roads, fields, bridges	15-20

Ordinary maintenance and repair charges are written as expensed when incurred, but the costs of significant renewals and improvements are capitalised and depreciated over the remaining useful lives of the related assets. Retirements, sales and disposals of property, plant and equipment are recorded by deducting the cost and accumulated depreciation from the accounting records with any resulting terminal depreciation adjustments reflected in impairment charges in the consolidated income statement. Capital gains are shown in other operating income.

Spare parts are accounted for as property, plant and equipment if they are major and used over more than one period, or if they are used only in connection with an item of property, plant and equipment. In all other cases, spare parts are carried as part of the inventory and recognised in profit or loss as consumed items.

Right-of-use (ROU) assets

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. ROU assets are initially measured at cost, which comprises the initial amount of the lease liability adjusted mainly for lease payments made at or before the commencement date. The Group allocates the consideration in the contract to each lease component and will separate non-lease components if these are identifiable. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions.

The ROU assets are subsequently depreciated using the straight line method from the commencement date to the earlier of the end of the lease term or the end of the useful life of the ROU asset. In addition, the ROU asset is adjusted for certain remeasurements of the lease liability.

The Group has elected not to recognise ROU assets for short-term leases that have a lease term of 12 months or less and leases of low value assets. Leases of low value assets mainly include IT and office equipment, certain vehicles and machinery and other low value items. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term, see note 2.2 Other operating income and expense, for more information.

Intangible assets

EUR million	Computer software	Customer relationships and trademarks	Other intangible assets	Assets in progress	Goodwill	Total
Acquisition cost						
At 1 January 2022	**226**	**0**	**103**	**7**	**532**	**867**
Translation difference	0	0	-1	0	-2	-4
Reclassifications	5	0	2	-4	0	3
Additions	3	0	2	16	0	21
Disposals[1]	-11	0	-6	0	-28	-46
At 31 December 2022	**222**	**0**	**100**	**18**	**502**	**842**
Translation difference	-1	0	-3	0	-3	-7
Reclassifications	5	0	0	0	0	5
Additions	15	206	6	18	349	594
Disposals and classification as held for sale[1]	-13	0	77	0	0	64
At 31 December 2023	**229**	**206**	**179**	**36**	**848**	**1,498**
Accumulated amortisation and impairment						
At 1 January 2022	**178**	**0**	**34**	**0**	**250**	**462**
Translation difference	0	0	0	0	-3	-3
Disposals[1]	-11	0	-6	0	0	-17
Amortisation	17	0	8	0	0	24
Impairment	1	0	0	0	11	12
At 31 December 2022	**185**	**0**	**35**	**0**	**258**	**478**
Translation difference	-1	0	-2	0	-1	-3
Disposals and classification as held for sale[1]	-9	0	93	0	0	85
Amortisation	17	16	8	0	0	41
Impairment	6	0	14	3	85	109
At 31 December 2023	**198**	**16**	**149**	**3**	**343**	**709**
Net Book Value at 31 December 2023	**31**	**190**	**30**	**32**	**505**	**789**
Net Book Value at 31 December 2022	**38**	**0**	**65**	**18**	**244**	**364**

[1] Company disposals are included in Disposals line. Company disposals and classification of assets as held for sale are discussed in more detail in note 6.1 Acquisitions, disposals and assets held for sale.

Included in Customer relationships and trademarks, as part of the acquisition of De Jong Packaging Group, are customer related intangibles purchased with a carrying amount of EUR 156 million and a remaining amortisation period of 14 years and marketing related intangibles of EUR 34 million with remaining amortisation periods of between 4–19 years.

Property, plant and equipment

EUR million	Land and water	Buildings and structures	Plant and equipment	Other tangible assets	Assets in progress	Total
Acquisition cost						
At 1 January 2022	**117**	**3,355**	**13,421**	**448**	**394**	**17,735**
Translation difference	-1	-12	-266	-11	-10	-300
Reclassifications	0	57	207	10	-277	-3
Reclassifications to biological assets	0	-2	-1	0	0	-3
Additions	6	33	217	4	373	634
Disposals[1]	-19	-390	-2,668	-58	-27	-3,162
At 31 December 2022	**103**	**3,041**	**10,909**	**393**	**454**	**14,900**
Translation difference	1	-22	-17	-2	7	-32
Reclassifications	0	25	260	8	-298	-5
Reclassifications to biological assets	0	-2	-1	0	0	-3
Additions	5	77	434	14	583	1,113
Disposals and classification as held for sale[1]	-1	-286	-956	-10	-6	-1,259
At 31 December 2023	**109**	**2,833**	**10,629**	**404**	**739**	**14,714**
Accumulated depreciation and impairment						
At 1 January 2022	**3**	**2,113**	**10,164**	**380**	**14**	**12,674**
Translation difference	0	-30	-262	-9	0	-302
Disposals[1]	-1	-378	-2,458	-49	0	-2,886
Depreciation	0	78	371	10	1	460
Impairments and reversals	0	21	68	4	2	95
At 31 December 2022	**2**	**1,804**	**7,882**	**336**	**16**	**10,040**
Translation difference	0	-4	7	-1	0	1
Disposals and classification as held for sale[1]	0	-180	-742	-9	0	-931
Depreciation	0	74	349	10	0	433
Impairments and reversals	0	133	488	5	1	628
At 31 December 2023	**2**	**1,827**	**7,984**	**340**	**17**	**10,170**
Net Book Value at 31 December 2023	**107**	**1,006**	**2,644**	**64**	**722**	**4,544**
Net Book Value at 31 December 2022	**101**	**1,237**	**3,027**	**57**	**437**	**4,860**

[1] Company disposals are included in the Disposals line. Company disposals and classification of assets as held for sale are discussed in more detail in note 6.1 Acquisitions, disposals and assets held for sale.

Right-of-use assets

EUR million	Land and water	Forest land	Buildings and structures	Plant and equipment and other	Total
Acquisition cost					
At 1 January 2022	**107**	**253**	**104**	**127**	**591**
Translation difference	-2	-2	-3	-1	-7
Reclassifications to biological assets	0	-17	0	0	-17
Additions	1	6	20	18	45
Disposals[1]	-2	0	-23	-36	-62
Other changes	1	2	0	4	6
At 31 December 2022	**105**	**243**	**96**	**113**	**556**
Translation difference	-5	-14	-1	0	-19
Reclassifications to biological assets	0	-16	0	0	-16
Additions	0	5	188	14	207
Disposals and classification as held for sale[1]	-75	-181	-26	-21	-303
Other changes	1	15	7	3	26
At 31 December 2023	**25**	**52**	**264**	**109**	**451**
Accumulated depreciation and impairment					
At 1 January 2022	**8**	**18**	**55**	**69**	**150**
Translation difference	0	-1	-2	-2	-4
Disposals[1]	-1	0	-23	-34	-58
Depreciation	3	5	19	23	50
Impairment	0	0	1	0	0
At 31 December 2022	**10**	**22**	**49**	**56**	**138**
Translation difference	-1	-1	0	0	-3
Disposals and classification as held for sale[1]	-36	-24	-20	-20	-100
Depreciation	3	3	32	21	59
Impairment	28	0	3	2	33
At 31 December 2023	**4**	**0**	**64**	**60**	**128**
Net Book Value at 31 December 2023	**21**	**52**	**201**	**49**	**323**
Net Book Value at 31 December 2022	**95**	**221**	**47**	**57**	**418**

1 Company disposals are included in the Disposals line. Company disposals and classification of assets as held for sale are discussed in more detail in note 6.1 Acquisitions, disposals and assets held for sale.

Stora Enso's most material right-of-use assets capitalised consist of land areas used in forestry and industrial operations, various machinery and equipment leases including operative machinery and logistic equipment, as well as properties including offices, warehouses and other operative properties. Some of the leases contain renewal options and extension options that are considered in the lease term if the Group is reasonably certain to exercise the option.

See notes 5.3 Interest-bearing assets and liabilities for more details about lease liabilities and 2.2 Other operating income and expense for details about lease expenses included in the income statement.

Intangible assets and property, plant and equipment, and right-of-use asset additions

The total capital expenditure excluding investments in biological assets for the year amounted to EUR 1,054 (701) million. Details of ongoing projects and future plans are discussed in more detail in the Report of the Board of Directors.

4.2 Forest assets

Accounting principles

The forest assets of Stora Enso are defined as standing growing trees, classified as biological assets, and related forest land. The biological assets of Stora Enso consist of standing trees to be used as raw material in pulp and mechanical wood production and as biofuels.

Forest asset valuation is based on continuous operations and sustainable forest management, also taking into consideration environmental restrictions and other reservations. Biological assets are recognised and valued in accordance with the IAS 41 Agriculture standard at fair value and forest land assets are recognised in accordance with the IAS 16 Property, plant and equipment standard. Leased forest land assets are presented as part of right-of-use assets in note 4.1 Intangible assets, property, plant and equipment and right-of-use assets.

Nordic and plantation forest assets are classified as different classes of assets due to different nature, usage and characteristics of the assets. The main difference is the short-term growing cycle of 6–12 years in plantations versus the long-term growing cycle of 60-100 years in Nordic forests. There are also differences in regeneration methods, forest management, and the use of the assets for other purposes.

Nordic forest assets include holdings in Sweden and Finland and plantation forest assets include holdings in China, Brazil and Uruguay. Accounting policies for the different class of forest assets are presented separately below. In addition the Group has minor forest asset holdings in Estonia and Romania through associate company Tornator. The Group has forest assets in its own subsidiaries in Sweden and China as well as in joint operations in Brazil and Uruguay, and in associate company in Finland. Stora Enso also ensures that the Group's share of the valuation of forest holdings in associated companies and joint operations are consistent with Group accounting policies. At harvesting, biological assets are transferred to the inventory.

Nordic forest assets

Forest assets in Sweden and Finland are recognised at fair value and valued by using a market approach method on the basis of the forest market transactions in the areas where Stora Enso's forests are located. Stora Enso's forest assets create value by securing wood supply, increasing long-term yield, optimising land use and securing financial flexibility. They play an important role in mitigating climate change impacts, as growing trees absorb CO_2. The forests also offer opportunities for future value streams, such as wind power.

The total forest assets value is calculated with verified inventory data and regional standing stock prices, considering among others:

- regional market transaction data based on the forest assets' geographical locations,
- standing stock prices by forest cubic meter (m^3 fo) combined from traded forest estates and
- regional standing stock inventory.

Information relating to forest asset transactions are available from market data suppliers. Stora Enso is applying three-year weighted average market transaction prices and this is considered to include a sufficient amount of transactions and is estimated to represent market conditions at the reporting date. The market transaction information can be viewed as market-corroborated inputs. Certain adjustments are made to refine the market-corroborated inputs using unobservable inputs, therefore inputs are categorised to fair value hierarchy measurement level 3. The judgements are further explained in note 1.2 Critical accounting estimates and judgements.

The total value of the forest assets in Nordics is allocated across biological assets and forest land. Allocation of the combined fair value of forest assets is based on the income approach where separate present values of expected net cash flows are calculated for both biological assets and forest land.

Financials

The discount rate is determined as the rate at which the valuation based on market transaction prices matches the total forest assets combined cash flows for biological assets and forest land. The discount rate is estimated to be the same for biological assets and forest land as the nature and timing of the cash flows are similar.

Biological assets are measured at fair value in accordance IAS 41. The fair value is based on the income approach and the discounted cash flow method whereby the fair value of the biological assets is calculated using cash flows from continuous operations, taking into account the growth potential of one cycle. Forest land is measured at fair value using the revaluation method as defined in the IAS 16 standard. Fair value of forest land is measured based on income approach, including net cash flows related to trees to-be-planted in the future as well as other land related income, such as hunting rights, wind power leases and soil material sales.

Changes in the fair value of biological assets are recognised in the income statement. Changes in the fair value of forest land, net of deferred taxes, are recognised in other comprehensive income (OCI) and accumulated in a revaluation reserve in equity. Revaluation reserve is not recycled to the income statement upon disposal. If the fair value of forest land were to be less than cost, the difference would be recognised in the income statement as an impairment loss.

Plantation forest assets

In plantation forest areas, biological assets are recognised at fair value in accordance with the IAS 41 standard and based on the income approach in those areas where the Group has forest land. Fair value measurement is based on fair value hierarchy measurement level 3. Forest land is measured initially and subsequently at cost, using the cost model as defined in IAS 16 standard.

The valuation of biological assets is based on the discounted cash flow method calculated using cash flows from continuous operations and based on sustainable forest management, taking into account growth potential of one cycle. The fair value of the biological assets is based on the productive forest land. The yearly harvest from the forecasted tree growth is multiplied by wood prices and the cost of silviculture and harvesting is deducted. The fair value of the biological assets is measured as the present value of the harvest from one growth cycle, taking into consideration environmental restrictions and other reservations. The discount rate applied is determined using the weighted average cost of capital method.

Young standing timber less than two years old (less than three years in Montes del Plata) is considered to be an immature asset and accounted at cost. Fair value is deemed to approximate the cost when little biological transformation has taken place or the impact of the transformation on the price is not expected to be significant, which varies according to the location and species of the assets.

Changes in the fair value of biological assets are recognised in the income statement. The forest land is measured at cost and not depreciated.

The value of forest assets disclosed in the consolidated statement of financial position from subsidiary companies and joint operations amounts to EUR 6,921 (6,846) million as shown below. The Group's indirect share of forest assets held by associated company amounts to EUR 1,417 (1,271) million. The total forest asset value, excluding leased forest land and including forest assets classified as held for sale, amounts to EUR 8,522 (8,117) million.

Forest assets

	Biological assets		Forest land[2]		Forest assets total	
EUR million	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**
Subsidiaries and joint operations						
Value at 1 January	**4,531**	**4,547**	**2,315**	**2,201**	**6,846**	**6,747**
Translation differences	2	-305	0	-145	2	-449
Unrealized change in fair value[1]	385	336	-49	259	335	596
Additions	71	77	1	2	72	78
Disposals and classification as held for sale[3]	-181	-2	2	-2	-178	-4
Change due to harvesting[1]	-168	-141	0	0	-168	-141
Other operative changes[1]	-7	-1	0	0	-7	-1
Reclassification from PPE	20	20	0	0	20	20
Value at 31 December	**4,652**	**4,531**	**2,269**	**2,315**	**6,921**	**6,846**
Classified as held for sale	184	0	0	0	184	0
Associated company						
Tornator Oyj (41%)	1,287	1,122	130	149	1,417	1,271
Value at 31 December	**1,287**	**1,122**	**130**	**149**	**1,417**	**1,271**
Total	**6,123**	**5,653**	**2,399**	**2,464**	**8,522**	**8,117**

[1] For biological assets, changes are presented in the profit and loss. For forest land, changes in fair value are recognised directly in equity.
[2] Not including leased forest land.
[3] Assets held for sale are discussed in more detail in note 6.1 Acquisitions, disposals and assets held for sale.

Valuation and standing stock of forest assets

			As at 31 December 2023					
			Swedish forests	Guangxi[3]	Veracel (50%)	MdP (50%)	Tornator (41%)	Total
Total area		Thousand ha	1,383	70	116	138	310	2,016
- of which owned		Thousand ha	1,383	—	104	95	310	1,892
- of which leased		Thousand ha	—	70	12	43	—	125
Productive area		Thousand ha	1,139	61	49	92	285	1,627
Total area	Standing stock	million m^3 fo.[1]	151.9	4.3	6.1	15.0	33.7	210.8
Productive area	Standing stock	million m^3 fo.[1]	149.7	4.3	6.1	15.0	33.4	208.4
	Estimated growth	million m^3 fo.[1]	5.8	1.3	2.2	2.0	1.5	12.8
	Harvesting	million m^3 fo.[1]	-4.2	-1.2	-1.3	-2.3	-1.4	-10.5
	Other changes	million m^3 fo.[1]	-2.5	0.0	0.0	-0.3	0.6	-2.1
	Harvesting	million m^3 u.b.[2]	-3.5	-1.0	-1.1	-1.9	-1.1	-8.6
Biological assets		EUR million	4,239	184	124	288	1,287	6,123
Biological assets	Productive area	EUR/ha	3,723	3,010	2,531	3,121	4,509	3,764
Forest land		EUR million	2,072	—	30	167	130	2,399
Total forest assets		**EUR million**	**6,312**	**184**	**154**	**455**	**1,417**	**8,522**
Leased forest land		EUR million	—	157	4	48	—	209

[1]Forest cubic meters
[2]Solid under bark (sub) cubic meters
[3] Classified as held for sale

			As at 31 December 2022					
			Swedish forests	Guangxi	Veracel (50%)	MdP (50%)	Tornator (41%)	Total
Total area		Thousand ha	1,389	73	113	138	301	2,014
- of which owned		Thousand ha	1,389	—	105	95	300	1,890
- of which leased		Thousand ha	—	73	8	43	—	124
Productive area		Thousand ha	1,142	64	47	92	277	1,622
Total area	Standing stock	million m^3 fo.[1]	152.7	4.2	5.2	15.5	33.2	210.8
Productive area	Standing stock	million m^3 fo.[1]	150.5	4.1	5.2	15.5	32.8	208.1
	Estimated growth	million m^3 fo.[1]	5.8	1.3	1.8	3.2	1.5	13.6
	Harvesting	million m^3 fo.[1]	-4.6	-1.2	-1.7	-1.8	-1.3	-10.7
	Other changes	million m^3 fo.[1]	-1.1	-0.8	0.0	0.2	-0.1	-1.8
	Harvesting	million m^3 u.b.[2]	-3.8	-1.0	-1.4	-1.5	-1.2	-8.9
Biological assets		EUR million	3,963	196	103	269	1,122	5,653
Biological assets	Productive area	EUR/ha	3,471	3,062	2,162	2,922	4,054	3,485
Forest land		EUR million	2,113	—	29	173	149	2,464
Total forest assets		**EUR million**	**6,076**	**196**	**131**	**441**	**1,271**	**8,117**
Leased forest land		EUR million	—	166	3	52	—	221

[1]Forest cubic meters
[2]Solid under bark (sub) cubic meters

Subsidiaries and joint operations

At the end of 2023, forest assets, including assets held for sale in China (excluding leases), were located by value, in Sweden 89% (89%), China 3% (3%), Brazil 2% (2%) and Uruguay 6% (6%). The total area amounts to 1,706 (1,713) thousand hectares of which 7% (7%) is leased and under 0% (1%) is restricted. From Stora Enso's total forest holdings 1,341 (1,345) thousand hectares is productive forest area. The Montes del Plata and Veracel amounts take into account the ownership share.

Swedish forests

At the end of 2023, the value of the biological assets in Swedish forests amounted to EUR 4,239 (3,963) million, related forest land amounted to EUR 2,072 (2,113) million and the total forest assets amounted to EUR 6,312 (6,076) million. The increase in the forest assets value is mainly driven by higher market prices. Foreign exchange impact increased the value slightly. Deferred tax liabilities related to forest assets amounted to EUR 1,297 (1,250) million. The discount rate of 3.8% (3.6%) was applied in the valuation.

The productive area in Swedish forests amounted to 1,139 (1,142) thousand hectares with a standing stock of 149.7 (150.5) million forest m^3. The weighted three-year average market transaction price applied in the valuation for Swedish forests assets in 2023 is EUR 42 (40) per forest m^3. The forest asset value corresponds to an average of EUR 5,540 (5,320) per ha of productive forest area.

The valuation of the forest assets is based on detailed transaction data and price statistics as provided by different market data suppliers. Market transaction data is adjusted to consider the characteristics and nature of Stora Enso's forest assets and to exclude certain non-forest assets and outliers. The valuation takes into account where the forest land is located, price levels and volume of standing stock. Market prices between areas varies significantly. Future changes in value of Swedish forest assets are impacted by changes in market transaction prices and changes in volume of standing stock, considering growth and other changes. See also note 1.2 Critical accounting estimates and judgements for information related estimates and judgment applied in the valuation.

Forest asset location and volume

2023		North	Middle	South	Total
Productive area	Thousand ha	186	953	0	1,139
Percentage of total	%	16%	84%	0%	100%
Standing stock	million m^3 fo.	16.9	132.8	0.0	149.7
Percentage of total	%	11%	89%	0%	100%

2022		North	Middle	South	Total
Productive area	Thousand ha	190	951	0	1,142
Percentage of total	%	17%	83%	0%	100%
Standing stock	million m^3 fo.	17.5	133.0	0.0	150.5
Percentage of total	%	12%	88%	0%	100%

Guangxi

At the end of 2023, the value of the biological assets in Guangxi, China, amounted to EUR 184 (196) million. All the forest land in China is leased. The value decrease is mainly driven by harvesting depletion and foreign exchange impact, whereas capital expenditure and higher volume increased the value. The biological assets included young standing timber with a value of EUR 24 (27) million. The discount rate of 9.7% (10.2%) used in the discounted cash flows (DCF) decreased in 2023. These forestry operations were classified as held for sale at the end of 2023. See note 6.1 Acquisitions, disposals and assets held for sale for more details.

Financials

Veracel

Veracel is a 50% joint operation in Brazil. Stora Enso's share of the biological assets was EUR 124 (103) million. The increase is mainly driven by increased prices, volume and planting, whereas increased discount rate decreased the value. The biological assets included young standing timber with a value of EUR 40 (31) million. The discount rate of 10.2% (7.9%) used in the DCF increased in 2023. The related forest land is measured at cost.

Montes del Plata

Montes del Plata (MdP) is a 50% joint operation in Uruguay. Stora Enso's share of the biological assets was EUR 288 (269) million. The slight increase is mainly driven by higher wood price, harvesting volume estimates and additions, whereas foreign exchange impact decreased the value. During 2023 there were severe drought periods in Uruguay causing decreased annual forest growth estimate compared to the previous years. The biological assets included young standing timber with a value of EUR 48 (50) million. The discount rate of 9.0% (9.0%) is used in the DCF in 2023. The related forest land is measured at cost.

Associated company

Tornator

Tornator Oyj is a 41% owned Finnish associate company. Stora Enso's share of the biological assets was EUR 1,287 (EUR 1,122) million, related forest land amounted to EUR 130 (149) million, and total forest assets equalled to EUR 1,417 (1,271) million. The increase in the value of forest assets is mainly driven by higher market prices and acquisitions.

Stora Enso's share of the productive forest area totals to 285 (277) thousand hectares with a standing stock of 33.4 (32.8) million forest m^3. The weighted three-year average market transaction price applied in the valuation for forest assets located in Finland in 2023 is EUR 42 (42) per forest m^3. The forest asset value in Finland corresponds to an average of EUR 4,960 (4,750) per ha of productive forest area.

Valuation sensitivities of significant assumptions of a +/- 10% movement

EUR million	Wood market prices	Growth rate	Discount rate
Guangxi	+/-26	+/-1	+/-3
Veracel	+/-11	+/-11	+/-2
Montes del Plata	+/-32	+/-32	+12/-11

Swedish forest asset valuation is sensitive for changes in market transaction prices and volume of standing stock. A change in the average market price of forest assets of EUR 1 per forest m^3 would impact the value of forest assets by EUR 150 (151) million. A change in the volume of standing stock of 1 million forest m^3 would impact the value of forest assets by EUR 42 (40) million.

4.3 Associates

Accounting principles

Associated companies over which Stora Enso exercises significant influence are accounted for using the equity method. Stora Enso does not control associated companies alone or jointly with other parties, but has significant influence. The Group's share of the associated companies profit or loss is recognised in the consolidated income statement. The Group's interest in an associated company is carried in the consolidated statement of financial position at an amount that reflects its share of the net assets of the associate together with goodwill. Goodwill arising from the acquisition of an associated companies is included in the carrying amount of the investment and is assessed for impairment as part of that investment. There is no material goodwill in the carrying amount of associated companies.

When the Group share of losses exceeds the carrying amount of an investment, the carrying amount is reduced to zero and any recognition of further losses ceases unless the Group is obliged to satisfy obligations of the investee that it has guaranteed or which it is otherwise committed to.

The Group's share of results in associated companies is reported in the operating result to reflect the operational nature of these investments. Similarly, dividends received from associated companies are presented in the net cash provided by operating activities in the consolidated cash flow statement.

Principal associated company investments

			Ownership interest %		EUR million	
Company	**Reportable segment**	**Domicile and principal place of operations**	**2023**	**2022**	**2023**	**2022**
Tornator Oyj	Forest	Finland	41.00	41.00	892	800
Others					35	32
Carrying amount					**926**	**832**

In 2022, Stora Enso divested its 30.41% participation in Encore Ympäristöpalvelut Oy. The transaction did not have a material impact on the Group.

Group share of associated companies income statements

EUR million	2023	2022
Sales	126	147
Net operating expenses	-69	-103
Biological asset valuation	121	189
Operating result	**178**	**233**
Net financial items	-12	40
Net result before tax	**166**	**273**
Income tax	-30	-52
Net result for the year	**136**	**221**

The average number of personnel in the associated companies was 1,046 in 2023, compared with 1,043 in 2022.

A summary of the financial information, prepared in accordance IFRS, in respect of the Group's material associate, Tornator Oyj is set out below. The Group's share of Tornator Oyj is reported in the Forest division and covers the majority of the Group's total carrying amount of associated companies.

Financials

Tornator Oyj

EUR million	2023	2022
Forest Assets	3,456	3,101
Other non-current assets	73	70
Current assets	102	73
Non-current liabilities	851	752
Current liabilities	146	120
Tax liabilities	459	420
Sales	194	176
Net result for the year	341	542
Other comprehensive income	-57	141
Total comprehensive income	284	683
Dividends received during the financial year	60	25
Net assets of the associate	2,175	1,952
Ownership interest	41.00%	41.00%
Carrying amount of the Group's interest in Tornator Oyj	**892**	**800**

The Group's current 41% ownership is valued at EUR 892 (800) million at the year-end of 2023. The Group's share of Tornator's net profit was EUR 140 (222) million, including a biological asset valuation gain net of taxes of EUR 97 (152) million.

Aggregate information of associated companies **that are not individually material**

EUR million	2023	2022
Non-current assets	33	35
Current assets	13	12
Non-current liabilities	0	3
Current liabilities	11	12
Sales	47	74
Net result for the year	-4	-2
Dividends received during the financial year	0	1
Net assets of the associates	35	32
Associate company value	**35**	**32**
Associate company value for Tornator Oyj	892	800
Total associate company value	**926**	**832**

Associated company balances

EUR million	2023	2022
Receivables from associated companies		
Non-current loan receivables	2	2
Trade receivables	2	1
Liabilities to associated companies		
Trade payables	128	101

Associated company transactions

EUR million	2023	2022
Sales to associated companies	16	19
Purchases from associated companies	181	163

The Group engages in transactions with associated companies such as sales and purchases of wood. All agreements are negotiated at arm's length and are conducted on terms that the Group considers customary in the industry and generally no less favourable than would be available from independent third parties.

4.4 Equity instruments

Accounting principles

The Group has elected to classify its equity investments in Pohjolan Voima shares and certain listed shares held by the Group at fair value through other comprehensive income (FVTOCI) under IFRS 9 by applying the irrevocable election for equity instruments under the standard due to the long-term nature of the ownership. The gains and losses resulting from changes in the fair value of equity investments under FVTOCI are not recycled to the income statement upon impairment or disposal, only the dividend income is recognised in the income statement. In addition, the Group also has certain equity investments in unlisted securities that are classified as fair value through income statement. The majority of the Group's equity instruments consist of investments in Pohjolan Voima Oyj (PVO).

Equity instruments

EUR million	2023	2022
Carrying amount at 1 January	**1,445**	**918**
Change in fair value - OCI	-645	519
Change in fair value - Income statement	0	0
Additions	18	10
Disposals	0	0
Translation difference and other changes	0	-2
Carrying amount at 31 December	**819**	**1,445**

Financials

PVO shares

The Group holds a 15.7% (15.7%) interest in Pohjolan Voima Oyj (PVO), a public limited company in the energy sector that produces electricity and heat for its shareholders in Finland at cost-based and non-profit making principle (Mankala-principle). Each subsidiary of the PVO group has its own class of shares that, instead of dividends, entitle the shareholder to the energy produced in proportion to its ownership of that class of share. Also, the shareholders then have an obligation to cover the costs of production, which are generally lower than market prices. Stora Enso did not receive actual dividend payments from PVO during 2023. The holding is fair valued quarterly using the discounted cash flow method. The valuation is categorised at level 3 in the fair value hierarchy according to IFRS 13; levels are explained in 5.2 Fair values.

The electricity prices used in the valuation are based on market future derivative prices for the first two years and on long-term electricity price estimates for the years thereafter. The historical financial statements provide the basis for the cost structure for each power asset and for future periods, estimates from PVO shareholder information is used when available and these are adjusted by inflation factor in future years. The discount rate of 6.93% used in the valuation model is determined using the weighted average cost of capital method. A +/- 5% change in the electricity price used in the DCF would change the valuation by EUR +92 million and -92 million, respectively. A +/- percentage point change in the discount rate would change the valuation by EUR -140 million and +183 million, respectively.

PVO's shares are divided in different share series. The B and B2 series relate to PVO's shareholdings in Teollisuuden Voima Oyj (TVO), which operates three nuclear plants in Finland (Olkiluoto 1–3).Stora Enso holds an indirect share of approximately 8.9% of the capacity of the Olkiluoto 3 nuclear plant unit through its PVO B2 shares. The Olkiluoto 3 plant related test production was completed in April 2023 and regular electricity production was started. Olkiluoto 3 electricity production capacity is approximately 1,600 megawatt, which corresponds to about 15% of electricity demand in Finland. As the largest nuclear power plant in Europe, Olkiluoto in total will produce about 30% of Finland's electricity. The production of Olkiluoto 3 plays a key role in Finland's green transition, and accelerates the move towards a carbon-neutral society and electricity self-sufficiency.

PVO shareholding on 31 December 2023

EUR million	Share Series	% Holding	Asset Category	Fair value 2023	Fair value 2022
Pohjolan Voima Oyj	A	20.6	Hydro	226	307
Pohjolan Voima Oyj	B, B2	15.7, 14.8	Nuclear	546	1,113
Pohjolan Voima Oyj	C,C2,V,M	Various	Various	7	4
Total				**778**	**1,423**

The valuation in 2023 amounted to EUR 778 (1,423) million. The decrease in PVO's valuation is mainly caused by a decrease in the electricity price estimates. No deferred tax is recognised, as under Finnish tax regulations holdings above 10% are exempt from tax on disposal proceeds.

Principal equity instruments

EUR million	Holding %	Number of shares	Acquisition cost	Fair value
Packages Ltd, Pakistan - listed shares	6.4	5,396,650	3	9
Total listed securities			**3**	**9**
Pohjolan Voima Oyj	15.7	5,073,972	131	778
Other unlisted securities			32	32
Total unlisted securities			**163**	**810**
Total Equity instruments at 31 December 2023			**166**	**819**
Total Equity instruments at 31 December 2022			**147**	**1,445**

4.5 Emission rights and other non-current assets

Accounting principles

The Group participates in the European Emissions Trading Scheme, with the aim of reducing greenhouse gas emissions. The Group has been allocated allowances to emit a fixed tonnage of carbon dioxide (CO_2) over a fixed period of time, which are recognised as intangible assets, government grants and as liabilities for the obligation to deliver allowances equal to those emissions that have been made during the compliance period.

Intangible assets related to emission allowances are measured at level 1 fair value at the date of initial recognition. The liabilities to deliver allowances are recognised based on actual emissions and are settled using allowances on hand and measured at the carrying amount of those allowances. At the reporting date, if the market value for the emission allowances is less than the carrying amount, any surplus allowances that are not required to cover emissions made are impaired to the market value.

The Group expenses emissions made at the grant date fair value, under materials and services, together with purchased emission rights at their purchase price. Such costs will be offset under other operating income by the income from the original rights used at their grant date fair value. The consolidated income statement will, thus, be neutral in respect to all the rights consumed that were within the original grant of rights. Sales of excess emission allowances are recognised as income on the delivery date. Any net effect represents the costs of purchasing additional rights to cover excess emissions, or the sale of unused rights in case that the realised emissions are below the allowances received free of charge or the impairment of allowances that are not required for own use.

Emission rights

EUR million	2023	2022
Value at 1 January	**123**	**137**
Emission allowances allocated	146	160
Sales	-64	-62
Settlement with the government	-98	-85
Disposals and classification as held for sale	—	-27
Value at 31 December	**108**	**123**

The liability to deliver allowances is presented in the consolidated statement of financial position in line other operative liabilities. As of 31 December 2023, the liability to deliver allowances amounted to EUR 79 (91) million as presented in note 4.8 Operative liabilities. The excess emission rights held at the year end were valued at EUR 28 (32) million.

Financials

Other non-current assets

EUR million	2023	2022
Prepaid expenses and accrued income	25	22
Tax credit	4	4
Other non-current operative assets	29	12
Total	**58**	**38**

4.6 Inventories

Accounting principles

Inventories are reported at lower of cost and net realisable value with the cost determined by the first-in first-out (FIFO) method or, alternatively, by the weighted average cost where it approximates FIFO. The same cost formula is used for all inventories having a similar nature and use to the Group. The cost of finished goods and work in progress comprises raw material, direct labour, depreciation, other direct costs and related production overheads, but excludes interest expenses. Net realisable value is the estimated selling price in the ordinary course of business, less the costs of completion and sale.

Where market conditions result in the manufacturing costs of a product exceeding its net realisable value, a valuation allowance is made. Valuation allowances are also made for old, slow moving and obsolete finished goods and spare parts when needed. Such valuation allowances are deducted from the carrying value of the inventories in the consolidated statement of financial position.

EUR million	2023	2022
Materials and supplies	384	501
Work in progress	62	84
Finished goods	774	962
Spare parts and consumables	307	337
Other inventories	29	25
Advance payments and cutting rights	52	63
Obsolescence allowance - spare parts and consumables	-100	-103
Obsolescence allowance - finished goods	-18	-19
Net realisable value allowance	-25	-40
Total	**1,466**	**1,810**

EUR 6,271 (6,576) million of inventories in total have been expensed during the year. EUR 35 (78) million of inventory write-downs have been recognised as an expense. EUR 55 (9) million have been recognised as a reversal of previous write-downs.

4.7 Operative receivables

Accounting principles

Trade receivables

Trade receivables are recognised initially at fair value and subsequently at their anticipated realisable value with an estimate made for loss allowance on expected credit losses based on a forward-looking and objective review of all outstanding amounts at period end. A simplified approach under IFRS 9 has been implemented for trade receivables and loss allowances are recognised based on expected lifetime credit losses in the consolidated income statement within other operating expenses. For non-defaulted receivables, expected credit losses are estimated based on externally generated customer level probability of default data that is used in the forward-looking loss allowance calculation model. The loss allowance model for non-defaulted receivables also takes into account a macroeconomic indicator that considers the macroeconomic developments and further incorporates forward-looking data to the calculation model. The rebuttable presumption that default does not occur later than when a financial asset is 90 days past due has been applied in the calculation model and a default is normally estimated to occur when trade receivables are at least 90 days overdue or there is otherwise objective evidence supporting the conclusion that a default has occurred. Trade receivables will be written off and booked as a credit loss only with the court's decision of bankruptcy or in some other cases when there is objective evidence supporting the write-off. Trade receivables are presented in current assets under operative receivables in the consolidated statement of financial position.

Trade receivables under factoring arrangements

Stora Enso uses factoring arrangements as one of the working capital management tools. Sold trade receivables are derecognised once significant related risks and rewards of ownership have been transferred to the buyer. Outstanding balances for trade receivables that were not yet sold at period end but qualify to be sold under factoring programmes in the next period, are classified as trade receivables fair valued through other comprehensive income in accordance with the business model and contractual cash flow characteristics tests under IFRS 9. Please refer to note 5.2 Fair values for further details.

Current operative receivables

EUR million	2023	2022
Trade receivables - gross carrying amount including amount held for sale	939	1,329
Trade receivables - gross carrying amount held for sale	-46	-92
Trade receivables - gross carrying amount	**893**	**1,236**
Loss allowance	-27	-32
Prepaid expenses and accrued income	80	68
Other receivables	245	200
Total	**1,191**	**1,473**

Age analysis of trade receivables

EUR million	2023	2022
Not overdue	841	1,213
Less than 30 days overdue	57	55
31 to 60 days overdue	1	10
61 to 90 days overdue	3	2
91 to 180 days overdue	1	3
Over 180 days overdue	36	47
Total	**939**	**1,329**

As at 31 December 2023, a gross amount of EUR 98 (116) million of trade receivables were overdue. These relate to a number of countries and unrelated customers that have no recent history of default. At 31 December 2023, lifetime expected credit losses for trade receivables amounted to EUR 27 (32) million. Loss allowances for trade receivables are estimated on an individual basis based on a forward-looking model where estimated probabilities of customer default are used in the calculation model. If the Group has concerns regarding the financial status of a customer, an advance payment or an irrevocable letter of credit drawn from a bank is required. At the year end, the letters of credit awaiting maturity totalled EUR 54 (74) million. Please refer to note 5.1 Financial risk management for details of customer credit risk management.

Age analysis of loss allowance

EUR million	2023	2022
Not overdue and less than 90 days overdue	2	5
91 to 365 days overdue	2	7
Over 365 days overdue	23	21
Total	**27**	**32**

Reconciliation of loss allowance

EUR million	2023	2022
Opening balance at 1 January	**32**	**26**
Change in loss allowance booked through income statement	9	13
Write-offs	-15	-6
Other	1	0
Closing balance at 31 December	**27**	**32**

The actual credit losses during 2023 amounted to EUR 15 (6) million of trade receivables being written-off from the Group's balance sheet.

Stora Enso has entered into factoring agreements to sell trade receivables in order to accelerate cash conversion. These agreements resulted in full derecognition of trade receivables amounting to a nominal value of EUR 178 (174) million at the end of the year. The continuing involvement of Stora Enso in the sold receivables was estimated as being insignificant due to the non-recourse nature of the factoring arrangements involved.

4.8 Operative liabilities

Non-current operative liabilities

EUR million	2023	2022
Share-based payments	2	2
Other payables	9	9
Total	**11**	**11**

Current operative liabilities

EUR million	2023	2022
Trade payables	1,582	1,831
Payroll and staff-related accruals	224	245
Accrued liabilities and deferred income	112	130
Emission liabilities	79	91
Advances received	18	18
Other payables[1]	96	94
Total	**2,112**	**2,410**

[1] Other payables consist especially of taxes payable to government, such as VAT and payroll taxes.

4.9 Provisions

Accounting principles

Provisions
Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, and it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount of the obligation can be made. Provisions are measured at the management's best estimate and there is some uncertainty regarding the timing and amount of the costs. Provisions for obligations to dismantle, remove or restore assets after their use are added to the carrying amount of the assets at acquisition date and depreciated over the useful life of the asset. Provisions are discounted to their current net present value if the effect of the time value of money is material.

Environmental provisions
Environmental expenditures resulting from the remediation of an existing condition caused by past operations, and which do not contribute to current or future revenues, are recognised as provisions. Environmental provisions are recorded when it is probable, based on current interpretations of environmental laws and regulations, that a present obligation has arisen and the amount of such liability can be reliably estimated.

Restructuring provisions
A restructuring provision is recognised in the period in which the Group becomes legally or constructively committed to the plan. The relevant costs are those that are incremental to, or incurred as a direct result of, the exit plan, or are the result of a continuing contractual obligation with no ongoing economic benefit, or represent a penalty incurred to cancel the obligation.

Other provisions
Other provisions are recognised regarding different legal or constructive obligations, such as reforestation, onerous contracts, ongoing lawsuits, claims, or similar.

Financials

Provisions

EUR million	Environmental provisions	Restructuring provisions	Other provisions	Total provisions
Carrying Value at 1 January 2022	**75**	**88**	**67**	**231**
Translation difference	-4	-3	-2	-9
Disposals and classification as held for sale	-3	-1	0	-4
Charge in Income Statement				
New provisions	14	8	19	40
Increase in existing provisions	1	12	2	15
Reversal of existing provisions	-1	-16	-8	-25
Payments	-9	-66	-50	-124
Carrying Value at 31 December 2022	**73**	**21**	**30**	**124**
Translation difference	0	0	1	1
Disposals and classification as held for sale	3	0	0	3
Charge in Income Statement				
New provisions	7	89	12	107
Increase in existing provisions	4	4	1	8
Reversal of existing provisions	-16	-7	0	-22
Payments	-9	-31	-14	-54
At 31 December 2023	**63**	**77**	**28**	**168**
Allocation between current and non-current provisions				
Current provisions: Payable within 12 months	1	72	12	85
Non-current provisions: Payable after 12 months	61	5	16	83
Total at 31 December 2023	**63**	**77**	**28**	**168**

The Group has undergone major restructuring in recent years, from divestments to mill closures and administrative cost-saving programmes. The most material restructuring provision included in the ending balance of 2023 is EUR 35 million related to closing down the De Hoop containerboard site in the Netherlands. Other restructuring provisions relate mainly to permanently closing down Sunila pulp production in Finland and restructuring programmes to reduce the number of office employees in Group functions and the Packaging Materials division. Material payments in 2022 in restructuring and other provisions are mainly related to closing down pulp and paper production at the Kvarnsveden site in Sweden and the Veitsiluoto site in Finland.

The most material environmental provision is based on an agreement between Stora Enso and the City of Falun that obligates the Group to purify runoff from the Kopparberg mine before releasing the water into the environment. The provision at year end amounted to EUR 27 (EUR 31) million. The most material case in other provisions is related to an obligation in some Nordic countries to take care of reforestation within a specified time after final harvesting.

Financials

5 Capital structure and financing

5.1 Financial risk management

Risk management principles and process

Stora Enso is exposed to several financial market risks that the Group is managing under the policies approved by the Board of Directors. The objective is to ensure cost-effective funding of Group companies and manage financial risks effectively. The Stora Enso Group Financial Risk Policy governs all financial transactions in Stora Enso. This policy and any future amendments take effect once they are approved by the Board of Directors and all policies covering the use of financial instruments must comply with it. The Group's joint operations companies operate under their own financial risk policies, which may not be fully similar to the Group's policies.

The major financial market risks are detailed below with the main exposures for the Group being interest rate risk, currency risk, liquidity risk, refinancing risk, and commodity price risk, especially for fiber, pulp, and energy.

Interest rate risk

The Group is exposed to an interest rate risk that is the risk of fluctuating interest rates affecting the interest expense of the Group and value of its assets and liabilities. Stora Enso is exposed to the interest rate risk through interest-bearing assets and liabilities, such as loans, financial instruments and lease liabilities, but also through commercial agreements and operative assets and liabilities such as biological assets. The Group's aim is to keep interest costs stable. The Group's aggregate duration should not exceed the average loan maturity, but should aim towards a long duration. A duration above the average loan maturity is approved by the Board of Directors.

The Group may use interest-rate swaps and cross-currency swaps to manage the interest-rate risk by synthetically converting floating-rate loans into fixed-rate loans through the use of derivatives. The Group's floating and fixed rate interest-rate position as per the year-end is presented in the following table. The table includes the respective assets and liabilities classified as held for sale.

Floating and fixed interest-rate position

	As at 31 December 2023		As at 31 December 2022	
EUR million	**Floating rate**	**Fixed rate**	**Floating rate**	**Fixed rate**
Non-current interest-bearing receivables[1]	11	51	11	80
Current interest-bearing receivables[1]	1	14	1	—
Cash and cash equivalents	2,464		1,917	
Interest-bearing liabilities[2]	-1,422	-4,293	-1,074	-2,818
Interest-bearing assets and liabilities excluding interest rate derivatives	**1,053**	**-4,229**	**855**	**-2,738**
Interest-rate and cross-currency swaps	488	-488	650	-650
Interest-bearing assets and liabilities, net of interest rate derivatives	**1,541**	**-4,717**	**1,506**	**-3,388**

[1] Excluding interest receivable, listed securities, and derivative assets
[2] Non-current interest-bearing liabilities, current portion of non-current debt, short-term interest bearing liabilities and bank overdrafts excluding derivative liabilities and interest payable

The average interest duration for the Group's net interest-bearing liabilities, including all interest rate derivatives but excluding cash and cash equivalents, is 2.7 (3.3) years.

As of 31 December 2023, one percentage point increase in interest rates would increase annual net interest expenses by approximately EUR 10 (EUR 4) million and a similar decrease in interest rates would decrease net interest expenses by EUR 10 (EUR 4) million. This assumes that the duration and the funding structure of the Group remain constant throughout the year. This simulation calculates the interest effect of a 100 basis point parallel shift in interest rates on all floating rate instruments excluding cash equivalents from their next reset date to the end of the year. In addition, all short-term loans maturing during the year are assumed to be rolled over on maturity to year end using the new higher or lower interest rate.

A one percentage point parallel change up or down in interest rates would also result in fair valuation gains or losses of EUR 6 (EUR 10) million before taxes in the cash flow hedge reserve in OCI regarding interest rate swaps under cash flow hedge accounting. Note 5.4 Derivatives summarises the nominal and fair values of the outstanding interest rate derivative contracts.

Foreign exchange risk – transaction risk

The Group operates globally and is exposed to a foreign-currency transaction risk arising from exchange rate fluctuations. Foreign exchange transaction risk exposure comprises both the geographical location of Stora Enso production facilities around the world, sourcing of raw materials and sales of end products in foreign currencies, mainly denominated in US dollars, British pounds and Swedish crowns. Stora Enso Group companies with functional currency other than euro are also exposed to a foreign-currency transaction risk arising from EUR denominated net cash flows. These EUR exposures mainly arise from Stora Enso subsidiaries located in Sweden, Czech Republic and Poland.

The currency transaction risk is the impact of exchange rate fluctuations on the Group's Income statement, which is the effect of currency rates on expected future cash flows and subsequent trade receivables or payables. The Group's standard policy to mitigate the risk is to hedge 15–60% of the highly probable forecast cash flows in major currencies for the next 12 months by using derivative financial instruments, such as foreign exchange forwards and foreign exchange options. The Group may also hedge periods between 12 months and 36 months, or change the above mentioned hedging ratio for the next 12 months upon the discretion of the Group's management.

For operative receivables and payables in foreign currencies, the objective is to hedge 50–100% of the outstanding net receivable balance in major currency pairs.

The table below presents the estimated net operative foreign currency transaction risk exposures for the main currencies for the next 12 months and the related foreign-currency hedges in place as at 31 December, retranslated using year-end exchange rates. The net operative receivables and payable exposures, representing the balances as at 31 December, include foreign currency exposures generated by external and intercompany transactions in line with the requirements of IFRS 7. A positive amount of exposure in the table below represents an estimated future inflow or receivable of a foreign currency amount.

Operative foreign currency transaction risk exposure

	As at 31 December 2023						As at 31 December 2022					
EUR million	**EUR**	**SEK**	**USD**	**GBP**	**AUD**	**UYU**	**EUR**	**SEK**	**USD**	**GBP**	**AUD**	**UYU**
Estimated annual net cash flow exposure in hedged foreign-currency flows[1]	674	-278	1,446	126	63	-48	960	-238	1,983	240	83	-48
Cash flow hedges for the next 12 months	-394	188	-632	-34	-15	27	-525	119	-843	-59	-26	26
Estimated annual net cash flow exposure, net of hedges	**280**	**-90**	**814**	**93**	**47**	**-21**	**435**	**-119**	**1,139**	**181**	**57**	**-22**
Hedging percentage as at 31 December for next 12 months	**58 %**	**68 %**	**44 %**	**27 %**	**25 %**	**57 %**	**55 %**	**50 %**	**43 %**	**24 %**	**31 %**	**54 %**
Weighted-average hedged rate against EUR[2]		11.57	1.10	0.87	1.66	45.07		10.63	1.09	0.87	1.52	45.20
Operative receivables and payables net exposure	-38	-23	181	18	18	-5	-22	8	284	30	49	-5
Net receivable currency hedges	-7	7	-119	-15	-20	—	-18	-3	-186	-16	-51	—
Net operative receivables exposure, net of hedges	**-45**	**-15**	**62**	**3**	**-2**	**-5**	**-39**	**5**	**98**	**14**	**-2**	**-5**
Estimated annual net transaction risk exposure after hedges	**235**	**-105**	**876**	**96**	**46**	**-26**	**396**	**-113**	**1,238**	**195**	**55**	**-27**

[1] Cash flows are forecasted highly probable net operating foreign-currency cash flows in hedged currencies. The exposure presented in the EUR column relates to operative transaction risk exposure from EUR denominated cash flows in Group companies located in Sweden, Czech Republic and Poland with functional currency other than EUR.
[2] The weighted-average exchange rate against EUR is calculated based on bought leg of option collar structure and forward contracts' forward rate and therefore represents the weighted-average hedged rate based on the least favourable hedged rate from the Group's point-of-view.

The following table includes the estimated effect on the annual operating result of a weakening of an exposure currency against the functional currencies of exposed subsidiaries. The sensitivities have been calculated based on a 5% movement in EUR, SEK, USD, GBP and AUD while 10% movement in UYU. These changes are estimated as reasonably possible changes in exchange rates, measured against year-end closing rates. A corresponding strengthening of the exposure currency would have an approximately equal opposite impact. A negative amount in the table reflects a potential net loss in the income statement or equity and, conversely, a positive amount reflects a potential net gain. In practice, the actual foreign currency results may differ from the sensitivity analysis presented below, since the income statements of subsidiaries with functional currencies other than the euro are translated into the Group reporting currency using the average exchange rates for the year, whereas the statements of the financial position of such subsidiaries, including currency hedges, trade receivables and payable, are translated using the exchange rates at the reporting date. The translation risk exposures are discussed more in detail under the Translation risk chapter below.

The calculation includes currency hedges and assumes that there are no changes in other underlying currencies. The currency effects are based on estimated operative foreign currency flows for the next twelve months, hedging levels at the year end, and the assumption that the currency cash flow hedging levels and all other variables will remain constant during the next twelve months. Hedging instruments include foreign exchange forward contracts and foreign exchange options. Indirect currency effects with an impact on prices and product flows, such as a product becoming cheaper to produce in a different geographical location, have not been considered in this calculation.

Sensitivity analysis of operative foreign currency transaction risk exposure

	As at 31 December 2023						As at 31 December 2022					
EUR million	**EUR**	**SEK**	**USD**	**GBP**	**AUD**	**UYU**	**EUR**	**SEK**	**USD**	**GBP**	**AUD**	**UYU**
Exposure currency change by[1]	-5%	-5%	-5%	-5%	-5%	-10%	-5%	-5%	-5%	-5%	-5%	-10%
Effect on estimated annual net cash flows in hedged flows	-34	14	-72	-6	-3	5	-48	12	-99	-12	-4	5
Effect on cash flow hedging OCI reserve before taxes as at year end[2]	20	-9	32	2	1	-3	26	-6	42	3	1	-3
Effect on net operative receivables and payables after hedges[3]	2	1	-3	—	—	1	2	—	-5	-1	—	—
Estimated annual EBIT impact[4]	**-12**	**5**	**-44**	**-5**	**-2**	**3**	**-20**	**6**	**-62**	**-10**	**-3**	**3**

[1] The sensitivity analysis for EUR denominated annual net cash flows, operative net receivables and related hedges refer to the EUR denominated transaction risk arising from EUR denominated foreign-currency cash flows in Sweden, Czech Republic and Poland with functional currency other than EUR.
[2] The effect on OCI cash flow hedging reserve before taxes at year end is related to the fair value change in derivative contracts qualifying as cash flow hedges of highly probable forecast transactions under IFRS 9. Amount effecting OCI will be recycled to operative result when the transaction realises.
[3] Currency effect related to net operative receivables or payables and related hedges.
[4] The estimated annual EBIT impact includes currency effects in respect of operative exposures in the Statement of Financial Position, forecast cash flows and the related hedges.

The following table presents the financial foreign currency exposure and the related hedges in place as at 31 December for the main currencies. Net debt includes foreign-currency external loan payables and receivables, foreign-currency internal loan payables and loan receivables and cash equivalents. Loans designated as net investment loans under IAS 21 are excluded from the table as they reduce the foreign-currency exposures on a Group level. Internal transaction exposure includes foreign-currency payables and receivables outstanding within the Group at reporting date. The currency derivatives mainly hedge financial exposures in the statement of financial position. A negative amount of exposure in the table represents a net payable of a foreign currency amount.

Additionally, the table includes the estimated effect on the income statement of a currency weakening of an exposure currency against EUR. The sensitivities have been calculated based on a 5% movement in SEK, USD, CNY, PLN, and CZK. These changes are estimated as reasonably possible changes in exchange rates, measured against year-end closing rates. A corresponding strengthening of the exposure currency would have an approximately equal opposite impact. A negative amount in the table reflects a potential net loss in the Income statement and, conversely, a positive amount reflects a net potential gain. In practice, the actual foreign currency results may differ from the sensitivity analysis below as the exposure amounts may change during the year.

Financials

Financial foreign currency exposure and estimated currency effects in income statement

	As at 31 December 2023					As at 31 December 2022				
EUR million	**SEK**	**USD**	**CNY**	**PLN**	**CZK**	**SEK**	**USD**	**CNY**	**PLN**	**CZK**
Foreign-currency net debt[1]	140	-121	185	-3	24	-418	-101	355	-6	-62
Currency hedges	-158	-5	—	-5	-21	-3	-46	-211	-7	62
Net exposure after hedges	**-18**	**-126**	**185**	**-8**	**3**	**-422**	**-146**	**144**	**-12**	**—**
Internal transaction exposure	137			13					138	45
Currency hedges	—			—					-124	-41
Net non-operative exposure	**137**	**—**	**—**	**13**	**—**	**—**	**—**	**—**	**14**	**3**
Exposure currency change by	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Effect in the Income Statement[2]	**-6**	**6**	**-9**	**-1**	**—**	**21**	**7**	**-7**	**—**	**6**

[1] The Group has designated certain internal loans to Chinese subsidiaries as net investment loans under IAS 21. The loans are denominated in EUR, USD, and CNY. The underlying foreign currency gain or loss will be posted as part of CTA in Equity. The nominal amount of net investment loans amounted to EUR 591 (EUR 398) million as per the year end and reduces the currency exposure for relevant currencies in the above table.
[2] Gains and losses are recognised as part of Net financial items in the Income Statement

Foreign exchange risk – translation risk

Translation risk results from fluctuations in exchange rates affecting the value of Stora Enso's consolidated net foreign currency denominated assets, liabilities, and income. Translation risk is reduced by funding assets, whenever economically possible, in the same currency as the asset itself. The Group may also enter into foreign exchange forwards, foreign exchange options or foreign currency denominated loans to hedge its net investments in foreign entities with different functional currencies than the Group.

The balance sheets of foreign subsidiaries, associated companies and foreign currency denominated equity instruments in the scope of IFRS 9 are translated into euros using exchange rates prevailing on the reporting date, thus exposing consolidated Group equity to fluctuations in currency rates. The resulting translation differences, along with other movements such as the translation rate difference in the income statement, are recorded directly in shareholders' equity. These cumulative differences materialise through the Income statement on the disposal, in whole or in part, of the foreign entity.

The following table presents the translation risk exposure in the Group's Income statement arising from the translation of subsidiaries' and joint operations' foreign-currency income statements into the presentation currency of the Group in the consolidated financial statements.

Translation exposure in Income statement

	As at 31 December 2023					As at 31 December 2022				
EUR million	**SEK**	**USD**	**BRL**	**CZK**	**CNY**	**SEK**	**USD**	**BRL**	**CZK**	**CNY**
Translation exposure in Income Statement	-357	-196	-179	-65	67	-147	-192	-164	-38	77
Exposure currency change by	-5%	-5%	-10%	-5%	-5%	-5%	-5%	-10%	-5%	-5%
Effect on EBIT from translation risk exposure	**18**	**10**	**18**	**3**	**-3**	**7**	**10**	**16**	**2**	**-4**

The next table presents the translation exposure for geographical areas for which the Group has applied net investment hedging techniques to reduce the foreign-currency translation exposure in the consolidated equity. In practise, the Group also incurs material unhedged translation risk exposures in other geographical areas such as Sweden and China. The exposures used in the calculations are based on the foreign currency denominated equity and the hedging levels as at 31 December. Full details of actual CTA movements and hedging results are given in note 5.6 Cumulative translation adjustment and equity hedging. The sensitivity analysis includes the effects of currency hedges of net investments in foreign entities and assumes that no changes take place other than a single currency exchange rate movement on 31 December each year.

Hedged translation exposure in Equity

	As at 31 December	
EUR million	**2023**	**2022**
Translation exposure on equity in USD area[1]	**1,625**	**1,686**
EUR/USD equity hedges[2]	-271	-281
Translation exposure after hedges	**1,354**	**1,405**
Sensitivity before hedges - EUR strengthening 5%	-81	-84
Sensitivity after hedges - EUR strengthening 5%	-68	-70

[1] Includes the joint operation Montes del Plata in Uruguay, which has USD as its functional currency.
[2] USD denominated bonds classified as hedges of net investments in foreign assets.

Liquidity and refinancing risk

Liquidity risk arises from the difficulty of obtaining finance for operations at a given point in time. Stora Enso's financial risk policy states that the average maturity of outstanding loans and committed credit facilities covering short-term borrowings should be at least four years. The policy further states that the Group must have cash equivalents and undrawn committed credit facilities to cover all debt maturing within the next 12 months, including supply chain financing and factoring. At 31 December 2023, undrawn committed credit facilities and undrawn loans were at EUR 800 (EUR 1,100) million. The credit facilities are used as a backup for general corporate purposes and are fully undrawn. Additionally, Stora Enso has access to various additional long-term sources of funding up to EUR 1,100 (EUR 1,050) million. These mainly relate to available funding sources from Finnish pension funds.

During 2023, Stora Enso issued or refinanced altogether EUR 2,006 million of long-term debt, including both bonds and bilateral bank loans. Funding events from during 2023 are described in more detail in note 5.3 Interest-bearing assets and liabilities

Refinancing risk, or the risk that maturing debt is not refinanced in the markets, is mitigated by Stora Enso's target of maintaining an even maturity profile of outstanding debt. The table below shows maturity analysis for the Group's contractual financial liabilities classified under principal headings based on the remaining period to contractual maturity at the reporting date. Forward interest rates as at the year-end were used for estimating contractual finance charges for the upcoming years. The table includes the respective assets and liabilities classified as held for sale.

Contractual maturity repayments of financial liabilities, settlement net: 2023

EUR million	2024	2025	2026	2027	2028	2029+	Total
Bond loans	136	440	590	591	548	1,310	3,615
Loans from credit institutions	140	717	105	5	5	27	998
Lease liabilities	71	57	48	43	39	263	520
Other non-current financial liabilities	0	2	0	0	0	0	2
Non-current borrowings including current portion	**347**	**1,217**	**742**	**639**	**592**	**1,600**	**5,137**
Estimated contractual finance charges	193	152	113	82	69	194	802
Estimated contractual lease charges	29	26	25	23	22	225	**350**
Contractual repayments on non-current borrowings	**569**	**1,395**	**880**	**744**	**683**	**2,018**	**6,289**
Current borrowings, carrying amounts	595	0	0	0	0	0	595
Gross-settled derivative liabilities - receipts	-2,154	0	0	0	0	0	-2,154
Gross-settled derivative liabilities - payments	2,132	0	0	0	0	0	2,132
Trade payables	1,666	0	0	0	0	0	1,666
Estimated contractual finance charges	9	0	0	0	0	0	9
Total contractual repayments at 31 December 2023	**2,817**	**1,395**	**880**	**744**	**683**	**2,018**	**8,537**

Contractual maturity repayments of financial liabilities, settlement net: 2022

EUR million	2023	2024	2025	2026	2027	2028+	Total
Bond loans	300	270	404	90	325	1,081	2,470
Loans from credit institutions	306	40	273	5	0	0	624
Lease liabilities	63	49	44	33	30	159	377
Other non-current financial liabilities	0	2	0	0	0	0	2
Non-current borrowings including current portion	**668**	**361**	**721**	**128**	**355**	**1,240**	**3,472**
Estimated contractual finance charges	108	90	74	43	40	190	545
Estimated contractual lease charges	16	14	13	11	10	58	**123**
Contractual repayments on non-current borrowings	**792**	**465**	**807**	**182**	**405**	**1,489**	**4,140**
Short-term borrowings, carrying amounts	429	0	0	0	0	0	429
Gross-settled derivative liabilities - receipts	-2,405	0	0	0	0	0	-2,405
Gross-settled derivative liabilities - payments	2,401	0	0	0	0	0	2,401
Net-settled derivative liabilities	-4	0	0	0	0	0	-5
Trade payables	1,831	0	0	0	0	0	1,831
Bank overdrafts	0	0	0	0	0	0	0
Estimated contractual finance charges	6	0	0	0	0	0	6
Total contractual repayments at 31 December 2022	**3,050**	**464**	**807**	**182**	**405**	**1,489**	**6,398**

Financial transactions counterparty credit risk

Financial counterparty risk is the risk of fluctuations in the value of the Group's assets as a result of counterparties being unable to meet their obligations arising from financial contracts. The exposure to a financial counterparty risk is measured as the maximum loss that Stora Enso can suffer directly in the event of a single counterparty's credit default. This risk is minimised by:

- entering into transactions only with leading financial institutions and with industrial companies that have a good credit rating;
- only investing in liquid funds and deposits with financial institutions or companies that have a minimum credit rating of A-3 or BBB-.
- at least the higher of 50% of cash equivalents, or EUR 150 million, of cash equivalents to be held at counterparties with a minimum rating of A- or equivalent using credit ratings from main rating agencies;
- investing at least EUR 75 million of the Group's cash and cash equivalents at counterparties other than the counterparty at which most of Stora Enso's cash and cash equivalents are held;
- requiring parent company guarantees when dealing with any subsidiary of a rated company.

The Group Financial Risk Policy defines the limits for accepted counterparty risk, based on the tenor of financial contract and counterparty's credit rating.

At the year end 2023, there were no significant concentrations of risk with respect to counterparties of derivative contracts, with the highest counterparty mark-to-market exposure being at EUR 13 (41) million and credit rating of A+ (A+) using Standard and Poor's credit rating symbols.

Customer credit risk

Customer credit risk is Stora Enso's exposure to contracts arising from deterioration in the financial health of its customers. The Group uses various measures to reduce customer credit risks, including, but not limited to, letters of credit, prepayments and bank guarantees. The Group has also obtained export guarantees, covering both political and commercial risks, which are used in connection with individual customers outside the OECD area. Management considers that no significant concentration of credit risk with any individual customer, counterparty or geographical region exists for Stora Enso. The ageing information of trade receivables and related loss allowances are given in note 4.7 Operative receivables.

Commodity price risk

Outstanding commodity hedges

	As at 31 December 2023				As at 31 December 2022			
	Underlying amount of commodity hedged	Average hedged commodity price	Nominal amount hedged in EUR million	Fair value EUR million	Underlying amount of commodity hedged	Average hedged commodity price	Nominal amount hedged in EUR million	Fair value EUR million
Electricity purchases								
- Nordic region	245,712 MWh	EUR 55.6	14	-1	175,200 MWh	EUR 29.1	5	18
Oil purchases	205,058 barrels	USD 75.9	14	-1	200,474 barrels	USD 73.5	14	0

The Group is exposed to commodity and energy price volatility that will have an impact on the Group's profitability. Electricity, natural gas and oil hedge derivatives are part of energy price risk management in the Group, whilst other commodity risks are measured and hedged if economically possible. In addition to electricity hedge derivatives, the Group also manages energy price risk by entering into long-term physical fixed price purchase agreements, and by holding a 15.7% stake in Pohjolan Voima Oy (PVO), which is a privately owned Group of companies in the energy sector in Finland. The fair value of the shares amounted to EUR 778 (EUR 1,423) million as per the year-end. The fair value of these shares is dependent on electricity market prices and discussed in more detail in note 4.4 Equity instruments.

A 10% movement in energy and raw material prices would result in a EUR 5 (EUR 6) million change in the fair value of commodity financial hedges described in the above table. The majority of these fair value changes, after taxes, are recorded directly in Equity under Hedging Reserves, until the contracts mature and the result is entered in the Income statement. These estimates only represent the sensitivity of commodity financial instruments to market risk and not the Group's full exposure to raw material and energy price risks as a whole, since the actual underlying purchases are not financial instruments within the scope of the IFRS 7 standard. At the end of 2023, the maturities of the energy and commodity contracts, including both financial hedges and fixed-price physical purchase agreements, ranged between 2024 and 2025. In 2022, the maturities ranged between 2023 and 2024.

In an effort to mitigate other commodity price risk exposures in relation to wood fiber price risk, the Group is a significant owner of forest assets in the Nordic region. In Sweden the Group owns 1.4 million hectares of forest land. In addition, Stora Enso holds 41% share in Tornator Oyj, which is a significant forest owner in Finland. The Group's share in Tornator is reported as an associate company and discussed in more detail in note 4.3 Associates. The Group's forest assets are discussed in more detail in note 4.2 Forest assets.

Equity price risk

The Group has certain investments in publicly traded securities. Currently these relate to Packages Ltd shares in Pakistan. The market value of these equity investments was EUR 9 (EUR 8) million at the year end. Market value changes in these investments are recorded, after taxes, directly under Shareholders' Equity in the Equity instruments through OCI reserve. More details on the publicly traded securities can be found from note 4.4 Equity instruments.

Capital risk management

Stora Enso's debt structure is focused on capital markets and commercial banks. Group objectives when managing capital are to safeguard the ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders, as well as to maintain an optimal capital structure to maintain reasonable cost of capital. In order to maintain or adjust the capital structure, the Group may, subject to shareholder approval as appropriate, vary the dividends paid to shareholders, buy its own shares on financial markets, return capital to shareholders, issue new shares or sell assets to reduce debt. The Group strives to pay stable dividends linked to the long-term performance with the aim of distributing 50% of Earnings per share (EPS) excluding fair valuations over the cycle.

The Group monitors its capital on the basis of a target net debt-to-equity ratio of 0.60 or less, and aiming that the Net-debt-to-Operational EBITDA ratio remains below 2.0, indicating a solid financial position and financial flexibility.

Capital structure

	As at 31 December	
EUR million	**2023**	**2022**
Interest-bearing liabilities[1]	5,780	3,976
Interest-bearing assets[1]	2,613	2,122
Net debt	**3,167**	**1,853**
Equity attributable to owners of the parent	**10,985**	**12,532**
Operational EBITDA[2]	**989**	**2,529**
Net debt to equity ratio	**0.29**	**0.15**
Net debt to operational EBITDA	**3.2**	**0.7**

[1] Interest-bearing liabilities and assets in the table include the respective amounts classified as held for sale. More detailed reconciliation of net debt is included in the "Alternative performance measures" chapter in the Report of the Board of Directors.
[2] Operational EBITDA definition is included in the "Alternative performance measures" chapter in the Report of the Board of Directors.

Montes del Plata, a joint operation of Stora Enso, and the Group's subsidiary Stora Enso (Guangxi) Packaging and Forestry Company Ltd have complied with financial covenants related to debt-to-assets ratio during the reported periods. There are no other covenants in the Group's financing contracts.

5.2 Fair values

Accounting principles

Financial assets

The Group classifies its financial assets into three categories, which are amortised cost, fair value through other comprehensive income and fair value through profit and loss. The classification is made according to the IFRS 9 standard and management determines the classification of investments at the time of initial recognition.

With investments in debt instruments, the classification is made based on the business model and contractual cash flow characteristics of debt instruments. Investments in debt instruments, for which the business model objective is to hold the financial instruments to collect contractual cash flows and those cash flows are solely payments of principal and interest, are classified as amortised cost and presented under current or non-current assets in the consolidated statement of financial position. Investments in debt instruments, for which the business model objective is to hold the financial instruments for both to collect contractual cash flows and sell financial instruments and the cash flows are solely payments of principal and interest, are classified as fair value through other comprehensive income and presented under current or non-current assets in the consolidated statement of financial position.

The Group's investments in equity instruments, such as listed and unlisted securities, are classified as fair value through profit and loss unless the Group has at inception decided to apply the irrevocable election under IFRS 9 to classify the investments as fair value through other comprehensive income with only dividend income from the investments being recognised in the income statement.

Investments that are not measured at amortised cost or at fair value through other comprehensive income are classified as fair value through profit and loss and are therefore fair valued through the consolidated income statement and presented under current or non-current assets in the consolidated statement of financial position.

Financial liabilities

The Group's financial liabilities are classified into amortised cost or fair value through profit and loss categories. Financial liabilities are measured at amortised cost unless the Group has decided to apply a fair value option to designate a financial liability to be measured at fair value through profit and loss.

Financials

Derivatives

Derivative financial assets and liabilities are measured at fair value and classified as fair value through profit and loss or, if the Group has applied hedge accounting, at fair value through other comprehensive income according to the IFRS 9 standard. Derivative financial instruments and hedge accounting are discussed in more detail in note 5.4 Derivatives.

Fair value of financial instruments

The fair values of publicly traded derivatives and listed securities, are based on quoted market prices at the reporting date; the fair values of interest rate swaps are calculated as the present value of the estimated future cash flows, and the fair values of foreign exchange forward contracts are determined using forward exchange rates at the reporting date. The valuation principles for derivative financial instruments have been described in more detail in note 5.4 Derivatives.

In assessing the fair values of non-traded derivatives and other financial instruments, the Group uses a variety of methods and makes assumptions based on the market conditions at each reporting date. Quoted market prices or dealer quotes for identical or similar instruments are used for non-current debt. Other techniques, such as option pricing models and estimated discounted value of future cash flows, are used to determine fair values for the remaining financial instruments. The face values, less any estimated credit adjustments, for financial assets and liabilities with a maturity of less than one year are assumed to approximate their fair values. The fair values of financial liabilities for disclosure purposes are estimated by discounting the future contractual cash flows at the current market interest rates available to the Group for similar financial instruments.

Purchases and sales of financial instruments are recognised based on trade date accounting, which is the date on which the Group commits to purchasing or selling the financial instrument. Financial instruments are derecognised when the rights to receive or the cash flows from the financial instruments have expired or have been transferred and the Group has substantially transferred all risks, rewards and obligations of the ownership of the financial asset or liability.

Fair value hierarchy

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities;
- Level 2: other techniques, for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly;
- Level 3: techniques which use inputs which have a significant effect on the recorded fair values that are not based on observable market data.

The Group evaluates the categorisation of its fair value measurements within the fair value hierarchy on a regular basis at the end of the reporting period. There were no transfers recognised in the fair value hierarchy between Levels 1 and 2 and no transfers into or out of Level 3 fair value measurements during 2023 and 2022. See note 4.4 Equity instruments for more information on Level 3 fair value measurement of listed and unlisted securities.

Financials

Carrying amounts of financial assets and liabilities by measurement and fair value categories: 2023

EUR million	Amortised cost	Fair value through OCI	Fair value through income statement	Total carrying amount	Fair value	Fair value hierarchy Level 1	Level 2	Level 3	Note
Financial assets									
Listed securities	—	9	—	9	9	9	—	—	4.4
Unlisted securities	—	794	15	810	810	—	—	810	4.4
Non-current interest-bearing receivables	62	14	—	76	76	—	15	—	5.3
Derivative assets	—	14	—	15	15	—	15	—	
Loan receivables	62	—	—	62	62	—	—	—	
Trade and other operative receivables	835	30	—	865	865	—	30	—	4.7
Current interest-bearing receivables	21	39	4	64	64	—	43	—	5.3
Derivative assets	—	39	4	43	43	—	43	—	
Other short-term receivables	21	—	—	21	21	—	—	—	
Cash and cash equivalents	2,464	—	—	2,464	2,464	—	—	—	
Total	**3,382**	**887**	**19**	**4,288**	**4,288**	**9**	**87**	**810**	

EUR million	Amortised cost	Fair value through OCI	Fair value through income statement	Total carrying amount	Fair value	Fair value hierarchy Level 1	Level 2	Level 3	Note
Financial liabilities									
Non-current interest-bearing liabilities	4,445	1	—	4,446	5,071	—	1	—	5.3
Derivative liabilities	—	1	—	1	1	—	1	—	
Non-current debt	4,445	—	—	4,445	5,069	—	—	—	
Current portion of non-current debt	286	—	—	286	286	—	—	—	5.3
Current interest-bearing liabilities	469	4	2	476	476	—	6	—	5.3
Derivative liabilities	—	4	2	6	6	—	6	—	
Current debt	469	—	—	469	469	—	—	—	
Trade and other operative payables	1,806	—	—	1,806	1,806	—	—	—	4.8
Bank overdrafts	—	—	—	—	—	—	—	—	
Total	**7,006**	**6**	**2**	**7,014**	**7,639**	**—**	**8**	**—**	

In accordance with IFRS, derivatives are classified as fair value through income statement. In the above tables for financial assets and liabilities the cash flow hedge accounted derivatives are however presented as fair value through OCI, in line with how they are booked for the effective portion.

Carrying amounts of financial assets and liabilities by measurement and fair value categories: 2022

EUR million	Amortised cost	Fair value through OCI	Fair value through income statement	Total carrying amount	Fair value	Fair value hierarchy Level 1	Level 2	Level 3	Note
Financial assets									
Listed securities	—	8	—	8	8	8	—	—	4.4
Unlisted securities	—	1,423	14	1,437	1,437	—	—	1,437	4.4
Non-current interest-bearing receivables	92	28	—	120	120	—	28	—	5.3
Derivative assets	—	28	—	28	28	—	28	—	
Loan receivables	92	—	—	92	92	—	—	—	
Trade and other operative receivables	1,138	66	—	1,204	1,204	—	66	—	4.7
Current interest-bearing receivables	10	50	16	77	77	—	67	—	5.3
Derivative assets	—	50	16	67	67	—	67	—	
Other short-term receivables	10	—	—	10	10	—	—	—	
Cash and cash equivalents	1,917	—	—	1,917	1,917	—	—	—	
Total	**3,157**	**1,576**	**30**	**4,763**	**4,763**	**8**	**161**	**1,437**	

EUR million	Amortised cost	Fair value through OCI	Fair value through income statement	Total carrying amount	Fair value	Fair value hierarchy Level 1	Level 2	Level 3	Note
Financial liabilities									
Non-current interest-bearing liabilities	2,792	—	—	2,792	2,749	—	—	—	5.3
Derivative liabilities	—	—	—	0	0	—	—	—	
Non-current debt	2,792	—	—	2,792	2,748	—	—	—	
Current portion of non-current debt	667	—	—	667	667	—	—	—	5.3
Current interest-bearing liabilities	462	30	20	513	513	—	50	—	5.3
Derivative liabilities	—	30	20	50	50	—	50	—	
Current debt	462	—	—	462	462	—	—	—	
Trade and other operative payables	2,076	—	—	2,076	2,076	—	—	—	4.8
Bank overdrafts	—	—	—	0	0	—	—	—	
Total	**5,998**	**30**	**20**	**6,048**	**6,005**	**—**	**51**	**—**	

In accordance with IFRS, derivatives are classified as fair value through income statement. In the above tables for financial assets and liabilities the cash flow hedge accounted derivatives are however presented as fair value through OCI, in line with how they are booked for the effective portion.

In the previous tables, the fair value is estimated to be equal to the carrying amount for current financial assets and financial liabilities, such as trade receivables and payables due to their short time to maturity and limited credit risk. The fair value of non-current loan receivables, considered as a level 2 fair value measurement, is based on the discounted cash flow analysis. The fair value of non-derivative interest-bearing liabilities, considered as a level 2 fair value measurement, is estimated based on a discounted cash flow analysis in which the yield curves observable at commonly quoted intervals are used as a discount factor in the model.

Reconciliation of level 3 fair value measurement of financial assets and liabilities

EUR million	2023	2022
Financial assets		
Opening balance at 1 January	**1,437**	**905**
Reclassifications	0	-1
Gains/losses recognised in other comprehensive income	-646	523
Additions	18	10
Closing balance at 31 December	**810**	**1,437**

The Group did not have level 3 financial liabilities as at 31 December 2023.

5.3 Interest-bearing assets and liabilities

Accounting principles

Interest-bearing assets - loan receivables

Loan receivables are debt instruments with fixed or determinable payments that are not quoted on an active market. They are recorded initially at fair value and subsequently measured at an amortised cost. Loss allowance for expected credit losses is calculated based on the general approach under IFRS 9, where loss allowance is recognised based on 12-month expected credit losses if there has not been a significant increase in credit risk since the initial recognition. A significant increase in the credit risk will be evaluated based on a comparison of the risk of a default occurring on the financial instrument as at the reporting date with the risk of default occurring on the financial instrument as at the date of initial recognition. The Group may use, for example, rates of credit default swaps (CDS) observable on financial markets to produce the risk assessment.

Interest income on loan receivables is included in financial income and expense. Loan receivables with a maturity less than 12 months are included in current assets under interest-bearing receivables, and those with maturities greater than 12 months, in non-current interest-bearing receivables.

Interest-bearing liabilities

Interest-bearing liabilities are recognised initially at fair value, net of transaction costs incurred. In subsequent periods, interest-bearing liabilities are measured at amortised cost using the effective interest method. Any difference between the proceeds net of transaction costs and redemption value is recognised in the consolidated income statement over the maturity period of the borrowings. Interest expenses are accrued for and recorded in the consolidated Income statement for each period.

Interest-bearing liabilities with an original maturity greater than 12 months are classified as non-current interest-bearing liabilities in the consolidated statement of financial position, though repayments falling due within 12 months are presented in current liabilities under the current portion of non-current debt. Short-term commercial paper, bank and other interest-bearing liabilities, for which the original maturity is less than 12 months, are presented in current liabilities under interest-bearing liabilities.

Lease liabilities

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. Lease liabilities are initially capitalised at the commencement of the lease and measured at the present value of the lease payments that are not paid at the commencement date, discounted using the Group's incremental borrowing rate. The lease term applied corresponds to the non-cancellable period except in cases where the Group is reasonably certain to exercise renewal option or prolong the contract. The Group allocates the consideration in the contract to each lease component and separates non-lease components if these are identifiable. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions.

The lease liabilities are subsequently measured at amortised cost using the effective interest method. Lease payment is allocated between the capital liability and finance charges to achieve a constant interest rate on the outstanding liability balance. Lease liabilities are remeasured mainly when there is a change in future lease payments arising from a change in an index or rate, or if there is a change in the Group's assessment whether it will exercise an extension option. When lease liability is remeasured, a corresponding adjustment is generally made to the carrying amount of the right-of-use asset.

The Group has elected not to recognise lease liabilities for short-term leases that have a lease term of 12 months or less and leases of low value assets. Leases of low value assets mainly include IT and office equipment, certain vehicles and machinery and other low value items. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

Managing Interest Rate Benchmark Reform and associated risks

The Group monitors the process of the transition from IBORs to new benchmark rates by reviewing the total amounts of contracts that have yet to transition to an alternative benchmark rate. The impact of any ongoing changes is expected to be limited. The Group's financial instruments are mainly indexed to Euribor and Stibor reference rates which are expected to continue to exist for now.

At the end of 2022 the Group had EUR 211 million of outstanding interest-bearing liabilities that were indexed to US dollar LIBOR of which publication ceased after June 2023. During the year, these interest-bearing liabilities have been transitioned to follow new benchmark rates. There has been no significant impact on the Group from the change.

Interest-bearing assets

EUR million	2023	2022
Listed securities	9	8
Long-term derivative assets	15	28
Long-term deposits	48	48
Long-term loans to associated companies	2	2
Other long-term loan receivables	12	41
Total non-current interest-bearing assets	**85**	**128**
Short-term derivative assets	42	66
Other short-term loan receivables	22	11
Cash and cash equivalents	2,464	1,917
Total current interest-bearing assets	**2,528**	**1,994**
Total interest-bearing assets	**2,613**	**2,122**

The annual average interest income rate for deposits and loan receivables during the year was approximately 3.0% (1.0%). Current interest-bearing receivables included EUR 8 (EUR 10) million accrued interest at 31 December 2023. The Group has evaluated that there has not been a significant increase in credit risk related to interest-bearing deposits and investments after the initial recognition. Accordingly, the loss allowance is recognised based on 12-month expected credit losses.

Of the other long-term loan receivables EUR 10 (41) million and of the other short-term loan receivables EUR 14 (0) million represent receivables originating from the sale of the Russia operations in 2022. These receivables were recognised at inception at their fair value (EUR 58 million) using a discount rate of 27.1% and are carried in the statement of financial position at amortised cost. In 2023, an impairment of EUR 11 million was recognised on the receivables. The fair valuation of these receivables and evaluation of their credit risk and collectability involves a significant degree of judgement.

Interest-bearing liabilities

EUR million	2023	2022
Bond loans	3,601	2,460
Loans from credit institutions	794	623
Lease liabilities	334	375
Long-term derivative financial liabilities	1	0
Other non-current liabilities	2	2
Non-current interest-bearing liabilities including current portion	**4,733**	**3,459**
Short-term borrowings	418	429
Interest payable	52	35
Short-term derivative financial liabilities	6	49
Total Interest-bearing Liabilities	**5,209**	**3,972**

EUR million	2023	2022
Carrying value at 1 January	**3,972**	**3,938**
Additions in long-term debt, companies acquired	131	0
Proceeds of new long-term debt	2,006	366
Repayment of long-term debt	-619	-351
Additions in lease liabilities, companies acquired	99	0
Additions in lease liabilities	109	45
Repayment of lease liabilities and interest	-87	-73
Change in short-term borrowings	177	75
Change in interest payable	40	19
Change in derivative financial liabilities	-41	-19
Disposals and classification as held for sale	-575	-5
Other	26	8
Translation differences	-29	-32
Total Interest-bearing Liabilities	**5,209**	**3,972**

Events during 2023 and 2022

Stora Enso published a new framework for green and sustainability-linked financing in May 2023. The combined Green and Sustainability-Linked Financing Framework allows Stora Enso to issue both green and sustainability-linked financing instruments, as well as a combination of the two.

In May 2023, Stora Enso issued two EUR 500 million green bonds with 3- and 6.25-year maturities. In November 2023, Stora Enso issued new SEK green bonds with nominal value of SEK 6,100 million, equal to EUR proceeds of 524 million at the transaction date FX rate. The SEK green bonds feature several tranches, with the maturities ranging from 2025 to 2028. Later in December 2023 the Company also completed a private placement of SEK 425 million with maturity in 2033. This was equal to EUR proceeds of 38 million at the transaction date FX rate.

In addition, during the year, the Company re-financed altogether EUR 550 million of its bilateral loans and committed credit facility, and also drew bilateral loans of EUR 200 million in total that were arranged but undrawn at the end of 2022. The existing loans were extended by one to two years and new terms also include extension options. The Company also arranged a new EUR 100 million bilateral loan with a 1.5-year maturity and a 1-year extension option during the second quarter. In the fourth quarter a one-year extension was signed to the revolving credit facility of EUR 700 million to extend its maturity to 2028.

During 2023, Stora Enso's total repayments of SEK and EUR bond notes amounted to a nominal of EUR 427 million. This amount includes partial repayment of SEK bond notes with original maturity in February 2024, which resulted in a EUR 1 million modification net gain being recognised in the Income Statement under net financial items.

During 2022, altogether EUR 550 million of bilateral bank loans were arranged. Maturities of these loans varied from 18 months to 3 years with extension options. Repayments of credit institution loans based on the original maturity schedule amounted to a nominal of EUR 289 million in 2022. There were no repayments of bond notes in 2022.

Interest-bearing liabilities - maturities, interest rates and currency breakdown

Stora Enso's borrowings maturities range from 2024 to the longest borrowing maturing in 2039. The Company's borrowings have either fixed or floating interest rates ranging from 0.6% (0.5%) to 7.3% (7.3%). Stora Enso's average interest rate on borrowings for the full year amounted to 3.7% (3.2%) with a run-rate of 4.0% as per the year end. Part of Stora Enso's borrowings have been fixed through floating-to-fixed interest rate swaps. The majority of Group loans are denominated in euros, US dollars, Swedish crowns or Chinese renminbis. Detailed maturity analysis of the Group's borrowings are set out in note 5.1 Financial risk management.

Net debt

In 2023 net interest-bearing liabilities, including amounts classified as held for sale, increased by EUR 1,314 (decreased by EUR 456) million to EUR 3,167 (EUR 1,854) million. Net interest-bearing liabilities are equal to total interest-bearing liabilities less total interest-bearing assets such as cash equivalents and deposits. Cash and cash equivalents net of overdrafts increased by EUR 547 (increased by EUR 437) million to EUR 2,464 (EUR 1,917) million as at 31 December 2023. In 2023, the total cash outflow for leases was EUR 87 (EUR 73) million including interest component of EUR 23 (EUR 17) million.

The ratio of net debt to the last 12 months' operational EBITDA was 3.2 (0.7). The net debt/equity ratio was 0.29 (0.15) as per the year-end.

Bond loans

Issue/ Maturity Dates	Description of Bond	Interest Rate %	Currency of Bond	Nominal Value Issued	Outstanding As at 31 December 2023	Outstanding As at 31 December 2022	Carrying Value As at 31 December 2023	Carrying Value As at 31 December 2022
All Liabilities are Held by the Parent Company				**Currency million**			**EUR million**	
Fixed Rate								
2006-2036	Global 7.250% Notes 2036	7.25	USD	300	300	300	269	278
2016-2023	Euro Medium Term Note	2.125	EUR	300	0	300	0	300
2017-2027	Euro Medium Term Note	2.50	EUR	300	300	300	299	299
2018-2028	Euro Medium Term Note	2.50	EUR	300	300	300	299	299
2019-2024	Euro Medium Term Note (Green Bond)	1.875	SEK	1,750	484	1,750	44	157
2020-2025	Euro Medium Term Note (Green Bond)	2.375	SEK	1,550	1,550	1,550	140	140
2020-2030	Euro Medium Term Note (Green Bond)	0.625	EUR	500	500	500	496	495
2023-2027	Euro Medium Term Note (Green Bond)	4.75	SEK	400	400	0	36	0
2023-2026	Euro Medium Term Note (Green Bond)	4.00	EUR	500	500	0	499	0
2023-2029	Euro Medium Term Note (Green Bond)	4.25	EUR	500	500	0	497	0
2023-2027	Euro Medium Term Note (Green Bond)	4.75	SEK	600	600	0	54	0
2023-2028	Euro Medium Term Note (Green Bond)	5.00	SEK	2,250	2,250	0	202	0
Total Fixed Rate Bond Loans							**2,834**	**1,968**
Floating Rate								
2015-2025	Euro Medium Term Note	Euribor+2.25	EUR	125	125	125	125	125
2015-2027	Euro Medium Term Note	Euribor+2.35	EUR	25	25	25	25	25
2019-2024	Euro Medium Term Note (Green Bond)	Stibor+1.45	SEK	1,250	1,030	1,250	93	112
2019-2026	Euro Medium Term Note (Green Bond)	Stibor+1.60	SEK	1,000	1,000	1,000	90	90
2020-2025	Euro Medium Term Note (Green Bond)	Stibor+2.20	SEK	1,550	1,550	1,550	140	140
2023-2027	Euro Medium Term Note (Green Bond)	Stibor+1.25	SEK	2,350	2,350	0	211	0
2023-2028	Euro Medium Term Note (Green Bond)	Stibor+1.60	SEK	500	500	0	45	0
2023-2033	Euro Medium Term Note (Green Bond)	Stibor+2.20	SEK	425	425	0	38	0
Total Floating Rate Bond Loans							**766**	**492**
Total Bond Loans							**3,601**	**2,460**

Financials

5.4 Derivatives

Accounting principles

Derivative financial instruments and hedge accounting

Derivative financial instruments are initially recognised in the consolidated statement of financial position at fair value and subsequently measured at their fair value at each reporting date according to valuation methods described in this note. Derivative contracts with maturity greater than 12 months are classified as non-current interest-bearing receivables and liabilities, and contracts maturing within 12 months are presented under current interest-bearing receivables and liabilities.

When derivative contracts are entered into, the Group designates them as either hedges of highly probable forecast transactions or firm commitments (cash flow hedges), hedges of the exposure to changes in the fair value of recognised assets or liabilities (fair value hedges), hedges of net investments in foreign entities, or derivative financial instruments not meeting the hedge accounting criteria in accordance with IFRS 9. The method of recognising the resulting gains or losses on derivative instruments is dependent on the nature of the item being hedged.

At the inception of a hedge, the Group documents the relationship between the hedging instrument and the hedged item, as well as its risk management objective and strategy for undertaking various hedging transactions. This process includes linking all financial instruments designated under hedge accounting to specific assets and liabilities or to specific firm commitments or highly probable forecast transactions in order to verify and document the hedge relationship between the hedged item and the hedging instrument as required by IFRS 9. The Group also documents its qualitative prospective assessment at the hedge inception of whether the derivatives used in a hedge relationship are highly effective in offsetting changes in fair value or cash flows of hedged items. Hedge effectiveness will be assessed in accordance with IFRS 9 requirements.

The hedge ratio used for hedging relationships is usually 1:1. For currency and commodity hedging purposes, the Group uses a hedge designation where the critical terms of the hedging instrument and the hedged item will coincide in terms of the notional amount and timing. In respect of interest rate hedging, the interest rate basis between swap contracts and underlying debt will coincide. Since the critical terms of the hedges and underlying risks match, the hedging instruments are considered to offset any changes related to the anticipated transactions.

Potential sources of ineffectiveness that may be expected to occur in relation to currency and commodity hedges are mainly related to the forecasted transaction not occurring in the amount or at the time expected. For interest rate hedges, cross-currency basis spread or initial fair value of the hedging instrument at the date of hedge designation may result in ineffectiveness being recognised in the income statement. Potential sources of ineffectiveness for all the aforementioned hedges also include possible effects of credit risk dominating fair value changes arising from the hedging instrument and the hedged item designated under the hedging relationship.

Cash flow hedges

Derivatives used in currency cash flow hedges are mainly forward contracts and options, with swaps mainly used for commodity and interest rate hedging purposes. During 2023 and 2022, the Group did not enter into new interest rate swap contracts.

Changes in the fair value of derivatives designated and qualifying as cash flow hedges, and which are effective, are recognised in a separate equity category of OCI cash flow hedges reserve, the movements of which are disclosed in the consolidated statement of comprehensive income. For foreign exchange forwards, both the spot element and forward points have been included to the hedge designation. In case of foreign exchange options, the time value of an option is excluded from the hedge designation and only the intrinsic value component of an option is designated as the hedging instrument. The changes in option time value are recognised in a cost of hedging reserve within OCI. The cumulative gain or loss of a derivative deferred in equity is transferred to the consolidated income statement and classified as an income or expense in the same period in which the hedged item affects the consolidated income statement. The unrealised gains and losses related to cash flow hedges are expected to be recycled through the income statement within one to four years with the longest hedging contract maturing in 2027 (2027). However, the majority of the contracts are expected to mature in 2024.

Realised results of hedge accounted derivative instruments hedging foreign currency sales transactions or purchases are booked as adjustments to sales or materials and services, depending on the nature of the underlying hedged item. In respect of hedges of exposures to foreign currency risk of future transactions resulting in the recognition of non-financial assets, the gains and losses deferred to the cash flow hedges reserve within OCI are transferred from equity to be included in the initial acquisition cost of the non-financial asset at the time of recognition. The Group may hedge foreign-currency risk of external or internal foreign-currency purchases where the underlying amount purchased in a foreign-currency impacts the value of inventory in a local currency. In such cases the gains and losses are initially booked as an adjustment to raw material inventory and recycled further to finished goods inventory with being ultimately recognised in the consolidated income statement at the time when the hedged items are sold to an external customer. In case of non-current assets, the deferred amounts are ultimately recognised in the income statement through depreciation over the lifetime of the non-financial assets.

When a hedging instrument expires or is sold, terminated or exercised or no longer meets the hedge accounting criteria under IFRS 9, any cumulative gain or loss deferred in equity at that time remains in equity and is accounted for as an adjustment to income or expense when the committed or forecast transaction is ultimately recognised in the consolidated income statement. However, if the underlying forecasted transaction is no longer expected to occur, the cumulative gain or loss reported in equity from the period when the hedge was effective is immediately recognised in the consolidated income statement.

Fair value hedges

In case of fair value hedges, the Group uses either derivatives or borrowings as a hedging instrument to manage the risk associated with the fair value of a hedged item. The gains and losses on hedging instruments designated and qualifying as fair value hedges, and which are highly effective, are recorded in the consolidated income statement, along with any changes in the fair value of the hedged assets or liabilities attributable to the hedged risk. As at the end of 2023, the Group did not have fair value hedges.

Net investment hedges

For hedges of net investments in foreign entities, the Group uses either derivatives or foreign-currency borrowings for this purpose. If the hedging instrument is a derivative, any gain or loss thereon relating to the effective portion of the hedge is recognised in equity in CTA as disclosed in the consolidated statement of comprehensive income; the gain or loss relating to the ineffective portion is immediately recognised in the consolidated income statement. In addition, exchange gains and losses arising on the translation of a foreign-currency borrowing that hedges net investment in a foreign operation are also recognised in CTA, with any ineffective portion being immediately recognised in the consolidated income statement. The gains and losses recognised in CTA are recycled from equity to the consolidated income statement at the time when the underlying hedged net investment is disposed.

Non-hedge accounted derivatives

Certain derivative transactions, while providing effective economic hedges under Group risk management policies, do not qualify for hedge accounting under the specific rules in IFRS 9 and therefore changes in the fair value of such non-qualifying hedges are accounted for at fair value in the consolidated income statement. For non-hedge accounted derivatives economically hedging foreign-currency risk of net of operative receivables and payables, the fair value changes are recognised in operating result under other operating income and expense. For other non-hedge accounted derivatives, the fair value changes are recognised in the consolidated income statement under financial income and expense.

Valuation of derivatives

Derivative financial instruments are recorded in the statement of financial position at their fair values defined as the amount at which the instrument could be exchanged in an orderly transaction between market participants at the measurement date. The fair values of such financial items have been estimated on the following basis:

Financials

- Foreign exchange forward contract fair values are calculated using forward exchange rates at the reporting date.
- Foreign exchange option contract fair values are calculated using reporting date market rates together with common option pricing models.
- Commodity contract fair values are computed with reference to quoted market prices on futures exchanges or other reliable market sources.
- Interest rate swaps fair values are calculated using a discounted cash flow method.
- Cross-currency swaps fair values are calculated by using a discounted cash flow method with the exchange of notional also included in the valuation model.

Total foreign exchange gains and losses in the income statement excluding hedges

EUR million	2023	2022
Other operating income	-11	42
Other operating expense	-4	-21
Borrowings, cash equivalents. lease liabilities and other	-10	-10
Total	**-25**	**11**

Hedge gains and losses in operating result

EUR million	2023	2022
Cash flow hedge accounted derivatives		
Currency hedges	-7	-105
Commodity hedges	-2	43
Total	**-8**	**-62**
As adjustments to sales	-7	-103
As adjustments to materials and services	-2	41
Realised from OCI through income statement	**-8**	**-62**
Currency hedges ineffectiveness	1	-2
Net gains/losses from cash flow hedges	**-7**	**-65**
Non-hedge accounted derivatives		
Net receivable hedges	5	-12
Commodity contract hedges	0	9
Net gains/losses on non-hedge accounted derivatives	**5**	**-3**
Net hedge gains/losses in operating result	**-2**	**-67**

In 2023, certain forecasted future transactions were no longer expected to occur, and due to this hedge accounting was ceased for those transactions. This resulted in a gain of EUR 1 (loss of 2) million being booked in the Group's operating result and is being presented in the table above as ineffectiveness from cash flow hedges.

Hedge gains and losses in financial items

EUR million	2023	2022
Non-hedge accounted derivatives		
Currency derivatives	-12	8
Interest rate derivatives	4	-4
Net gains/losses on non-hedge accounted derivatives	**-8**	**4**
Net gains/losses in financial items	**-8**	**4**

Nominal and fair values of derivative instruments

EUR million	Nominal values	Positive fair values	Negative fair values	Net fair values	Nominal values	Positive fair values	Negative fair values	Net fair values
	2023				2022			
Currency derivatives								
Forwards: Operational cash flow hedging	1,210	31	-4	27	902	19	-13	6
Options: Operational cash flow hedging	405	6	-1	5	1,700	12	-16	-4
Total cash flow hedge accounted	**1,615**	**37**	**-5**	**33**	**2,603**	**32**	**-30**	**2**
Forwards: Trade and loan receivables hedging	379	4	-1	3	1,151	7	-5	2
Total non-hedge accounted	**379**	**4**	**-1**	**3**	**1,151**	**7**	**-5**	**2**
Total currency derivatives	**1,994**	**41**	**-6**	**35**	**3,754**	**39**	**-35**	**4**
Commodity derivatives								
Electricity swaps: Costs hedging	14	0	-1	-1	5	18	0	18
Oil swaps: Costs hedging	14	0	-1	-1	14	1	-1	0
Total cash flow hedge accounted	**28**	**0**	**-2**	**-2**	**19**	**18**	**-1**	**18**
Electricity swaps: Closed contracts	0	0	0	0	11	9	0	9
Total non-hedge accounted	**0**	**0**	**0**	**0**	**11**	**9**	**0**	**9**
Total commodity derivatives	**28**	**0**	**-2**	**-2**	**30**	**27**	**-1**	**27**
Interest rate derivatives								
Interest rate swaps: Financial expenses hedging	443	16	0	16	450	28	0	28
Total cash flow hedge accounted	**443**	**16**	**0**	**16**	**450**	**28**	**0**	**28**
Cross-currency swaps: Financial expenses hedging	0	0	0	0	200	0	-15	-15
Total non-hedge accounted	**0**	**0**	**0**	**0**	**200**	**0**	**-15**	**-15**
Total interest rate derivatives	**443**	**16**	**0**	**16**	**650**	**28**	**-15**	**13**
Total cash flow hedge accounted	**2,086**	**54**	**-7**	**47**	**3,072**	**78**	**-30**	**48**
Total non-hedge accounted	**379**	**4**	**-1**	**3**	**1,363**	**16**	**-20**	**-4**
Total derivatives	**2,464**	**57**	**-8**	**49**	**4,435**	**95**	**-51**	**44**

Positive and negative fair values of financial derivative instruments are shown under interest-bearing receivables and liabilities, and non-current interest-bearing receivables and liabilities. The presented fair values in the table include accrued interest and option premiums.

Financials

Changes in fair values of hedged items and hedging instruments 2023

EUR million	Change in value of hedged item to determine hedge effectiveness	Change in value of outstanding hedging instruments	Ineffectiveness
Foreign exchange risk - Forward and option contracts (excluding option time value)[1]	-23	24	1
Foreign exchange risk - Net investment hedges	-10	10	0
Commodity price risk - Commodity swaps	21	-21	0
Interest rate risk - Interest rate swaps	13	-13	0

[1] Ineffectiveness booked in operating result.

Changes in fair values of hedged items and hedging instruments 2022

EUR million	Change in value of hedged item to determine hedge effectiveness	Change in value of outstanding hedging instruments	Ineffectiveness
Foreign exchange risk - Forward and option contracts (excluding option time value)[1]	77	-79	-2
Foreign exchange risk - Net investment hedges[2]	16	-16	0
Commodity price risk - Commodity swaps	-31	31	0
Interest rate risk - Interest rate swaps	-34	34	0

[1] Ineffectiveness booked in operating result.
[2] Comparison figures restated.

Breakdown of cash flow hedging reserve and net investment hedges in equity 2023

EUR million	At 1 Jan 2023	Change in fair value recognised in OCI/CTA	Reclassified from OCI to profit and loss	Reclassified to non-financial assets	Tax impact	At 31 Dec 2023
Foreign exchange risk - Operational cash flow hedging	2	20	8	2	-6	25
Commodity price risk - Commodity swaps	15	-21	2	0	4	-1
Interest rate risk - Interest rate swaps	23	-13	0	0	3	13
Interest rate and foreign exchange risk - Cross-currency swaps	1	0	-1	0	0	0
Cost of hedging reserve	-1	2	0	0	0	1
Total cash flow hedge reserve in OCI	**39**	**-12**	**9**	**2**	**0**	**38**
Foreign exchange risk - Net investment hedges	1	10	-2	0	-2	7
Total net investment hedges in CTA	**1**	**10**	**-2**	**0**	**-2**	**7**
Total hedging reserves	**40**	**-3**	**7**	**2**	**-2**	**45**

Breakdown of cash flow hedging reserve and net investment hedges in equity 2022

EUR million	At 1 Jan 2022	Change in fair value recognised in OCI/CTA	Reclassified from OCI to profit and loss	Reclassified to non-financial assets	Tax impact	At 31 Dec 2022
Foreign exchange risk - Operational cash flow hedging	-21	-82	107	3	-5	2
Commodity price risk - Commodity swaps	23	41	-52	0	3	15
Interest rate risk - Interest rate swaps	-4	33	0	0	-7	23
Interest rate and foreign exchange risk - Cross-currency swaps	-1	0	2	0	0	1
Cost of hedging reserve	-1	0	0	0	0	-1
Total cash flow hedge reserve in OCI	**-4**	**-8**	**57**	**3**	**-9**	**39**
Foreign exchange risk - Net investment hedges	14	-16	0	0	3	1
Total net investment hedges in CTA	**14**	**-16**	**0**	**0**	**3**	**1**
Total hedging reserves	**10**	**-24**	**57**	**3**	**-6**	**40**

Financial impact of netting for instruments subject to an enforceable master netting agreement 2023

		Not offset in the statement of financial position		
EUR million	Gross amount of recognised financial instruments	Related liabilities (-) or assets (+) subject to master netting agreements	Collateral received (-) or given (+)	Net exposure
Derivative assets	57	-2	0	56
Derivative liabilities	-8	2	0	-6

Financial impact of netting for instruments subject to an enforceable master netting agreement 2022

		Not offset in the statement of financial position		
EUR million	Gross amount of recognised financial instruments	Related liabilities (-) or assets (+) subject to master netting agreements	Collateral received (-) or given (+)	Net exposure
Derivative assets	95	-30	0	65
Derivative liabilities	-51	30	0	-21

The Group enters into derivative transactions under master netting agreements agreed with each counterparty. In case of an unlikely credit event, such as default, all outstanding transactions under the agreements are terminated, and only a single net amount per counterparty is payable for settlement of all transactions. The agreements do not meet the criteria for offsetting in the statement of financial position, because offsetting is enforceable only in the occurrence of certain future events.

Financials

5.5 Shareholders' equity

Accounting principles

Dividend and capital repayments

Any dividend or capital repayment proposed by the Board is not deducted from distributable shareholders' equity until approved by the shareholders at the Annual General Meeting.

At 31 December 2023, shareholders' equity amounted to EUR 10,985 (12,532) million, compared to the market capitalisation on Nasdaq Helsinki of EUR 9,864 (10,503) million. The market values of the shares were EUR 12.45 (13.90) for A shares and EUR 12.53 (13.15) for R shares. In 2023, EUR 473 (434) million of dividends was recognised as distributed to owners, corresponding to EUR 0.60 (0.55) per share.

The A shares entitle the holder to one vote per share, whereas R shares entitle the holder to one vote per ten shares with a minimum of one vote, though the accountable par of both shares is the same. A shares may be converted into R shares at any time at the request of a shareholder. At 31 December 2023, the Company's fully paid-up share capital, as entered in the Finnish Trade Register, was EUR 1,342 (1,342) million. The current accountable par of each issued share is EUR 1.70 (1.70).

At 31 December 2023, Directors and Group Leadership Team members owned 127 (127) A shares and 506,790 (363,604) R shares representing 0.02% of the total voting rights of the Company. Full details of Director and Executive interests are shown in note 3.2 Board and executive remuneration. A full description of Company share award programmes is shown in note 3.4 Employee variable compensation and equity incentive schemes. However, none of these have any impact on the issued share capital.

Change in number of shares

	A shares	R shares	Total
At 1 January 2022	**176,244,049**	**612,375,938**	**788,619,987**
Conversion of A shares to R shares	-5,769	5,769	—
At 31 December 2022	**176,238,280**	**612,381,707**	**788,619,987**
Conversion of A shares to R shares	-7,364	7,364	—
At 31 December 2023	**176,230,916**	**612,389,071**	**788,619,987**
Number of votes as at 31 December 2023[1]	**176,230,916**	**61,238,907**	**237,469,823**
Share capital at 31 December 2023, EUR million[2]	**300**	**1,042**	**1,342**

[1] R share votes are calculated by dividing the number of R shares by 10.
[2] No changes in share capital in 2023 or 2022.

5.6 Cumulative translation adjustment and equity hedging

Accounting principles

The Group operates internationally and is thus exposed to currency risks arising from exchange rate fluctuations on the value of its net investment in non-euro entities. Exchange rate differences arising from the retranslation of net investments in foreign non-euro entities, and financial instruments that are designated as hedges of such investments, are recognised directly in equity in the cumulative translation adjustment (CTA). Movements in CTA (including related hedges) are shown in the consolidated statement of comprehensive income.

The cumulative translation adjustments related to disposed and liquidated entities are combined with their gain or loss on disposal. The CTA is recycled in the consolidated income statement upon disposal and liquidation.

The Group policy for translation risk exposure is to minimise this by funding assets in the same currency whenever economically viable, but if matching the assets and liabilities in the same currency is not possible, hedging of the remaining translation risk may take place. The Group has also applied net investment loan accounting for certain intragroup loans for which settlement is neither planned nor likely to occur in the foreseeable future. These are in substance, a part of the entity's net investment in the foreign operation.

Cumulative translation adjustment - movement

EUR million	2023	2022
At 1 January		
CTA on net investments	-432	-235
Net investment hedges and loans	21	48
Income tax related to hedges and loans	-5	-8
Net CTA in equity	**-415**	**-195**
CTA movement OCI		
CTA movement	0	-244
CTA release through income statement	56	47
Net investment hedges and loans	-15	-27
Income tax related to hedges and loans	0	3
CTA movement OCI total	**41**	**-220**
At 31 December		
CTA on net investments	-376	-432
Net investment hedges and loans	6	21
Income tax related to hedges and loans	-4	-5
Net CTA in equity	**-375**	**-415**

In 2023 the release of cumulative translation adjustments to the income statement amounted to a loss of EUR 56 million and was related to disposals of Hylte and Nymolla sites in Sweden.

In 2022 the release to the income statement amounted to a loss of EUR 47 million and was related to disposal of Russian Packaging Solutions, Wood Products and Forest operations. After the release, there is no CTA remaining related to Russian ruble.

Financials

Cumulative translation adjustment – financial position

	Cumulative Translation Adjustment (CTA)		Net investment hedges and loans		Net CTA in the statement of financial position	
EUR million	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**
Brazil	-242	-255	0	0	-242	-255
China	151	131	-4	10	147	141
Czech Republic	39	43	-9	-9	30	34
Poland	-22	-59	17	17	-5	-42
Sweden	-494	-543	33	47	-461	-497
Uruguay (USD)	191	248	-31	-44	160	204
Others	1	4	0	0	1	4
CTA before Tax	**-376**	**-432**	**6**	**21**	**-370**	**-411**
Taxes	0	0	-4	-5	-4	-5
Net CTA in Equity	**-376**	**-432**	**2**	**17**	**-375**	**-415**

Hedging instruments and unrealised hedge losses

	Nominal amount (Currency)		Nominal amount (EUR)		Unrealised losses (EUR)	
EUR million	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**
Borrowings						
USD area	300	300	271	281	-33	-41
Total hedging			**271**	**281**	**-33**	**-41**

The Group is currently only hedging its equity exposure to the US dollar arising from its joint operation located in Uruguay with USD functional currency.

5.7 Non-controlling interests

Accounting principles

Non-controlling interests are presented as a separate component within the equity of the Group in the consolidated statement of financial position. The proportionate shares of profit or loss attributable to non-controlling interests and to owners of the parent company are presented in the consolidated income statement after the net result for the period. Transactions between non-controlling interests and Group shareholders are transactions within equity and are thus shown in the statement of changes in equity. The measurement type of non-controlling interest is decided separately for each acquisition.

Non-controlling interests

EUR million	**2023**	**2022**
At 1 January	**-30**	**-16**
Acquisitions	2	0
Share of net result for the period	-74	-13
Share of other comprehensive income	5	0
At 31 December	**-97**	**-30**

Principal non-controlling interests

		2023	2023	2022
Company	**Principal place of business**	**Ownership held by non-controlling Interests, %**	**EUR million**	
Stora Enso Pulp and Paper Asia AB Group	Sweden and China	See table below	-100	-31
Others	-		3	1
Total			**-97**	**-30**

Non-controlling interests in Stora Enso Pulp and Paper Asia AB Group

		2023			2022		
Company	**Principal place of business**	**Direct-% of NCI**	**Indirect-% of NCI**	**Total-% of NCI**	**Direct-% of NCI**	**Indirect-% of NCI**	**Total-% of NCI**
Stora Enso Pulp and Paper Asia AB	Sweden and China	5.79	—	5.79	5.79	—	5.79
Guangxi Stora Enso Forestry Co Ltd	China	5.00	5.50	10.50	5.00	5.50	10.50
Stora Enso (Guangxi) Packaging Company Ltd	China	15.00	4.92	19.92	15.00	4.92	19.92
Stora Enso (Guangxi) Forestry Company Ltd	China	15.00	4.92	19.92	15.00	4.92	19.92

Summarised financial information in respect of the subsidiaries that have material non-controlling interests is set out below. Stora Enso's approximately 80% owned consumer board and forestry operations in Beihai, China have been classified as held for sale at the end of 2023. See note 6.1 Acquisitions, disposals and assets held for sale for more details.

Stora Enso Pulp and Paper Asia AB Group

EUR million	**2023**	**2022**
Assets	858	1,235
Equity attributable to the owners of the parent	-345	-165
Non-controlling interests[1]	-100	-31
Total equity	**-445**	**-196**
Liabilities	1,303	1,430
Net result for the period	-268	-74
Attributable to		
Owners of the parent	-194	-61
Non-controlling interests	-74	-13
Net result for the period	**-268**	**-74**
Net cash flow from operating activities	16	64
Net cash flow from investing activities	-37	-41
Net cash flow from financing activities	-23	4
Net cash flow	**-43**	**27**

[1] No dividends were paid to non-controlling interests in 2023 or 2022.

6 Group structure

6.1 Acquisitions, disposals and assets held for sale

Accounting principles

Acquired companies are accounted in accordance with the acquisition method whereby these companies are included in the consolidated financial statements from the date the control is obtained. Accordingly, the consideration transferred (including contingent consideration) and the acquired company's identifiable net assets are measured at fair value at the date of the acquisition. Transaction costs related to acquisition are expensed as incurred. The measurement type of non-controlling interest is decided separately for each acquisition, and measured either at fair value or non-controlling interest's proportionate share of the net assets. The excess of the consideration transferred, non-controlling interest and possible previously held equity interest over the fair value of net assets of the acquired company is recognised as goodwill.

The disposed companies are included in the consolidated financial statements up to the date when the control is lost. The gain or loss on disposal together with cumulative translation adjustments (CTA) related to disposed companies are recognised in the consolidated income statement at the date control is lost. Gains and losses on the disposal of a Group entity include any goodwill relating to the entity sold.

Assets are classified as held for sale, if their carrying amounts will be recovered mainly through a sale transaction rather than through continuing use. The assets must be available for immediate sale in their present condition subject only to terms that are usual and customary for sale of such assets. Also, the sale must be highly probable and expected to be completed within one year from the date of classification. These assets and related liabilities are presented separately in the consolidated statement of financial position and measured at the lower of the carrying amount and fair value less costs to sell. Comparative information is not restated when classification is made. Assets classified as held for sale are not depreciated.

Acquisition of Group companies

De Jong Packaging Group

In September 2022, Stora Enso signed an agreement to acquire De Jong Packaging Group and the transaction was completed at the beginning of January 2023. De Jong Packaging Group is based in the Netherlands and is one of the largest corrugated packaging producers in the Benelux countries. De Jong Packaging Group is also active in containerboard production through the acquisition of the De Hoop mill in the Netherlands in 2021. De Jong Packaging Group has 16 sites in the Netherlands, Belgium, Germany and the UK and employs approximately 1,300 people. The acquisition will advance Stora Enso's strategic direction, increase its corrugated packaging capacity, accelerate revenue growth and build market share in renewable packaging in Europe. De Jong Packaging Group's products enhance Stora Enso's offering. The acquisition is expected to generate synergies over the cycle, mainly through sourcing, containerboard integration optimisation and commercial opportunities.

The shares of the acquired companies are mainly 100% owned, with certain units having minor non-controlling interests. The non-controlling interest is measured on the basis of the proportionate share of the identifiable net assets.

The cash purchase consideration was EUR 612 million, excluding a contingent earn-out component. The maximum amount of the earn-out component is EUR 45 million, which will be settled in cash in 2024 and is subject to De Jong Packaging Group achieving certain earnings thresholds. The contingent consideration is measured at its fair value and is estimated at EUR 0 million at the date of acquisition and at the of the year 2023.

The fair values of the identifiable assets and liabilities as of the acquisition date are presented in the table below.

EUR million	2023
Net assets acquired	
Cash and cash equivalents	27
Property, plant and equipment	200
Intangible assets	222
Right-of-use assets	99
Working capital	5
Tax assets and liabilities	-56
Interest-bearing assets and liabilities	-233
Fair value of net assets acquired	**265**
Purchase consideration, cash part	612
Purchase consideration, contingent	0
Total purchase consideration	**612**
Fair value of net assets acquired	-265
Non-controlling interest	2
Goodwill	**349**
Cash outflow on acquisitions	-612
Cash and cash equivalents of acquired subsidiaries	27
Cash flow on acquisition, net of acquired cash	**-584**

The post combination review was completed at the end of 2023 and therefore acquisition accounting is considered to be final. The fair values of the acquired assets, liabilities and goodwill in the table above are representing final acquisition accounting. Measurement period adjustments in 2023 included property, plant and equipment decrease of EUR 23 million, right-of-use assets decrease of EUR 5 million, working capital items decrease of EUR 10 million, tax items increase of EUR 14 million and goodwill increase of EUR 22 million.

The goodwill represent the expected synergies, mainly through sourcing, containerboard integration optimisation and commercial opportunities. The goodwill is allocated to divisions benefiting from the acquisition, Packaging Solutions and Packaging Materials. None of the goodwill recognised is expected to be deductible for tax purposes. Also, as part of the acquisition, customer related intangible assets have been recognised with a carrying amount of EUR 167 million and an amortisation period of 15 years, and marketing related intangible assets of EUR 39 million with amortisation periods of between 5–20 years. See note 4.1 Intangible assets, property, plant and equipment and right-of-use assets for more details.

For 2023, De Jong Packaging Group contributed sales of EUR 598 million and a net result of EUR -88 million to the Group's results, which mainly relate to the De Hoop unit closure impairment and provision charges with approximately EUR -58 million net result impact. The acquired units are included in Stora Enso Group's consolidated sales and net result from the beginning of 2023. The related transaction costs amounted to EUR 6 million and are presented in other operating expenses. The acquired units are reported in the Packaging Solutions and Packaging Materials divisions.

Stora Enso did not complete any company or business acquisitions in 2022.

Financials

Disposal of Group companies

EUR million	2023	2022
Net assets sold		
Cash and cash equivalents	29	90
Property, plant and equipment	271	8
Intangible assets	60	0
Working capital	-5	-1
Tax assets and liabilities	-28	6
Interest-bearing assets and liabilities	-96	-19
Net assets in disposed companies	**233**	**85**
Total disposal consideration	**266**	**70**
CTA release	-56	-47
Asset writedowns[1]	-219	-155
Loan impairments	0	-23
Transaction costs	-6	-4
Total net gain/loss	**-247**	**-244**

[1] 2023 mainly related to units classified as held for sale. 2022 mainly related to writedowns in connection to Russia operation disposals and including also writedowns related to paper units which were classified as assets held for sale.

2023

Biocomposite business

In November 2023, Stora Enso divested its Biocomposite business to Sweden Timber, which also owns the paper production site at Hylte. The sold unit was part of the segment Other at the time of disposal. The transaction did not have a significant impact on the Group.

Wood Products DIY site

In August 2023, Stora Enso divested its 100% owned Wood Products DIY unit in the Netherlands to Megahout, a local importer, wholesaler and producer of a wide variety of wood products. The divestment reduced Stora Enso's planing capacity by 80,000 m^3. The sold unit was part of the Wood Products division. The transaction did not have a significant impact on the Group.

Hylte site

In April 2023, Stora Enso divested its 100% owned Hylte paper production site in Sweden and all related assets to Sweden Timber, a Swedish based sawmill and planing mill company. The Hylte site's annual capacity is 245,000 tonnes of newsprint paper. During 2022, the Group recognised asset write-downs of EUR 16 million related to the transaction. The selling price of the transaction was not significant. The loss on disposal was approximately EUR 45 million, consisting mainly of cumulative translation adjustments (CTA) being released from equity to the income statement. The sold unit was part of the segment Other at the time of disposal.

Maxau site

In February 2023, Stora Enso divested its 100% owned the Maxau paper production site in Germany and all related assets to Schwarz Group, one of the top retailers in the world. The transaction reduced Stora Enso's annual supercalendered paper (SC paper) capacity by 530,000 tonnes. The selling price of the transaction was approximately EUR 211 million and the gain on disposal was approximately EUR 52 million. The sold unit was part of the segment Other at the time of disposal.

Nymölla site

In January 2023, Stora Enso divested its 100% owned Nymölla paper production site in Sweden and all related assets to Sylvamo, a US-based global producer of uncoated paper. The Nymölla site's capacity is 485,000 metric tonnes of woodfree uncoated office papers. During 2022, the Group recognised asset write-downs of EUR 6 million related to the transaction. The selling price of the transaction was approximately EUR 49 million. The loss on disposal was approximately EUR 30 million, consisting mainly of cumulative translation adjustments (CTA) being released from equity to income statement. The sold unit was part of the segment Other at the time of disposal.

Russian operations

As communicated in 2022, Stora Enso sold all of its operations in Russia. Related to one forest operations unit, the disposal was expected to be completed in 2023, upon finalisation of certain formalities. These formalities were finalised in 2023 and did not have a significant impact on the Group. For more information about the valuation of remaining Russia-related receivables, see note 5.3 Interest-bearing assets and liabilities.

2022

Kvarnsveden site

In December 2022, Stora Enso divested its 100% owned Kvarnsveden site in Sweden to Northvolt, a European supplier of sustainable battery cells. Due to structural decline in demand for graphical paper, in April 2021 Stora Enso announced a plan to close its Kvarnsveden paper site and the production was ended in September 2021. The site will be developed into a battery manufacturing plant, reusing and refurbishing the existing facilities and site infrastructure. The sold unit was part of segment Other at the time of disposal. The transaction did not have a significant impact on the Group.

Russian operations – Wood Products and Forest

In July 2022, Stora Enso divested its two Nebolchi and Impilahti sawmills in Russia to local management. In addition, the divestment included Russian forest operations which supplies wood to the sawmills. The disposed sawmill sites are located in Novgorod and Karelia and have a total annual capacity of 350,000 m^3 of sawn timber, including 55,000 m^3 of processed timber and 65,000 tonnes of pellets. Russian forest operations managed long-term harvesting rights for around 370,000 hectares. The divested seven legal entities were mainly 100% owned, with exception of one unit that was 99.48% owned. Related to one forest operations unit, the disposal will be completed in 2023, upon finalisation of certain formalities. During 2022, the Group recognised asset write-downs of EUR 74 million (mainly fixed assets, inventories and trade receivables) related to the transaction. About two thirds of the sale consideration is to be received in instalments at future dates. The loss on disposal was EUR 24 million, including cumulative translation adjustments (CTA) being released from equity to income statement. In addition, there were impairments of loan receivables of EUR 23 million related to the transaction. The sold units were part of the Wood Products and Forest divisions.

Financials

Russian operations – Packaging Solutions

In May 2022, Stora Enso divested its three 100% owned corrugated packaging plants in Russia to local management. The divested three packaging plants are located in Lukhovitsy, Arzamas and Balabanovo and have a total annual capacity of 395 million m² of corrugated packaging. The sites primarily produce corrugated packaging in the domestic Russian market. During 2022, the Group recognised asset write-downs of EUR 42 million (mainly fixed assets, inventories and trade receivables) related to the transaction. The sale consideration is to be received in instalments at future dates. The loss on disposal was approximately EUR 49 million, consisting mainly of cumulative translation adjustments (CTA) being released from equity to income statement. The sold units were part of the Packaging Solutions division.

Vlar Papier

In February 2022, Stora Enso divested its 100% shareholdings in Vlar Papier NV in Belgium. The sold company was part of the Paper division at the time of disposal (presented as part of the segment Other due to the segment changes in 2023). The transaction did not have a significant impact on the Group.

Assets held for sale

EUR million	2023	2022
Property, plant and equipment	310	261
Intangible assets	20	55
Right-of-use assets	198	2
Forest assets	184	0
Inventories	79	91
Current operative receivables	48	104
Assets held for sale	**839**	**514**
Non-current operative liabilities	0	42
Current operative liabilities	99	163
Tax liabilities	0	28
Interest-bearing liabilities	571	4
Liabilities related to assets held for sale	**671**	**237**

As announced in December 2022, Stora Enso has initiated a sales process for a divestment of its consumer board production site and forestry operations in Beihai, China, which are part of the Packaging Materials division. Stora Enso's Beihai production site started operations in 2016. It has a mechanical pulp mill and a consumer board line serving the Chinese market. The annual production capacity is 250,000 tonnes of mechanical pulp and 550,000 tonnes of consumer board. Stora Enso also operates about 70 thousand hectares of land in the Guangxi region for eucalyptus plantations. Stora Enso owns approximately 80% of the production site and forest operations. In accordance with the progress in the ongoing divestment process, the operations were classified as held for sale at the end of 2023 and the transaction is expected to be completed in 2024. In 2023 and in connection to the potential disposal transaction, the Group recognised EUR 202 million of asset writedowns.

Assets held for sale at the end of 2022 included the Maxau, Nymölla and Hylte sites.

Financials

6.2 Group companies

Subsidiaries	Country	Group ownership, % 2023	Group ownership, % 2022
A/O Ladenso	Russia	0.00	100.00
Anjala Fiber & Energy Oy	Finland	100.00	100.00
AS Stora Enso Latvija	Latvia	100.00	100.00
Bangma Productie B.V.	Netherlands	100.00	0.00
Bangma Verpakking B.V.	Netherlands	100.00	0.00
Bergnät 1 AB	Sweden	100.00	100.00
Beta Skog 1 AB	Sweden	100.00	100.00
Cellutech AB	Sweden	100.00	100.00
Centrum Dystrybucji i Obróbki Drewna Sp. z.o.o.	Poland	100.00	100.00
Changzhou Stora Enso Packaging Technology Co. Ltd.	China	100.00	100.00
DanFiber A/S	Denmark	51.00	51.00
De Jong Box B.V.	Netherlands	100.00	0.00
De Jong Kasser Ehf.	Iceland	100.00	0.00
De Jong Packaging Ltd.	UK	100.00	0.00
De Jong Verpackung GmbH	Germany	100.00	0.00
De Jong Verpakking B.V.	Netherlands	100.00	0.00
DJV Holding B.V.	Netherlands	100.00	0.00
DJV Strategisch Advies B.V.	Netherlands	100.00	0.00
Dongguan Stora Enso Inpac Packaging Co. Ltd.	China	100.00	100.00
DuraSense AB (formerly Box Inc.)	Sweden	100.00	100.00
eCorrugated Ltd.	UK	100.00	0.00
Efora Oy	Finland	0.00	100.00
Enso Alueverkko Oy	Finland	100.00	100.00
Euro - Timber, spol. s.r.o.	Slovak Republic	100.00	100.00
Felco B.V.	Netherlands	100.00	0.00
Gaster Wellpappe GmbH	Germany	100.00	0.00
Green Packaging System B.V.	Netherlands	100.00	0.00
Guangxi Stora Enso Forestry Co. Ltd.	China	89.50	89.50
Herman Andersson Oy	Finland	100.00	100.00
HESPOL Sp. z.o.o.	Poland	100.00	100.00
Jiashan Stora Enso Inpac Packaging Co. Ltd.	China	100.00	100.00
Karpack B.V.	Netherlands	100.00	0.00
KPMB Agri BV	Belgium	100.00	0.00
KPMB NV	Belgium	100.00	0.00
Lignode AB	Sweden	100.00	100.00
Lignode Holding Oy	Finland	100.00	100.00
Lignode Oy	Finland	100.00	100.00
Lumipaper Ltd	UK	100.00	100.00
Lumipaper NV	Belgium	100.00	100.00
Mena Wood Oy Ltd	Finland	0.00	100.00
PTI Packmitteltechnik GmbH	Germany	100.00	0.00
Pulse Anilox Cleaning B.V.	Netherlands	100.00	0.00
Rudico B.V.	Netherlands	100.00	0.00
Rudico Groep B.V.	Netherlands	100.00	0.00
Rudico Holding B.V.	Netherlands	100.00	0.00
Selfly Store Oy	Finland	100.00	100.00
Skogsutveckling Syd AB	Sweden	66.67	66.67
Stora Enso China Packaging (HK) Co., Limited	Hong Kong	100.00	100.00
Stora Enso (Guangxi) Forestry Company Ltd.	China	80.08	80.08
Stora Enso (Guangxi) Packaging Company Ltd.	China	80.08	80.08
Stora Enso (HK) Ltd	Hong Kong	100.00	100.00
Stora Enso (Southern Africa) (Pty) Ltd	South Africa	100.00	100.00
Stora Enso AB	Sweden	100.00	100.00
Stora Enso Amsterdam B.V.	Netherlands	100.00	100.00
Stora Enso Arapoti Holding Florestal S.A.	Brazil	100.00	100.00
Stora Enso Australia Pty Ltd	Australia	100.00	100.00
Stora Enso Belgium NV	Belgium	100.00	100.00
Stora Enso Bergskog 2 AB	Sweden	100.00	100.00
Stora Enso Bergskog 3 AB	Sweden	100.00	100.00
Stora Enso Bois SAS	France	100.00	100.00
Stora Enso Brasil Ltda	Brazil	100.00	100.00
Stora Enso China Co., Ltd	China	100.00	100.00
Stora Enso China Holdings AB	Sweden	100.00	100.00
Stora Enso Corbehem SAS	France	100.00	100.00
Stora Enso Danmark A/S	Denmark	100.00	100.00
Stora Enso De Hoop B.V.	Netherlands	100.00	0.00
Stora Enso Eesti AS	Estonia	100.00	100.00
Stora Enso Espana S.A.U	Spain	100.00	100.00
Stora Enso Fors AB	Sweden	100.00	100.00
Stora Enso France SAS	France	100.00	100.00
Stora Enso Germany GmbH	Germany	100.00	100.00
Stora Enso Holding B.V.	Netherlands	100.00	0.00
Stora Enso Holding France SAS	France	100.00	100.00
Stora Enso Holdings UK Ltd	UK	100.00	100.00
Stora Enso Hylte Bruk AB	Sweden	0.00	100.00
Stora Enso Ingerois Oy	Finland	100.00	100.00
Stora Enso Inpac Corrugated Packaging (Hebei) Company Limited	China	100.00	100.00
Stora Enso Inpac Hebei Protective Packaging Co., Ltd.	China	100.00	100.00
Stora Enso Inpac Packaging Co. Ltd	China	100.00	100.00
Stora Enso International Oy	Finland	100.00	100.00
Stora Enso Italia Srl	Italy	100.00	100.00
Stora Enso Japan K.K.	Japan	100.00	100.00
Stora Enso Kvarnsveden Industriutveckling AB	Sweden	100.00	100.00
Stora Enso Langerbrugge NV	Belgium	100.00	100.00
Stora Enso LLC	Ukraine	100.00	100.00
Stora Enso Maxau GmbH	Germany	0.00	100.00
Stora Enso Mexico S.A.	Mexico	100.00	100.00
Stora Enso Middle East DMCC	Emirates	100.00	100.00
Stora Enso Narew Sp.z.o.o.	Poland	100.00	100.00
Stora Enso North American Sales, LLC	USA	100.00	100.00
Stora Enso Nymölla Paper AB	Sweden	0.00	100.00
Stora Enso Oulu Oy	Finland	100.00	100.00
Stora Enso Packaging AB	Sweden	100.00	100.00
Stora Enso Packaging AS	Estonia	100.00	100.00
Stora Enso Packaging Oy	Finland	100.00	100.00
Stora Enso Packaging SIA	Latvia	100.00	100.00

Stora Enso Packaging UAB	Lithuania	100.00	100.00
Stora Enso Paper AB	Sweden	100.00	100.00
Stora Enso Paper France SAS	France	100.00	100.00
Stora Enso Paper GmbH	Germany	100.00	100.00
Stora Enso Paper Oy	Finland	100.00	100.00
Stora Enso Paper UK Ltd	UK	100.00	100.00
Stora Enso Pension Trust Ltd.	UK	100.00	100.00
Stora Enso Poland S.A.	Poland	100.00	100.00
Stora Enso Polska Sp.z.o.o.	Poland	100.00	100.00
Stora Enso Portugal Lda	Portugal	100.00	100.00
Stora Enso Praha s.r.o.	Czech Republic	100.00	100.00
Stora Enso Publication Papers Oy Ltd	Finland	100.00	100.00
Stora Enso Pulp AB	Sweden	100.00	100.00
Stora Enso Pulp and Paper Asia AB	Sweden	94.21	94.21
Stora Enso Skog AB	Sweden	100.00	100.00
Stora Enso Skog AS	Norway	100.00	100.00
Stora Enso Skog och Mark AB	Sweden	100.00	100.00
Stora Enso South East Asia Pte Ltd	Singapore	100.00	100.00
Stora Enso Timber AB	Sweden	100.00	100.00
Stora Enso Timber DIY Products B.V.	Netherlands	0.00	100.00
Stora Enso Treasury Stockholm AB	Sweden	100.00	100.00
Stora Enso Turkey Karton Ve Kağıt Ticaret Anonim Sirketi	Turkey	100.00	100.00
Stora Enso UK Limited	UK	100.00	100.00
Stora Enso US Inc.	USA	100.00	100.00
Stora Enso Veitsiluoto Oy	Finland	100.00	100.00
Stora Enso Wood Products d.o.o. Koper	Slovenia	100.00	100.00
Stora Enso Wood Products GmbH	Austria	100.00	100.00
Stora Enso Wood Products Japan K.K.	Japan	100.00	100.00
Stora Enso Wood Products Planá s.r.o.	Czech Republic	100.00	100.00
Stora Enso Wood Products Sp.z.o.o.	Poland	100.00	100.00
Stora Enso Wood Products Zdirec s.r.o.	Czech Republic	100.00	100.00
Stora Enso WP Bad St. Leonhard GmbH	Austria	100.00	100.00
Stora Enso WP HV s.r.o.	Czech Republic	100.00	100.00
Stora Kopparbergs Bergslags AB	Sweden	100.00	100.00
Sumarbox B.V.	Netherlands	100.00	0.00
Sydved AB	Sweden	66.67	66.67
Södra Norrlands Hamnbolag nr 1 AB	Sweden	100.00	100.00
Twinpack B.V.	Netherlands	100.00	0.00
UAB Stora Enso Lietuva	Lithuania	100.00	100.00
Virdia B2X, LLC	USA	100.00	100.00
Virdia LLC	USA	100.00	100.00
Virdia Ltd	Israel	100.00	100.00
Wellpappenfabrik Gesellschaft GmbH	Germany	80.00	0.00

Associated companies	Country	Group ownership, % 2023	Group ownership, % 2022
A.C.D.F. Industrie	France	35.00	35.00
Honkalahden Teollisuuslaituri Oy	Finland	50.00	50.00
Industriewater Eerbeek B.V.	Netherlands	37.50	0.00
Kemira Cell Sp.z.o.o.	Poland	45.00	45.00
Metsäteho Oy	Finland	23.95	23.95
Oy Keskuslaboratorio - Centrallaboratorium Ab	Finland	32.24	32.24
Perkaus Oy	Finland	33.33	33.33
SELF Logistika SIA	Latvia	50.00	50.00
Steveco Oy	Finland	34.39	34.39
Stora Enso Vind 1 AB	Sweden	50.00	0.00
Suomen Keräyspaperi Tuottajayhteisö Oy	Finland	40.09	40.09
SweTree Technologies AB	Sweden	23.83	23.83
Tornator Oyj	Finland	41.00	41.00
Trätåg AB	Sweden	50.00	50.00
TreeToTextile AB	Sweden	28.94	28.94
T&B Containers Holdings Ltd.	UK	30.00	0.00
ZMP GMBH	Austria	30.00	30.00
Österbergs Förpackningsmaskiner AB	Sweden	50.00	50.00

Other companies	Country	Group ownership, % 2023	Group ownership, % 2022
AMEXCI AB	Sweden	9.10	9.10
Arevo AB	Sweden	12.73	7.89
CarbonScape Ltd	New Zealand	15.00	0.00
Clic Innovation Oy	Finland	9.87	9.87
Combient AB	Sweden	5.40	5.40
East Office of Finnish Industries Oy	Finland	4.00	4.00
Packages Limited	Pakistan	6.40	6.40
Pohjolan Voima Oy	Finland	15.71	15.71
PulPac AB	Sweden	10.30	10.30
Radioskog AB	Sweden	10.00	10.00
RK Returkartong AB	Sweden	8.40	8.40
SSG Standard Solutions Group AB	Sweden	14.29	14.29
Suomen Puukauppa Oy	Finland	10.74	10.74
Sölvesborgs Stuveri & Hamn AB	Sweden	0.00	7.36
T&B Containers Ltd.	UK	30.00	0.00
Union Developement Récup. Pap.	France	10.70	10.70

Joint operations	Country	Group ownership, % 2023	Group ownership, % 2022
Celulosa y Energia Punta Pereira S.A.	Uruguay	50.00	50.00
El Esparragal Asociación Agraria de Responsabilidad Limitada	Uruguay	50.00	50.00
Eufores S.A.	Uruguay	50.00	50.00
Forestal Cono Sur S.A.	Uruguay	50.00	50.00
Ongar S.A.	Uruguay	50.00	50.00
Stora Enso Uruguay S/A	Uruguay	50.00	50.00
Terminal Logística e Industrial M`Bopocuá S.A.	Uruguay	50.00	50.00
Veracel Celulose SA	Brazil	50.00	50.00
Zona Franca Punta Pereira S.A.	Uruguay	50.00	50.00

6.3 Related party transactions

Balances and transactions between Stora Enso and its subsidiaries and joint operations have been eliminated on consolidation and are not disclosed in this note. For the other entities which are classified as the Group's related parties and disclosed in this note, their subsidiary companies are also considered as related parties.

The Group has classified Solidium Oy as a related party. Solidium Oy is entirely owned by the State of Finland, and it owned 10.7% of Stora Enso shares and 27.3% of all votes on 31 December 2023. The Group has applied an exemption, outlined in the paragraph 25 of IAS 24, not to disclose transactions and outstanding balances with government-related entities.

The Group has classified FAM AB and Wallenberg Investments AB as related parties. FAM AB owned 10.2% of Stora Enso shares and 27.3% of all votes on 31 December 2023. FAM AB is wholly owned by Wallenberg Investments AB.

The key management personnel of the Group are the members of the Group Leadership Team and the Board of Directors. The compensation of key management personnel is presented in note 3.2 Board and executive remuneration.

In the ordinary course of business, the Group engages in transactions on commercial terms with associated companies, joint arrangements and other related parties that are not any more favourable than those that would be available to other third parties – with the exception of Veracel. Stora Enso intends to continue with transactions on a similar basis with its associated companies and joint arrangements. Further details of the transactions with associated companies are shown in note 4.3 Associates.

Group companies, including subsidiary companies and joint operations, are listed in note 6.2 Group companies.

Forest assets and wood procurement

The Group has a 41.0% interest in Tornator with the remaining 59.0% being held mainly by Finnish institutional investors. Stora Enso has long-term purchase contracts of wood at market prices with the Tornator Group, and in 2023 purchases of 2 (3) million cubic metres came to EUR 150 (126) million.

The Group procures wood at market prices from Kopparfors Fastigheter AB, a fully owned subsidiary of Kopparfors Skogar AB, which is wholly owned by FAM AB. In 2023 the purchases from the related party amounted to EUR 21 (23) million and the sales of services by Stora Enso to the said related party amounted to EUR 1 (0) million. At the end of 2023 the Group had EUR 6 (6) million of open payables to the related party.

Stevedoring

The Group owns 34.4% of shares in Steveco Oy, a Finnish company engaged in loading and unloading vessels. The other shareholders in Steveco are UPM-Kymmene, Finnlines and Myllykoski. The stevedoring services are provided by Steveco at market prices and in 2023 amounted to EUR 24 (27) million.

7 Other

7.1 Commitments and contingencies

Accounting principles

Guarantees

The guarantees entered into with financial institutions and other credit guarantors generally oblige the group to make payment in the event of default by the borrower. The guarantees have an off-balance sheet credit risk representing the accounting loss that would be recognised at the reporting date if the counterparties fail to perform completely as contracted. The credit risk amounts are equal to the contract sums, assuming the amounts are not paid in full and are irrecoverable from other parties.

Commitments

EUR million	2023	2022
On own behalf		
Guarantees	18	14
Other commitments	6	0
On behalf of associated companies		
Guarantees	5	5
On behalf of others		
Guarantees	16	5
Other commitments	0	36
Total	**44**	**60**
Guarantees	38	24
Other commitments	6	36
Total	**44**	**60**

In 2023, the Group's commitments amounted to EUR 44 (60) million. In addition, the parent company Stora Enso Oyj has guaranteed the liabilities of many of its subsidiaries and joint operations up to EUR 734 (826) million as of 31 December 2023.

Capital commitments

EUR million	2023	2022
Total	**683**	**593**

Capital expenditure commitments are not recognised in the balance sheet and these include the Group's share of direct capital expenditure contracts in joint operations. The largest commitments in relation to capital expenditure relate to the mill conversion at Oulu site in Finland.

Contingent liabilities

Stora Enso has undertaken significant restructuring actions in recent years which have included the divestment of companies, sale of assets and mill closures. These transactions include a risk of possible environmental or other obligations the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. A provision has been recognised for obligations for which the related amount can be estimated reliably and for which the related future cost is considered to be at least probable.

Stora Enso has been granted various investment subsidies and has given certain investment commitments in several countries e.g., Finland, China and Sweden. If commitments to planning conditions are not met, local officials may pursue administrative measures to reclaim some of the formerly granted investment subsidies or to impose penalties on Stora Enso, the outcome of such a process could result in adverse financial impact on Stora Enso.

The Group announced its intention in December 2022 to divest its consumer board production and forest operations sites in Beihai, China. As previously disclosed, Stora Enso has been granted investment subsidies and has given certain investment commitments in China. There is a risk that the majority owned local Chinese company may be subject to a claim based on alleged costs resulting from certain uncompleted investment commitments. Given the specific mitigating circumstances surrounding the investment case as a whole, Stora Enso does not consider it to be probable that this situation would result in an outflow of economic benefits that would be material to the Group. The Company continues to monitor the situation as the divestment process proceeds.

Stora Enso is party to legal proceedings that arise in the ordinary course of business and which primarily involve claims arising out of commercial law. The management does not consider that liabilities related to such proceedings before insurance recoveries, if any, are likely to be material to the Group's financial condition or results of operations.

Veracel

On 11 July 2008, Stora Enso announced that a federal judge in Brazil had issued a decision claiming that the permits issued by the State of Bahia for the operations of Stora Enso's joint operations company Veracel were not valid. The judge also ordered Veracel to take certain actions, including reforestation with native trees on part of Veracel's plantations and a possible fine of, at the time of the decision, BRL 20 (EUR 4) million. Veracel disputes the decision and has filed an appeal against it. Veracel operates in full compliance with all Brazilian laws and has obtained all the necessary environmental and operating licences for its industrial and forestry activities from the relevant authorities. In November 2008, a Federal Court suspended the effects of the decision. No provisions have been recorded in Veracel's or Stora Enso's accounts for the reforestation or the possible fine.

7.2 Events after the reporting period

The were no significant adjusting or non-adjusting events after the reporting period end.

Parent company Stora Enso Oyj financial statements

Financials

Parent company income statement

		Year ended 31 December	
EUR million	**Note**	**2023**	**2022**
Sales	2	**2,809**	**3,325**
Changes in inventories of finished goods and work in progress + / -		-43	86
Production for own use		3	2
Other operating income	3	658	703
Materials and services	4	-1,985	-2,288
Personnel expenses	5	-341	-320
Depreciation and impairment	6	-274	-133
Other operating expenses	7	-1,283	-889
		3,265	2,839
Operating profit		**-455**	**485**
Financial income and expenses	9	278	290
Profit before Appropriations and Taxes		-177	775
Appropriations	10	222	-331
Income tax expense	11	0	-28
Profit for the period		**45**	**416**

Parent company statement of financial position

		As at 31 December	
EUR million	**Note**	**2023**	**2022**
Assets			
Non-current assets			
Intangible assets	13	53	49
Tangible assets	13	917	1,032
Investments	14	8,596	8,187
Non-current assets total		**9,567**	**9,269**
Current assets			
Inventories	15	473	574
Short-term receivables	16	2,257	1,278
Financial securities	17	1,550	1,130
Cash in hand and at bank		661	1,117
Total current assets		**4,941**	**4,099**
Total assets		**14,508**	**13,368**
Equity and liabilities			
Equity	18		
Share capital		1,342	1,342
Share premium		3,639	3,639
Fair value reserve		14	25
Invested non-restricted equity fund		633	633
Retained earnings		864	922
Profit for the period		45	416
Total equity		**6,537**	**6,977**
Accumulated appropriations	19	201	290
Obligatory provisions	20	36	25
Liabilities			
Non-current liabilities	22	4,123	2,265
Current liabilities	23	3,611	3,811
Total liabilities		**7,734**	**6,076**
Total equity and liabilities		**14,508**	**13,368**

Parent company cash flow statement

EUR million	Year ended 31 December 2023	2022
Cash provided by operating activities		
Profit for the period	45	416
Adjustments and reversal of non-cash items:		
Direct taxes	0	28
Appropriations	-222	331
Depreciation according to plan and impairment	274	133
Unrealised foreign exchange gains and losses	38	18
Other non-cash items	15	13
Financial income and expenses	-278	-290
Change in working capital:		
Increase(-)/decrease(+)		
in current non-interest-bearing receivables	48	-198
Increase(-)/decrease(+) in inventories	101	-187
Increase(+)/decrease(-)		
in current non-interest-bearing liabilities	-154	199
Cash flow from operating activities before financial items and taxes	-133	463
Interest received from operating activities	181	58
Interest paid from operating activities	-173	-79
Dividends received from operating activities	371	626
Other financial items, net	36	-57
Direct taxes paid	-23	-2
Cash provided by operating activities	**259**	**1,009**
Net cash provided by investing activities		
Investments in tangible and intangible assets	-166	-186
Capital gains from sale of tangible and intangible assets	0	0
Investments in other financial assets	-16	0
Investments in subsidiary shares and other capital contributions	0	-374
Proceeds from disposal of shares in associated companies and repayment of capital	0	10
Proceeds from disposal of other investments	0	0
Payments of non-current loan receivables	-2,184	-626
Proceeds from non-current loan receivables	780	944
Net cash provided by investing activities	**-1,586**	**-233**

EUR million	Year ended 31 December 2023	2022
Cash flow from financing activities		
Proceeds from (issue of) long-term liabilities	3,468	350
Proceeds from (payment of) long-term liabilities	-1,623	-560
Proceeds from (issue of) short-term liabilities	164	1,587
Proceeds from (payment of) short-term liabilities	-249	-546
Dividends paid	-472	-434
Group contributions received	0	-275
Cash flow from financing activities	**1,287**	**121**
Net change in cash and cash equivalents	**-39**	**897**
Translation differences	3	-1
Cash and cash equivalents at start of year	2,247	1,350
Cash and cash equivalents at year end	**2,211**	**2,247**
Cash and cash equivalents at year end includes:		
Financial securities	**1,550**	**1,130**
Cash in hand and at bank	**661**	**1,117**
Cash and cash equivalents total	**2,211**	**2,247**

Notes to the parent company financial statements

Financials

Note 1 Accounting principles

The financial statements of Stora Enso Oyj have been prepared in accordance with the Finnish Accounting Act and other current rules and regulations concerning financial statements in Finland. The financial statements are presented in millions of euros and rounded and therefore the sum of individual figures might deviate from the presented total figure.

Derivative contracts

Stora Enso is exposed to several financial market risks that the Group is responsible for managing under policies approved by the Board of Directors. The objective is to have cost-effective funding in Group companies and to manage financial risks using financial instruments in order to decrease earnings volatility. The main exposures for the Group are interest rate risk, currency risk, funding risk and commodity price risk, especially for fiber and energy. The parent company manages these risks centrally in the Group. The Group's risk management principles are presented in more detail in note 5.1 Financial Risk Management to the consolidated financial statements.

Derivative contracts are measured at fair value on the balance sheet. Derivatives with external counterparties that are subject to hedge accounting are recognised as financial assets and liabilities at fair value through the income statement in the same manner as the parent company's derivatives with other Group companies as counterparties. The parent company's derivative contracts that are used to hedge the parent company's own cash flow are measured at fair value, and the change in fair value (effective part) is recognised, in line with hedge accounting principles, in the fair value reserve in equity on the balance sheet, while the ineffective part is recognised in the parent company's income statement. The change in fair value of derivatives not included in hedge accounting is entered immediately in the income statement.

Interest income and expenses related to derivatives that are used to manage the interest rate risk are allocated over the contract period and are used to adjust interest expenses related to hedged loans. Option premiums are recognised as advance payments until the options mature.

With regard to derivatives, more information about the measurement principles, fair values and changes in fair value is provided in note 25 Financial instruments.

Foreign currency transactions

Transactions in foreign currencies are recorded at the rate of exchange prevailing at the transaction date, but at the end of the month foreign-currency-denominated receivables and liabilities are translated using the month-end exchange rate.

Equity incentive schemes

The employees covered by the scope of Stora Enso Oyj's share-based incentive schemes are awarded with shares in the company. The awarded shares and the costs of the schemes are recognised as an expense in the income statement when the shares are delivered. The settlement covers taxes and similar changes incurred. The principles of the Group's share opportunity programmes are presented in more detail in note 3.4 Employee variable compensation and equity incentive schemes to the consolidated financial statements.

Pensions

Statutory pension security is arranged through employment pension insurance companies outside the Group. Some employees have additional pension security through life insurance companies outside the Group. Pension contributions are allocated in accordance with performance-based salaries and wages for the financial period.

Non-current assets

The balance sheet value of intangible and tangible assets is their direct acquisition cost less depreciation according to plan and any impairment. Depreciation according to plan is recognised for intangible and tangible assets, based on their expected useful lives.

Depreciation is based on the following useful lives:	
Buildings and structures	10–50 years
Production machinery and equipment	10–20 years
Light machinery and equipment	3–5 years
Intellectual property rights	3–20 years

No depreciation is recognised for land and water areas.

Interest in Group companies

Interest in the Group companies is measured at cost less any impairment losses. Interest in the Group companies is assessed for impairment annually.

The fair value of the subsidiary shares has been assessed mainly based on income approach, in which the fair value of investment is calculated based on the discounted cash flow model (DCF). Impairment need is assessed by comparing the fair value of the subsidiary shares to the book value in the parent company's balance sheet and possible write down is booked through profit or loss, if considered permanent in nature.

Loan receivables

Loan receivables are debt instruments with fixed or determinable payments that are not quoted on an active market. They are recorded initially at fair value and subsequently measured at an amortised cost. Investments in subsidiaries and other companies are measured at cost, or fair value in case the fair value is less than cost. Loan receivables are presented in the balance sheet item Investments. The loan receivables are mainly from Group companies.

Inventories

Inventories are measured at acquisition cost or at net realisable value if lower. Acquisition cost is determined using the FIFO method or the weighted average cost method. The cost of finished goods and work in progress comprises raw materials, direct labour, depreciation and other direct costs, as well as the related production overhead. Net realisable value is the estimated selling price less the costs of completion and sale.

Leasing

Leasing payments are recognised in other operating expenses. The remaining leasing payments under leasing agreements are presented in note 24 Commitments and Contingencies.

Expenditure on research and development

Expenditure on research and development is recognised as an expense for the financial period.

Income taxes

The tax expense on the income statement includes income taxes based on the taxable profit for the financial period and tax adjustments for previous periods. The parent company does not recognise deferred tax assets and liabilities, excluding derivatives, in its financial statements. Deferred tax assets and liabilities that can be recognised on the balance sheet are presented in note 21 Deferred tax liabilities and receivables.

Obligatory provisions

Future costs and losses that no longer generate corresponding income, to which the company is committed or by which the company is obligated, are recognised in the income statement according to their nature and in obligatory provisions on the balance sheet.

Emission rights

During 2023, 0.4 million tonnes of free emission allowances in accordance with the EU Emissions Trading Directive were allocated to the company. Emission allowances are recognised through a net cash cost basis, meaning that the difference between the actual emissions and the emission allowances received is recognised through profit or loss if the actual emissions are larger than the emission allowances received. During the financial period, the emissions emitted were estimated at 0.3 million tonnes. The emission rights purchased during the financial period are recognised in other operating expenses, and the emission rights sold during the financial period are recognised in other operating income.

At the end of the financial period, the market value of the emission rights was EUR 77.25 per tonne.

Comparability of the information for the financial period

Net sales of Stora Enso Oyj include the group's internal production and sales service charges. The parent company and certain group companies have agreed on allocation of profit based on the operating model of the group. The allocation of profit is presented as other operating income or expenses. The operating model of the Group came into effect in 2022.

The derivative accounts intended to hedge trade receivables and the accounts for the exchange rate differences of sales related to these hedges were transferred from net sales and other operating income to financial income and expenses during the 2023 financial period.

Note 2 Net sales by division and market area

EUR million	2023	2022
By division		
Packaging Materials	1,564	1,882
Biomaterials	351	296
Forest	596	700
Wood Products	158	228
Other	140	219
Total	**2,809**	**3,325**
Distribution by region		
Finland	1,256	1,361
Other Europe	888	1,076
North and South America	211	298
Asia and Oceania	279	381
Africa	99	118
Others	76	91
Total	**2,809**	**3,325**

Note 3 Other operating income

EUR million	2023	2022
Rent and equivalents	3	3
Gains on sale of fixed assets	0	0
Insurance compensation	0	0
Production and maintenance services	0	1
Subsidies, grants and equivalents	11	2
Administration services	64	60
Proceeds from sales of emission rights	75	52
Other operating income[1]	505	586
Total	**658**	**703**

[1] Other operating income in 2022 and 2023 consists mainly of items relating to the division based operating model in the Group.

Note 4 Materials and services

EUR million	2023	2022
Materials and supplies		
Purchases during the period	1,402	1,822
Change in inventories +/-	59	-105
External services	524	571
Total Materials and Services	**1,985**	**2,288**

Note 5 Personnel expenses and average number of employees

EUR million	2023	2022
Salaries and fees	278	263
Statutory employer costs		
Pensions	52	47
Other personnel costs	10	9
Total	**341**	**320**

Remuneration for the CEO and the members of the Board of Directors

Remuneration for the CEO and the members of the Board of Directors is presented in note 3.2 Board and executive remuneration to the consolidated financial statements.

Pension liabilities for the CEO

Pension liabilities for the CEO are presented in note 3.2 Board and executive remuneration to the consolidated financial statements.

Receivables from management

There were no loan receivables from the company's management.

Average number of employees	2023	2022
Number of employees during the financial period	4,048	4,066

Note 6 Depreciation and impairment

EUR million	2023	2022
Depreciation according to plan	126	133
Impairment of fixed assets	148	1
Total	**274**	**133**

Depreciation and amortisation on each item in the statement of financial position is included under intangible and tangible assets.

Note 7 Other operating expenses

EUR million	2023	2022
Product freight	204	267
Sales commissions	60	55
Rental costs	22	20
Administration and office services	330	319
Insurance premiums	18	12
Other personnel expenses	18	17
Public and other relations	4	4
Emission rights expenses	60	40
Other operating expenses[1]	563	154
Merger loss	4	0
Total	**1,283**	**889**

[1] Other operating expenses in 2022 and 2023 consist mainly of items relating to the division based operating model in the Group.

Note 8 Auditors' fees

EUR million	2023	2022
Audit fees	1	1
Other audit-related fees	0	0
Tax fees	0	0
Other fees	0	0
Total	**2**	**2**

Note 9 Financial income and expenses

EUR million	2023	2022
Dividend income		
From Group companies	346	601
From associated companies	25	25
From others	1	0
Total	**371**	**626**
Interest income from non-current investments		
From Group companies	96	52
From associated companies	1	0
From others	1	2
Total	**98**	**55**
Other interest and financial income		
From Group companies	48	20
From associated companies	0	9
From others	54	14
Total	**102**	**44**
Total financial income	**571**	**725**
Interest and other financial expenses		
To Group companies	-69	-38
Other financial expenses	-149	-93
Total	**-217**	**-131**
Impairment on investments		
Impairment on investments in non-current assets	-75	-305
Total financial expenses	**-293**	**-435**
Total financial income and expenses	**278**	**290**
The item "Financial Income and Expenses" includes exchange rate gains/losses (net)	15	-17

Note 10 Appropriations

EUR million	2023	2022
Difference between depreciation according to plan and depreciation recognised in taxation	89	-56
Group contributions received	133	0
Group contributions paid	0	-275
Total appropriations	**222**	**-331**

Note 11 Income tax expense

EUR million	2023	2022
Income taxes from primary operations for the period	0	-28
Total income tax	**0**	**-28**

Financials

Note 12 Environmental expenses

EUR million	2023	2022
Materials and services	40	43
Personnel expenses	3	3
Depreciation and impairment	29	12
Total	**72**	**58**
Air quality protection	19	9
Wastewater treatment	34	25
Waste management	12	15
Soil and groundwater protection	1	1
Other environmental protection measures	5	7
Total	**72**	**58**

Note 13 Intangible and tangible assets

Intangible assets

EUR million	Intellectual property rights	Other non-current expenditure	Advance payments and acquisitions in progress	Total
Acquisition cost 1 Jan	171	23	14	**208**
Increases	3	2	17	**23**
Decreases	0	0	0	**0**
Reclassification	7	2	-7	**1**
Acquisition cost 31 Dec	180	26	25	**231**
Accumulated depreciation and impairment 1 Jan	-138	-21	0	**-158**
Accumulated depreciation on decreases and reclassifications	0	0	0	**0**
Depreciation for the period	-14	-1	0	**-15**
Impairments	-2	-3	0	**-6**
Accumulated depreciation 31 Dec	-153	-25	0	**-178**
Book value on 31 December 2023	**27**	**2**	**25**	**53**
Book value on 31 December 2022	33	2	14	**49**

Tangible assets

EUR million	Land and water areas	Buildings and structures	Plant and equipment	Other tangible assets	Advance payments and acquisitions in progress	Total
Acquisition cost 1 Jan	18	605	2,853	181	107	**3,764**
Increases	0	13	78	1	49	**141**
Decreases	0	-3	-8	0	0	**-10**
Reclassification	0	10	83	1	-96	**-1**
Acquisition cost 31 Dec	18	626	3,006	184	59	**3,893**
Accumulated depreciation and impairment 1 Jan	0	-433	-2,140	-160	0	**-2,734**
Accumulated depreciation on decreases and reclassifications	0	3	8	0	0	**10**
Depreciation for the period	0	-14	-95	-2	0	**-112**
Impairment for the period	0	-22	-119	-2	0	**-142**
Accumulated depreciation 31 Dec	0	-466	-2,347	-165	0	**-2,977**
Increase in value 1 Jan	2	0	0	0	0	**2**
Increase in value 31 Dec	2	0	0	0	0	**2**
Book value on 31 December 2023	**20**	**160**	**659**	**19**	**59**	**917**
Book value on 31 December 2022	20	173	712	21	107	**1,032**
Production plant and equipment						
Book value on 31 December 2023			626			
Book value on 31 December 2022			693			

Advance payments and acquisitions in progress

EUR million	Intangible assets	Buildings and structures	Plant and equipment	Total
Acquisition cost 1 Jan	14	5	101	**121**
Increases	17	1	47	**66**
Reclassification	-7	-5	-91	**-104**
Acquisition cost 31 Dec 2023	25	1	58	**84**

Financials

Capitalised environmental expenditure

Tangible assets

31 Dec 2023

EUR million	Land and water areas	Buildings and structures	Plant and equipment	Other tangible assets	Advance payments and acquisitions in progress	Total
Acquisition cost 1 Jan	4	21	53	4	19	**101**
Increases	0	5	17	0	-1	**21**
Depreciations for the period	0	-4	-24	-1	0	**-29**
Book value on 31 December 2022	4	22	46	3	18	**93**
Air quality protection	1	6	33	0	11	**50**
Wastewater treatment	0	4	10	0	4	**18**
Waste management	2	1	1	2	1	**7**
Soil and groundwater protection	1	12	2	1	2	**17**
Noise and vibration prevention	0	0	1	1	0	**1**
	4	22	46	3	18	**93**

31 Dec 2022

EUR million	Land and water areas	Buildings and structures	Plant and equipment	Other tangible assets	Advance payments and acquisitions in progress	Total
Acquisition cost 1 Jan	4	24	51	4	11	**95**
Increases	1	0	9	1	8	**18**
Depreciations for the period	0	-2	-8	-1	0	**-12**
Book value on 31 December 2021	4	22	52	5	19	**101**
Air quality protection	1	7	35	0	12	**55**
Wastewater treatment	0	2	13	0	4	**20**
Waste management	2	0	1	3	0	**7**
Soil and groundwater protection	1	12	2	0	2	**18**
Noise and vibration prevention	0	0	1	1	0	**1**
	4	22	52	5	19	**101**

In 2023 and 2022, no environmentally based fines, charges or compensation were paid. Subsidies were received for environmental protection of EUR 0.9 million (EUR 1.2 million in 2022)

Note 14 Non-current investments in shares and loan receivables

EUR million	Shares in Group companies	Loan receivables from Group companies	Shares in associated companies	Loan receivables from associated companies	Other shares	Other receivables	Total investments
Acquisition cost 1 Jan	6,845	1,428	37	2	193	102	**8,606**
Increases	0	488	0	23	16	1	**529**
Decreases	-15		0	0	0	-34	**-49**
Acquisition cost 31 Dec	6,830	1,916	37	25	209	68	**9,086**
Impairments 1 Jan	-412	0	0	0	-1	-5	**-419**
Increases	-71	0	0	0	0	0	**-71**
Impairments 31 Dec	-483	0	0	0	-1	-5	**-490**
Book value on 31 December 2023	**6,347**	**1,916**	**37**	**25**	**208**	**63**	**8,596**
Book value on 31 December 2022	6,432	1,428	37	2	191	97	**8,187**

Note 15 Inventories

	2023	2022
Materials and supplies	229	288
Work in progress	9	11
Finished goods	206	247
Other inventories	0	0
Prepayments	28	27
Total	**473**	**574**

Note 16 Short-term receivables

EUR million	2023	2022
Short-term loan receivables		
Receivables from Group companies		
Loan receivables	1,455	536
Interest receivables	38	50
Total	**1,493**	**585**
Receivables from others		
Loan receivables	11	0
Commodity derivative receivables	0	18
Other receivables	36	29
Interest receivables	12	23
Total	**59**	**69**
Total current interest-bearing receivables	**1,553**	**654**
Current non-interest-bearing receivables		
Receivables from Group companies		
Trade receivables	240	150
Other receivables	274	183
Commodity derivative receivables	0	0
Accrued income	0	0
Total	**515**	**333**
Receivables from equity accounted investments		
Trade receivables	1	0
Total	**1**	**0**
Receivables from others		
Trade receivables	137	219
Other receivables	32	41
Accrued income	21	30
Total	**189**	**290**

Stora Enso may enter into factoring agreements to sell trade receivables in order to accelerate cash conversion. Nominally, such agreements led to the nominal derecognition of EUR 42,8 million (EUR 30 million in 2022) by the end of the financial period. The continuing involvement of Stora Enso in the sold receivables was estimated as being insignificant due to the non-recourse nature of the factoring arrangements involved.

EUR million	2023	2022
Total current non-interest-bearing receivables	**705**	**624**
Total current receivables	**2,257**	**1,278**
Significant accruals		
Tax-equivalent receivables	0	3
Advances paid	8	8
Other accruals	13	19
Total	**21**	**30**

Note 17 Financial securities

EUR million	2023	2022
From Group companies	16	620
From others	1,534	510
Total	**1,550**	**1,130**

Note 18 Shareholders' equity

EUR million	2023	2022
Restricted shareholders' equity		
Share capital 1 Jan	1,342	1,342
Share capital 31 Dec	1,342	1,342
Share premium fund 1 Jan	3,639	3,639
Share premium fund 31 Dec	3,639	3,639
Fair value reserve 1 Jan	25	-6
Increase (-) / Decrease (+)	-11	32
Fair value reserve 31 Dec	14	25
Total restricted equity	**4,995**	**5,006**

Change in share capital and number of shares are presented in Note 5.5 to the consolidated financial statements.

EUR million	2023	2022
Non-restricted shareholders' equity		
Invested unrestricted equity reserve 1 Jan	633	633
Invested unrestricted equity reserve 31 Dec	633	633
Retained earnings 1 Jan	1,338	1,356
Dividend distribution	-473	-434
Retained earnings 31 Dec	864	922
Profit for the period	45	416
Total non-restricted equity	**1,542**	**1,971**
Total shareholders' equity	**6,537**	**6,977**
Calculation of distributable equity 31 Dec		
Invested unrestricted equity reserve 31 Dec	633	633
Retained earnings 31 Dec	864	922
Profit for the period	45	416
Total	**1,542**	**1,971**

Financials

Note 19 Accumulated appropriations

EUR million	2023	2022
Depreciation difference		
Intellectual property rights	-4	-1
Goodwill	0	0
Other non-current expenditure	-2	1
Buildings and structures	13	34
Plant and equipment	198	257
Other tangible assets	-3	-1
Total	**201**	**290**

Note 20 Obligatory provisions

EUR million	2023	2022
Restructuring provisions	20	3
Environmental provisions	14	20
Pension provisions	1	1
Other provisions	1	0
Total	**36**	**24**

Note 21 Deferred tax liabilities and receivables

EUR million	2023	2022
Deferred tax liability due to depreciation difference	-23	-41
Deferred tax receivables and liabilities due to derivatives	-4	-6
Deferred tax receivable due to loss	48	0
Deferred tax receivable due to provisions	7	5
Deferred tax receivables and liabilities due to other temporary differences	-1	-1
Total deferred tax receivable	**27**	**-43**

Deferred tax liabilities and receivables excluding derivatives have not been recognised on the balance sheet.

Note 22 Non-current liabilities

EUR million	2023	2022
Non-current liabilities		
Bonds	3,472	2,165
Loans from credit institutions	651	100
Other non-current liabilities	0	0
Other non-current liabilities to group companies	0	0
Total	**4,123**	**2,265**
Liabilities with maturities later than five years		
Bonds	1,303	1,075
Other non-current liabilities	4	5
Total	**1,308**	**1,080**

Specifications of Bond loans are presented in Note 5.3 Interest-bearing liabilities in consolidated financial statements.

Note 23 Current liabilities

EUR million	2023	2022
Current interest-bearing liabilities		
Liabilities to Group companies		
Other loans	2,396	1,966
Commodity derivative liabilities	0	18
Interest due	0	0
Total	**2,396**	**1,984**
Liabilities to others		
Other loans	224	141
Interest due	50	32
Bonds	136	300
Loans from credit institutions	100	250
Total	**511**	**722**
Total current interest-bearing liabilities	**2,907**	**2,706**
Current non-interest-bearing liabilities		
Liabilities to Group companies		
Trade payables	72	90
Other loans	0	275
Commodity derivative liabilities	1	6
Accrued liabilities and deferred income	3	0
Total	**75**	**371**
Liabilities to associated companies		
Trade payables	126	98
Total	**126**	**98**
Liabilities to others		
Advances received	6	5
Trade payables	393	468
Other loans	22	27
Accrued liabilities and deferred income	82	134
Total	**503**	**635**
Total current non-interest-bearing liabilities	**704**	**1,105**
Total current liabilities	**3,611**	**3,811**
Substantial accrued liabilities and deferred income		
Payroll payments accrued	56	66
Income tax accrued	0	28
Annual discounts	12	21
Other accrued liabilities and deferred income	14	18
Total	**82**	**134**

Financials

Note 24 Commitments and contingencies

EUR million	2023	2022
For Group debt		
Guarantees	734	794
On behalf of Associated companies		
Guarantees	5	37
On behalf of others		
Guarantees	10	0
Loan commitments	0	36
Other commitments, own		
Leasing commitments, in next 12 months	9	8
Leasing commitments, after next 12 months	13	14
Mortgages	0	0
Lease commitments	5	5
Other commitments	15	12
Total	**792**	**906**
Guarantees	748	831
Leasing commitments	23	22
Lease commitments	5	5
Other commitments	15	47
Total	**792**	**906**

Contingent liabilities

Stora Enso Oyj has implemented significant restructuring measures in recent years. These measures have included divestments of business operations and production units, as well as mill closures. These transactions include a risk of possible environmental or other obligations, the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. A provision has been recognised for obligations for which the related amount can be estimated reliably and the occurrence of which is considered likely.

Stora Enso Oyj has been granted various investment subsidies and has given certain investment commitments in Finland. If committed planning conditions are not met, local officials may pursue administrative measures to reclaim some of the formerly granted investment subsidies or to impose penalties on Stora Enso Oyj and the outcome of such a process could result in a negative financial impact on Stora Enso Oyj.

Stora Enso Oyj is party to legal proceedings that arise in the ordinary course of business and primarily involve claims arising out of commercial law. The company management does not believe that such processes as a whole, before any insurance compensation, would have significant impacts on the company's financial position or profit from operations. Some of the most significant legal proceedings are described in note 7.1 to the consolidated financial statements.

Note 25 Financial instruments

Valuation of derivatives

The fair value is defined as the amount at which a derivative instrument could be exchanged in an orderly transaction between market participants at the measurement date. The fair values of such instruments are determined on the following basis:

- Foreign exchange forward contract fair values are calculated using forward exchange rates on the reporting date.
- Foreign exchange option contract fair values are calculated using reporting date market rates together with common option pricing models.
- Commodity contract fair values are computed with reference to quoted market prices on futures exchanges or other reliable market sources.
- Interest rate swaps fair values are calculated using a discounted cash flow method.

Fair value hierarchy

Stora Enso uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities;
- Level 2: other techniques, for which all inputs that have a significant effect on the recorded fair value are observable, either directly or indirectly;
- Level 3: techniques which use inputs that have a significant effect on the recorded fair values that are not based on observable market data.

The parent company's derivatives are classified as Level 2 in the fair value hierarchy.

Nominal and fair values of derivative instruments

	As at 31 December 2023			
EUR million	Nominal values	Positive fair values	Negative fair values	Fair values, Net
Cash flow hedges entered on behalf of the parent company and its subsidiaries, for which hedge accounting is applied in target companies				
Foreign exchange forwards	2,284	34	-34	1
Foreign exchange options	667	7	-5	2
Commodity contracts	27	1	-1	0
Interest rate swaps	443	16	0	16
Non-hedge accounted derivatives				
Foreign exchange forwards	588	5	-5	0
Total	**4,009**	**63**	**-44**	**19**
of which against subsidiaries	1,586	6	-37	-31
of which against external parties	2,423	56	-7	49

	As at 31 December 2022			
EUR million	**Nominal values**	**Positive fair values**	**Negative fair values**	**Fair values, Net**
Cash flow hedges entered on behalf of the parent company and its subsidiaries, for which hedge accounting is applied in target companies				
Currency forwards	1,523	29	-26	3
Currency options	3,222	28	-28	0
Commodity contracts	10	18	-18	0
Interest rate swaps	442	28	0	28
Non-hedge accounted derivatives				
Currency forwards	1,493	8	-8	0
Commodity contracts	11	9	0	9
Total	**6,702**	**120**	**-79**	**41**
of which against subsidiaries	2,571	29	-45	-15
of which against external parties	4,131	91	-34	57

Fair value reserve

The net amount of the parent company's unrealised cash flow hedge gains in the fair value reserve was EUR 14.3 (25.3) million, which was related to currency and interest rate derivatives. Currency and interest rate derivatives also include a gain of EUR 0.2 (0.1) million related to the time value of options. These unrealised gains are recognised in the income statement upon the maturity of the hedging contracts. The longest hedging contract will mature in 2027. However, the majority of the contracts are expected to mature during 2024. The ineffective portions of hedges are recognised as adjustments to financial items, revenue or materials and services according to the hedged item. During 2023 and 2022, there were no material ineffectiveness related to hedges recognised in the income statement. Derivatives used in currency cash flow hedges are mainly forward contracts and options. Swaps are mainly used in commodity hedges and interest rate cash flow hedges.

Hedge gains and losses in operating profit

EUR million	2023	2022
Cash flow hedge accounted derivatives		
Currency hedges	2	-20
Total	**2**	**-20**
As adjustments to sales	2	-20
As adjustments to materials and services	0	0
Items realised from the fair value reserve that are recognised in the income statement	**2**	**-20**
Net losses from cash flow hedges	**2**	**-20**
Non-hedge accounted derivatives		
Currency derivatives	0	-5
Net gains on non-hedge accounted derivatives	**0**	**-5**
Net hedge gains/losses in operating profit	**2**	**-25**

Hedge gains and losses in financial items

EUR million	2023	2022
Non-hedge accounted derivatives		
Currency derivatives	-21	-1
Net gains/losses in financial items	**-21**	**-1**

Sensitivity of currency derivatives to strengthening of EUR

	31 December 2023		
EUR million	**SEK**	**USD**	**GBP**
Currency change against EUR	-5.0%	-5.0%	-5.0%
Nominals of currency derivatives hedging next 12 months cash flow in EUR	0	-136	-11
Estimated effect on fair value reserve in EUR (net of taxes)	0	5	0

Sensitivity of commodity derivatives to price risk

There were no outstanding commodity derivatives related to parent company's cash flows at the end of reporting period.

More detailed information about financial instruments are presented in note 5.1 Financial risk management, note 5.2 Fair values and note 5.4 Derivatives to the consolidated financial statements.

Note 26 Related party transactions

EUR million	2023	2022
Related party transactions with associated companies and joint ventures:		
Purchase of materials and supplies during the year	23	63
Interest income on non-current loan receivables	1	0
Non-current loan receivables at year end	26	2
Trade payables at year end	126	92

The Group's principles for related party transactions are presented in Note 6.3 to the consolidated financial statements.

Note 27 Separated Electricity business statements

Basis of preparation of the separated electricity business statements: income, costs, assets and liabilities immediately attributable to the electricity business are allocated directly and indirect costs and non-attributable items are allocated according to allocation or allocation keys.

Electricity business income statement

EUR million	2023	2022
Sales	126	170
Other operating income	1	2
Materials and services	-113	-161
Personnel expenses	0	0
Depreciation and impairment	-14	-7
Other operating expenses	-1	-1
Operating profit	**-2**	**4**
Financial income and expenses	0	0
Profit before Appropriations and Taxes	**-2**	**4**
Appropriations	5	-17
Profit before Taxes	**3**	**-13**
Income tax expense and windfall tax	-1	0
Profit / loss for the period	**2**	**-13**

Electricity business statement of financial position

EUR million	2023	2022
Assets		
Non-current assets		
Tangible assets	47	53
Investments	190	190
Non-current assets total	**237**	**243**
Current assets		
Short-term receivables	24	21
Total current assets	24	21
Total assets	**261**	**264**
Equity and liabilities		
Equity		
Share capital	35	35
Share premium	95	95
Invested non-restricted equity fund	17	17
Retained earnings	39	52
Profit for the period	2	-13
Total equity	**189**	**186**
Accumulated appropriations	**10**	**15**
Liabilities		
Non-current liabilities	52	56
Current liabilities	10	7
Total liabilities	**62**	**63**
Total equity and liabilities	**261**	**264**

Signatures for the financial statements

There have been no material changes in the Parent Company's financial position since 31 December 2023. The liquidity of the Parent Company remains good and the proposed dividend does not risk the solvency of the Company.

31 January 2024

Kari Jordan
Chair

Håkan Buskhe
Vice Chair

Elisabeth Fleuriot

Helena Hedblom

Astrid Hermann

Christiane Kuehne

Antti Mäkinen

Richard Nilsson

Hans Sohlström
President and CEO

Financials

Auditor's Report (Translation of the Finnish Original)

To the Annual General Meeting of Stora Enso Oyj

Report on the Audit of the Financial Statements

In our opinion

- the consolidated financial statements give a true and fair view of the group's financial position, financial performance and cash flows in accordance with IFRS Accounting Standards as adopted by the EU
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report to the Audit Committee.

What we have audited

We have audited the financial statements of Stora Enso Oyj (business identity code 1039050-8) for the year ended 31 December 2023. The financial statements comprise:

- the consolidated statement of financial position, consolidated income statement, consolidated statement of comprehensive income, statement of changes in equity, consolidated cash flow statement and notes to the consolidated financial statements, which include material accounting policy information and other explanatory information
- the parent company statement of financial position, parent company income statement, parent company cash flow statement and notes to the parent company financial statements.

Basis for Opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

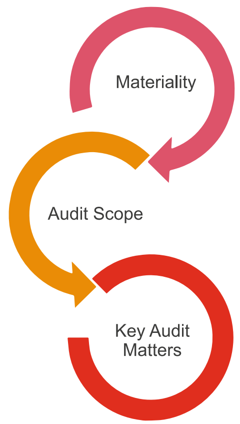
Independence

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge and belief, the non-audit services that we have provided to the parent company and group companies are in accordance with the applicable law and regulations in Finland and we have not provided non-audit services that are prohibited under Article 5(1) of Regulation (EU) No 537/2014. The non-audit services that we have provided are disclosed in note 2.2 to the Consolidated Financial Statements.

Our Audit Approach

Overview



- We have applied an overall group materiality of EUR 60 million.
- We performed audit procedures at 24 reporting components in 11 countries that are considered significant based on our overall risk assessment and materiality.
- Valuation of forest assets
- Provisions and contingent liabilities
- Accounting for business combinations

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where management made subjective judgements; for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain.

Materiality

The scope of our audit was influenced by our application of materiality. An audit is designed to obtain reasonable assurance whether the financial statements are free from material misstatement. Misstatements may arise due to fraud or error. They are considered material if individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Based on our professional judgment, we determined certain quantitative thresholds for materiality, including the overall group materiality for the consolidated financial statements as set out in the table below. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures and to evaluate the effect of misstatements on the financial statements as a whole.

Overall group materiality	EUR 60 million
How we determined it	Based on operating profit and total assets
Rationale for the materiality benchmark applied	We chose operating profit and total assets as the benchmarks because, in our view, they are relevant benchmarks against which the performance of the group is commonly measured by users of the financial statements.

How we tailored our group audit scope

We tailored the scope of our audit, taking into account the structure of the group, the accounting processes and controls, and the industry in which the group operates.

The Group operates through a number of legal entities or other reporting components globally. We determined the nature, timing and extent of audit work that needed to be performed at reporting components by us, as the group engagement team, or component auditors operating under our instruction. Where the work was performed by component auditors, we issued audit instructions to those auditors including our risk analysis, materiality and global audit approach. We performed audit procedures at 24 reporting components in 11 countries that are considered significant based on our overall risk assessment and materiality. We have considered that the remaining reporting components do not present a reasonable risk of material misstatement for consolidated financial statements and thus our procedures related to these reporting components have been limited to analytical procedures performed at group level and to possible targeted audit procedures over individual significant balances.

By performing the procedures above at reporting components, combined with additional procedures at the group level, we have obtained sufficient and appropriate evidence regarding the financial information of the group as a whole to provide a basis for our opinion on the consolidated financial statements.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

As in all of our audits, we also addressed the risk of management override of internal controls, including among other matters consideration of whether there was evidence of bias that represented a risk of material misstatement due to fraud.

Key audit matter in the audit of the group	How our audit addressed the key audit matter
Valuation of forest assets *Refer to Note 1.2 and Note 4.2 in the consolidated financial statements for the related disclosures.* Forest assets comprise of biological assets and forest land excluding leased forest land assets. As of December 31, 2023 the fair value of the Group's forest assets owned through subsidiaries, joint operations and associated companies was EUR 8 522 million. The fair value of EUR 6 123 million was related to biological assets and EUR 2 399 million was related to forest land. Forest assets in Sweden and Finland are recognised at fair value and valued by using a market approach method on the basis of the forest market transactions in the areas where Stora Enso's forests are located. Market prices between areas vary significantly and judgment is applied to define relevant areas for market transactions used in the valuation. Market transaction data is adjusted to consider characteristics and nature of the Group's forest assets and to exclude certain non-forest assets and transactions considered as outliers compared to other transactions. Biological assets valuation is calculated based on a discounted cash flow (DCF) method in accordance with IAS 41 Agriculture. For forest land the revaluation method is applied as defined in IAS 16 Property, plant and equipment. Forest land is revalued using a DCF method based on estimated future net cash flow streams related to trees to-be-planted in the future as well as other income, such as hunting rights, wind power leases and soil material sales. Total value determined for biological assets and forest land agrees to the market transaction based fair value of forest assets as a discount rate implied by the market transactions is used in the DCF method to value these assets. The value of biological assets outside Sweden and Finland is measured based on fair value less cost to sell. The fair value is determined using a DCF method based on sustainable forest management plans taking into account the growth potential of one cycle. The one cycle varies depending on the geographic location and species. Determining the discounted cash flows require estimates of growth, harvest, sales price and costs. The other European forest lands are revalued by using a DCF method based on its estimated future net cash flows related to trees to-be-planted in the future as well as other non-forest related income. The forest land for the plantations is accounted at cost. Due to the level of judgment involved in the valuation of forest assets as well as the significance of forest assets to the Group's financial position, this is considered to be a key audit matter.	We obtained an understanding of management's forest assets valuation process, evaluated the design and tested the operating effectiveness of internal controls related to directly and indirectly owned forest assets. Our audit procedures over valuation of directly owned forest asset included: • Evaluation of the methodology adopted by management for the valuation; • Testing the mathematical accuracy of the model used for valuation; • Assessment of the discount rates applied in the valuation; • Assessment of the other key valuation assumptions; and • Validation of key inputs and data used in the valuation model including sales price assumptions, growth assumptions and cost assumptions. In addition, specific to the market transaction based valuation our audit procedures included: • Assessment of the definition of relevant areas for market transactions used in the valuation; • Assessment of the adjustments made to the market transaction data; and • Validation of key inputs and data used in the valuation model including market transaction data and volume of standing trees. We involved valuation specialists in the audit work over valuation of directly owned forest assets. Related to indirectly owned forest assets we have communicated with the auditors of the three largest associates and joint operations. As part of the communication, among other things, we have evaluated the audit procedures performed and conclusions reached related to valuation of biological assets. In addition, we assessed the appropriateness of disclosures related to forest assets.

Financials

Key audit matter in the audit of the group	How our audit addressed the key audit matter
Provisions and contingent liabilities *Refer to Note 1.2, Note 4.9 and Note 7.1 in the consolidated financial statements for the related disclosures.* As of 31 December 2023, the Group had environmental, restructuring and other provisions totaling EUR 168 million. In addition, the Group has disclosed significant open legal cases and other contingent liabilities in Note 7.1. The assessment of the existence of the present legal or constructive obligation, the analysis of the probability of the outflow of future economic benefits, and making a reliable estimate, require management's judgment to ensure appropriate accounting and disclosures. Due to the level of judgment relating to recognition, valuation and presentation of provisions and contingent liabilities, this is considered to be a key audit matter.	We obtained an understanding of management's process to identify new obligations and changes in existing obligations. We analysed significant changes in material provisions from prior periods and obtained a detailed understanding of these changes and assumptions applied. Our audit procedures related to material provisions recognized included: • Assessment of the recognition criteria for the liability; • Evaluation of the methodology adopted by management for the measurement of the liability; • Testing of the mathematical accuracy of the measurement calculation; • Assessment of the discount rates applied in the measurement; and • Assessment of the other key measurement assumptions and inputs. We reviewed minutes of the meetings of the board of directors and board committees. We assessed the appropriateness of the presentation of the most significant contingent liabilities in the consolidated financial statements.
Accounting for business combinations *Refer to Note 6.1 in the consolidated financial statements for the related disclosures.* The Group acquired control in De Jong Packaging Group in January, 2023. The acquisition was accounted for as a business combination. The cash purchase consideration was EUR 612 million, excluding a contingent earn-out component with a maximum amount of EUR 45 million which will be settled in cash in 2024 and is subject to De Jong Packaging Group achieving certain earnings thresholds. The contingent consideration is measured at its fair value and is estimated at EUR 0 million at the date of acquisition. The fair value of net assets acquired was estimated to be EUR 265 million. The business combination resulted in recognition of goodwill of EUR 349 million, customer related intangible assets of EUR 167 million and marketing related intangible assets of EUR 39 million. Due to the level of judgment included in accounting for business combinations and the valuation of the net assets acquired, as well as the significance of the business combination to the Group's financial position this is considered to be a key audit matter.	We obtained an understanding of management's process related to accounting for business combinations and estimating the value of the net assets acquired. Our audit procedures over accounting for business combinations and valuation of net asset acquired included: • Testing the cash purchase consideration; • Evaluation of the methodology adopted by management for the valuation; • Testing the mathematical accuracy of the model used for the valuation; • Assessment of the key valuation assumptions; and • Validation of key inputs and data used in the valuation model. We involved valuation specialists in the audit work over valuation of the net assets acquired. In addition, we assessed the appropriateness of disclosures related to the business combination.

We have no key audit matters to report with respect to our audit of the parent company financial statements.

There are no significant risks of material misstatement referred to in Article 10(2c) of Regulation (EU) No 537/2014 with respect to the consolidated financial statements or the parent company financial statements.

Responsibilities of the Board of Directors and the Managing Director for the Financial Statements

The Board of Directors and the Managing Director are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with IFRS Accounting Standards as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the Managing Director are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Managing Director are responsible for assessing the parent company's and the group's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or to cease operations, or there is no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

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Financials

- Conclude on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent company or the group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Other Reporting Requirements

Appointment

We were first appointed as auditors by the annual general meeting on 28 March 2018.

Other Information

The Board of Directors and the Managing Director are responsible for the other information. The other information comprises the report of the Board of Directors.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. With respect to the report of the Board of Directors, our responsibility also includes considering whether the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

In our opinion

- the information in the report of the Board of Directors is consistent with the information in the financial statements
- the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement of the report of the Board of Directors, we are required to report that fact. We have nothing to report in this regard.

Other Statements

We support the proposal that the financial statements are adopted. The proposal by the Board of Directors regarding the distribution of profits is in compliance with the Limited Liability Companies Act. We support that the Board of Directors and the Managing Director of the parent company should be discharged from liability for the financial period audited by us.

Helsinki 12 February 2024

PricewaterhouseCoopers Oy
Authorised Public Accountants

Samuli Perälä
Authorised Public Accountant (KHT)

Capacities by production site in 2024

Packaging Materials

Consumer board	Location	Grade	Capacity 1,000 t
Beihai[1]	CHN	LPB, CUK, FSB, FBB	575
Fors	SWE	FBB	455
Imatra	FIN	FSB, SBS, FBB, LPB	1,230
Ingerois	FIN	FBB	310
Skoghall	SWE	LPB, CUK	950
Total			**3,520**

[1] Divesting process ongoing

Containerboards	Location	Grade	Capacity 1,000 t
Heinola	FIN	SC fluting	300
Ostrołeka	POL	Testliner, PfR fluting, sack paper, wrapping paper, RCF-based liner and fluting	660
Oulu	FIN	Kraftliner, white-top kraftliner	450
Varkaus	FIN	Kraftliner, white-top kraftliner	410
Total			**1,820**

Paper	Location	Grade	Division	Capacity 1,000 t
Anjalankoski	FIN	Book paper	Packaging Materials	185
Langerbrugge	BEL	SC, news	Packaging Materials	555
Total				**740**

Barrier coating	Location	Grade	Capacity 1,000 t
Beihai	CHN	Barrier coating	80
Skoghall (Forshaga)	SWE	Barrier coating	120
Imatra	FIN	Barrier coating	455
Total			**655**

Packaging Solutions

Corrugated packaging	Grade	Capacity million m²
Baltic states	Corrugated packaging	**155**
Kaunas		
Riga		
Tallinn		
Finland	Corrugated packaging	**165**
Lahti		
Kristiinankaupunki		
Poland	Corrugated packaging	**410**
Łódz		
Mosina		
Ostrołeka		
Tychy		
Sweden	Corrugated packaging	**205**
Jönköping		
Skene		
Vikingstad		
Western Europe	Corrugated packaging	**920**
Total	Corrugated packaging	**1,855**

China Packaging	Location	Grade	Capacity million pcs	Capacity million m²
Gaobu, Dongguan	CHN	Consumer packaging	390	30
Qian'an, Hebei	CHN	Consumer packaging	200	20
Wu Jin, Jiangshu	CHN	Consumer packaging	150	20
Total			**740**	**70**

Formed Fibre

Mill	Location	Product	Division	Capacity million pcs
Hylte	SWE	Formed Fiber	Packaging Solutions	90
Skene	SWE	Formed Fiber	Packaging Solutions	17
Total Formed Fibre				**107**

Biomaterials

Chemical Pulp

Mill	Location	Grade	Division	Capacity 1,000 t
Enocell	FIN	Long-fiber	Biomaterials	630
Skutskär	SWE	Short, long-fiber and fluff pulp	Biomaterials	545
Montes del Plata (50% share)	URU	Short-fiber pulp	Biomaterials	750
Veracel (50% share)	BRA	Short-fiber pulp	Biomaterials	575
Total				**2,500**

Chemical Pulp

Mill	Location	Grade	Division	Capacity 1,000 t
Heinola	FIN	NSSC	Packaging Materials	285
Kaukopää, Imatra	FIN	Short and long-fiber	Packaging Materials	825
Ostrołeka	POL	Long-fiber	Packaging Materials	130
Oulu	FIN	Long-fiber	Packaging Materials	550
Skoghall	SWE	Long-fiber	Packaging Materials	390
Tainionkoski, Imatra	FIN	Long-fiber	Packaging Materials	195
Varkaus	FIN	Long-fiber	Packaging Materials	335
Chemical Pulp Total (incl. Biomaterials)				**5,210**

Deinked Pulp (DIP)

Mill	Location	Grade	Division	Capacity 1,000 t
Langerbrugge	BEL	DIP	Packaging Materials	680
Varkaus	FIN	Recycled fiber based pulp	Packaging Solutions	150
Total				**830**

CTMP

Mill	Location	Grade	Division	Capacity 1,000 t
Beihai[1]	CHN	BCTMP	Packaging Materials	210
Fors	SWE	CTMP	Packaging Materials	220
Kaukopää	FIN	CTMP	Packaging Materials	220
Skoghall	SWE	CTMP	Packaging Materials	310
Total				**960**

[1] Divesting process ongoing

Wood Products

Mill	Location	Sawing Capacity 1,000 m³	Further Processing Capacity 1,000 m³	Pellet capacity 1,000 t	CLT capacity 1,000 m³	LVL capacity 1,000 m³
Ala	SWE	400	50	100	-	-
Alytus	LIT	210	115	-	-	-
Bad St. Leonhard	AUT	360	105	-	80	-
Brand	AUT	440	295	-	-	-
Gruvön	SWE	370	150	100	80	-
Honkalahti	FIN	310	70	-	-	-
Imavere	EST	350	160	100	-	-
Launkalne	LAT	270	70	50	-	-
Murow	POL	300	210	-	-	-
Planá	CZE	390	220	-	-	-
Uimaharju[1]	FIN	240	-	-	-	-
Varkaus	FIN	260	120	30	-	85
Veitsiluoto	FIN	200	-	-	-	-
Ybbs	AUT	700	450	-	110	-
Zdírec[2]	CZE	580	220	80	40	-
Total		**5,380**	**2,235**	**460**	**310**	**85**

[1] Uimaharju sawmill belongs to the Biomaterials division.
[2] Theoretical CLT capacity 120,000 m³, limited capacity due to ramp-up.

Abbreviations used in the tables:

BCTMP	bleached chemi-thermo-mechanical pulp
CKB	coated kraft back board
CLT	cross-laminated timber
CTMP	chemi-thermo-mechanical pulp
CUK	coated unbleached kraftboard
DIP	deinked pulp
FBB	folding boxboard
FSB	food service board
LPB	liquid packaging board
LVL	laminated veneer lumber
LWC	light-weight coated paper
NSSC	neutral sulphite semi-chemical pulp
PfR	paper for recycling
SBS	solid bleached sulphate board
SC	supercalendered paper

The formula: (Sum of net saleable production of two best consecutive months / Available time of these two consecutive months) × Available time of the year

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