



Welcome to read about our contribution to the renewable future. Stora Enso's Annual Report 2018 includes our strategic, sustainability and financial performance, and governance.

THE RENEWABLE MATERIALS COMPANY

# Stora Enso Annual Report 2018



Strategy

Sustainability

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Governance



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Annual Report 2018

Stora Enso supports customers to meet consumers' demand for sustainable products based on renewable materials. Our solutions provide low-carbon alternatives to products based on fossil fuels and other non-renewable materials.

# Strategy

Part of Stora Enso's Annual Report 2018



THE RENEWABLE MATERIALS COMPANY



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Our renewable products provide a sustainable alternative to fossil-based materials.



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# This is Stora Enso

Part of the bioeconomy, Stora Enso is a leading global provider of renewable solutions in packaging, biomaterials, wooden constructions and paper. We employ some 26 000 people in more than 30 countries and our shares are listed on the Helsinki (STEAV, STERV) and Stockholm (STE A, STE R) stock exchanges.

Our fibre-based materials are renewable and recyclable. Our solutions provide low-carbon alternatives to products based on fossil fuels and other non-renewable materials. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.







## Strategy

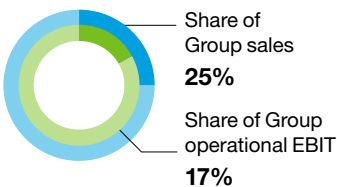
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### Divisions in brief



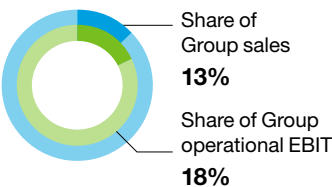
#### Consumer Board

The ambition of the Consumer Board division is to be the global leader in high-quality virgin fibre cartonboard. We aim to be the preferred partner of our customers, such as converters, brand owners and retailers, in premium end-use packaging and graphical segments. Our wide board and barrier coating selection is suitable for consumer packaging for liquid, food, pharmaceutical, and luxury goods.



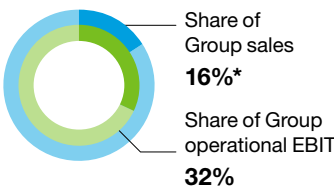
#### Packaging Solutions

The Packaging Solutions division provides fibre-based board materials and corrugated packaging products and services that are designed for a wide array of applications. Our renewable high-end packaging solutions serve leading converters, brand owners, and retailers – including those in e-commerce that are looking to optimise performance, drive innovation, and improve their sustainability.



#### Biomaterials

The Biomaterials division offers a wide variety of pulp grades to meet the demands of paper, board, tissue, textile, and hygiene product producers. We are maximising the business potential of the by-products extracted in our processes, such as tall oil and turpentine from biomass. Based on our strong innovation approach, all fractions of biomass, like sugars and lignin, hold substantial potential for use in various applications.

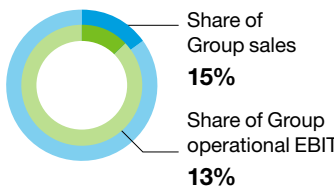


\*of which internal sales 25%



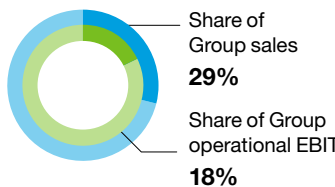
#### Wood Products

The Wood Products division is a leading provider of innovative wood-based solutions. The product range covers all areas of construction, including massive wooden elements and wooden components. It also includes a variety of sawn timber goods and pellets for sustainable heating. The emerging product range of Biocomposites addresses the opportunities to replace plastics in consumer goods and creates potential in various demanding exterior applications in a cost-competitive way.



#### Paper

Stora Enso is the second largest paper producer in Europe with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of papers made from recycled and virgin fibre as well as our valuable industry experience, know-how and customer support.



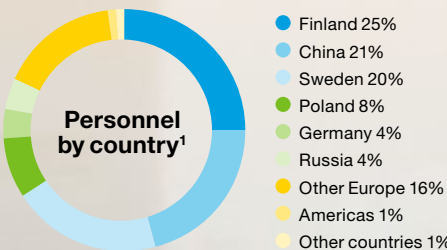
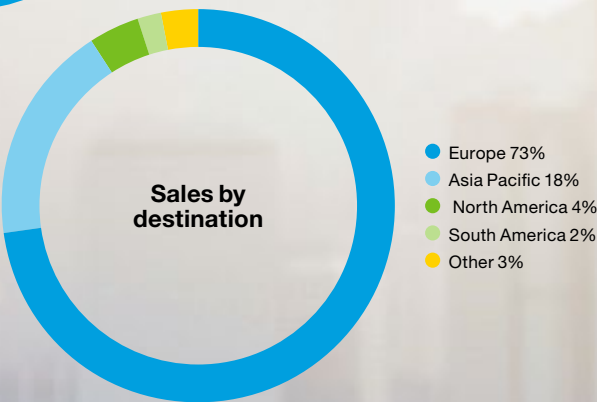
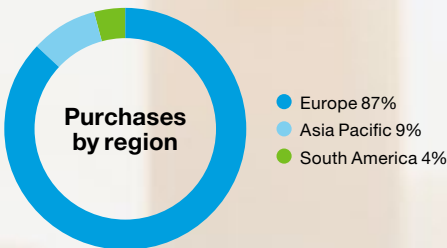
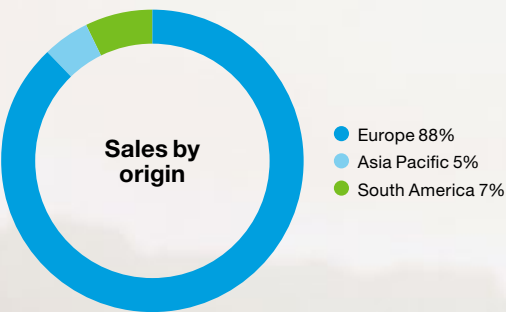


# Serving markets around the world

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Stora Enso operates worldwide and focuses on utilising expertise in renewable materials and creating value in packaging, pulp, paper, and wood. We combine global resources with local presence, service, and sustainability.



<sup>1</sup>Excluding employees of our 50%-owned joint operations Veracel and Montes del Plata.

### Europe

Stora Enso's head office is in Helsinki, Finland. Most of the Group's sales and operations take place in Europe, where we are a leading producer of packaging board and solutions, pulp, wooden products and paper.

Stora Enso has three research centres in Imatra (Finland), Karlstad (Sweden), and Mönchengladbach (Germany), and two innovation centres in Stockholm and in Helsinki. In Northern Europe, we source most of our main raw material – wood – from private forest owners and our forest associates Bergvik Skog and Tornator.

### Asia

The demand for Stora Enso's products, especially consumer board, is growing fast in China. In 2018, our new consumer board mill continued to ramp up in Beihai, in the Guangxi region, where our operations also include eucalyptus plantations. In addition, Stora Enso has three packaging plants and operates one jointly owned paper mill.

### North America

In the United States, Stora Enso has a pilot facility in Danville, Virginia, to develop technologies for the conversion of biomass into highly refined sugars and lignin. In 2018, the production of xylose started in our demonstration plant in Raceland, Louisiana. These new technologies will enable the development of sustainable replacements for fossil-based materials in various industries.

### South America

Latin America is important for Stora Enso's strategy of obtaining low-cost pulp from tree plantations. In Brazil, we own 50% of Veracel Celulose pulp mill. Our share of the eucalyptus pulp is mostly used in our paper and board mills. Veracel also owns land, around half of which is former degraded pasture lands planted with eucalyptus. The other half is dedicated to protecting local biodiversity by restoring the natural Atlantic rainforest.

The Montes del Plata pulp mill in Uruguay is a joint operation between Stora Enso and Arauco. Stora Enso's share is sold entirely as market pulp, mainly in Europe and Asia. Montes del Plata's tree plantations are also utilised as pastures by local farmers through land rental schemes.



# Stora Enso in 2018

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Stora Enso is creating  
a renewable future in  
the bioeconomy.

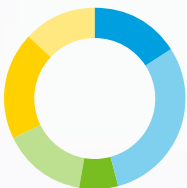
Operational ROCE

15.5%

71%

of sales from  
growth businesses

Average  
personnel



- Consumer Board 16%
- Packaging Solutions 30%
- Biomaterials 7%
- Wood Products 15%
- Paper 19%
- Other 13%

Sales and operational EBIT





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Highlights of 2018



Award-winning Lineo

Lineo™ by Stora Enso is made from lignin, which is an abundant product as it is one of the main building blocks of trees and thus a step towards replacing fossil-based products with renewable solutions. Lineo has received an overwhelmingly positive response from stakeholders and received several awards for being a significant, innovative bio-based product.

Strategic LVL investment ramped up

The ramp-up of laminated veneer lumber (LVL) production in Varkaus was completed during the year. It reached the EBITDA break-even already during the first quarter.



Sustainable profitable growth continues

8

consecutive quarters of sales growth



Startup collaboration accelerates growth

Stora Enso was recognised as Finland's most startup friendly company. One reason for the award is the collaboration with the startup company Sulapac, with whom Stora Enso will begin the development of biodegradable straws as well as fully renewable caps and closures for liquid packages. Plus, in cooperation with another startup, Trä Group, Stora Enso will increase digitalisation in the wooden construction value chain by providing services for healthy and affordable living.



Combatting global warming

-18%

less CO<sub>2</sub>e per tonne compared to the 2010 base-year level



Sustainable solutions for packaging authentication

ECO™ by Stora Enso is a new sustainable RFID tag technology that is designed for intelligent packaging functionalities in supply chain, retail and e-commerce applications. The technology enables paper-based RFID tags, providing a plastic-free and recyclable solution for packaging authentication. To further develop the intelligent packaging business, Stora Enso established a new intelligent packaging unit.



Sustainable forestry

96%

of the lands we own or manage were covered by forest certification schemes



Stora Enso and Orthex brought to the market a new range of kitchen utensils made from DuraSense™ biocomposites.

Introducing biocomposites to reduce the consumption of plastic

DuraSense™ by Stora Enso biocomposites enables the use of renewable wood-based fibres, which can be used as substitutes for fossil-based plastic. It offers customers a wood fibre-based alternative which improves sustainability performance and, depending on the product, significantly reduces the carbon footprint. Stora Enso is building a new Biocomposites Competence Centre at its Hylte Mill in Sweden to speed up market access.



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## The power of trees

Stora Enso's raw material is renewable, recyclable and fossil-free. This provides us with a great advantage in addressing the global megatrends and in leading business and industry towards the bioeconomy. Across markets and in businesses, there are calls for change because consumers are increasingly turning to eco-friendly products and solutions. Stora Enso's promise for a renewable future is based on sustainability, innovation and having the technological capabilities to meet the demands for a greener world. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.

### Accelerated pace of innovation

By building on a strong portfolio that is based on wood fibres, we aim to leverage our raw material, market-leading expertise and market insight to ever greater extents. We are investing more in innovation and R&D and increasing sales in new applications, products and services. The share of sales of new products and services has risen from 1.5% in 2015 to 9%. Our target is 15%, which would mean that we effectively renew our product portfolio every ten years.

In 2018, we introduced: Lineo™ by Stora Enso, biocomposites DuraSense™ by Stora Enso and the sustainable ECO™ RFID tag for intelligent packaging. We initiated partnerships with the startups Sulapac and Trä Group, and launched our second Accelerator programme to intensify our work with new startups. We also joined TreeToTextile, a textile fibre joint venture with H&M group and Inter IKEA group, and took full ownership of the cellulose technology company Cellutech.



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Dividend proposal  
per share

**EUR 0.50**

Earnings  
per share

**EUR 1.28**

**Close to 9%**  
of sales came from new products and services.

We will continue to invest selectively in mergers and acquisitions to strengthen our market share in our core business areas. Alongside innovation, we will continue to capitalise on developments in digitalisation, particularly in the areas of customer engagement, industrial digitalisation in operations and supply chain and the smart back office.

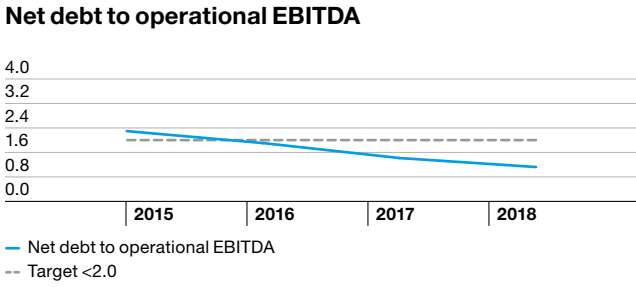
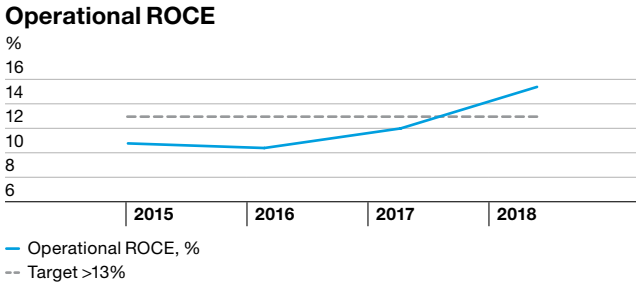
**Profit improvement of 32%**  
The strength of our strategy and progress shows in our figures for 2018, as we continued on our path of sustainable growth. We have had already eight consecutive quarters of sales growth, and our sales are again well above 10 billion euros with an increase of 4.4% from 2017. This was achieved mainly due to higher sales prices and active mix management in all our divisions. We reached a substantially improved profitability with an operational EBIT that was 32% higher than last year. Our operational ROCE was close to 16%, well above the strategic target of 13%. I am also very



pleased with the quite significant increase in full year EPS of 62.5%. We continue to strengthen our balance sheet and net debt/EBITDA amounted to 1.1.

Three of our five divisions reached their strategic profitability targets in 2018. Our fixed costs to sales ratio is still above our strategic target of 25%, and we forecast that our costs increase in 2019. We will therefore implement measures to mitigate these increases and the increased uncertainties in the markets and the economy. Therefore, we launched a new profit protection programme aiming at reduction of costs.

**Supported by investments**  
During 2018, the ramp-up of strategic investments in Beihai, Varkaus and Murów continued. The production of wooden building components (LVL) is well underway at Varkaus and the new fluff pulp line at Skutskär Mill is up and running. We began production



of biocomposite granules at our Hylte Mill and are moving closer to the completion of the cross-laminated timber unit at Gruvön. In another potential step in our transformation journey, we also initiated a feasibility study to evaluate the potential conversion of Oulu paper mill into packaging board production.

Among our investments, we signed an agreement to acquire forest assets in Bergvik Skog. This is a natural step for Stora Enso as we aim to secure competitive raw material supply and further develop long-term sustainable forest management.

**Sustainability at the heart**  
With rising consumption and global warming, it is increasingly clear that an economy based on fossil-based fuels and other non-renewable materials is not viable. Stora Enso is contributing to the transition to a circular bioeconomy by providing bio-based solutions that are renewable, recyclable and low-carbon.

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Our promise for a renewable future is based on sustainability, innovation, and the technological capabilities to meet the growing demands for a greener world.



Reaching key financial targets

EUR million	2018	2017	2016	Target	Performance against target
Payout ratio <sup>1</sup> , %	39%	52%	63%	See below <sup>2</sup>	●
Operational ROCE, %	15.5%	11.9%	10.2%	>13%	●
Debt/equity ratio	0.31	0.38	0.47	<0.60	●
Net sales growth <sup>3</sup> , %	5.9%	8.5%	3.1%		
Net debt/last 12 months' operational EBITDA	1.1	1.4	1.9	<2.0x	●
Fixed costs/sales	23.6%	25.1%	25.3%	<20%	●

<sup>1</sup> Dividend per share / EPS.  
<sup>2</sup> To distribute 50% of EPS over the cycle.  
<sup>3</sup> Excluding the paper business and the divested businesses.

● Achieved  
● Not achieved

The United Nations have defined a set of 17 Sustainable Development Goals (SDGs) that address social and economic development issues on a global scale, each with their own set of related targets. Stora Enso supports all 17 SDGs, and we have identified three strategic goals that our business has the most impact on. These are SDG 12 on Responsible Consumption and Production, SDG 13 concerning Climate Action and SDG 15 regarding Life on Land.

We have set tough science-based targets regarding the reduction of carbon emissions and will continue our drive to improve energy efficiency and lower our use of fossil fuels. We have a raw material that is renewable because trees grow back. Furthermore, living trees also absorb CO<sub>2</sub> and together with wood-based products act as carbon sinks. We promote sustainable forest management and work to ensure that forests are renewed after harvesting. Our business – and society – depend on this.

People lead the way

Sustainability, our purpose and values, safety and business ethics form the base for everything we do. We are committed to the UN Global Compact's ten principles and the UN's Guiding Principles on Business and Human Rights. We recognise the importance of diversity and equality as prerequisites for building a culture characterised by innovation and sustainability.

To ensure we have the capabilities and motivation to deliver on our strategy, create new products and services faster than our competitors and best support our customers, we promote systematic leadership development, employee engagement, and open communication. I am very pleased that Your Voice, our annual global survey of all employees, continues to show a positive development regarding strong leadership and engaged employees as well as a high level of team efficiency.



Rising from our roots

For us, profitable growth needs to be sustainable on all dimensions – for our stakeholders, the planet, and society as a whole. This is the power of trees – they allow us to meet rising demand for eco-friendly products, support sustainable forestry, promote efficiency in the value chain, serve our markets responsibly, and develop new and better sustainable solutions together with our customers.

As always, I thank all our partners, suppliers, and employees for their contributions throughout 2018, and our customers and investors for their valued trust.

  
**Karl-Henrik Sundström**  
Stora Enso's CEO



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# How we create value as a renewable materials company

## Key inputs

- Investments in Human Rights Due Diligence programme



### Social

- 26 000 direct employees in more than 30 countries
- OHS and well-being
- Employee and leadership development
- Partnerships with communities and universities
- EUR 2.7 million voluntary community investments
- Business ethics and compliance



### Environmental

- 933 000 hectares of lands under management
- 38.7 million m<sup>3</sup> of wood used
- EUR 46 million environmental investments
- 2.5 million tonnes of Paper for Recycling (PFR)
- 2.5 million tonnes of pigments, fillers and other chemicals
- 587 million m<sup>3</sup> water withdrawal
- 159 PJ fuels of which 81% biomass
- 7.7 TWh externally sourced electricity



### Economic

- EUR 8 824 million capital employed
- EUR 149 million R&D investments
- 20 000 suppliers and 23 000 private forest owners
- 94 000 shareholders

**Our fibre-based materials are renewable and recyclable.**



**Our solutions provide low-carbon alternatives to products based on fossil fuels and other non-renewable materials.**

## Key outputs

- Eight highest priority human rights defined during 2018

- Personnel turnover 15.0%
- 6.1 TRI rate
- Illness related absenteeism 3.0%
- 22 hours of training per employee
- Leadership index 83/100
- 453 voluntary community investment projects
- Code of Conduct index 85/100

- 10.3 million tonnes of board, market pulp, and paper,
- 6 million m<sup>3</sup> of wood products
- Certification coverage 96% for lands in wood production and harvesting and 76% for sourced wood
- 26% utilisation rate for Paper for Recycling
- 98% utilisation rate for process residuals and waste
- 96% of water withdrawal returned back to the environment incl. 291 million m<sup>3</sup> process water discharges
- 3.55 million tonnes fossil CO<sub>2</sub>e emissions from generated and purchased energy
- 1.2 TWh externally delivered electricity/heat/steam

- Customer satisfaction: Net Promoter Score 51%
- 56 patent applications and over 324 patents granted
- 95% of supplier spend covered by Supplier Code of Conduct
- 52 third-party supplier audits
- EUR 8.1 billion market capitalisation

## Key impacts

- Respect for Human Rights in all operations

- EUR 1 330 million salaries and benefits
- Impacts of injuries, illness, and well-being
- Engaged and motivated employees and a capable organisation
- EUR 1 276 million value through taxes borne and collected
- Value creation with local communities
- Value through ethical operations in the market place

- CO<sub>2</sub> reduced with our renewable products and carbon neutral energy
- Trees absorb CO<sub>2</sub> and products store carbon
- Environmental impacts of operations and along the value chain
- Forests work as carbon sinks and provide ecosystem services

- EUR 10.5 billion sales of products and services
- 9% of sales from new products
- EUR 7.1 billion paid to suppliers
- EUR 574 million capital expenditure
- EUR 323 million dividends for shareholders
- EUR 133 million interests for creditors

Trees absorb CO<sub>2</sub> and store carbon together with wood-based products, which can then be recycled as raw material or used for energy generation.

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# The world needs a new approach to materials

Global warming is one of the biggest challenges of our time. There is an increasing demand for raw material that is renewable, recyclable and fossil-free. By replacing fossil-based materials with Stora Enso's renewable solutions, we will help drive the transition from a fossil fuel consuming world to a sustainable future based on bioeconomy.

The demand for food, clothing, housing, energy, infrastructure and consumer products continues to increase, driven by global megatrends, such as population growth, urbanisation, rising incomes, and changing lifestyles. More people and more consumption mean that the planet's resources are being stretched even further. Our customers are looking for solutions that can help to replace non-renewable materials in packaging, construction and chemical intermediates with renewable materials.

**Everything that's  
made from fossil-  
based materials today  
can be made from  
a tree tomorrow.**





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Stora Enso's business is based on supporting our customers in meeting consumers' demand for renewable products. We aim to be a leader in our field, preferred partner, and a respected member in the societies where we work. Responding to today's challenges and demands for a greener planet, we bring value to our customers, employees, investors, suppliers, and other stakeholders.

## Our purpose:

**Do good for people and the planet. Replace fossil-based materials with renewable solutions.**


## Our values:

**Lead. Do What's Right.**

# Our products contribute to a greener planet



**Renewable**  
Wood-based products are renewable because trees – our raw material – grow back in sustainably managed forests.



**Recyclable**  
Our products are recyclable. Fibres can be recycled 5–7 times.



**Biodegradable**  
Many renewable materials biodegrade in weeks, unlike plastics, aluminium and glass which take hundreds of years to degrade.



**Every tree is traced**  
We know the origin of all the wood we use through traceability systems.



**Material is used efficiently**  
We make the most out of every tree we use. Over the years, for example, we have doubled the amount of carton produced from the same amount of wood.



**Produced sustainably**  
In 2018, our fossil CO<sub>2</sub>e emissions per saleable tonne of board, pulp and paper were 18% lower than the 2010 benchmark level.



**Store carbon**  
Renewable materials help combat global warming – our products store carbon.



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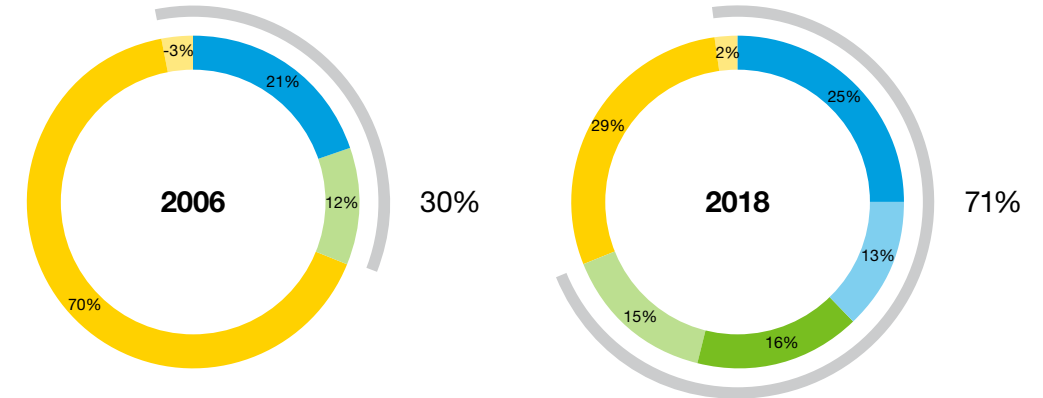
# Creating value in the bioeconomy

Stora Enso's transformation into a renewable materials company ensures that we can continue to deliver sustainable profitable growth of 4–6% annually, excluding Paper, and generate superior return on capital employed (ROCE). Our strategy is based on innovation and customer insights, supported by structured processes and motivated employees.

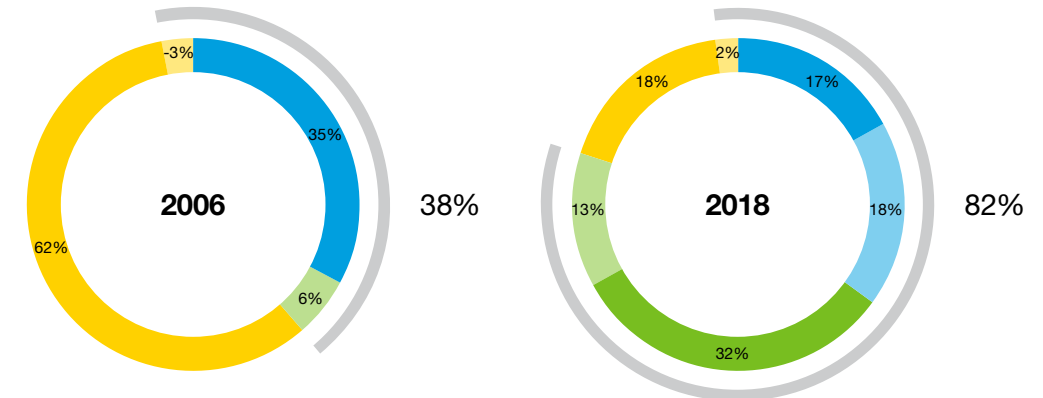
Four of our divisions are growing while the Paper division is focused on cash generation. We will continue to invest in attractive segments and concentrate on offering innovative products and services to our customers. With renewable, recyclable, and fossil-free wood fibres as our foundation, we have an important role to play in the bioeconomy.



## Sales by business



## Operational EBIT by business



- Consumer Board
- Packaging Solutions<sup>1</sup>
- Biomaterials
- Wood Products
- Paper<sup>2</sup>
- Other and eliminations
- from growth businesses

<sup>1</sup> In 2006 in Consumer Board

<sup>2</sup> In 2006 includes merchants

Stora Enso is transforming from a traditional paper and board producer to a renewable materials growth company. The capital expenditure for 2012–2018 amounted to 5.5 billion, of which 3.2 billion was strategic capex. As part of the transformation, Stora Enso has closed 4.9 million tonnes of capacity since 2006.



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We need speed to make an impact and to be the first out with new products and services. We offer fast support to our customers as they respond to changing consumer trends, thus helping lessen dependence on fossil-based materials and decreasing the burden on the environment. Therefore, we invest more in innovation and R&D, which is accelerating our profitable growth. Our capital expenditure for the next five years is expected to be around EUR 3 billion.

In 2018

**9%**

of our sales came from new products and services.

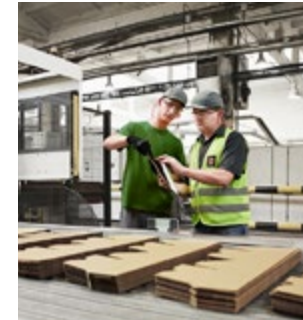
Long-term target

**15%**

of our sales is expected to come from new products and services.



High-quality containerboards



Value added services in corrugated packaging



Intelligent packaging



Biocomposites

## Our drivers for accelerating growth

Next generation liquid and food packaging



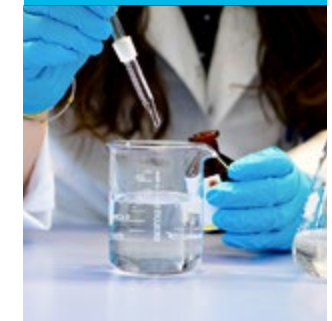
Building components and systems



Bio-barriers



Future bio-based chemical intermediates



### Capital expenditure

- Stora Enso aims to keep investments at or below the level of depreciation and the operational decrease in the value of biological assets over the business cycle.
- We allocate approximately EUR 250 million annually to continue and accelerate growth.
- Stora Enso's capital expenditure in 2018 was EUR 574 million, while depreciation and the operational decrease in the value of biological assets totalled EUR 545 million.

### Shareholder return

- Stora Enso's dividend policy is to distribute 50% of earnings per share (EPS) over a business cycle to shareholders as dividend.



# Sustainable profitable growth starts from the forest



Access to wood is a critical advantage in the bioeconomy. Stora Enso is one of the largest private forest owners globally and controls about 30% of its wood raw material. We are committed to forest certification and wood traceability; we always ensure that the wood and externally purchased pulp we use come from sustainably managed sources. Overall, sustainable forest management is the cornerstone of a successful bioeconomy.



At Stora Enso we have set ambitious Science Based Targets for reducing greenhouse gas (GHG) emissions throughout our value chain. We commit to reducing GHG emissions from operations by 31% per tonne of pulp, paper and board produced by 2030 when compared to the 2010 baseline. To reduce emissions in the value chain, Stora Enso commits to having 70% of its non-fibre raw material suppliers and downstream transportation suppliers in terms of spend set their own GHG reduction targets by 2025, towards the aim of adopting science-based GHG reduction targets by 2030. In addition, we will educate 100% of customer-facing staff on the advantages of setting science-based targets by 2020.



As a renewable materials company, Stora Enso contributes to a circular economy. This means that waste is minimised as materials are reused and recycled to maximise environmental, social and financial added value. Stora Enso is committed to continuous improvements in energy efficiency and energy self-sufficiency. We always assess opportunities to use biomass fuels or other low-carbon options in connection with energy investments. For over a decade, we have actively been reducing the energy intensity of our operations and our dependency on fossil fuels.



In addition to wood and fibre, Stora Enso sources other raw materials, products, and services from over 20 000 suppliers globally, including chemicals, fillers, energy, fuels, maintenance, logistics, and IT services. We strive to build strong relationships with suppliers who can contribute to our ability to innovate and work efficiently. We stress the importance of sustainability and safety with every supplier. Our suppliers are expected to follow Stora Enso's Supplier Code of Conduct and the applicable legal requirements.



Integral to all our work is respect for human rights. We strive to align our work with the United Nations' Guiding Principles on Business and Human Rights. A well-defined Community Investment framework supports communities close to the sources of our fibre, mills and other units as well as our ambition to be attractive as a socially responsible employer.

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# Ending the era of fossil-based materials

Global megatrends are boosting the demand for renewable, recyclable, and fossil-free materials. Innovation work at Stora Enso therefore concentrates on finding renewable solutions that will replace fossil-based materials in packaging, building construction, and industrial intermediate chemicals. This means innovating bio-based solutions to replace plastics, concrete, glass, metal, and other non-renewable materials.

R&D expenditure in 2018 was  
**EUR 149 million**

In addition to our own researchers, we work with our customers, partners, and startups as well as academic and research institutes, such as Aalto University, Chalmers University of Technology, Royal Institute of Technology, SweTree Technologies Ltd, and Wallenberg Wood Science Center R&D. We will continue developing an innovation ecosystem in the Nordics and globally. We utilise external partners and knowledge for the efficient processing of wood components into chemical intermediates, materials, and products.

In 2018, Stora Enso announced joining H&M group and Inter IKEA group in a joint venture, TreeToTextile, with the aim of developing new textile fibres in a sustainable way at attractive cost levels. Stora Enso will support the industrialisation of TreeToTextile's production process by jointly setting up a demonstration plant at one of our existing Nordic mills and contributing to the technology development.

## Innovation projects with high potential impact to transformation





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### Customer insights

## Innovations through the value chain



**Forestry**  
End-product competitiveness starts from the right raw material



**New technologies**  
Enabling new potential applications for wood fibre



**Research and innovation centres**  
Finland, Sweden and Germany



**Operations**  
How we efficiently use assets and resources while managing the value chain



**Products and applications**  
Renewable alternatives for fossil-based and other non-renewable materials



## Robotics and 5G technology harnessed for efficiency

Digitalisation projects and new technologies support our divisions and functions to optimise raw material sourcing, production and supply chain, operational efficiency, customer experience and data and analytics. During 2018, Stora Enso progressed digitalisation in mill maintenance further by developing augmented reality (AR) and 5G technology solutions together with telecommunications company Telia. The utilisation of augmented reality was first tested at

our Oulu Mill where real-time information is being used in mill maintenance.

We also continue to look at the potential of robotics, automation and artificial intelligence (AI). In our operations and back office, a total of 33 robotic process automation processes were launched in 2018. For example, finance delivery robots, including one AI solution, have enabled us to reduce costs and save time from transactional work to analytics and strategic business support.

Across the company, emphasis has also been put on strengthening information security and harmonising processes.

Stora Enso has screened around 300 startups via the structured engagement programmes Accelerator and Combient Foundry, and established deeper collaboration with nine of them. In Finland, Stora Enso was awarded the title of the most startup-friendly company in 2018.

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Building competencies in leadership, sales and innovation

Success in delivering sustainable profitable growth depends greatly on our people and culture. Leadership is a key factor in enabling Stora Enso's transformation into a renewable materials company. We continuously invest in the development of our managers with programmes such as Lead Through People, which targets all managers in the organisation. Since 2015, approximately 2 600 managers have participated in this programme.

Our Commercial Excellence Programme focuses on developing capabilities in sales and commercial acumen. We have run a common Sales Academy programme for about 200 sales leaders in 2017 and 2018 and created a competence framework for the sales organisation to be utilised for its development. Other outcomes from the Commercial Excellence Programme are harmonised sales processes and common systems like Customer Relationship Management.

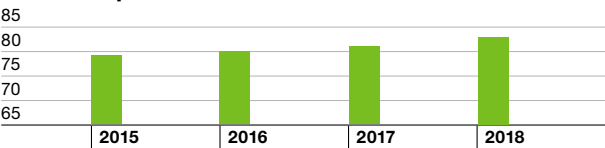
**Evidence of progress in global employee survey**  
Stora Enso conducts an annual global survey (Your Voice) of all employees. In 2018, the survey was conducted for the seventh time and had a response rate of 88% (91%). The survey follows progress in areas that impact our ability to deliver on our strategic agenda, steering activities, and priorities. It also supports managers and teams as they continuously improve their work methods. All main indices in the survey continued on positive or stable trends in 2018.



Combining work with startup companies and executive training, the Stora Enso Accelerator programme aims at further strengthening the capabilities required for our transformation. Focus has been placed on deepening competencies and skills in innovation, entrepreneurship, customer insight and change management as well as developing new business opportunities with startups.

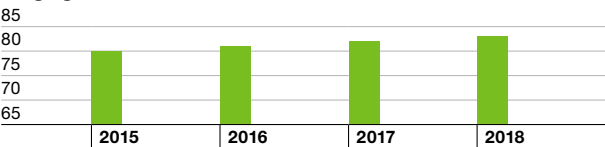
To further promote new talent and diverse perspectives, Stora Enso runs the GROW Global Trainee Programme where young professionals are introduced to the Stora Enso organisation globally during their first 18 months of employment, enabling them to learn while participating in business projects. In 2018 we continued the programme with 28 GROW trainees.

Leadership



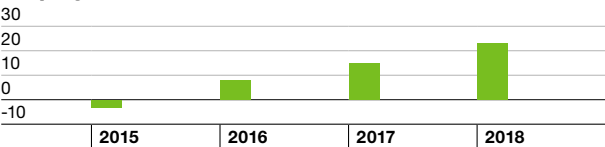
Leadership Index is measured annually in Stora Enso's Your Voice employee survey, and consists of numerical answers to 16 questions related to the respondent's view of the direct manager.

Engagement



Employee Engagement Index is measured annually in Stora Enso's Your Voice employee survey, and consists of numerical answers to seven questions related to engagement indicators including, but not limited to motivation, pride and goal orientation.

Employee Net Promoter Score



Employee Net Promoter Score is measured annually in Stora Enso's Your Voice employee survey, and consists of one question related to the likelihood of recommending Stora Enso as a workplace to a friend. A positive score indicates that there are more promoters than detractors, while a negative score indicates the opposite.

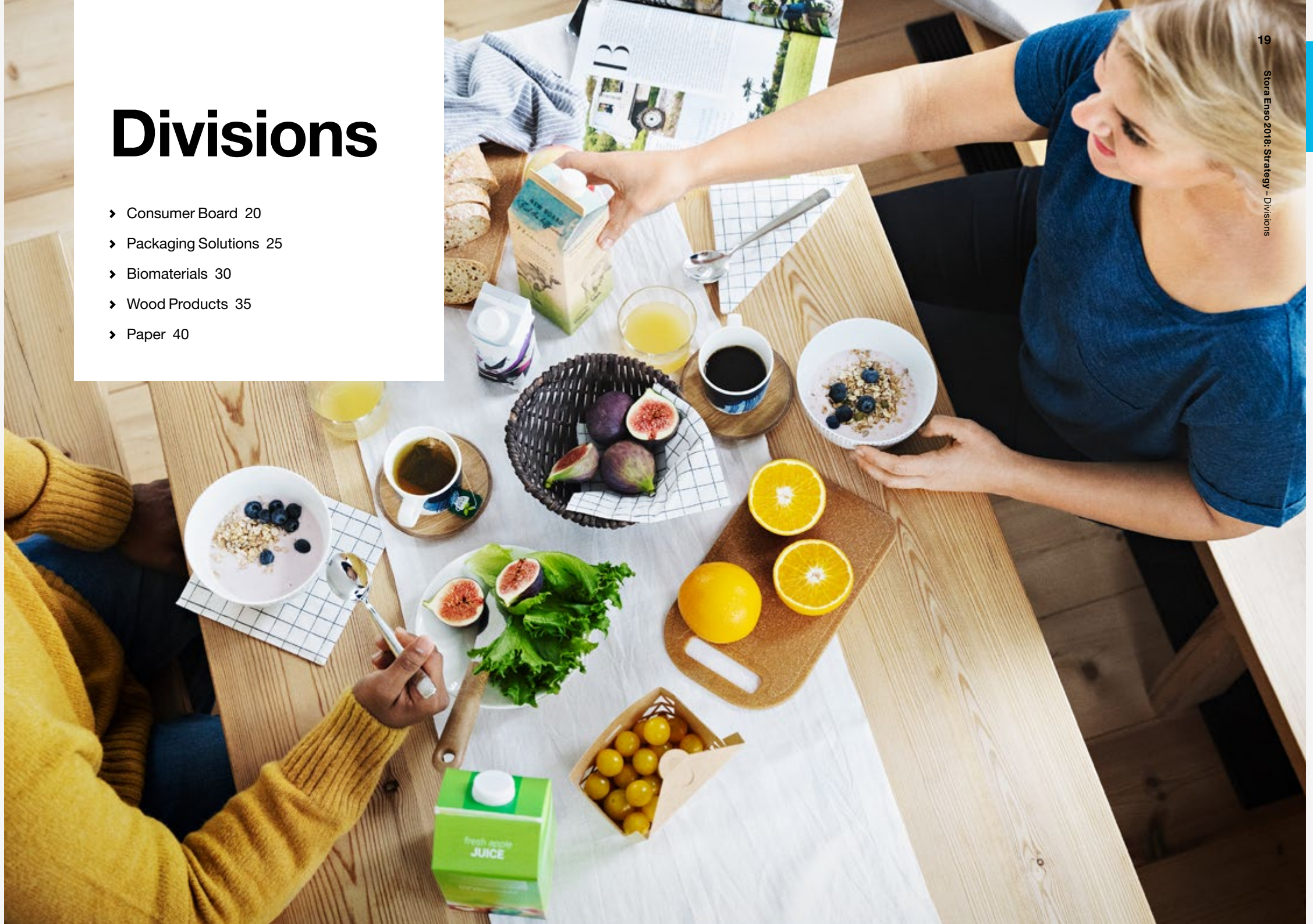


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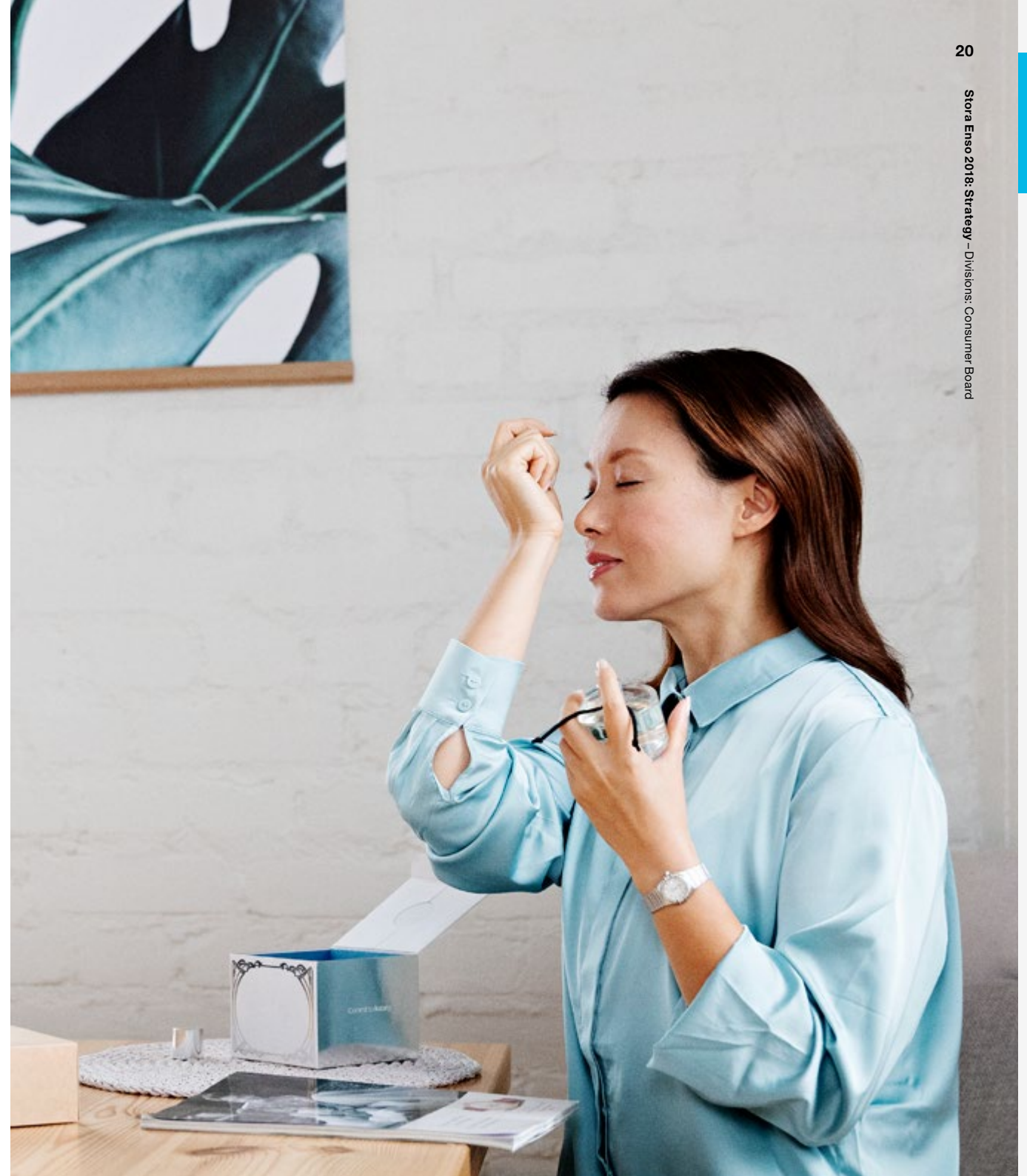
# Consumer Board

The ambition of the Consumer Board division is to be the global leader in high-quality virgin fibre cartonboard. We aim to be the preferred partner of customers and brand owners in premium end-use packaging and graphical segments. Our wide board and barrier coating selection is suitable for consumer packaging for liquid, food, pharmaceutical, and luxury goods.



“Powerful megatrends transform our society and change the role of packaging. We are therefore constantly commercialising new renewable solutions in close collaboration with our customers. Together we drive innovation to create the packaging of the future, meeting the highest quality and safety standards to stay competitive and do business in an even more sustainable way.”

**Annica Bresky**  
Executive Vice President  
Division Consumer Board





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### Offering

- **Liquid packaging board** for, e.g. milk, yogurt, juice, soups, wine, soft drinks, and water, etc.
- **Food service board** for hot and cold drinking cups, fast food, ice cream, catering, etc.
- **Carton board** for, e.g. dry, frozen and chilled food, beverages, chocolate and confectionery, pharmaceuticals, cosmetics, luxury, and cigarettes etc.
- **Graphical board** for book and notepad covers, greeting cards, tickets, tags, and brochures, etc.
- **Speciality paper** for bags, pouches, labels, and banderoles, etc.



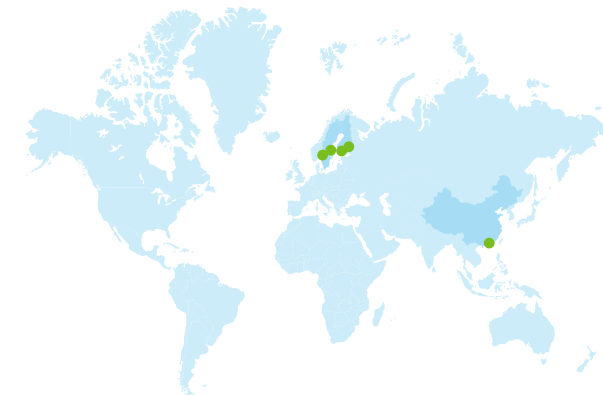
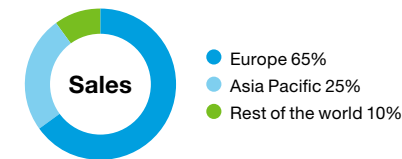
## Business environment

Consumer packaging board accounts for 15% of the global consumer packaging materials market, while flexible and rigid plastics together make up close to 70%. By replacing fossil-based and unsustainable materials with innovative fibre-based products, we will be able to gain market share and significantly accelerate growth going forward.

The global consumer packaging market is growing by

# 2.5% per year.

### Leading market position in core segments



● Consumer Board mills

Stora Enso is one of the largest producers of virgin fibre board in the world. We are the global leader in liquid packaging and the biggest producer in our strategic segments in Europe.

The Consumer Board division operates five mills in Finland, Sweden and China.

Consumer Board has a strong foundation in European markets, where its main competitors are BillerudKorsnäs, Metsä Board, and Holmen. The main competitors outside Europe include Klabin, Evergreen, Weyerhaeuser, Georgia-Pacific, and International Paper.

The main growth opportunities in packaging lie within liquid packaging board (LPB), folding box board (FBB), and coated unbleached kraft (CUK).

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Advantages

We are the industry leader in micro-fibrillated cellulose (MFC). The advantages of MFC in packaging are source reduction and light-weighting while maintaining strength. Further development includes bio-barriers based on MFC and biocomposites as alternatives to fossil-based materials.



Strong product brands based on renewable materials

Consumer Board offers the widest product portfolio within the premium sector of its industry in Europe. We have launched several new products in the last few years to meet our customers' increasing demands on product safety, functionality, sustainability and recyclability, for example CKB Nude, Trayforma, new Ensocoat, Performa Brilliance and Natura Life.



Leading position in attractive segments

We have a strong market position in all our product segments and have close, long-term relationships with our customers. We actively work together to find new solutions to improve the quality, efficiency and design of packaging by using renewable materials.

Global footprint geared for growth

The commercial ramp-up of our mill in Beihai allows us to serve new customers and new geographical markets. It continues to be a key growth initiative for the division because the most significant growth in virgin fibre-based consumer board is taking place in China and Asia Pacific.

Innovation driven from an existing customer base

We work in collaboration with our long-term customers to understand the drivers behind consumer needs in order to create the packaging of the future. Our innovation and R&D focus is on material efficiency and replacing fossil-based packaging materials with renewable solutions based on fibres. One example is the use of the micro-fibrillated cellulose (MFC) technology, to enable light-weighting of our board. Other examples are replacing PE-barriers for food and liquid packaging with fibre-based solutions and developing biocomposite components for different packaging applications, such as screw caps for milk cartons to reduce the use of plastics. We work internally within Stora Enso and also throughout our value chain with external partners, customers, and startups to accelerate innovation.

Strong assets with further development potential

Our asset base is strong, with cost-competitive integrated mills in Imatra and Skoghall, specialised mills in Fors and Ingerois, and a state-of-the-art mill in Beihai.

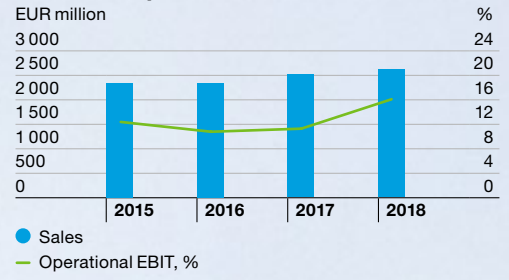
Our division's innovation work focuses on material efficiency, bio-barrier solutions and new materials and applications, such as micro-fibrillated cellulose and intelligent packaging.

Financial performance

Operational ROOC

11.9%  
(Target >20%)

Sales and operational EBIT





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## Highlights of 2018



Launch of the upgraded Performa Brilliance by Stora Enso

**Stora Enso introduced new grammage ranges for its Performa Brilliance carton board. The new, higher grammage of 370 g/m<sup>2</sup> is intended for high-quality folding carton and graphical products such as calendars, cards and displays. The new 395 g/m<sup>2</sup> grade is enhanced with micro-fibrillated cellulose and designed for creating lighter, stronger and more sustainable folding cartons for premium and luxury packaging.**



### Continued investments in micro-fibrillated cellulose

Stora Enso has invested in the acceleration of the product development of new micro-fibrillated cellulose (MFC) applications in recent years. MFC can be used in barrier layers for grease and oxygen, and in the future as biodegradable films that can replace aluminium in paperboard packaging. The operational optimisation and commercialisation of MFC for light-weighting is proceeding as planned, following the completion of the development projects and investments in the Ingeröis, Imatra and Fors mills.

### Simplifying complex packaging information with Value Wheel

Stora Enso introduced a new digital presentation tool for choosing the right renewable material for different packaging purposes. Value Wheel by Stora Enso helps to compare different packaging boards and papers and shows how they meet different end use requirements.



### Accelerated growth in renewable materials through co-operation

Stora Enso signed a joint development agreement with the startup company Sulapac to licence its materials and technology. The cooperation targets the development of biodegradable packaging components for packaging applications and accelerates the commercialisation of sustainable packaging components in the division. The cooperation between the companies began in 2017 through Stora Enso's Accelerator programme. This involves partnering with Aalto University and startups to ideate and innovate around renewable products.

### Sustainable RFID tag technology ECO for intelligent packaging

Stora Enso launched a new sustainable RFID tag technology, ECO™ by Stora Enso, designed for intelligent packaging functionalities in supply chain, retail and e-commerce applications. The technology enables paper-based RFID tags, providing a plastic-free and recyclable solution for packaging authentication. In addition, a new Augmented Reality (AR) application was launched, presenting the life cycle of a liquid beverage package to showcase the potential of new technologies to customers.

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## Main focus and targets for 2019



Safety – aim for zero accidents



Continue the ramp-up of Beihai Mill, plus build a premium market position in the Chinese and South East Asian market



Maintain market position for core segments in Europe and grow in selected markets



Accelerate the commercialisation of innovation programmes within MFC, barrier board, biocomposites, and intelligent packaging



Strengthen competitiveness through the continuous development of assets

### Iceland Foods goes for renewable packaging

With its 900 stores, Iceland Foods accounts for 30% of frozen ready meal sales in the UK and the business is growing. Until recently, ready meal trays have been mostly made of black plastic, which is currently not recycled and is one of the plastics littering our oceans.

"We are moving away from plastic. In 2018, we launched two new major product ranges in paperboard trays, which are fit for purpose and sustainable in every way. Sustainable forestry and an environmentally sound production process, largely run by bioenergy, make paperboard a sustainable choice and it is also recyclable in the paper stream when rinsed well," says **Ian Schofield**, Own Label & Packaging Manager at Iceland Foods.

Trayforma™ by Stora Enso proved to be the right choice for Iceland Foods. Besides being sustainable, the board for ready meal packaging must be formable to different shapes and sizes, plus food-safe and suitable for cooking at high temperatures in ovens and microwaves. The trays are manufactured by Southern Cross Packaging.

For Iceland Foods, this is just the beginning. The company will continue to look for non-plastic options for packaging, not just board but also coatings and films.

› Read more about Iceland Foods





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# Packaging Solutions

The Packaging Solutions division provides fibre-based board materials and corrugated packaging products and services that are designed for a wide array of applications. Our renewable high-end packaging solutions serve leading converters, brand owners and retailers – including those in e-commerce that are looking to optimise performance, drive innovation and improve their sustainability.



“Our strategy remains focused on growing significantly in containerboard and expanding selectively in corrugated packaging. The global trends of sustainability and e-commerce currently favour market growth. Retailers and brand owners alike are becoming increasingly aggressive in their plastics replacement strategies, thus creating opportunities for fibre-based solutions. Furthermore, leveraging product innovation and digitalisation to create competitive advantage will play a key role in our strategic roadmap.”

**Gilles van Nieuwenhuyzen**  
Executive Vice President  
Division Packaging Solutions





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### Offering

- **Kraftliner:** corrugated box liner, e.g. for food, fruit, vegetables, and consumer electronics
- **Recycled liner:** corrugated box liner, e.g. for furniture, electronics, and e-commerce boxes
- **Semi Chemical fluting:** corrugated box fluting, e.g. for fruit, vegetables, and heavy-duty goods
- **Recycled fluting:** corrugated box fluting, e.g. for industrial and consumer goods
- **Corrugated packaging:** corrugated boxes, e.g. for food, retail, e-commerce, and industrial goods
- **Packaging automation:** packaging machines, such as box formers, case packers, and palletising robots
- **Design services:** packaging design development services
- **Technical services:** equipment optimisation services
- **Intelligent packaging:** RFID-based packaging solutions for track and trace possibilities
- **Kraft papers:** high strength paper, e.g. for grocery bags and construction materials



## Business environment

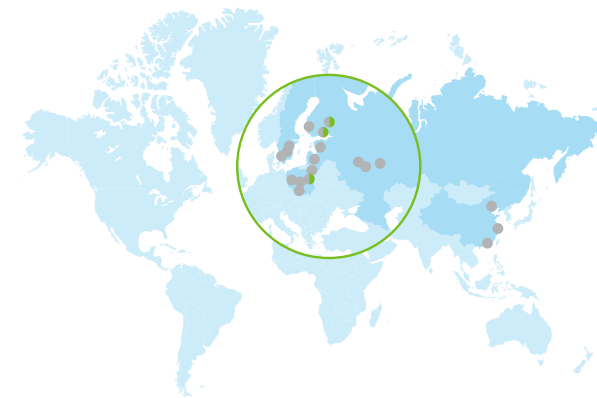
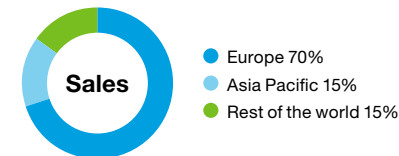
The customer base in containerboards and corrugated packaging is fragmented as it encompasses converters, brand owners, retailers, industrial and e-commerce companies. This offers opportunities for differentiation as customer expectations are evolving to leveraging packaging as a tool for brand building and engaging with end-consumers.

**Corrugated packaging and containerboards are the largest segments in the paper and board business globally with**

**45% of the total volume,**

offering room for growth in several areas.

### Leading market position in core segments



- Containerboard
- Corrugated packaging

As an industry leader in renewable packaging, the Packaging Solutions division holds a strong position in the corrugated packaging focus markets: a leading status in the Nordics, second in the Baltics and Poland, third in China and fifth in Russia. The main competitors are Smurfit Kappa, Mondi, DS Smith and International Paper.

In containerboard the division has world-class assets and provides high-quality products. The market is fragmented in both containerboard and corrugated packaging with many larger and smaller players.

Packaging Solutions division operates three containerboard mills, four rigid box plants, 17 corrugated box plants, 10 design centres and one innovation centre.



Advantages



Positive growth trends

In containerboard we see continued demand and growth for kraftliner for use in the areas of fresh produce and food, and demanding industrial and retail applications. Our focus is to be a strategic supplier and deliver high performing products and services within these segments.

In corrugated packaging we strive to build partnership positions with larger brand owners and retailers based on innovative value propositions. The e-commerce segment is especially attractive due to its anticipated fast market growth (15% CAGR 2017–2021). Corrugated packaging is fossil-free, renewable, recyclable and compostable and therefore well positioned as a packaging material in versatile application areas.

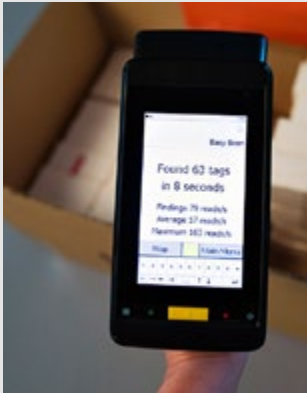
Integrated supply chains

Packaging Solutions maintains a vertically integrated position in the supply chain. Our operations cover paper collection for recycling and purchasing of wood up to the production of light-weight containerboards and versatile solutions for corrugated packaging.



Access to virgin fibre

Stora Enso has, partly through direct forest holdings, good access to the wood necessary for producing virgin containerboard.



Innovation capabilities

We bring added value to our customers through dedicated design centres for the development of innovative packaging, for example for traditional retail and e-commerce, high-quality printing facilities, market leading containerboard products and intelligent packaging.

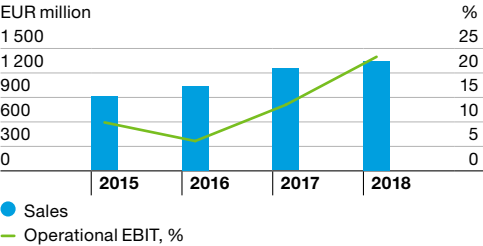
Financial performance

Operational ROOC

27.2%

(Target >20%)

Sales and operational EBIT



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## Highlights of 2018



### Upgrading Heinola Fluting Mill

**The EUR 28 million investment in Heinola Fluting Mill in Finland was completed successfully. The investment was made to improve product quality and increase the production capacity of the AvantFlute SC product portfolio, thus meeting the increased demand for high quality fluting products used for food, fruit, and vegetable packaging. AvantFlute SC is Semi-Chemical fluting made from virgin fibre and has been developed to endure demanding conditions.**



### Investments to accelerate growth

Stora Enso is expanding the Tychy corrugated packaging plant in Poland. Furthermore, responding to a strong increase in demand, we are also investing in capacity expansion and technology upgrades in China. The project is expected to be completed in mid-2019. Additionally, there will be an EUR 9 million investment to upgrade and expand the corrugated packaging plant in Riga, Latvia.



### Sustainable RFID tag technology

Stora Enso launched a new sustainable RFID tag technology, ECO™, designed for intelligent packaging functionalities in supply chain, retail, and e-commerce applications. The technology enables paper-based RFID tags, thus providing a plastic-free, recyclable and cost-effective solution.

### Centre of excellence for corrugated packaging established in Lahti

The consolidation of corrugated packaging manufacturing in Finland was completed, improving profitability and competitiveness by creating a centre of excellence for corrugated packaging in Lahti. The Heinola corrugated plant was closed permanently, and packaging manufacturing was transferred to the upgraded Lahti plant.



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## Main focus and targets for 2019



Safety – aim for zero accidents



Drive the containerboard business to its full potential



Expand the corrugated business in selected markets



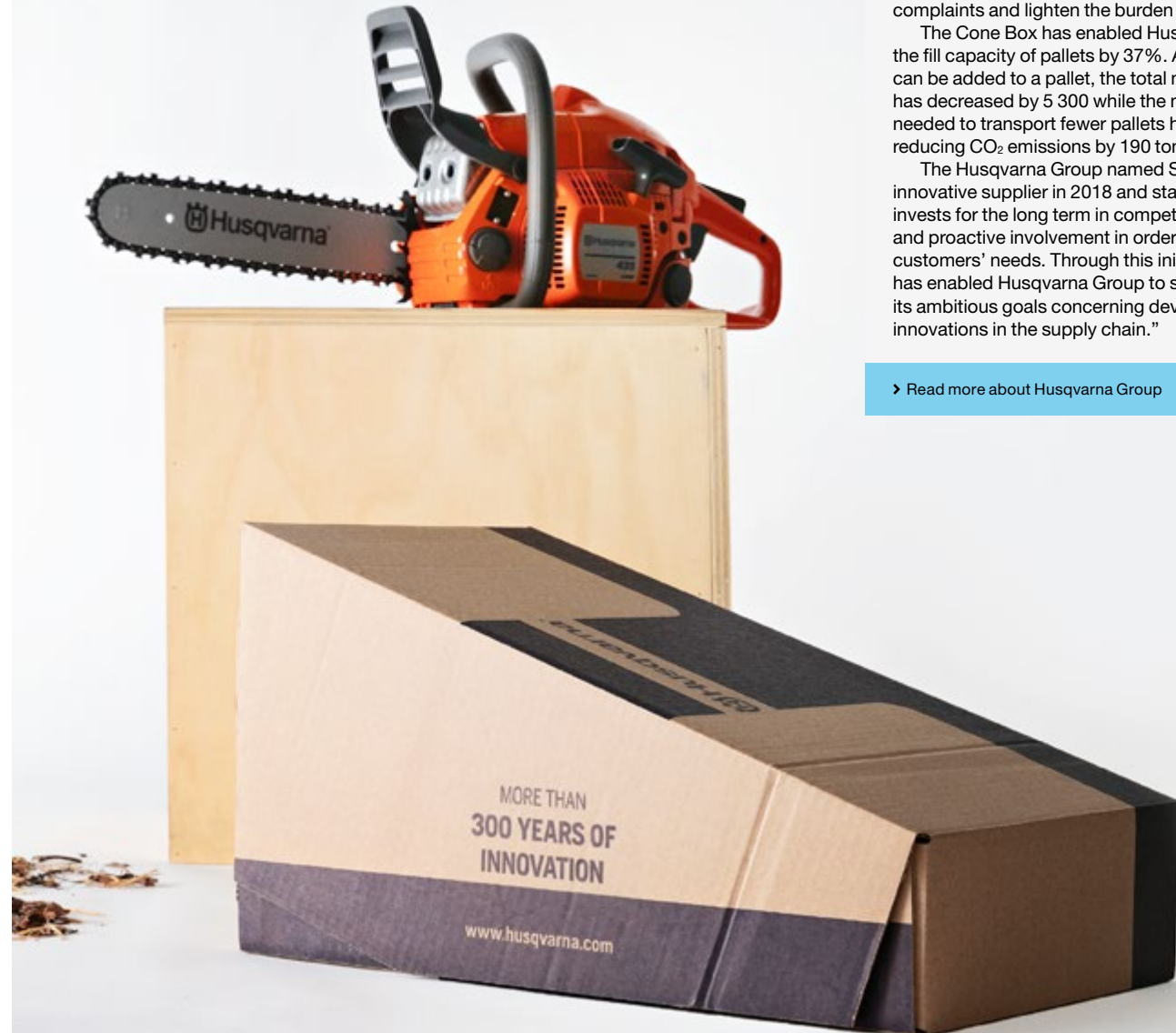
Leverage digitalisation for better customer experience and operational efficiencies



Increase our focus on customer value creation



Capitalise on completed investments and upgrades



### Packaging innovation reducing transport costs and emissions

Stora Enso supplies corrugated packaging to Husqvarna Group, a leading global producer of outdoor power products and innovative solutions for forest, park and garden care. Our Packaging Solutions division has, in deep cooperation with Husqvarna, created a cone-shaped package for Husqvarna's chainsaw, which has enabled them to save on transportation costs, reduce complaints and lighten the burden on the environment.

The Cone Box has enabled Husqvarna to increase the fill capacity of pallets by 37%. And as more packages can be added to a pallet, the total number of pallets has decreased by 5 300 while the number of containers needed to transport fewer pallets has decreased by 180, reducing CO<sub>2</sub> emissions by 190 tonnes.

The Husqvarna Group named Stora Enso its most innovative supplier in 2018 and stated: "Stora Enso invests for the long term in competence, resources and proactive involvement in order to understand its customers' needs. Through this initiative, Stora Enso has enabled Husqvarna Group to sustainably achieve its ambitious goals concerning development and innovations in the supply chain."

› Read more about Husqvarna Group

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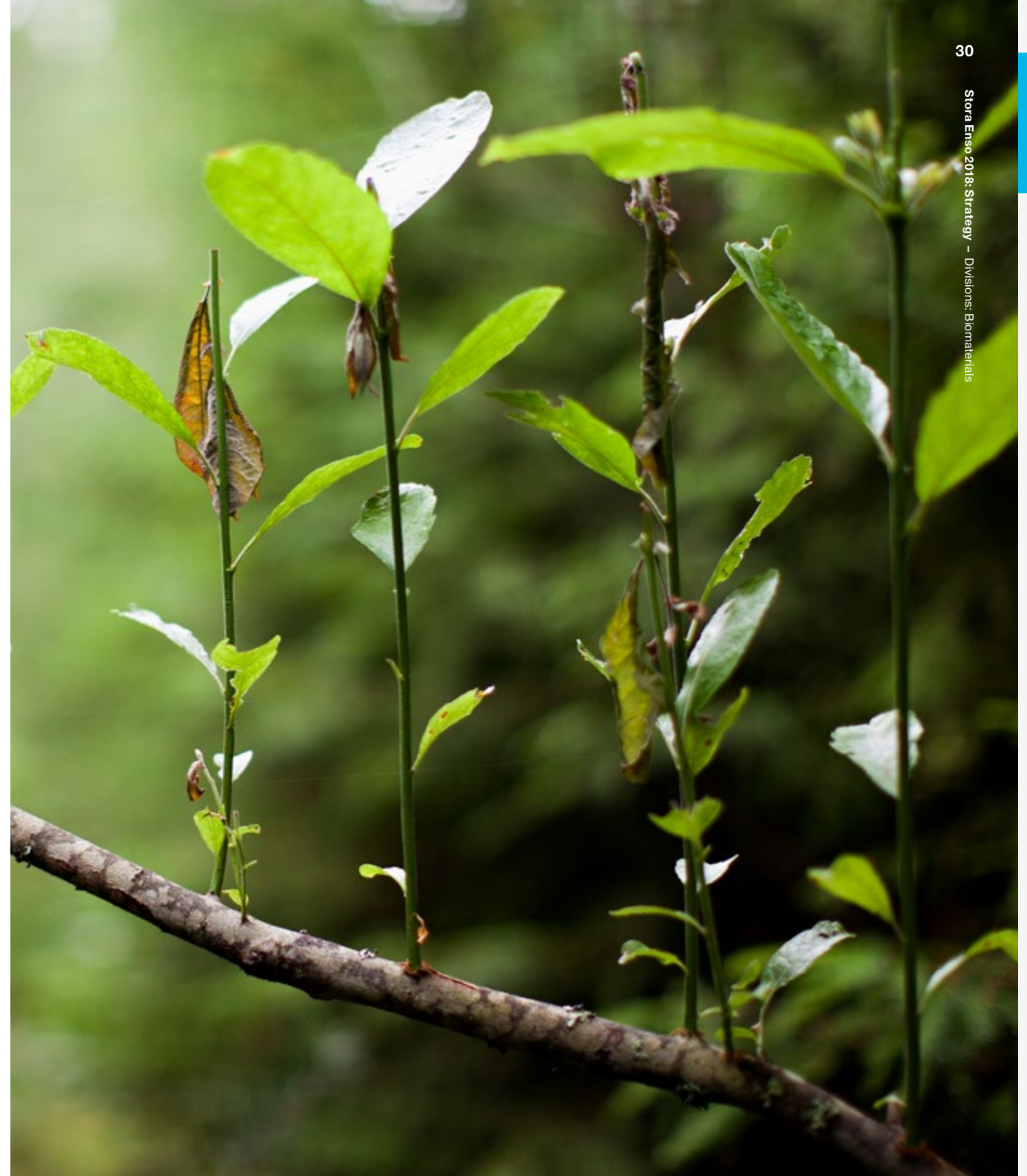
# Biomaterials

The Biomaterials division offers a wide variety of pulp grades to meet the demands of paper, board, tissue, textile, and hygiene product producers. We are maximising the business potential of the by-products extracted in our processes, such as tall oil and turpentine from biomass. Based on our strong innovation approach, all fractions of biomass, like sugars and lignin, hold substantial potential for use in various applications.



“Biomaterials aspires to meet the growing demand for replacing products made from fossil-based materials. As a strong and specialised chemical pulp producer, we develop new offerings and solutions with wood-based biomass. Our aim is to maximise the value of eucalyptus pulp in Latin America, to differentiate our Nordic mills’ business and pulp production and to generate profitable growth from innovation platforms.”

**Markus Mannström**  
Executive Vice President  
Division Biomaterials





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## Offering

- **Bleached hardwood pulp** for papers, labels, release liners, wallpaper, container board, packaging
- **Bleached softwood pulp** for papers, labels, release liners, wallpaper, container board, packaging
- **Unbleached pulp** for container boards, kraft papers, specialty papers
- **Fluff pulp** for personal and medical care, incontinence protection, baby diapers, napkins, etc.
- **Dissolving pulp** for viscose staple fibres, sustainable textiles, pharmaceuticals, sponges, cellophane
- **Lignin** for phenol replacement, formaldehyde-free binder, carbon fibre or energy storage
- **Xylose** for dental care and food applications
- **Tall oil** for use in detergents, soaps, adhesives, lubricants, paints, coatings, biofuels, etc.
- **Turpentine** for fragrances, flavours, detergents, solvents and thinners among other products

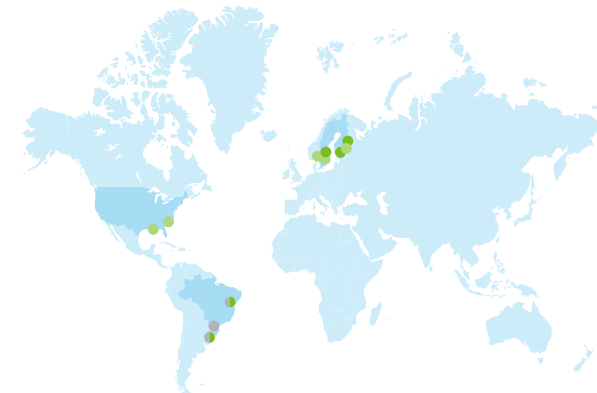


## Business environment

The global pulp market continues to grow with demand and supply in balance, and supported by the megatrends of the growth of the middle class in the developing countries and progress in digitalisation, urbanisation, eco-awareness and changing lifestyles. The market for renewable textiles, non-wovens, carton board, hygiene products, specialty and tissue papers continues to grow, generating demand for our various pulp grades with the aging population specifically driving demand for fluff pulp. Furthermore, the megatrends are driving demand for virgin pulp in China.

**Our aim is to maintain our competitive position and to extract the maximum value from our joint operations at Veracel and Montes del Plata, in Latin America. We continuously improve production, ensure operational reliability and guarantee wood availability at competitive cost.**

## Leading market position in core segments



- Biomaterials pulp mills
- R&D facilities and/or pilot plants
- Plantations

Biomaterials division has operations in Brazil, Finland, Sweden, Uruguay, and the United States.

In our Nordic mills, the aim is to increase the share of specialised pulp, i.e. fluff and dissolving pulps. This responds to the increasing demand for sustainable fibres in the textile industry and for renewable hygiene products, among others. We are also exploring areas where digitalisation can help us improve efficiency and safety in our mills while reducing cost.

Other pulp makers in the markets include, for example, UPM, Metsä Fibre, Södra, Eldorado, CMPC, Arauco (our partner in Montes del Plata), and Suzano (our partner in Veracel since early 2019 when Suzano merged with our previous partner Fibria).

In terms of new potential markets for renewable solutions, the Biomaterials division faces competition from biochemical companies and the chemical industry.

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Advantages



Fibre knowledge

World-class experts in fibres and chemistry work for the Biomaterials division and continually advance our know-how of what wooden fibres can do. Their daily mission is to transform biomass into renewable solutions on our selected innovation and technology platforms. We are proud to work with top scientists who link us to global research and thus also add value to our customers' businesses.

**In addition to innovating in pulp products, the Biomaterials division consistently develops a strong business portfolio for regenerated cellulose and MFC as well as for lignin and bio-based chemicals.**



Superior customer service and strong customer relations

We have been working closely with our customers to understand their business challenges and to identify and develop unique or innovative value offerings that respond to those challenges. Our technical experts advise customers on the best usage of our pulp for reaching the desired runnability and quality of their products. Most of our sales go directly to producers instead of traders, thus allowing us to build solid, regular and long-term relationships with them.

Strong focus on innovation

Our Innovation Centre for biomaterials in Stockholm, and the Pulp Competence Centres in Imatra and Karlstad, plus the pilot project plant in Danville and demonstration plant in Raceland concentrate on research, product development and the commercialisation of new products and services.

Largest portfolio of pulp grades with the right pulp mix for customer needs

Unlike many other suppliers that are focused on one specific pulp grade, we offer the widest pulp portfolio in the market. This, combined with stable quality, allows our customers to keep their recipes unchanged and to improve the efficiency of their own products and processes.

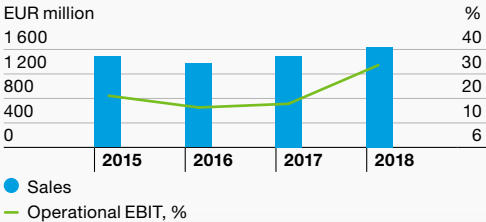
Financial performance

Operational ROOC

17.9%

(Target >15%)

Sales and operational EBIT





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## Highlights of 2018

### Lignin commercialised and awarded

Lineo™ by Stora Enso was launched as a renewable replacement for oil-based phenolic materials. Lineo is made of bio-based lignin – one of the building blocks of trees. Lignin can be used in a range of applications in which fossil-based materials are currently used. Examples include adhesives used in plywood, laminated veneer lumber, oriented strand board, and laminates. In the future, lignin can be developed into other types of formaldehyde-free binders and could potentially also be used in carbon fibre and energy storage applications. Lineo was awarded 'Bio-Based Product of the Year' at the Bio-Based World News Innovation Awards 2018, 'Best Product Innovation' at the ICIS Innovation Awards 2018 and 'Innovative Product Award 2018' by the Institution of Chemical Engineers (IChemE). Stora Enso has been producing quality kraft lignin on an industrial scale since 2015.



New fluff pulp line up and running in Skutskär

**Production started as planned at the new fluff pulp line at Skutskär Mill in Sweden following the EUR 26 million investment to meet the growing demand in the hygiene market. We also completed the EUR 16 million investment to improve Skutskär Mill's environmental performance by reducing sulphur emissions.**



### Dissolving pulp investment in Enocell proceeding as planned

Biomaterials is increasing its dissolving pulp production capacity in Finland. Enocell Mill will be converted to focus entirely on the production of dissolving pulp with completion during the second half of 2019. This investment improves our pulp mix, adding softwood dissolving pulp to our product portfolio and supporting the mill in becoming an integrated biorefinery plant for new bio-based chemicals.

### Innovation in the core business

Biomaterials explores the potential for its innovations by discussing issues with its current pulp customers. We will continue to build strong business with lignin, create new business in regenerated cellulose and MFC, and further develop extraction and separation technology and bio-based chemicals. Also, we will look into the opportunities offered by extracted sugar. In lignin, the short-term focus is on the replacement of phenol. However, there is great potential within other applications, such as carbon fibres. Lastly, we are also exploring the potential for bioplastics, working closely with our packaging divisions.

### Stabilising xylose production and commercialising xylose

Biomaterials started producing xylose at the division's Raceland facility in May 2018. The xylose will be sold to xylitol producers to be used in dental care and food applications. The demonstration plant is the first of its kind and utilises sugar cane bagasse, which is the bio-based waste from sugar cane processing.



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## Main focus and targets for 2019



Safety – aim for zero accidents



Production and operational efficiency focusing on business continuity and digitalisation



Customer centricity and supply chain efficiency ensuring product quality, lead-time reliability, and the traceability of pulp deliveries



Generate profitable growth from new products and services



People, competence, and capability development for entering new markets

### Aiming at future with 100% bio-based resin

Rolkem is a producer of phenolic resin for plywood application, with another core business in the impregnation of technical papers. Since late 2015, Rolkem has used renewable lignin from Stora Enso to replace fossil-based chemicals in its phenolic resin production.

“Stora Enso provides industrial lignin that can be adapted to Rolkem’s needs, so the partnership has been a perfect fit for us,” says **Patrick Palos**, General Manager at Rolkem. “Lignin allows us to reduce the use of fossil-based materials and chemicals in our production. Renewable products such as lignin are also linked to sustainable commercial development. For example, it is important that our customers see that we are able to develop new products.”

The collaboration is an interesting exchange between two companies of very different sizes.

“Rolkem’s small size brings reactivity into the relationship while Stora Enso can provide excellent support with, for example, research and development activities,” says Palos. “Perhaps, in the future, we can work together to develop a 100% bio-based resin for plywood bonding or paper impregnation.”

Lineo™ by Stora Enso, Stora Enso’s commercial lignin offering, can be tailored to any customer’s specific needs. Lineo was awarded ‘Bio-Based Product of the Year’, ‘Best Product Innovation’ and ‘Innovative Product’ in 2018.

› Read more about Rolkem



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# Wood Products

The Wood Products division is a leading provider of innovative wood-based solutions. The product range covers all areas of construction, including massive wood elements and wood components. It also includes a variety of sawn timber goods and pellets for sustainable heating. The emerging product range of biocomposites addresses the opportunities to replace plastics in consumer goods and creates potential in various demanding exterior applications in a cost-competitive way.



“Wood Products continues its successful transformation from a traditional classic sawn producer to a leading provider of innovative wood-based solutions. We aim to grow our business profitably, driven by three focus areas – growing Building Components and Solutions faster than the market, the fast growth of Biocomposites and selective growth in Classic Sawn.”

**Jari Suominen**  
Executive Vice President  
Division Wood Products



Stora Enso provided the PEFC-certified cross-laminated timber (CLT) panels for the 9 metre high timber sculpture, 'Head Above Water' in London, UK.

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### Offering

- Classic sawn
- Classic planed
- Cross laminated timber (CLT)
- Laminated veneer lumber (LVL)
- Construction beams
- Window and door components
- Building solutions
- Building components
- ThermoWood
- Pellets
- Biocomposite

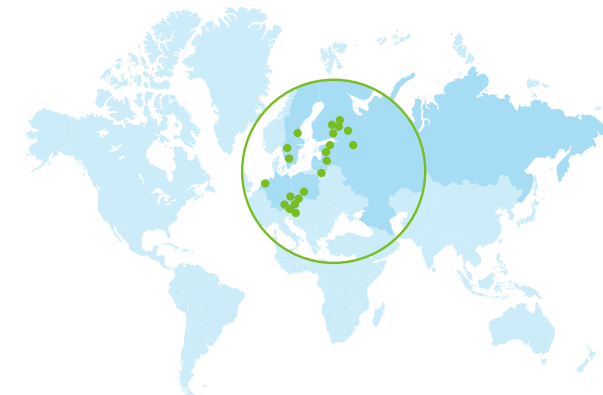
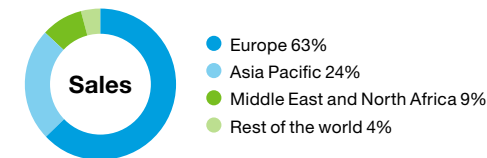
## Business environment

Wood Products has close to 2 500 customers in 60 countries. The customer and supplier market is highly fragmented, competitive, and volatile because it is connected to the construction market. We see this as an opportunity for a developed player like us.

The European new construction market is growing at

# 3.5% annually.

### Leading market position in core segments



● Production units

Stora Enso's Wood Products division is the largest supplier of wooden construction material in Europe and the fourth largest in the world with 21 production units in 11 different countries.

Approximately 60% of Wood Products sales go directly to industry, merchants or retailers and the remaining 40% go through wholesalers and trading houses. As the share of value-added products and the development of distribution centres increases, the share of direct sales will grow.

The global market growth for sawn softwood is estimated to be 2–3% annually.

Competition varies from other sawmills to manufacturers of construction and interior materials. Wood pellets face competition from other heating systems whereas for biocomposites, the main competitor is conventional plastic. In the construction market the new usages of wood is gaining market share from materials such as concrete, steel, glass, and metal.

Other significant sawmilling and wooden material providers include: Binderholz, Pfeiffer, SCA Timber, Metsä Fibre, Holzindustrie Schweighofer.



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## Advantages



### Global sales network combined with local presence

Our global know-how and broad product portfolio are our competitive advantage. We are close to our customers and serve them locally through our extensive sales network. We also differentiate through innovative services such as our integrated distribution centres, building systems and building components as well as eBusiness solutions.



### Renewability as a competitive advantage

Wood is the only construction material suitable for large scale construction that is both fully recyclable and renewable. Using wood with efficient building processes reduces CO<sub>2</sub> emissions. Wooden buildings also store carbon.



### Broad product and service offering

Our high-quality wood-based products and services target the end-user segments of construction, packaging, furniture and bioenergy. Our fibre products like wood chips and sawdust are sold as raw material to the pulp, pellets or bioenergy sectors. We always utilise our wooden materials to the fullest. On average, the utilisation rate of wooden raw material is over 99%.

## Wood-based innovations are our future and digital services and technology will take it to the next level.

### Competitiveness through innovation and digitalisation

To support our accelerated growth agenda, selected innovation projects have been defined to ensure focus and speed to market. Examples include bringing new and updated building components and solutions to the market and ensuring successful launches of biocomposites as a renewable replacement for plastics.

As a part of a leading forest industry company, we see significant opportunities in driving digitalisation in, for example, wood procurement, value chain optimisation, the introduction of robotics to increase operational efficiency, and the development of our online service offerings. Digital solutions will increase transparency between all players in the building process.

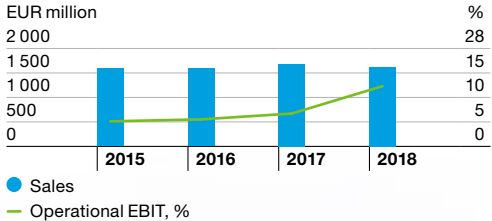
## Financial performance

### Operational ROOC

28.1%

(Target >20%)

### Sales and operational EBIT



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## Highlights of 2018

### New Building Solutions concept for commercial offices

**Coming soon, Stora Enso will extend its portfolio of building concepts. Besides concepts for residential multi-storey buildings as well as schools, Stora Enso will launch a new concept for commercial office buildings. Building Solutions by Stora Enso will enable customers in the construction sector to build using massive wooden products and components.**



### Biocomposites in production and commercial use

The production of biocomposite granules began in 2018 at Hylte Mill in Sweden under the brand name DuraSense™ by Stora Enso. Biocomposite granules enable the use of wood to substitute for a large percentage of the fossil-based materials in products typically produced in plastics.

During the fall, Stora Enso and household products company Orthex brought to the market a new range of kitchen utensils made from DuraSense. These innovative products contain 98% bio-based material. In addition, Stora Enso has been collaborating with several brand owners, including H&M group, to introduce products made from DuraSense to the market – the initial market focus will be on Europe.

At the Hylte Mill, Stora Enso is also building a Biocomposites Competence Centre and diversifying the raw material base for biocomposites, which will provide more choice in technical properties and the selection of fibres. Production is scheduled to begin before the end of 2019.

### Joint development of digital services for wooden buildings with Trä Group

Stora Enso and the startup company Trä Group signed a joint development agreement to develop innovative digital services for wooden buildings. The target is to make the design and specification easier by establishing a digital platform and toolbox that connects wood construction industry professionals throughout the value chain. The first services are planned for launch in 2019. The co-operation between the companies began in 2017 in Stora Enso's Accelerator programme, which involved partnering with Aalto University and startups to ideate and innovate renewable products and services.



### Strengthening position as a market leader in CLT

The EUR 45 million investment in a new cross laminated timber (CLT) unit at the Gruvön sawmill in Sweden proceeded during the year as planned. Production is scheduled to begin during the first quarter of 2019.

To meet the continuously growing demand for sustainable building components, Stora Enso has started up CLT rib panel production in Ybbs, Austria. Rib panels offer an effective and cost competitive solution for construction projects that require long spans, such as commercial and industrial buildings and schools.



### Varkaus investment completed, Launkalne coming up

The new laminated veneer lumber (LVL) line at Varkaus Mill reached EBITDA break-even during the first quarter and the ramp-up was completed successfully during the second quarter. Stora Enso is also investing approximately EUR 13 million in an additional sawline, a planing line and a pellet mill at Launkalne, Latvia. The start-up is expected to take place in phases during the second and third quarter of 2019.

### Building with wood

Stora Enso was selected as the provider of wooden material to several new building projects around the world, including:







- 25 King Street in Brisbane, Australia, the largest wooden commercial office building in the world: total floor area of close to 15 000 m<sup>2</sup> covering 10 floors
- 14-storey wooden building in Joensuu, Finland: Light House Joensuu to be the country's tallest wooden high-rise building, providing 120 student apartments
- Üstra apartment buildings in Hannover: project of 9 houses and 139 flats to be built as rental homes for employees of Üstra – a major transport company
- The Arts Centre at Sherborne Girls School, Dorset, England, the final project in the school's Growing for the Future development programme driven by multiple needs and aspirations
- Grand CARRE-Auchan, Lille, France, five office buildings linked together and a first-floor carpark



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Main focus and targets for 2019

-  Safety – aim for zero accidents
-  Improve service to the Scandinavian building market by successfully ramping up Gruvön CLT mill
-  Grow the attractive offerings of biocomposites to replace fossil-based plastics
-  Develop new building concepts for new building types and applications
-  Develop innovative digital services for wooden buildings together with Trä Group
-  Continue the implementation of the digital roadmap



**Supercell proudly building with wood**

The demand for building offices with massive wood is increasing. Stora Enso has delivered massive wooden elements like Cross Laminated Timber (CLT) and Laminated Veneer Lumber (LVL) to an increasing number of office projects in Europe like Green Office Enjoy in Paris as well as some large-scale projects in Australia.

One of the most recent projects is the Helsinki headquarters of the mobile game company Supercell, known for games like Clash of Clans and Hay Day. The eight-storey building will be part of Wood City, a whole city block built with massive wood, which should be completed by 2020.

“We are proud to be part of innovative and environmental-friendly way of building. Wood has been an essential part of all our office interiors in San Francisco, Shanghai, Seoul, and Tokyo and now it is the main element for our headquarters. It represents our Finnish roots and shows that we take pride in them,” says **Ilkka Paananen**, CEO of Supercell.

Stora Enso is the leading provider of innovative wood-based solutions. In early 2019, the company will launch a concept for office buildings that includes information about building with wood – for example, design guidance, case studies with BIM models and cost analysis – that is directed towards architects, designers, developers and construction companies. This concept widens the portfolio of already existing solutions for residential and modular buildings.

› Read more about Supercell

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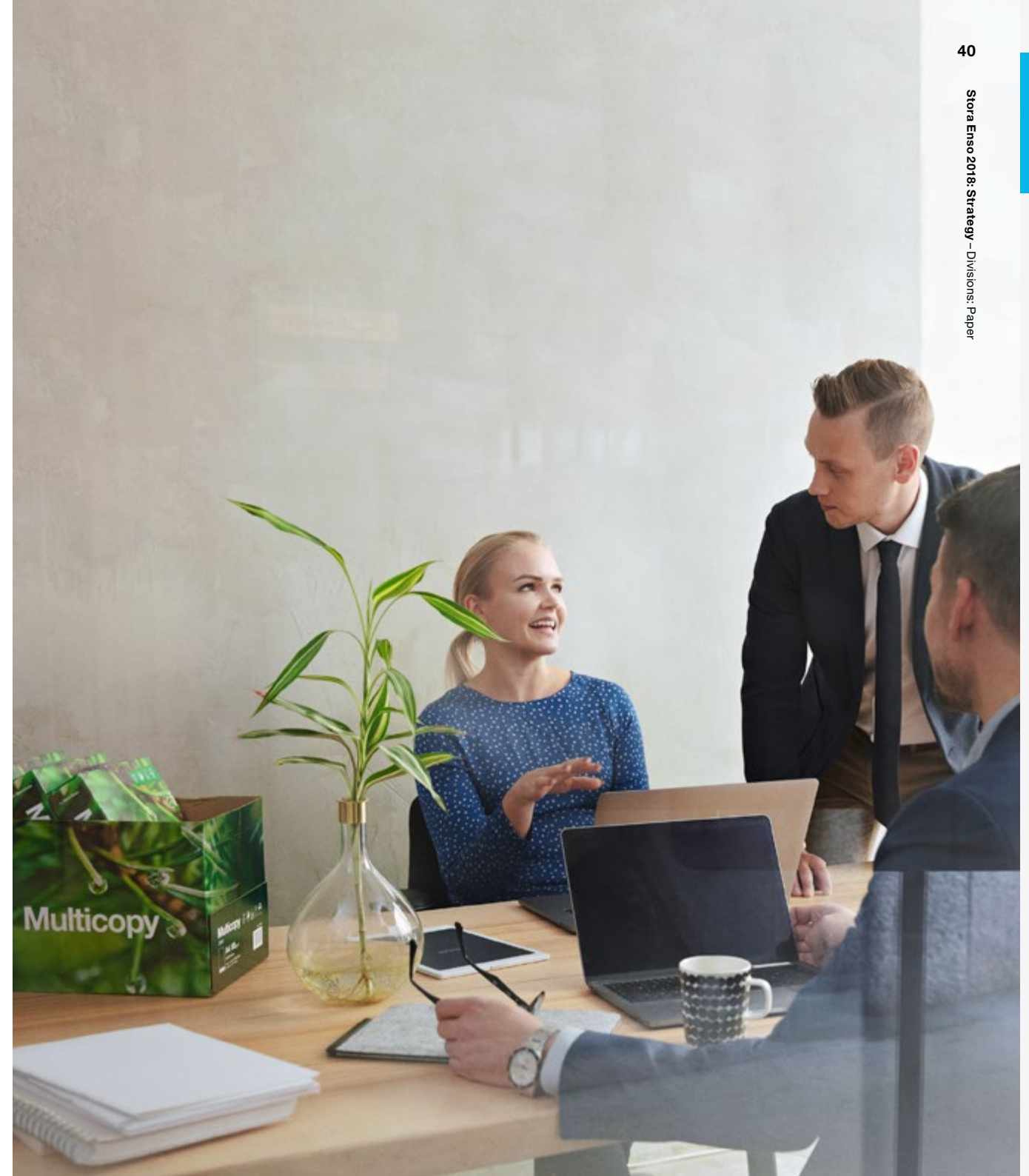
# Paper

Stora Enso is the second largest paper producer in Europe with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of papers made from recycled and virgin fibre as well as our valuable industry experience, know-how, and customer support.



“Our ambition is to be the best sustainable value creator in the paper business through customer focus and efficiency. This means being better than the competition in understanding customer needs, commercial, and operational excellence and profitability.”

**Kati ter Horst**  
Executive Vice President  
Division Paper





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## Offering

- **Newsprint and book papers**
- **Uncoated magazine papers (SC)** for magazines and retail advertising
- **Coated papers** for magazines, brochures, catalogues, and art books
- **Office papers** for notepads, envelopes, printing, and copying
- **Technical customer service**
- **eBusiness solutions**
- **Sustainability support**

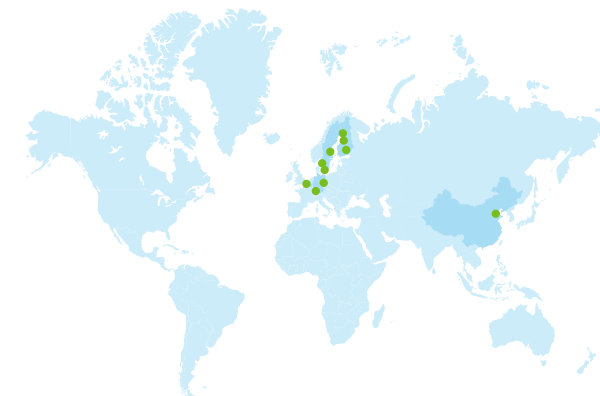


## Business environment

European paper demand is declining at a rate of 3–5% per year, varying across paper grades and geographies. However, this is still a large global business and paper will continue to play a significant role in media and advertising in the future. After significant capacity closures and conversions, especially in newsprint and supercalendared (SC) papers in the last few years, the European paper markets are currently well balanced.

# Stora Enso has nine paper mills with 18 production lines in Europe and one joint venture paper machine in China.

## Leading market position in core segments



● Paper mills

Print and digital media complement each other: flyers and folders are used in advertising and online retailers publish printed magazines and establish physical store locations to improve customer experience.

Publishers still create most of their revenues from print and print media remains the most trusted source of information. Print advertising brings consumers into stores.

Book paper sales have remained stable as many people prefer reading books in the traditional paper and ink format. Copy paper is performing relatively well as people continue to print at offices and home.

With its comprehensive product range, Stora Enso's Paper division is the second biggest paper manufacturer in Europe, where the main competitors are UPM, Sappi, Holmen, Norske Skog, and the Navigator company.

## Advantages



### Strong assets serving global paper markets

Paper division reviews its key assets – pulp mills, paper machines, and energy set-ups – continuously. We ensure that asset and sales strategies are aligned to increase our competitiveness in changing market conditions. We are developing our ways of working for instance in supply chain area, and utilising data to improve efficiency and safety in our operations.

**We continuously improve the operational efficiency of our paper mills. For example, Anjala Mill has achieved an EUR 8 million improvement in productivity during the last three years.**



### More than 90% of Stora Enso paper brands awarded ecolabels

We use our sustainability expertise to help our customers perform better on sustainability measures. Our ambition is to make sustainability a competitive advantage. Our performance in different areas of sustainability has been recognised by many stakeholders, for example WWF's Environmental Paper Company Index. More than 90% of our own paper brands have been awarded the European Ecolabel, the official EU recognition for Greener Products.

### Commercial excellence through long-term customer relationships

Key focus areas in our commercial excellence include optimising sales by product and mill through product management, pricing as well as solid business intelligence and the commercial competence of our global sales network.

### Focused innovation

**Operational excellence** is about having competitive assets and a sound cost structure. Our process innovations improve the division's efficiency and ways of working, for example, through digitalisation. The investments for green energy solutions at our Maxau and Nymölla Mills are examples of improved competitiveness and a reduced environmental impact.

**New or improved paper grades** to fit customer needs. Many of our products have been developed together with our customers, like our carbon-neutral copy paper Multicopy Zero.

**Non-paper related new businesses** utilising our knowhow and infrastructure. For example, the Hylte biocomposites business emerged from the Paper innovation process.

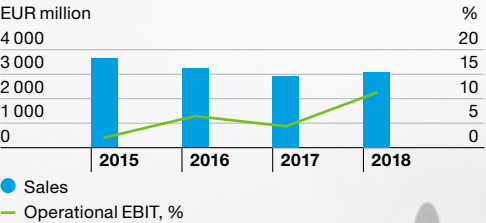
## Financial performance

Cash flow after investing activities to sales

**5.7%**

(Target >7%)

### Sales and operational EBIT

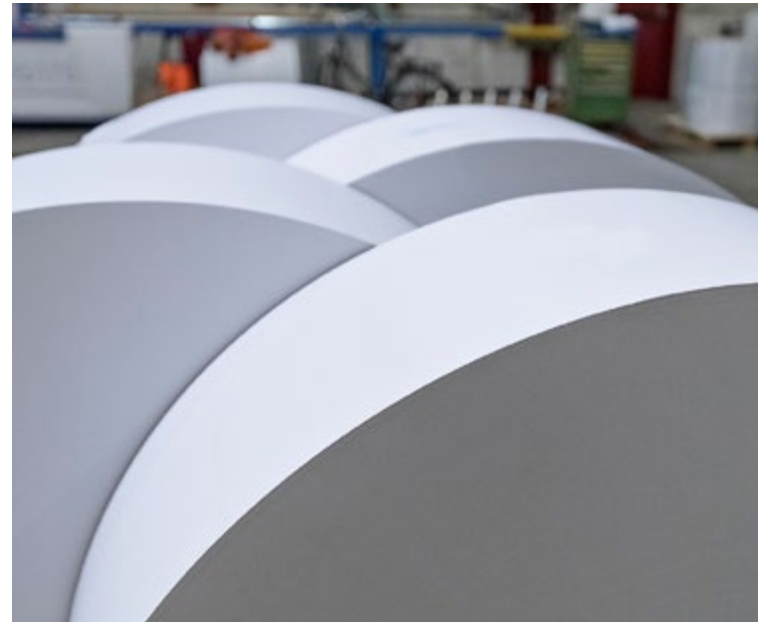




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## Highlights of 2018



Optimised paper handling and logistics with ReadyReel

**Stora Enso launched a new service, ReadyReel, from its Lumipaper NV converting services site located in Antwerp, Belgium. ReadyReel is a rewinding and palletising service that offers a rapid delivery of reels ready in the format and position needed for loading directly on to a press. This allows customers to manage the ever-growing demands for shorter runs and faster turnaround within their process.**

The steam turbine investment in Maxau Mill reduces CO<sub>2</sub> emissions by  
**50 000 tons annually.**

### Collaborating with Gasum on biogas

Stora Enso and the energy company Gasum will build a biogas plant at Nymölla Mill in Sweden to turn the mill's wastewater effluent into renewable energy. The expected liquified biogas production of the plant is 75–90 GWh per year, equal to the amount of fuel needed annually for more than 200 long haul lorries.

### Increasing efficiency with the Paper Production System

The roll-out of the Paper Production System continued during the year. Based on lean manufacturing principles, this shared method of operating our mills aims for further improved productivity and reduced waste regarding time or the use of excess materials. The programme also investigates how digitalisation could best be used to our benefit and which competences need to be developed in operations.



### Harnessing digitalisation for mill operations

As technology advances, the Paper division increasingly utilises the benefits of digitalisation. For example, the Oulu Mill in Finland has piloted augmented reality and 5G technology solutions in mill maintenance. By using a virtual model of a machine and real-time data concerning information points, we can improve the operational reliability of the mills.



### Boosting green energy generation in Maxau

**Stora Enso is investing EUR 25 million at Maxau Mill in Germany and installing a new steam turbine with a closed-loop cooling system and additional biomass storage. This will reduce the energy cost and secure the long-term cost competitiveness of the paper mill. The investment enables a higher share of biomass and a clear reduction in our CO<sub>2</sub> emissions.**

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  - Biomaterials
  - Wood Products
  - Paper**
- › Group Leadership Team

## Main focus and targets for 2019



Safety – aim for zero accidents



Focus on the right products and customers by paper mill



Pricing excellence across all paper grades



Variable and fixed cost control to ensure continued profitability



High operational efficiency and capacity utilisation at all paper mills



Focused innovation and digitalisation in paper sales, supply chain, and operations.

Production Manager Fabrice Nicolle and Quality Manager Roger Ferry from Lagardère.



### Softproofing gets the colours right

Getting the colours right on a print job used to require trial runs that took time and money. What you see on the computer screen is not always what you get to print and the changes are not always dependent on the paper. Hard proofs need to be sent via physical post, which slows down the process.

Softproofing by Stora Enso is a service that streamlines the printing process. Saving both time and money, it is the choice of the Lagardère group, a global leader in content publishing, production, broadcasting and distribution.

Softproofing employs unique software specially calibrated to show what a print job will look like before it hits the presses. During the softproofing process, users can select different paper types to show what results each type of paper would produce, allowing them to adjust the pre-press files accordingly. Lagardère also greatly appreciates the flexibility Softproofing brings – now it is possible to make even last-minute changes.

Housed in a standardised environment similar to an old-fashioned telephone booth – with defined light resources and

a defined screen – the Softproofing service is a ready-made solution that allows users to check their pre-press data on site. Lagardère has one booth and the printing company has another.

When the processes are optimised, the best print results are found quickly and the customer saves time, effort, money and materials. “We are particularly pleased with this solution as it is a very simple tool with an efficient back-up team that is highly reactive,” say **Fabrice Nicolle**, Production Manager at Lagardère.

› Read more about Lagardère





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Group Leadership Team



**Karl-Henrik Sundström**  
Chief Executive Officer (CEO)

**Jari Suominen**  
Executive Vice President,  
Division Wood Products

**Annica Bresky**  
Executive Vice President,  
Division Consumer Board

**Per Lyrvall**  
Executive Vice President, Legal,  
General Counsel, Country  
Manager Sweden

**Markus Mannström**  
Executive Vice President,  
Division Biomaterials

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

**Johanna Hagelberg**  
Executive Vice President,  
Sourcing and Logistics

**Ulrika Lilja**  
Executive Vice President,  
Communications

**Kati ter Horst**  
Executive Vice President,  
Division Paper

**Noel Morrin**  
Executive Vice President,  
Sustainability

**Malin Bendz**  
Executive Vice President, HR

**Gilles van Nieuwenhuyzen**  
Executive Vice President, Division Packaging Solutions

For more detailed information about the Group Leadership Team, see **Governance 2018**, or [storaenso.com/investors/governance](https://storaenso.com/investors/governance).



Our sustainability work covers social, environmental, and economic responsibility throughout our operations, with human rights integrated into everything we do.

# Sustainability

Part of Stora Enso's Annual Report 2018





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We are creating  
a renewable future  
in the bioeconomy.



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The report contents have been assured by an independent third-party assurance provider with a level of Limited Assurance. A level of Reasonable Assurance has been provided for our direct and indirect fossil CO<sub>2</sub>e emissions.

The GRI index is available at  
➤ [storaenso.com/gri2018](https://storaenso.com/gri2018)



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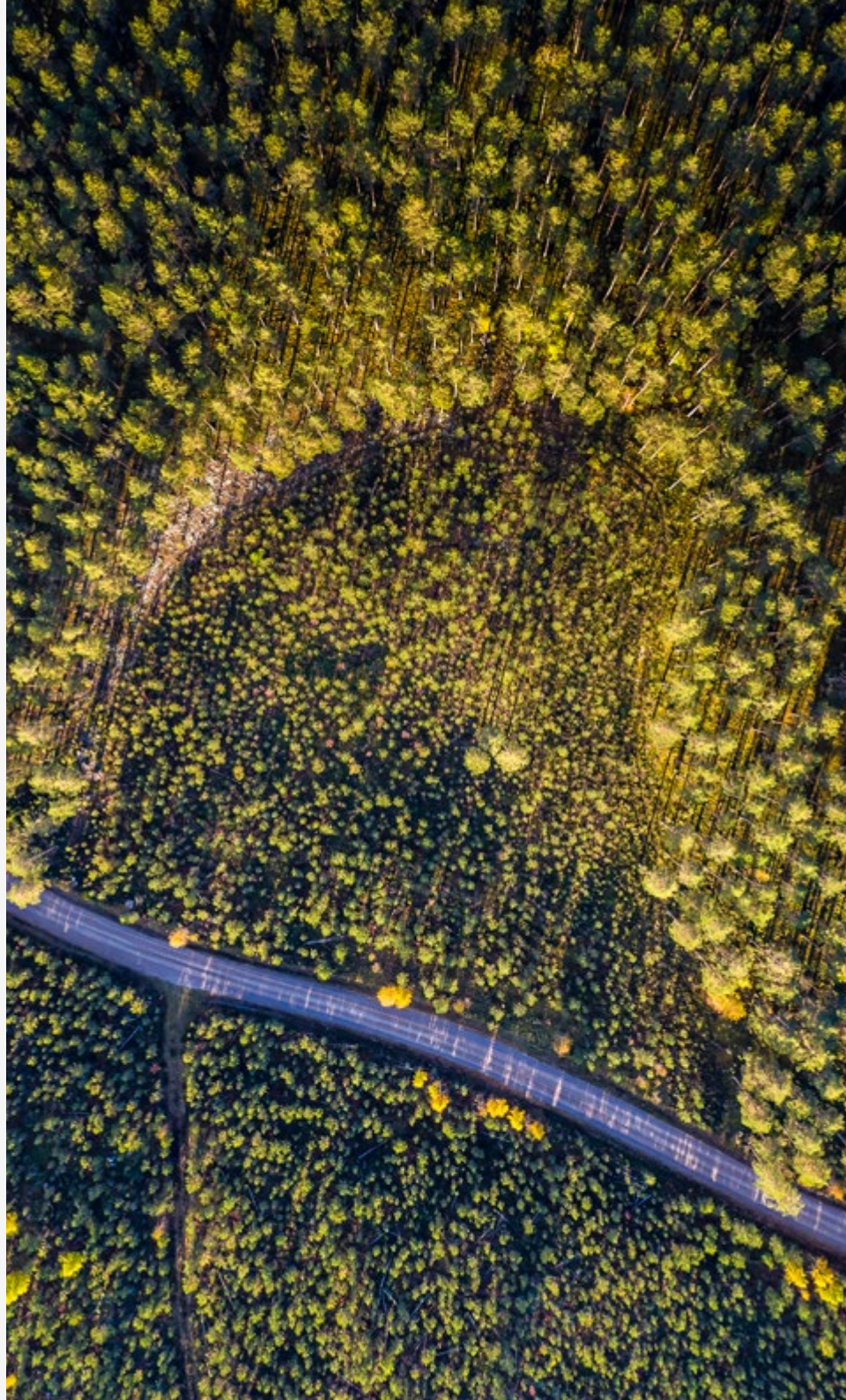
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# Our year 2018



**Minimising waste**  
The utilisation rate for our process residuals and waste was 98%.



**Combatting global warming**  
Our CO<sub>2</sub>e emissions were 18% lower than the 2010 base-year level.



**Enhancing safety performance**  
Compared to 2017, a 18% reduction was achieved on our TRI rate.

@storaenso October 11



Stora Enso has been top-ranked for gender balance and gender #equality by @equileap, ranking at 12 out of 200 top companies globally.

@storaenso December 18



Stora Enso recognises the urgency to #StepUpNow and supports ambitious #EU2050 targets to combat global warming. #COP24 <http://stepupnow.eu/> @StepUpNowEU



**A single set of values**  
Our code of conduct was renewed and rebranded as the Stora Enso Code.



**Sustainable forestry**  
96% of the lands we own or manage were covered by forest certification schemes.



**Responsible sourcing**  
We began using sustainability criteria in the tender phase of each sourcing process.



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@storaenso December 4



Here's our secret revealed: Stora Enso and startup Sulapac have joined forces to develop renewable and biodegradable straws. Read more: <http://fal.cn/Sepa>



@storaensoworld January 15



Improving energy efficiency can mean either process changes or developing the systems for better monitor and control. These are some essential tools for that work. #storaensoworld #storaenso#papermaking #energyefficiency



#### **New products to replace fossil-based plastic**

Our innovative products, such as the DuraSense™ and Lineo™ by Stora Enso are a step towards replacing fossil-based products.



#### **External recognition**

We received several recognitions including top-ranking in greenhouse gas management and performance by the Transition Pathway Initiative (TPI).



#### **Leadership performance**

The Leadership Index, measuring our employees' perceptions of their managers, improved to 83/100, surpassing our target.



#### **Community investments**

25% of our voluntary contribution to communities around our operations support education.

@storaenso May 22



Beetles 🐞 have an important role in the ecosystem as decomposers. Leaving behind enough decaying wood during harvesting is vital for forest biodiversity – and a top priority to Stora Enso. #BiologicalDiversityDay #Biodiversity <https://goo.gl/8zfwsz>



#### **Human rights**

In 2018, we defined our eight highest priority human rights.



@storaensoworld August 22



Management commitment is essential in all safety work, and last week Marie Morin was appointed mill manager. The picture when she one early winter morning stood at the gate discussing safety issues with contractors makes me happy, because cooperation and commitment from her is important to my daily work and to our aim towards a safer mill. As the first female mill manager in Skoghall I hope she will continue to motivate and inspire just by being herself and sharing her drive and engagement with all of us #storaensosverige #storaensoworld #skoghall #management #chef #skoghallsbruk #safety #contractorsafety #hammarö #storaenso

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# Governance

Our sustainability agenda covers social, environmental, and economic responsibility.

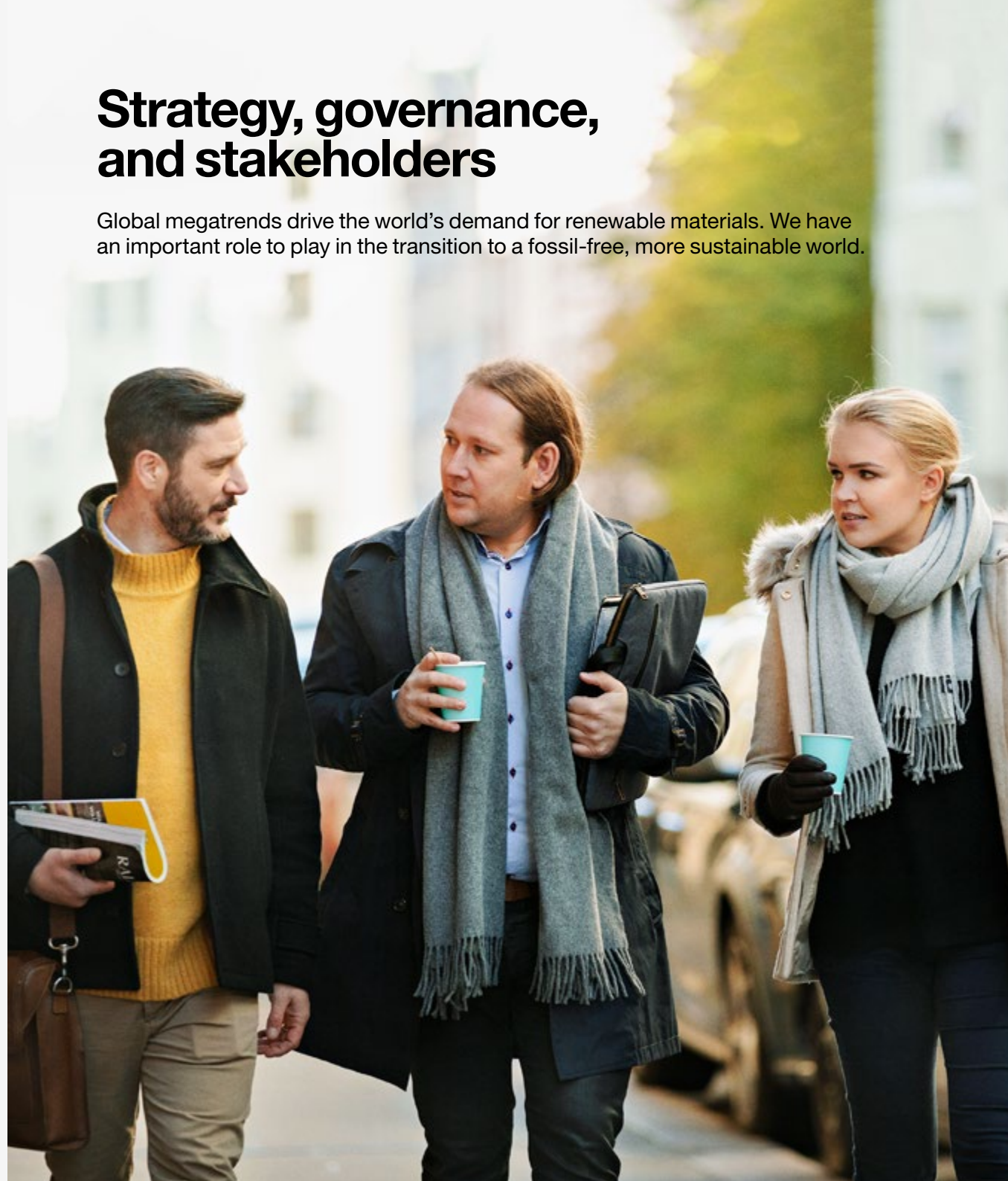
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# Strategy, governance, and stakeholders

Global megatrends drive the world's demand for renewable materials. We have an important role to play in the transition to a fossil-free, more sustainable world.



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Stora Enso's strategy for transformation is about sustainable profitable growth based on customer insight and innovation, supported by structured processes and motivated employees. Inherent in our strategy, we work to support customers to meet consumers' demand for sustainable products based on renewable materials. Our Sustainability Agenda encompasses the social, environmental, and economic responsibility of our operations throughout the value chain. The agenda is based on the Triple Bottom Line framework widely used in corporate responsibility work. It addresses the ten sustainability topics identified as material to Stora Enso and our key stakeholders: Employees and wider workforce; Community; Business ethics; Materials, water, and energy; Carbon dioxide; Forests, plantations, and land use; Customers; Suppliers; and Investors. Respect for human rights is considered to be so integral to our long-term success that it is an overarching theme of our Sustainability Agenda.

In line with our Sustainability Agenda, we have set ambitious targets and defined key performance indicators (KPIs) for our sustainability work. Progress is regularly monitored at Group level and quarterly via division-level business reviews. Consolidated results on our sustainability performance are reported annually in the Sustainability report. Selected sustainability indicators are also reported quarterly in our Interim Reports.

Stora Enso acknowledges the importance of the United Nations Sustainable Development Goals as part of a commonly agreed global ambition to end poverty, protect our planet, and ensure prosperity for all. Read more about our approach to the SDGs on page 10–11.

### Structured sustainability processes

Our Sustainability Policy describes our overall approach to sustainability. At the same time, our code of conduct – the Stora Enso Code – and other policies and guidelines on specific sustainability topics further elaborate our approach, while also guiding our employees in their everyday work. These documents are available at [storaenso.com/sustainability](https://storaenso.com/sustainability). Following a comprehensive review of the company's existing sustainability policies and guidelines in 2016, Stora Enso introduced a revised Sustainability Policy as well as revised policies and guidelines steering our environmental work in 2017. In 2018, we published our Human Rights Policy, which replaced our previous Human Rights Statement.

### Sustainability governance

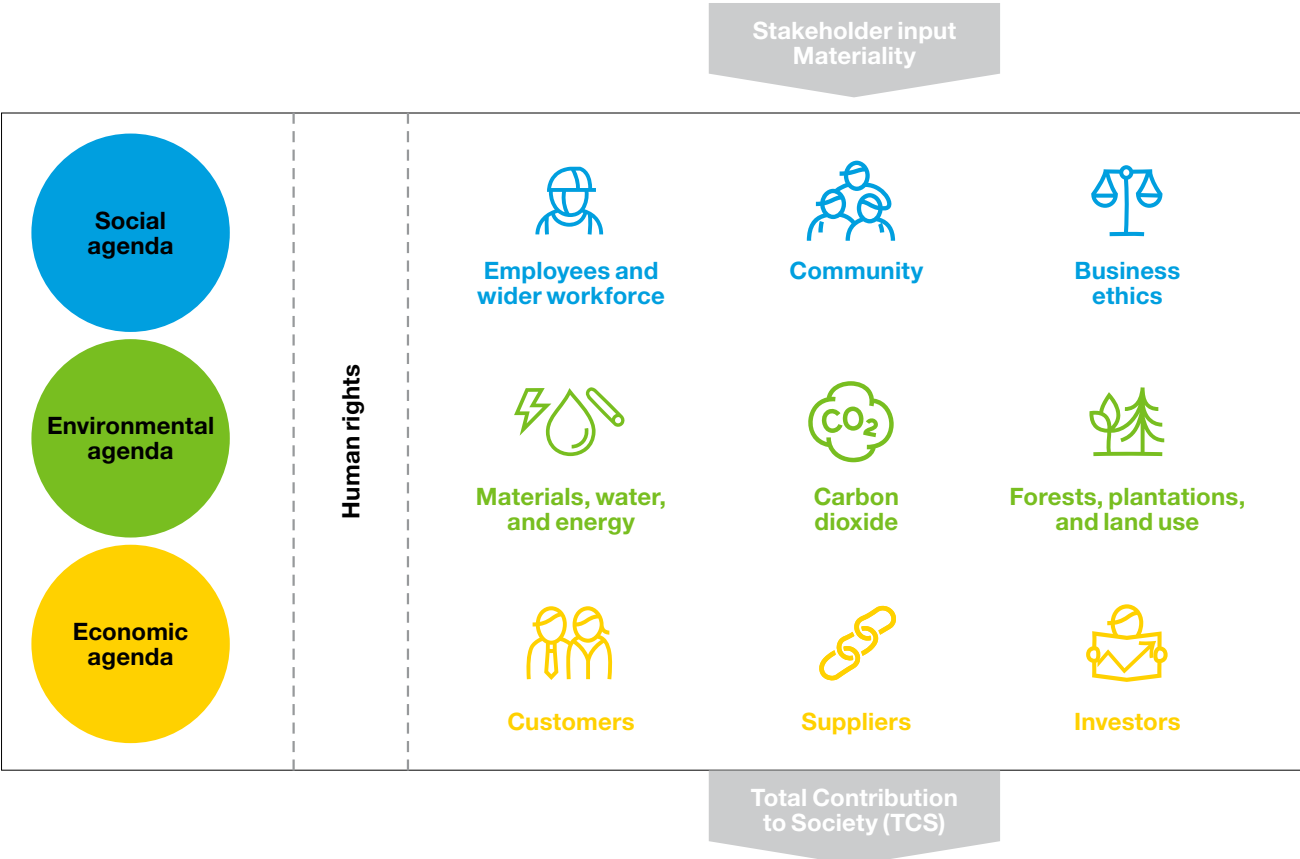
Sustainability is promoted by the Board of Directors, the CEO, and the Group Leadership Team (GLT). The CEO has the ultimate responsibility for the successful implementation of our sustainability strategy.

The Board of Directors' Sustainability and Ethics Committee oversees the implementation of our sustainability strategy and the ethics and compliance strategy. The committee met four times in 2018 and has reviewed the disclosures in this report. The main focus areas of the committee in 2018 are described in our **Governance 2018**.

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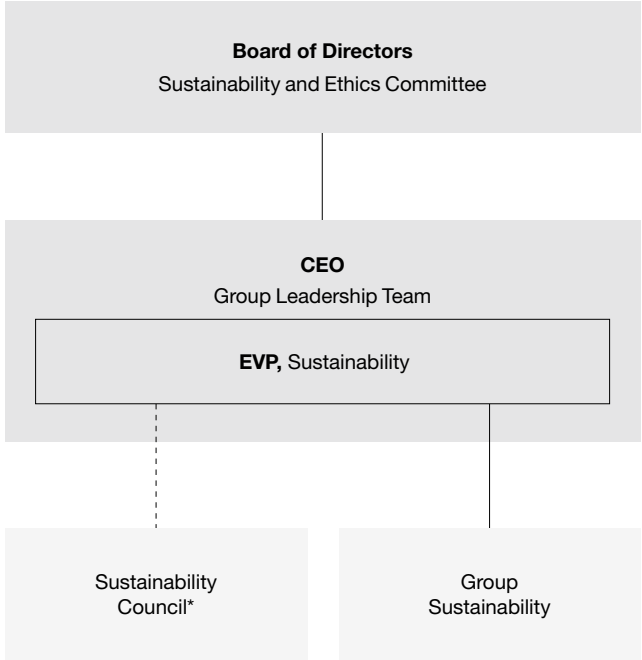
Our Sustainability Agenda is based on the classic Triple Bottom Line model. It addresses the ten sustainability topics identified as material to Stora Enso.

At Stora Enso, 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). Everyday sustainability topics are managed by our Group Sustainability team together with our Human Resources, Legal, Wood Supply, and Sourcing and Logistics functions, and our divisions (Consumer Board, Packaging Solutions, Biomaterials, Wood Products, and Paper). Each of our business divisions has its own Head of Sustainability, who reports directly to the Executive Vice President of the division. Other key functions, such as Wood Supply and Sourcing and Logistics, have sustainability organisations to support their management teams. 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 is steered by our Sustainability Council, which includes members from our five divisions, our Sourcing and Logistics function, and subject matter experts from our Group Sustainability team. Chaired by the Executive Vice President, Sustainability, its work involves sharing good practices and identifying longer-term opportunities and challenges that may require a Group-wide response. The Sustainability Council met ten times during 2018. The GLT is periodically informed of sustainability developments, as is the Board of Directors when appropriate, through its Sustainability and Ethics Committee.

Sustainability is one of the performance metrics in the GLT members' remuneration through Short Term Incentive programmes. Different members of the GLT can be assigned appropriate

Sustainability governance at Stora Enso



\* Stora Enso's operational sustainability work is steered by our Sustainability Council, which includes members from our divisions, Sourcing and Logistics function, and subject matter experts from our Group Sustainability team.

- - EVP Sustainability chairs the Sustainability Council. Members of the Council report directly to their respective EVP.

sustainability indicators. For more information on remuneration see our [Remuneration Statement](#).

**Sustainability governance of joint operations**

Our joint operations in Brazil (Veracel) and Uruguay (Montes del Plata) have their own sustainability teams, and sustainability topics are regularly discussed by their boards, which include representatives from their parent companies. Sustainability is also regularly covered by Stora Enso's joint operation steering committees for Veracel and Montes del Plata. In addition, Stora Enso is represented on the boards of the forestry companies Tornator and Bergvik Skog in Finland and Sweden respectively.



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## Stakeholder engagement

Open dialogue with our key stakeholders is crucial if we are to successfully identify stakeholder concerns, global trends and market expectations. Our stakeholder engagement work is based on both structured and ad hoc interaction, as well as regular surveys on topics such as customer and employee satisfaction and investor expectations. We also obtain important information through formal grievance channels. Engaging with stakeholders on social media is important for us in understanding our stakeholders' opinions and concerns locally around our units, as well as on divisional and Group level. We actively monitor social media discussions and respond, where appropriate, to stakeholder queries through social media channels.

### Materiality review

We periodically assess how well our agenda is aligned with the expectations and perceptions of our key stakeholders. The Group's latest focused materiality review was carried out in 2017. The review involved an external expert organisation consulting 124 group-level stakeholders around the world through online and telephone surveys to assess if our Sustainability Agenda and external communications were focused on the right topics. The consulted stakeholders included campaigners (e.g. NGOs), customers and corporate peers, experts, investors, partners and suppliers, and the media.

In the consultation, stakeholders were asked to rank the aspects of Stora Enso's Sustainability Agenda they consider to be most important, and to indicate if anything significant was missing. In the consolidated results, the most important sustainability topics for the Group's stakeholders were:

- sustainable forestry
- human rights
- global warming
- business ethics
- sustainable materials and products, and
- responsible sourcing.

Other elements in our existing Sustainability Agenda were also considered important. The results were largely in line with Stora Enso's previous focused materiality review carried out in 2014, despite not being fully comparable due to different terminology.

The consolidated results from our materiality review were examined by the Group Leadership Team and the Sustainability and Ethics committee of the Board of Directors in 2017.

In addition to ranking the importance of different sustainability topics, the consultation identified opportunities to further clarify the links between topics within our Sustainability Agenda. The most important ones were:

- human rights, business ethics, and responsible sourcing
- sustainable forest management and our commitment to combat global warming
- renewable materials and products, in terms of innovation, waste reduction and product safety
- community investment in a wider social responsibility context



In 2018, the results have been used in our sustainability work, including in the incorporation of the UN Sustainable Development Goals into our Sustainability Agenda and reporting.

Through focused in-depth consultations of external stakeholders, our materiality review complements our Enterprise Risk Management (ERM) process and includes a broader scope of sustainability topics than those identified as the Group's key risks. Whereas our statutory Non-Financial Reporting in the Report of Board of Directors includes those sustainability topics that are identified as the Group's key risks, our longer Sustainability Report also covers topics considered important by stakeholders in our broader materiality review process.

In 2018, our Consumer Board division carried out its own materiality assessment using a similar methodology to that of the Group. The results were well aligned with the group-level assessment done in 2017, but also identified some division-specific priorities.

"Stora Enso uses a four-tier structure in its reporting to present the most material opportunities and challenges. This is recognised as good practice. Stora Enso also clearly articulates the potential impacts of external trends and regulations, describing the approaches taken to manage and address this."

**Rodney Irwin**  
Managing Director of Redefining Value  
World Business Council for Sustainable Development

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#### Purpose-driven disclosure

Through our participation on WBCSD's Redefining Value Board we support and help develop processes and tools that lead to purpose-driven disclosure (PDD). The objective of PDD is for companies to disclose relevant, useful ESG information for investors to encourage the flow of capital to more sustainable companies and outcomes. Redefining Value PDD achievements so far include guidance on materiality and the release for consultation of a "ESG Disclosure Judgement Handbook".

#### Collaboration with non-governmental organisations

Stora Enso actively cooperates with prioritised international and non-governmental organisations (NGOs) and industry associations. We are involved in developing industry practices related to combatting global warming and food loss and waste, circular and bioeconomy, sustainable forestry, human rights, and business ethics, as well



#### Creating value for society

Stora Enso engages with communities all over the world through its operations, sales and supply chains. Stora Enso has a range of positive financial, social, and environmental impacts on society, such as direct and indirect employment, taxes and dividends, and products providing renewable alternatives to non-renewable materials. For more information about how we create value and contribute to society, see **Strategy 2018**. For details of Stora Enso's annual tax footprint in the countries we operate, see **Financials 2018**.

Stora Enso continues to explore ways to define and report on the monetary value associated with the company's non-financial sustainability impacts and actions.

Read more about how we create value in **Strategy 2018**.

as the development of sustainability reporting and assurance. Examples of our collaboration during 2018 can be found below and in the relevant sections of this report.

In 2018, Stora Enso's CFO signed a Statement of Support by Accounting for Sustainability (A4S) to promote better disclosure of climate risks and opportunities. A4S aims to inspire action by finance leaders to drive a fundamental shift towards resilient business models and a sustainable economy. The Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) recommends a framework for disclosing climate related risks and opportunities that goes beyond current practices. The TCFD recommendations respond to a growing demand for improved financial disclosures from companies in relation to climate risks. In addition to investors and regulators, leading companies are also communicating their support for the recommendations through Statements of Support by Accounting for Sustainability (A4S)

#### Particularly significant stakeholder groups for Stora Enso include:

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

#### In 2018, Stora Enso actively collaborated with a range of international organisations:

- A4S Accounting for Sustainability, pages [8](#), [44](#), and [65](#)
- BSR, pages [13](#) and [20](#)
- International Finance Corporation (IFC), page [15](#)
- International Labour Organisation (ILO), page [14](#)
- Science Based Targets initiative, page [42](#)
- The Prince of Wales's Corporate Leaders Group (CLG), page [45](#)
- Transparency International, page [28](#)
- UN Global Compact, page [68](#)
- We Mean Business Coalition, page [45](#)
- World Business Council for Sustainable Development (WBCSD), pages [10](#), [34](#), [50](#), and [59](#)
- WWF, pages [50](#) and [52](#)

#### About this report

Sustainability 2018 is structured to reflect our Sustainability Agenda, with the agenda's ten elements addressed through a common four-tier framework:

#### Opportunities and challenges

These sections examine the external factors and global trends currently affecting the topics included in our Sustainability Agenda. Please note that our corporate risk management assessment appears in **Financials 2018**.

#### Our policies

These sections set out the strategies and policies we use to address key opportunities and challenges.

#### How we work

These sections describe the processes, procedures, and systems we deploy to realise our strategies and policies.

#### Progress

These sections report on our performance during 2018.

#### External assurance

The report has been assured by an independent third-party provider with a level of Limited Assurance. Given our commitment to combat global warming and related emission data reliability, a level of Reasonable Assurance has been provided for our direct and indirect fossil CO<sub>2</sub>e emissions (Scope 1 and 2). For more information on assurance, see page [72](#).



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## Our sustainability targets and key performance indicators (KPIs)

Key performance indicator (KPI)			2018	2017	Targets	Progress
	Human rights	To be reviewed during 2019	Eight highest priority human rights defined	88% of the human rights actions completed and 100% resolved <sup>1</sup>	To be reviewed during 2019	In progress
	Employees and wider workforce	Total Recordable Incident (TRI) rate <sup>2</sup>	6.1	7.4	6.7 by the end of 2018 New target will be communicated in the Interim Report for Q1/2019	Achieved In progress
		Leadership Index <sup>3</sup>	83	81	80 by the end of 2018 New target: 85 by end of 2022	Achieved
	Community	Total voluntary community investment, EUR million <sup>4</sup>	2.7	n/a	To be reviewed during 2019	In progress
	Business ethics	Code of Conduct Index <sup>3</sup>	85	83	Positive trend	Achieved
	Materials, water, and energy	Number of significant environmental incidents <sup>5</sup>	8	10	Zero significant incidents <sup>5</sup>	Not achieved
		Materials: Process residuals utilisation rate (%) <sup>6</sup>	98%	98%	To be reviewed during 2019	In progress
		Water: Total Water Withdrawal per saleable tonne of board, pulp, and paper (m <sup>3</sup> /tonne)	56	56	Decreasing trend	In progress
		Water: Process water discharge per saleable tonne of board, pulp, and paper (m <sup>3</sup> /tonne)	26	26	Decreasing trend	In progress
		Energy: Reduction in electricity and heat consumption per saleable tonne of board, pulp, and paper (kWh/tonne)	-4.2%	-4.2%	-15% by the end of 2020 from a 2010 base-year	In progress
	Carbon dioxide	Reduction in CO <sub>2</sub> equivalents per saleable tonne of board, pulp, and paper (kg/tonne)	-18%	-21%	-31% by the end of 2030 from a 2010 base-year (Science-based target)	In progress
	Forests, plantations, and land use	% of the owned and managed lands in wood production and harvesting covered by forest certification schemes <sup>7</sup>	96%	97%	Maintain the high coverage level of 96% <sup>7</sup>	Achieved
	Suppliers	% of supplier spend covered by our Supplier Code of Conduct	95%	95%	Maintain the high coverage level of 95%	Achieved

<sup>1</sup> Stora Enso carried out a Group-wide Human Rights Assessment during 2014. Action plans to address the findings were defined during the first half of 2015. At the end of 2017, a process for completion was in place for three Group-level actions, but the completion was carried forward into 2018.

<sup>2</sup> Number of incidents among our own employees per one million hours worked. As of January 2018, Stora Enso's joint operations Veracel and Montes del Plata are included in the Group's consolidated safety performance. The 2017 figure has been recalculated accordingly for comparability.

<sup>3</sup> Measured in the annual employee survey.

<sup>4</sup> Voluntary community investments covering cash, employee working hours for voluntary community work, and in-kind. Includes 50% of joint operations Veracel in Brazil and Montes del Plata in Uruguay.

<sup>5</sup> Environmental incidents involving a non-compliance with environmental legislation, a permit or a significant stakeholder concern related to environmental performance. For more details, see page 41.

<sup>6</sup> Utilisation rate for process residuals excluding, for example, tall oil, turpentine, and wood chips.

<sup>7</sup> During 2018 the KPI and target were reviewed to include only lands in wood production and harvesting. Includes joint operations in Latin America.

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# Adopting the Sustainable Development Goals

The seventeen United Nations Sustainable Development Goals (SDGs) address social and economic development issues on a global scale, each with their own set of related targets. All sectors of society, including businesses, are encouraged to work and collaborate on these goals. For business to deliver its contribution, they must be integrated into company agendas and strategies.

### Integrating the SDGs into our strategy

In 2016, we investigated how our business operations relate to the SDGs, based on previous materiality reviews, risk assessments, and stakeholder consultations. In 2017, an external expert organisation engaged with our divisions and functions to prioritise the SDGs according to their relevance to our operations, and assess our impacts and related business opportunities. The outcomes were reviewed by Stora Enso's CEO and Group Leadership Team (GLT).

In 2018, the GLT confirmed the SDGs most strategic to Stora Enso's business. We also decided to work on new 2030 sustainability targets that are aligned with our contribution to our prioritised SDGs. We aim to finalise these targets during 2019.

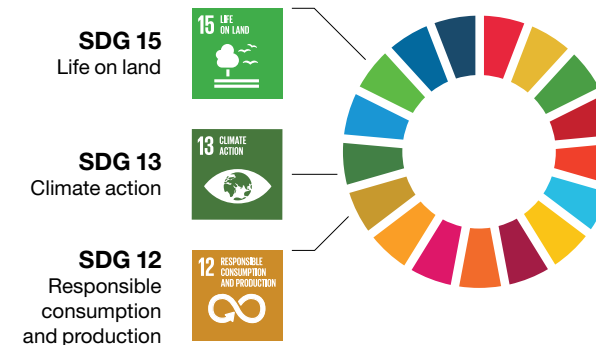
During the year, we also participated in the development of the SDG Sector Roadmap as part of our co-chairing of the Forest Solutions Group (FSG) at the World Business Council for Sustainable Development (WBCSD). The roadmap describes the forestry sector's current level of alignment with the SDGs, and identifies the key impact opportunities and actions that the sector should take. The Forest Sector Roadmap will be launched at the United Nations high-level political forum in New York in July 2019. The roadmap follows WBCSD's set of SDG Sector Roadmap Guidelines, published in April 2018.

Our way of working is in line with the SDG Compass, which was developed by the Global Reporting Initiative (GRI), the UN Global Compact (UNGC), and WBCSD as a guide for companies.

In this chapter, we outline our key impacts in relation to our most strategic SDGs – SDG 12, 13 and 15. We further explain our reporting to the SDG sub-targets in [a separate online appendix](#).

## Our priority SDGs

Stora Enso supports all seventeen SDGs, but the following three goals were identified as the most strategic to our business:



### SDG 12 – Responsible consumption and production

Our contribution and business opportunities related to SDG 12 can be summarised by the concepts of circular economy and bioeconomy. Our operations are based on renewable raw materials and sustainable forest management, which contribute to responsible consumption and resource use.

Our mills promote material efficiency and enable circular resource use such as by using Paper for Recycling (Pfr) as a raw material. Our operations also generate emissions and discharges that account for our biggest negative impacts related to SDG 12. We are committed to improving our environmental performance through Best Available Technologies (BAT), our management systems and our environmental targets.

Our wood and fibre-based products help to replace fossil-based materials in society, and we promote the bioeconomy with new and innovative products. Packaging plays a key role in combatting food waste, which is one of the sub-targets for SDG 12. Stora Enso is one of the largest producers of renewable packaging for food in the world. With safe and intelligent packaging we can extend product shelf-life and design right-sized packaging for small households to help cut food waste.

Read more in the [Materials, water, and energy](#), and [Customers](#) chapters



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### SDG 13 – Climate action

The use of renewable materials enables us to contribute towards a low-carbon economy. Trees in sustainably managed forests absorb carbon dioxide (CO<sub>2</sub>) from the atmosphere and together with wood-based products act as carbon storage. Our products help our customers and society at large to reduce CO<sub>2</sub> emissions by providing low-carbon alternatives to solutions based on fossil fuels and other non-renewable materials. As the first in our industry, we set ambitious science-based targets for reducing our greenhouse gas emissions in 2017. We also contribute to raising awareness of global warming, which is a central topic in our communications with stakeholders.

In addition, global warming poses physical risks to our operations and has been identified as one of the Group's key risks.

Read more in the Carbon dioxide, Forests, plantations, and land use, and Customers chapters



### SDG 15 – Life on land

Sustainable forest management safeguards forest health and productivity, helps combat global warming, and protects biodiversity whilst securing the long-term availability of our renewable resources. In our sustainable forest management, we are committed to responsible sourcing and land use – to safeguard the health and ecological functions of ecosystems and help conserve biodiversity, soil, and water resources. In order to achieve this, we maintain open dialogues with our stakeholders.

All roundwood, chips, sawdust, and externally purchased pulp supplied to our mills come from sustainable sources. We use a range of tools to ensure this, and to guarantee the sustainability of each part of the forest management cycle. These tools include forest certification and third-party traceability systems such as the Forest Stewardship Council's (FSC)<sup>1</sup> 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 standard.

As wood is our most important raw material, our Group's key risks cover forests and land use.

Read more in the Forests, plantations, and land use chapter

<sup>1</sup> Stora Enso Communications' FSC® trademark license number is FSC-N001919.

### How to transform our world – together

“As the renewable materials company, Stora Enso relies on a healthy planet, which is why we support the Sustainable Development Goals,” says **Noel Morrin**, EVP Sustainability at Stora Enso, in our animation. “But a healthy planet is everyone's business. Look around you: what more could we do – together?”



Watch the video ➤ [storaenso.com/sdgs](https://storaenso.com/sdgs)

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# Human rights

Our commitment to respect human rights covers all our operations, including our employees, contractors, suppliers, and neighbouring communities.



## Stora Enso's highest priority human rights were defined in 2018

### Opportunities and challenges

#### Addressing challenges globally

When it comes to human rights, Stora Enso's operations cover challenging markets such as Russia, China, Laos, and Brazil. Many of the human rights challenges we face are deeply rooted in local society and can only be effectively addressed through a long-term commitment and close cooperation with global and local stakeholders. We must also remain vigilant for the risk of modern slavery in all our markets.

The UN Guiding Principles on Business and Human Rights emphasise that companies have an ongoing responsibility to respect human rights, even where government actions and regulatory frameworks are inadequate. Compliance with these principles requires companies to conduct human rights due diligence procedures to identify, assess, and remedy the human rights risks and impacts of their operations, products, and services.

### Our policies

#### Guided by international human rights standards

In addition to our commitment to the UN Guiding Principles on Business and Human Rights, Stora Enso respects and follows the requirements of the UK Modern Slavery Act and we continue to monitor the development of similar legislation in other countries. Human rights are integrated into our Sustainability Agenda, which is aligned with the ten principles of the UN Global Compact, including human rights.

Relevant Stora Enso policies on human rights include:

- **Stora Enso Code** – our Code of Conduct that expresses our respect for human and labour rights.
- **Supplier Code of Conduct** – imposes strict contractual requirements on our suppliers regarding human rights.
- **Human Rights Policy** – expresses our respect for international human rights instruments including:
  - The UN International Bill of Human Rights
  - The core labour rights conventions of the International Labour Organisation (ILO)
  - ILO Convention no. 169 on the Rights of Indigenous Peoples, including the principle of Free, Prior, and Informed Consent and Participation
  - The OECD's Guidelines for Multinational Enterprises
  - The Children's Rights and Business Principles developed by UNICEF, the UN Global Compact, and Save the Children (relevant to the forest products sector).



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## How we work

### Systematic assessment of human rights impacts

Human rights risks and impacts are required to be taken into account throughout our operations, including investment decisions related to mergers, acquisitions, and divestments. Our investment guidelines stipulate that environmental and social risks and impacts, including those related to human rights, must be duly identified, assessed, and addressed prior to any investments in projects with business-critical risks.

Business ethics risks and specific investment compliance with the Stora Enso Code and our Business Practice Policy are also assessed, together with environmental due diligence. On-going human rights due diligence continues with Environmental and Social Impact Assessments (ESIAs), and the periodic monitoring of compliance with Stora Enso's Group-wide Minimum Human Resources requirements for labour conditions, and our Supplier Code of Conduct. Additional elements will be defined in our updated human rights due diligence and monitoring programme, currently under development, which will be based on our highest priority human rights, defined in 2018. We also continued to provide human rights training and expert capacity building during the year, and have initiated security risk assessments at units identified as high priority.

### Environmental and social impact assessments (ESIA)

We conduct ESIAs for all new projects that could directly or indirectly cause significant adverse effects in local communities. Such projects include board, pulp, paper, or sawmills built on greenfield sites, industrial scale plantation projects, and any large-scale expansions of existing facilities.

An important element of any ESIA involves assessing the operational context from a social impact perspective, including human rights, and establishing dialogues with local residents, members of local organisations, experts, researchers, and other stakeholders. This is done through interviews, meetings, workshops, and public hearings. ESIA results give us valuable information on how local communities may be affected by changes in their socio-economic situation and any impacts on cultural heritage, while also setting out implications for community health, safety, and security.

During 2018, we conducted an ESIA in Oulu, Finland, to evaluate the potential conversion of our paper mill into a packaging board mill. The ESIA included an assessment to understand the socio-economic impacts of the project, including its indirect employment impacts.

### Grievance and remediation mechanisms

In accordance with the UN Guiding Principles on Business and Human Rights and our own Human Rights Policy, Stora Enso is committed to remedy situations where our activities have caused or contributed to adverse human rights impacts. Where violations are committed by third parties with links to Stora Enso through our operations, products, or services, we strive to use our influence together with the relevant stakeholders to ensure that those impacts are remedied.



### A long-term partnership to improve our human rights work

For four years, the global nonprofit organisation BSR has worked with Stora Enso to support the company's human rights journey. Stora Enso is one of the first companies globally to systematically track its human rights impacts and publish the findings.

During the partnership, both BSR and Stora Enso have learned valuable lessons.

"Case studies on Stora Enso's work have been shared within the BSR Human Rights Working Group as topics for discussion and learning, which has directly impacted the group's member companies and, more widely, the global human rights field," BSR writes in their blog.

Read the full article at › [BSR.org](https://bsr.org)

A third-party-administered grievance channel is available to all our employees. The channel enables employees to report instances where their rights may have been infringed, or where they have observed violations of the Stora Enso Code, including those related to human rights.

We have also established local grievance channels for communities and other external stakeholders associated with our plantations and mill in Guangxi, China. We encourage anyone with concerns to call our anonymous hotline number, write to us, visit us, or talk to our field personnel. Stora Enso's employees are trained to distribute information about our operations in local villages, and to duly process any grievances, even in villages not engaged in any kind of business relationship with the company.

Similar local grievance channels exist for our project in Laos, and our joint operations Veracel in Brazil and Montes del Plata in Uruguay. For more information on our formal grievance mechanism, which is also open to external stakeholders in countries where legislation allows, see page 29.

In 2018, access to grievance and remediation mechanisms was identified as one of Stora Enso's highest priority human rights issues. In recognition of this, the results of our mapping of existing community grievance mechanisms will be incorporated into all our future due diligence efforts.

### Reporting on our performance

Stora Enso reports on its human rights work annually. We also follow the legal requirements of the UK Modern Slavery Act. Our second

annual Slavery and Human Trafficking Statement was published in 2018 on [storaenso.com/sustainability](https://storaenso.com/sustainability).

## Progress

### Highest priority human rights confirmed

In 2018, we completed the defining of our human rights priorities with support from BSR, an international expert organisation. To reflect this, we updated and published our Human Rights Statement as a Human Rights Policy and confirmed eight Group-wide highest priority human rights:

- Health and safety
- Fair employment conditions
- 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 forestry sector).

While we respect and consider all human rights important, our identified highest priority human rights will be the primary focus of our future work. This includes our updated due diligence and monitoring programme, which will be finalised and implemented in 2019. We also aim to develop a new consolidated key performance indicator (KPI) for our human rights work during 2019 to monitor compliance with our eight highest priority human rights.

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#### Country-specific actions in 2018 included:

##### Veracel, Brazil

Veracel, our 50/50 joint operation with the Brazilian company Suzano<sup>1</sup>, manages a pulp mill, eucalyptus plantations, and related logistics in southern Bahia State. Veracel's active community engagement focuses on land use, and local social and economic development.

During 2018, Veracel strengthened its commitment to human rights through activities such as:

- Continuing to implement the Sustainable Settlements Initiative (SSI) for disputes related to land and landless movements, and indigenous people's rights. Read more on page 25.
- Together with the municipality of Belmonte, co-managing a project aimed at ensuring an effective protection system for the care of local child and adolescent victims of violence (for more information, see page 25).
- Fully implementing Veracel's supplier code of conduct. Associated training, audits, and follow-up procedures will continue during 2019. Additional human rights training is provided annually to those employees of Veracel's security service provider who work as guards.



Veracel supports local communities through the Sustainable Settlements Initiative (SSI). Building schools is one example of SSI's work.

Some stakeholders have criticised Veracel for issues related to land use and landless people's social movements. In 2018, Veracel continued its dialogue with the landless movements and the Bahia State government to address issues of land distribution in Bahia. Veracel's also continued its ongoing implementation of the Sustainable Settlements Initiative in response to this issue, and signed a new agreement with the landless peoples' social movements in 2018. For more information about landless people's social movements in Bahia and Veracel's community engagement, see pages 24–26.

Veracel maintains good relations with local indigenous villages, and supports programmes designed to strengthen the cultural identity of 28 Pataxó and three Tupinambá communities. Local indigenous communities are calling for the expansion of the Barra Velha Indian Reserve. The extension would include hundreds of land properties, including 3 219 hectares of land acquired by Veracel before the indigenous peoples first made claim to the land. At the end of 2018, this case was still being processed by the regional federal court. Veracel remains committed to fully comply with the court's eventual decision.

##### Guangxi, China

Stora Enso's operations in Guangxi province consist of eucalyptus tree plantations in several locations and a consumer board mill in the



Veracel supports programmes that strengthen the cultural identity of 28 indigenous Pataxó communities.

Tieshangang industrial zone, about 40 km from Beihai city. Stora Enso owns 83% of the operations, the International Finance Corporation owns 5%, and the remainder is owned by two state-owned organisations: Guangxi Forestry Group Co Ltd and the Beihai Forestry Investment and Development Company.

During 2018, our human rights work in Guangxi focused on internal and external capacity building and strengthening due diligence:

- Human rights training for key employees, including those working with sourcing, legal issues, human resources, and sustainability.
- Ongoing development efforts with key forestry contractors. This included reviewing safety guidelines together with contractors, as well as providing training in defensive driving to the managers of 30 wood transportation companies and over 200 Stora Enso employees.
- Continuous review of our Responsible Sourcing Programme, launched in China in 2018, which aims to improve supplier cooperation and transparency. For more information about responsible sourcing, see pages 60–63.

During the year, we continued the pilot human rights work related to our local due diligence programme, which covers both our forestry and manufacturing operations in Guangxi, in accordance with the requirements of the UN Guiding Principles. This work will continue in 2019.

When required, consultation with community stakeholders, including Free, Prior and Informed Consent (FPIC), continues to be a key element in our human rights due diligence and forestry operations in Guangxi. Our forestry employees work in dialogue with the communities neighbouring our plantations to maintain good community relations, and to understand and address the potential social impacts of our operations. Our work to further improve our local community consultation processes continued in 2018.

##### Pakistan

As part of our responsible exit from Pakistan following the 2017 divestment of the 35% minority holding in the equity accounted investment Bulleh Shah Packaging (Private) Ltd. (BSP), Stora Enso completed a three-year Public Private Partnership with the International Labour Organisation (ILO) at the end of 2018.

In 2018, Stora Enso continued to support six schools in cooperation with the Pakistani non-governmental organisation Idara-e-Taleem-o-Aagahi (ITA). These schools were set up in 2015 to provide education for the 640 children identified as child workers in BSP's supply chain that was subsequently shut down in 2014. The contract for the school programme, together with Stora Enso's funding for ITA, will remain in place until 2023 when the youngest children will complete compulsory primary school education as required by the state of Pakistan.

<sup>1</sup> The merger between Fibria and Suzano was announced in March 2018 and finalised on 14 January 2019.



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In Guangxi, China, we reviewed the safety guidelines of our key forestry contractors.

## A grievance channel is available to all our employees.

### Laos

Stora Enso has continued to develop trial plantations in the Saravane and Savannakhet provinces of southern Laos on lands totalling 3 805 hectares (3 731 in 2017), of which 3 113 (2 988) are planted with eucalyptus. Stora Enso Laos has 123 employees (125).

During 2018, our human rights work in Laos focused on community engagement in land acquisition processes, community communication, and management systems:

- The Environmental and Social Management and Monitoring Plan launched in 2017 was fully implemented during 2018.
- In 2018, Stora Enso became the first forest products company in Laos to have their plantation and nursery operations certified under OHSAS 18001 for occupational safety.
- The community grievance mechanism created in cooperation with the International Finance Corporation (IFC) was fully implemented and actively communicated to local communities to ensure they know which channels to use in case of concerns.
- Measures were taken to enhance stakeholder engagement and communications to ensure that Free, Prior, and Informed Consent (FPIC) procedures are duly followed in Stora Enso's land use and land leasing when applicable. Stora Enso also continued to enhance gender involvement in the land acquisition process and community consultation meetings.
- An additional tool for FPIC procedures was developed to ensure communities understand the information shared with them.

Stora Enso's tree plantations in Laos are located near villages that are culturally and ethnically diverse. This makes it essential for us to engage in dialogues in a culturally appropriate way, based on informed consultation and participation, and obtain community consent for our projects. In 2018, we continued to train Stora Enso employees on stakeholder engagement and community consultation, particularly considering the interests of women and vulnerable groups.

A set of community consultation tools jointly launched by Stora Enso and Village Focus International in 2017 were fully implemented during 2018, as part of our efforts to improve our engagement with local communities. The tools help empower the communities to gain a deeper understanding of our agroforestry model, its benefits and impacts on their villages, and to enable the entire community to participate in decision-making related to Stora Enso's activities.



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# Social agenda

We care about all our people, engage with local communities, and strive to conduct ethical business.

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# Employees and wider workforce

We aspire to be an attractive employer and to provide safe and rewarding workplaces for our employees.



TRI rate

**6.1**

TRI = Total recordable incident

Leadership  
Index

**83/100**

### Opportunities and challenges

#### Change through people

Stora Enso is transforming into the renewable materials company. Engaged and motivated employees in a capable organisation will enable us to deliver our business strategy.

The development of capabilities in customer insight, innovation and operational efficiency, as well as the ability to utilise new technologies will be critical for our future success. We need to ensure we have competent and engaged employees and manage employee turnover and the demographic structure of our workforce in various markets. This will require careful workforce planning and responsible leadership. To be successful and to promote a safe working culture, we need to ensure we develop our leadership, organisation, competencies and processes.

### Our policies

#### Motivated employees and a capable organisation

Stora Enso's People Agenda guides our efforts to create engagement and motivation among our employees, and to build a capable organisation that can help us realise our business strategy. Key areas in our People Agenda include: leadership development, performance management, people ethics, health and wellbeing, talent management, competence development, workforce planning and employer branding.

Stora Enso's Health and Safety Policy defines the objectives for our safety management as well as our governance model on how we manage health and safety topics in practice and how we integrate them into annual planning and reporting.

Other key policies applied in our people and safety management include our:

- **Stora Enso Code** – our Code of Conduct
- **Supplier Code of Conduct**
- **Minimum Human Resources Requirements – Labour Conditions**
- **Global Framework Agreement**
- **Diversity Policy**



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Leadership is the strongest driver for performance, wellbeing, and company culture.



### Building a safety culture

What makes a safe workplace? Safety gear, warning signs, safer machines? They all help but it's people who create a strong safety culture.

"Ultimately, it's about trust," says **Sari Sarin**, Head of Safety and Occupational Health at Stora Enso. "When employees trust each other and their managers, they feel safe saying that they've made a mistake, that this accident happened because of something I did. Then the community works together to find the root cause, learn from it, and make changes – this is the best way to ensure people are committed."

Read the full article at ➤ [storaenso.com/sustainability](https://storaenso.com/sustainability)

### How we work

#### Everybody home safe, every day

Stora Enso's goal is to be an accident-free workplace. Encouraging a company-wide safety culture means that everyone is responsible for making every workday healthy and safe – from our top management and throughout the company.

Safety management at Stora Enso is based on international standards such as OHSAS 18001 and ISO 45001, but our processes go beyond these requirements. Responsibility for implementing each tool and programme in our units lies with line management, supported by local staff and OHS professionals.

Since 2018, safety and industrial hygiene are managed by the Group Sustainability function. Occupational health including wellbeing is managed by our Group Human Resources function. Stora Enso's Safety Steering Group directs strategic long-term planning at Group level and oversees the work of the Safety Management Team, which develops and aligns Group-wide safety programmes. Our country-level OHS networks in Finland, Sweden, Germany, and China also share good practice and organise training to enhance our safety procedures and competencies. Local OHS committees and working groups at our units provide forums for raising safety-related topics and suggestions.

Our units report monthly on safety performance data, including incidents, absenteeism statistics, and safety observations. Stora Enso also monitors the number of safety incidents among on-site, logistics, and forestry contractors.

## We encourage everyone to provide ideas on how to further improve safety.

### Safety training for contractors

Stora Enso's approach to safety extends to contractors, suppliers, and on-site visitors. We encourage everyone to give feedback and provide ideas on how to further improve safety. Additionally, we promote safety among our contractors and suppliers through a dedicated e-learning – Safety Trail. We also emphasise the importance of safety by asking suppliers for information on their safety performance in our tendering process. For more information about our supplier approach, see pages 60–63. We also cooperate closely on safety work with our joint operations in Brazil and Uruguay.

### Leadership – a key enabler

Leadership is a key enabler of our strategy as it is the strongest driver for performance, wellbeing and company culture. Our culture is based on our values "Lead" and "Do what's right", which we expect our leaders to embrace and demonstrate through their actions and behaviour. We measure our progress on leadership by using an overall Leadership Index that measures employee perceptions of their managers.



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### Performance management

Performance management is an important part of promoting engaged and motivated employees. We set targets for both our business and employees, provide context and continuous feedback as well as follow up on targets and expectations during annual employee performance appraisals.

### Diversity

We believe diversity strengthens our competitiveness and we aim to reflect the societies in which we operate. Diverse working teams enable us to explore different perspectives and challenge our way of thinking, contributing to better decision-making. To benefit from diverse working teams, we need inclusive work environments that respect and appreciate individual differences. Dimensions such as skills and experiences, gender, age, cultural background and personality are important to Stora Enso when we strive for diversity.

### Fair working conditions

We care for all our employees and are committed to fully respecting human rights throughout our operations.

All Stora Enso units are expected to work systematically to ensure that employees are treated with respect and fairness. Units should also comply with a set of minimum requirements for labour conditions in order to create an environment where employees are

both motivated and able to perform their work. These requirements address areas such as working hours, basic worker rights, working conditions, and non-discrimination. Based on a self-assessment conducted in 2017, the vast majority of our production units are in compliance with these requirements, and units with improvement needs have action plans in place to become fully compliant with the requirements. The next self-assessment will be conducted in 2019.

In 2018, we signed a Global Framework Agreement with three global unions – IndustriALL Global Union, UNI Global Union and the Building and Wood Worker's International – as another step towards creating working environments where all our employees are treated with respect and in a fair manner.

### Progress

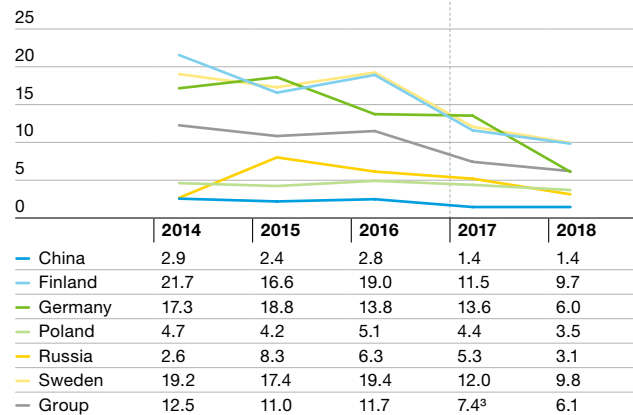
#### Enhancing safety performance

From January 2017, Stora Enso has applied Occupational Health and Safety Administration (OHS) definitions in the reporting of total recordable incident (TRI) and lost-time accident (LTA) rates to be better aligned with international standards and to enable future benchmarking with peers and companies in other sectors.

In the beginning of 2018, Stora Enso changed the main KPI for measuring safety performance from the Lost Time Accident (LTA) rate to the Total Recordable Incident (TRI) rate. The TRI rate gives a more

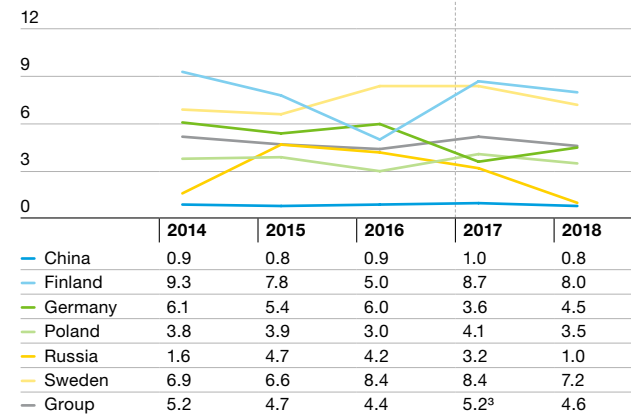
### Total recordable incident rates (TRI)<sup>1,2</sup>

Number of incidents among our own employees per one million hours worked



### Lost-time accident rates (LTA)<sup>1,2</sup>

Number of lost-time accidents among our own employees per one million hours worked



<sup>1</sup> For Stora Enso employees, including joint operations.

<sup>2</sup> As of January 2017 Stora Enso applies new Occupational Safety and Health Administration (OSHA) definitions in the reporting of TRI and LTA rates to better align with international standards. Due to this change, the 2017 and 2018 figures are not comparable with earlier years figures.

<sup>3</sup> As of January 2018 Stora Enso's joint operations Veracel and Montes del Plata are included in the Group's consolidated safety performance. 2017 figure has been recalculated accordingly for comparability.

@storaenso July 19

Thanks to the Accident-Free Mill programme at our Anjalankoski Mills, the number of accidents at the mill has plummeted to close to zero. The secret? Working together & caring for yourself and others. Have a safe summer! #safety #OHS

comprehensive picture of safety performance as it also includes less-severe accidents.

In 2018, our TRI rate decreased to 6.1<sup>1</sup> (7.4 in 2017). Compared to 2017, a 18% reduction was achieved on the TRI rate. There were no fatal accidents involving Stora Enso employees or onsite contractor employees at our units.

With regard to occupational health, Stora Enso measures illness-related absenteeism with a focus on encouraging units to invest in proactive health management. In 2018, illness-related absenteeism amounted to 3.0% (3.1%) of total theoretical working hours.

The average number of safety observations reported per employee was 10.5 (9.0).

Other focus areas in our safety management work during 2018 included:

- Updating the group-wide safety instructions to ensure consistent criteria for our key safety topics.
- Developing and piloting a new safety audit process to verify the implementation of the updated safety instructions.
- Systematically sharing the learnings from accidents within the company to reduce the risk of similar accidents happening in other units or functions.
- Ensuring sufficient resources for safety management and developing the competence of our safety professionals.

### Contractor accidents

Stora Enso's reporting of accidents involving contractors has been developed in recent years. From early 2017, contractor accidents were reported in separate categories for on-site accidents and logistics incidents, to allow better comparability with statistics from other companies. In 2018, proactive measures have been taken when seeing statistically more accidents with some contractors than others.

### Leadership and performance management

Stora Enso's key performance indicator (KPI) for leadership, the Leadership Index, measures employee perceptions of their managers. The index is calculated based on our annual employee survey. Our target was to achieve an index of 80/100 by 2018. The Leadership Index in 2018 improved to 83 (81). The response rate to our employee survey remained high at 89% (91%). Our new ambitious target is to achieve an index of 85/100 by 2022.

<sup>1</sup> Recalculated due to additional data after the Q4/2018 Interim Report.

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**Diversity enables us to explore different perspectives, challenge our way of thinking, and contribute to better decision-making.**



We continuously invest in the development of our leaders through programmes such as “Lead Through People” which targets all managers in the company. Since 2015, approximately 2 600 managers have participated in our Lead Through People programme. As our leaders need to lead the transformation we have launched new modules for Lead Through People that focus on developing skills in change management.

We promote performance management by setting clear expectations with team and individual goals and development objectives, providing regular coaching and feedback, and ensuring employees understand the wider context of how they contribute to the success of the company. All Stora Enso employees should be involved in at least one formal performance review meeting with their manager each year. In 2018, 91% of our employee survey respondents stated that they had taken part in a performance review during the past twelve months (91%).

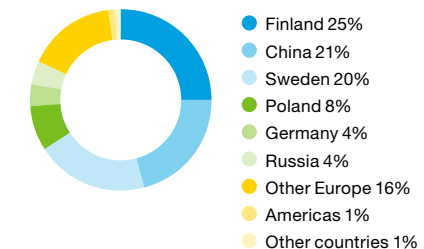
#### Employee diversity

When asked about diversity in the annual employee survey, 83% (81%) of our employees reported that their management was able to create diverse teams. Our objective was for 80% to respond positively. When it comes to gender diversity, our aim was to achieve a gender balance of 70% male and 30% female among senior managers by the end of 2018. At the end of 2018, the ratio was 80% (79%) male and 20% (21%) female. The Group Leadership Team had five female and seven male members in 2018. In the 2018 report by Equileap that assessed gender equality among 3 200 public companies, Stora Enso was ranked as number 12 globally and as number 1 in Finland.

#### Providing living wages

Every other year, the global non-profit organisation BSR supports us in defining and calculating living wages in relevant locations. In 2017, we reviewed the current situations in Brazil, China, Russia, Laos, and Uruguay. The results of this study indicate that overall, Stora Enso pays minimum/entry level wages above the living wages defined by BSR. The next assessment will be conducted in 2019.

#### Employee distribution by country<sup>1</sup>



<sup>1</sup> Excluding employees of our 50%-owned joint operations Veracel in Brazil and Montes del Plata in Uruguay.



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### Compensation and equal opportunity<sup>1</sup>

	Ratio of highest individual compensation to median compensation <sup>2</sup>		Female employee compensation compared to male employees <sup>1 3</sup>	
	2018	2017	2018	2017
China	89	81	101%	100%
Finland	15	14	97%	97%
Germany	5	5	93%	97%
Poland	24	19	87%	n/a
Russia	30	31	93%	n/a
Sweden	43	37	99%	100%

<sup>1</sup> Figures for the six largest countries in terms of the total number of employees.

<sup>2</sup> The ratio shows how many times larger the highest individual annual total compensation, including incentives, is compared to median compensation. For 2018 reporting, the calculation methodology was developed to include incentives consistently. The 2017 figures are recalculated accordingly for comparability.

<sup>3</sup> Calculated using weighted averages based on gender comparisons within each country's employee categories as applicable.

Figures for China and Germany based on samples due to data availability.

### Share of female employees at Stora Enso

	2018	2017
Total number of employees at year-end <sup>1</sup>	25 880	25 210
Share of women among all employees (%)	26%	26%
Share of women among senior managers (%)	20%	21%
Women in the Group Leadership Team	5 out of 12	5 out of 12
Women on the Board of Directors	3 out of 9	3 out of 9

<sup>1</sup> Excluding employees of our 50%-owned joint operations Montes del Plata and Veracel. Reporting changed for the 2018 report from full-time equivalents to headcount. 2017 figure restated accordingly.

### Employee distribution and turnover<sup>1</sup>

	China <sup>4</sup>		Finland		Germany		Poland		Russia		Sweden		Group total
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	
<b>Number of employees</b>	<b>2 590 (48%)</b>	<b>2 780 (52%)</b>	<b>1 320 (20%)</b>	<b>5 150 (80%)</b>	<b>220 (21%)</b>	<b>830 (79%)</b>	<b>450 (20%)</b>	<b>1 770 (80%)</b>	<b>270 (24%)</b>	<b>860 (76%)</b>	<b>1 070 (21%)</b>	<b>4 100 (79%)</b>	<b>25 880</b>
Up to 30	990	1 240	120	560	30	140	90	340	30	130	140	510	21%
31–50	1 580	1 470	750	2 560	100	310	240	970	200	610	550	1 590	51%
51 and over	20	70	450	2 030	90	380	120	460	40	120	380	2 000	28%
<b>Number of hires<sup>2</sup></b>	<b>1 070 (44%)</b>	<b>1 360 (56%)</b>	<b>80 (20%)</b>	<b>330 (80%)</b>	<b>30 (50%)</b>	<b>30 (50%)</b>	<b>30 (27%)</b>	<b>80 (73%)</b>	<b>30 (33%)</b>	<b>60 (67%)</b>	<b>100 (30%)</b>	<b>230 (70%)</b>	<b>4 040</b>
Up to 30	620	930	20	70	20	20	10	40	10	30	30	80	53%
31–50	450	420	50	200	10	10	20	30	20	30	60	120	42%
51 and over	0	10	10	60	0	0	0	10	0	0	10	30	5%
<b>Number of leavings<sup>3</sup></b>	<b>1 230 (49%)</b>	<b>1 300 (51%)</b>	<b>60 (20%)</b>	<b>240 (80%)</b>	<b>20 (29%)</b>	<b>50 (71%)</b>	<b>20 (13%)</b>	<b>130 (87%)</b>	<b>10 (14%)</b>	<b>60 (86%)</b>	<b>100 (28%)</b>	<b>260 (72%)</b>	<b>3 890</b>
Up to 30	720	840	0	10	0	10	0	30	10	10	10	30	47%
31–50	510	450	20	70	10	10	10	50	0	40	60	90	39%
51 and over	0	10	40	160	10	30	10	50	0	10	30	140	14%
<b>Employee turnover</b>	<b>48%</b>	<b>47%</b>	<b>5%</b>	<b>5%</b>	<b>9%</b>	<b>6%</b>	<b>5%</b>	<b>7%</b>	<b>5%</b>	<b>7%</b>	<b>9%</b>	<b>6%</b>	<b>15%<sup>4</sup></b>

<sup>1</sup> Figures for the six largest countries in terms of the total number of employees. Rounded to the nearest 10.

<sup>2</sup> Hires: numbers of permanent employees joining the company. Excluding hires due to acquisitions.

<sup>3</sup> Leavings: numbers of permanent employees leaving voluntarily or due to restructuring, retirement or death. Excluding leavings due to divestments.

<sup>4</sup> The employee turnover in China mainly comes from Stora Enso China Packaging units where packaging manufacturing operations are relatively labor intensive and the number of employees vary according to seasonality. The high employee turnover of China Packaging units also has a significant impact on the Group employee turnover. The Group employee turnover excluding China Packaging units is 7%.

### Our lowest wages compared to local minimum wages<sup>1</sup>

Ratio of our lowest wage to the local minimum wage

	2018	2017
Brazil <sup>2</sup>	1.0	1.1
China <sup>3</sup>	1.2	1.3
Estonia	1.1	1.0
Laos	1.2	1.3
Latvia	1.1	1.2
Lithuania	1.4	1.0
Poland	1.0	1.0
Russia	1.5	1.0
Uruguay <sup>4</sup>	1.0	1.1

<sup>1</sup> In material locations of operations, compared to minimum wage levels set at national, state, or provincial level as applicable.

The ratio shows how many times larger our lowest wage is compared to the local minimum wage.

<sup>2</sup> Including employees of our 50%-owned joint operation Veracel.

<sup>3</sup> Due to variations in regional minimum wages, the ratio is calculated as a weighted average for Stora Enso's units in China.

The weighting is based on the units' total number of employees.

<sup>4</sup> Including employees of our 50%-owned joint operation Montes del Plata.

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# Community

We respect the cultures and values of local people and societies in the various regions we operate. We always strive to contribute to social and economic development.



Total voluntary community investment  
**EUR 2.7 million**

### Opportunities and challenges

#### The importance of local communities

Global companies can make a positive contribution in local communities through active corporate citizenship. Such voluntary investments can benefit communities and the company over the long term.

Stora Enso's operations are heavily dependent on local communities for a motivated and competitive workforce, as well as the sourcing of our most important raw material – wood. Therefore, the communities we depend on must be resilient and able to thrive economically, socially, and environmentally over the long term.

Stora Enso's operations generate emissions and our tree plantations influence land use that may adversely impact local communities. Our socio-environmental impacts must be managed responsibly, in order to minimise negative impacts, maximise our positive influence, and maintain cooperative community relations that ensure our long-term license to operate.

### Our policies

#### A comprehensive approach to community work

The policies that guide Stora Enso's community relations include our:

- **Sponsorship and Donations Policy**
- **Community Investment Guidelines**
- **The Stora Enso Code** – our Code of Conduct
- **Business Practice Policy**
- **Guidelines for Social Responsibility**
- **Human Rights Policy**
- **Tax Policy**

Our joint operations in Brazil and Uruguay have each developed formal procedures for their respective community work to reflect Stora Enso's requirements.



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## How we work

### Managing social responsibility

In many locations, Stora Enso is a major employer, taxpayer, and partner for local entrepreneurs that benefits the local economy. In addition to implementing mandatory and regulated contributions to communities, we apply precautionary management actions to mitigate and remedy potential adverse environmental and social impacts on neighbouring communities. These include:

- Environmental and Social Impact Assessments (ESIAs) conducted for all new projects that could cause significant adverse effects in local communities. For more information, see page 13.
- Due diligence assessments, which are realised as part of Stora Enso's acquisition and investment processes prior to any critical decision. These assessments cover relevant factors related to environmental, social, and business practices. They play an important role in building our understanding of local operating environments, while also helping us to develop constructive relationships with stakeholders such as governments, business partners, local communities, and NGOs. Any subsequent investment decision must consider our ability to mitigate and manage identified adverse impacts.
- Third-party certified management systems at our production units, applying international standards such as ISO 14001, OHSAS 18001 and ISO 50001.
- Third-party forest management certification for our own forestry operations and suppliers, such as the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC).
- When necessary, restructuring processes and closure of operations realised in cooperation with the authorities to support the communities through related changes, and to create opportunities for new business initiatives.



### Voluntary community investment

Community investment is an essential part of building a sustainable future for our business as part of our engagement with communities. Building on the local community work Stora Enso has carried out over many years, we implemented a new Group-wide framework in 2017. We want to be an active corporate citizen and to make every place we operate in better as a result of our presence by contributing to the resilience of the local communities.

Community investments are contributions that involve engaging with local communities beyond our core business and legal responsibility. Stora Enso defines community investment as the voluntary donation of cash, working hours, and in-kind for non-profit purposes or non-profit community organisations in accordance with the LBG framework, which is a globally recognised framework for measuring these activities. For Stora Enso, community investments are managed locally, where the community is the main beneficiary – but where we recognise that the company can also benefit over the long term.

In 2018, Stora Enso mapped and analysed its community investment to define the Group's community investment focus areas. We aim to increase the proportion of volunteered working hours and in-kind contributions compared with cash.

### Progress

#### Measuring our contribution

As a global company with a strong local presence, particularly in wood procurement, we are committed to numerous community activities.

In 2018, the total number of Stora Enso's voluntary community investment projects was 453, including those facilitated by our joint operations Veracel in Brazil and Montes del Plata in Uruguay. The largest community investment areas in 2018 were economic development, education, and healthy lifestyles. Based on our

#### Donated heat supports local artists and athletes

Our Nymölla paper mill in Sweden donates "used" heat as part of their community investment work. Once hot water sold to the local municipality has circulated through the district heating system, it comes back to the mill. One recipient of this donated heat is a nearby sports complex with an outdoor football field and a sports arena – a new way to sponsor local sports teams.

The mill also donates heat to Ifö Center, an old ceramics factory turned into a centre for the arts. "Ifö Center provides work spaces for high-class artists, and it's great that we can support them in this way," says **Michael Lindemann**, Mill Manager at Nymölla Mill.

Read the full article at ➤ [storaenso.com/sustainability](https://storaenso.com/sustainability)



"Today's world requires companies to demonstrate a social license to operate and to understand the difference their contributions make to business and society. LBG is the global standard to measure and manage corporate community investment, it also acts as a membership platform to share learnings. Stora Enso has shown commitment to measure and share its community investment activities in a transparent and consistent way."

**Clodagh Connolly**  
Associate Director  
Corporate Citizenship, LBG lead

reporting, the total contribution of these activities consisted of cash (76% of total contribution), volunteered working time (13%), and in-kind contributions (11%). In 2018, the total voluntary contribution to communities as defined by LBG was EUR 2.7 million, including 50% of the community investments by our 50%-owned joint operations in Brazil and Uruguay.

### Communities are part of our value chain

During 2018, we engaged with the local communities close to our operations in various ways, including investments in agroforestry programmes, and capacity building projects.

#### Europe

Stora Enso's voluntary community investments in Europe focus on enhancing the attractiveness of communities situated close to our sites, with the aim of benefitting our existing and potential future employees. To support our potential labour pool, we participate in programmes that promote education and youth training, and provide internships and public research opportunities. We also strive to promote local workforce diversity by participating in programmes that facilitate the employment of disadvantaged people and refugees.

To support the everyday vitality of communities, we also financially support local associations, including sports clubs and cultural activities.

Our Hylte Mill in Sweden has supported language training initiatives for refugees since 2015. Over a three-week period, the mill provides refugees with opportunities to practice their new language skills in real working situations, and to get acquainted with a Swedish workplace by following the day-to-day activities at the mill. This gives them good insights into Swedish working life.

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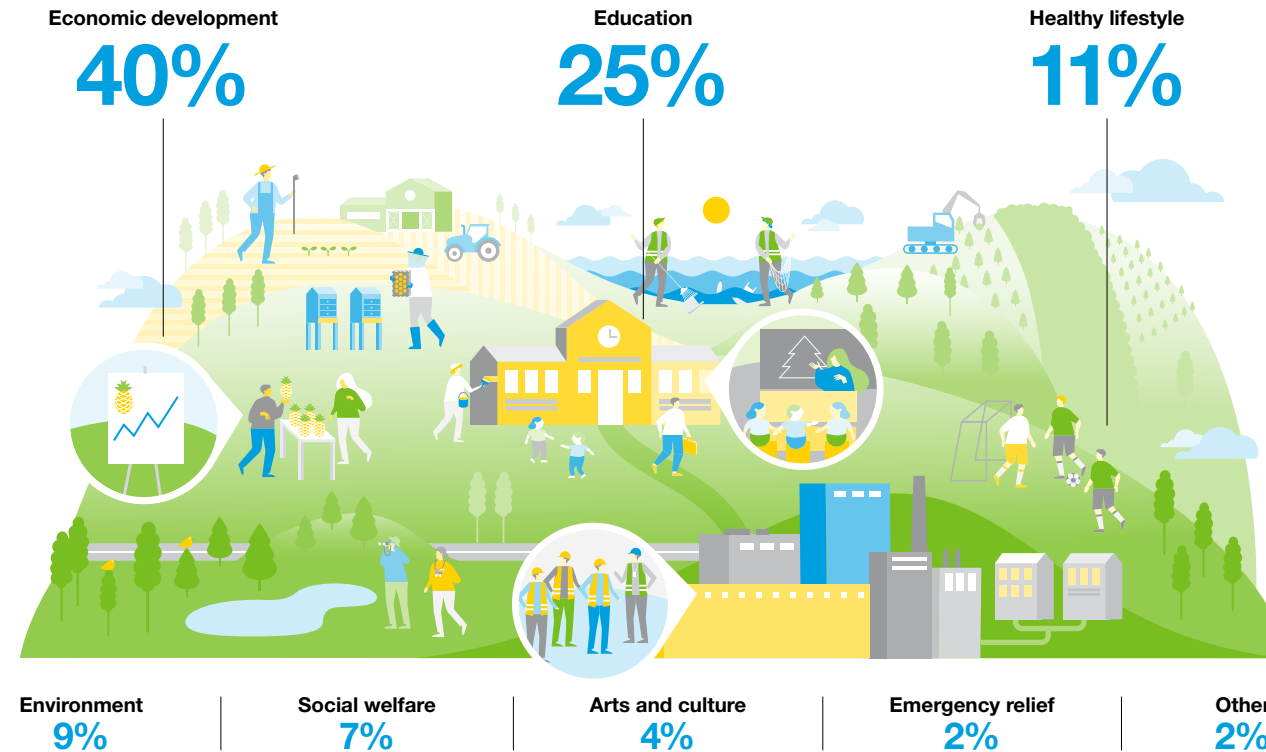
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## Voluntary community investment by investment area<sup>1</sup>



Stora Enso's Skutskär Mill in Sweden collaborates with a technical college to support youth employability and to ensure the availability of skilled labour in the future. The forest industry in Sweden is undergoing a generational shift, and most companies in the sector are faced with a shortage of younger workers. We received five trainees to Skutskär Mill through this collaboration, and we offer summer work placements to students from the school programme. Stora Enso's employees mentor the students, host school visits, and participate in steering group meetings with peer companies and the school.

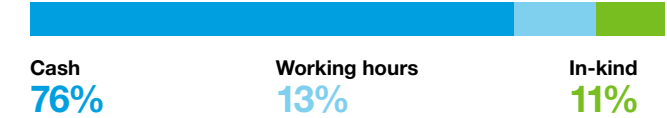
In 2018, we continued to voluntarily support the Finnish Forest Foundation by matching voluntary donations from forest owners, which are linked with the purchase of wood. Stora Enso has supported the foundation since 1995. We also report to community investment funds that provide social benefit, such as education and youth. Activities include taking students to forests, inspiring young people to pursue a career in forestry and, funding research projects that focus on the social aspects of the forestry sector.

### Guangxi, China

Stora Enso leases 82 217 hectares of land in Guangxi province China, of which 29 265 hectares (29 581 hectares in 2017), corresponding to 36% (36%) of the total area, is social land leased from village collectives, individual households, and local forest farms. Engagement with local communities is a key element of our everyday operations. Stora Enso's field staff and social engagement officers speak regularly with local people impacted by our plantations and mill, and along our transportation routes, to inform them about our operations and to enable them to express their concerns and contribute ideas. Our aim is to understand social risks in advance, so we can properly mitigate and remedy them.

During 2018, we continued the socio-economic profiling of local villages in order to better understand and address ethnic structures, opportunities for development, and other characteristics that can help us maximise the positive impacts of our operations, and mitigate any negative impacts. During the year, where applicable, we continued to

## Voluntary community investment by contribution type<sup>1</sup>



<sup>1</sup> Total community investment includes cash, voluntary working hours and in-kind as defined in the LBG framework. Including 50% of joint operations Veracel in Brazil and Montes del Plata in Uruguay.

advance Free, Prior, and Informed Consent (FPIC) processes in land leasing. For more information, see page 14.

Our forestry operations in Guangxi run community projects to address challenges in rural villages near our plantations. During 2018, Stora Enso supported 20 community projects focusing on topics such as sanitation improvement and the availability of clean drinking water. One of the clean drinking water projects was located in Liuwenpo village where the water source was upgraded with Stora Enso's support in 2018.

### Veracel, Brazil

Veracel, our 50/50 joint operation owned together with Suzano<sup>1</sup> owns 213 500 hectares of land in Bahia, Brazil, of which about half has been reserved for rainforest restoration and conservation. Veracel also leases 11 000 hectares of land. Supporting income generation and employment for local communities are the top priorities of Veracel's sustainability agenda. Since 2012, Veracel has been involved in the Pact for the Development of the Discovery Coast. Under this agreement, the government has committed to reimburse Veracel the ICMS tax credits paid by the company, in return for investments in local development programmes. The pact's projects contribute to the sustainable development of family farming by forming associations for small producers and indigenous communities. During 2018, the pact supported two projects related to cassava production.

### Supporting multiple land uses

Veracel also supports local livelihoods by making some of its land available to family farmers, and by providing training and technical support. The Agrovida farming programme, for instance, aims to produce food for the local community and to trade surplus production in regional markets. The Roça do Povo project supports local families cultivating cassava and other crops. By the end of 2018, the Agrovida initiative involved 47 (153 in 2017) farmers cultivating 64 (208) hectares, while the Roça do Povo scheme assisted 79 (82) farmers cultivating 80 (80) hectares.

Veracel also allows local beekeepers to keep their hives on the company's land and provides training in beekeeping. In 2018, a total of 176 (155 in 2017) honey producers, mostly working through local cooperatives, benefitted from this support.

<sup>1</sup> The merger between Fibria and Suzano was announced in March 2018 and finalised on 14 January 2019.



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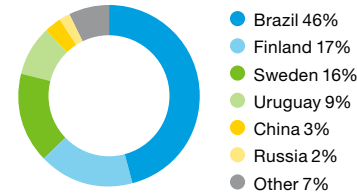
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### Voluntary community investment by country<sup>1</sup>

EUR 2.7 million



<sup>1</sup> Total community investment includes cash, voluntary working hours and in-kind as defined in the LBG framework. Including 50% of joint operations Veracel in Brazil and Montes del Plata in Uruguay. <sup>2</sup> Including joint operations Veracel in Brazil and Montes del Plata in Uruguay.

In 2018, Veracel also continued to support the local fishing communities of Belmonte, Santa Cruz Cabrália, and Santo Antônio. The cooperation includes support for studying the dynamics and development opportunities for local fishing, and providing infrastructure for its commercialisation.

#### Investing in local social welfare and causes

To strengthen the labour market in neighbouring communities, Veracel is cooperating with several NGOs to prepare young people for the labour market. In 2018, this cooperation covered training on coastal and marine environments together with the NGO Instituto Mae Terra. During the year, the company also cooperated with the National Business Apprenticeship Service (SENAC) to help 60 students graduate with an assistant degree in administration, and with a sewing and cutting course for 20 women to help them improve their income.

During 2013–2015 and 2017–2018, Stora Enso and Veracel successfully cooperated with the NGO Childhood Brasil to combat child abuse and exploitation in the municipalities of Porto Seguro, Santa Cruz de Cabralia, and Eunápolis in South Bahia. The cooperation included formulating, implementing, and strengthening public policies related to child exploitation, and providing training for professionals. Municipality of Belmonte participated in the cooperation in 2018.

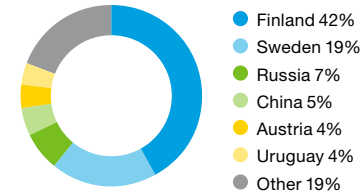
For information on Veracel's engagement with indigenous communities, see page 14.

#### Continuous dialogue with the landless people's movement

Land invasions of private property are a long-running challenge in Brazil that have affected various actors who use areas of land, such as mining companies and farming businesses. In 2018, some stakeholders criticised Veracel for its land use and evictions of landless people's from illegally occupied lands. Landless movements have also illegally invaded Veracel's lands. To help find sustainable local solutions, Veracel strives to maintain continuous dialogue with these movements and supports land allocations through the

### Voluntary community investment projects by country<sup>2</sup>

By number of projects (In total 453 projects)



Sustainable Settlements Initiative. Dialogue with landless people is important for Veracel, particularly as certain groups have occupied some of the company's land since 2008. During 2018, Veracel continued to engage in dialogue with the Government of the State of Bahia, the National Institute of Colonisation and Agrarian Reform (INCRA), and the representatives of six officially recognised landless people's social movements:

- The Movement of Landless Workers (MST)
- The Federation of Agricultural Workers (Fetag)
- The Movement for the Struggle for Land (MLT)
- The Peasant Resistance Movement (MRC)
- The Front of Free Workers (FTL)
- The Association Unidos Venceremos (Aprunve)

In 2018, work continued on a related Sustainable Settlements Initiative launched in 2012 to provide farmland and technical and educational support to help hundreds of local families improve their incomes. This initiative is facilitated by the Government of the State of Bahia through the Secretariat of Rural Development (SDR), and is conducted in cooperation with the landless people's social movements and INCRA. Through this initiative, the social movements have pledged to leave areas occupied since July 2011, while Veracel has agreed not to seek to repossess areas occupied before this date. The initiative relates to a total area of approximately 16 500 hectares of Veracel's lands designated for the settlements to be purchased from the company by INCRA. In addition to advancing this process during 2018, Veracel also provided socio-economic support for the landless people's social movements, including support for agricultural activities and literacy enhancement.

During the last quarter in 2018, Veracel signed a new agreement with the social landless movements to complement the earlier agreed Sustainable Settlements Initiative. In the new agreement Veracel sells 3 300 hectares of previously occupied lands to the movements and related associations, and the movements will leave from Veracel's lands corresponding to 800 hectares. In addition, Veracel donates 225 hectares. After this new agreement, 468 hectares



### Better livelihoods from fishing in Brazil

Fittingly shaped like an ice cube, the small white ice factory in Santo Antônio provides ice to three nearby communities, mainly local fishermen and restaurants.

The ice factory saves time and money for the local fishing communities. "I come here twice a week to buy ice," says a man from a locally-owned restaurant. "Before this ice factory, we had to source ice from far away so the factory saves time and transport costs."

Veracel, our 50/50 joint operation, voluntarily supports local fishing communities in various ways for example by providing the infrastructure to support the commercialisation of fishing.

Read the full article at ➤ [storaenso.com/sustainability](https://storaenso.com/sustainability)

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of productive land owned by Veracel remained occupied by social landless movements not involved in the Sustainable Settlement Initiative or in the new agreement. Stora Enso also reports on this additional occupied area in the Group's [Interim Reports](#). Veracel will continue to seek repossession of remaining occupied areas through legal processes. Previously Veracel has voluntarily reserved 16 500 hectares to support the Sustainable Settlements Initiative. At the end of 2018, the total land area owned by Veracel was 213 500 hectares, of which 76 000 hectares are planted with eucalyptus for pulp production.

#### **Montes del Plata, Uruguay**

[Montes del Plata](#), our 50/50 joint operation owned together with the Chilean company Arauco, runs a pulp mill in Punta Pereira, in southwestern Uruguay, together with associated eucalyptus plantations mainly located in central and northwestern parts of the country. Montes del Plata owns 190 000 hectares and leases 61 500 hectares (Alianzas programme) of land.

Montes del Plata seeks to benefit local communities near the mill by fostering local employment opportunities, maximising local hiring, and participating in mentoring programmes. It also promotes local education to improve future opportunities for local people and the qualified labour pool for the company. Montes del Plata promotes entrepreneurship among young people through events such as "start-up weekend" It also finances local development by supporting initiatives carried out by local community groups. The aim is to boost local social cohesion and strengthen community organisations.

In addition to community investments, Montes del Plata continued to work on the Alianzas programme which integrates social and business interests into business models. The programme provides additional income for local farmers by enabling them to integrate eucalyptus plantations into their farms on suitable lands. At the end of the year, 426 (374 in 2017) farmers participated in the programme with 61 500 hectares (56 500 hectares), of which 48 500 (45 000) are planted with eucalyptus.

Alianzas also promotes the diverse use of Montes del Plata's lands, for purposes such as cattle grazing and honey production. By the end of the year, 189 (183) farmers kept cattle on Montes del Plata's land. 33 (39) farmers produced honey from approximately 8 100 (6 500) beehives situated on Montes del Plata's land to supplement their incomes. At the end of the year, 47% (31%) of these hives were certified organic and Montes del Plata is working with local governmental initiatives to promote tourism and the consumption of organic honey. The diverse use of land enhances local livelihoods, reduces forest fire risks, and helps to build stronger relationships with the community.

**Strong and resilient communities contribute to successful business.**



Through the Alianzas programme, local farmers can keep cattle on Montes del Plata's lands.

In 2018, Montes del Plata worked together with local government and Algorta town to promote commercial forest mushroom picking. For local women, mushroom foraging can be an opportunity to improve their livelihoods.

Montes del Plata works to get the local community better acquainted with its operations. Stakeholder engagement work in 2018 included several educational visits to the mill, Montes del Plata's tree nursery, the main port, and the company-owned Bioparque M'Bopicuá environmental centre. The environmental centre, which received over 2 000 visitors during the year, promotes education as well as enables visitors to experience native wildlife at first hand and to learn how ecosystems function.

#### **Mitigating negative impacts from logistics**

The company has a long-term strategy for the transportation of wood, including annual action plans involving truck drivers, transport companies, and local communities. Montes del Plata's wood supply is operated by approximately 680 truck drivers from 20 different transportation companies. Montes del Plata carefully trains all drivers before they start working for the company. Quarterly workshops on safety and social responsibility are organised for truck drivers

and regular meetings are held with the owners of the transportation companies to follow up on safety indicators.

Montes del Plata, together with its logistics contractors and their truck drivers, works to raise awareness of traffic safety issues in the locations most severely affected by the company's traffic. In 2018, this work included cooperation with 15 schools on local road safety development projects.

#### **Laos**

Stora Enso's plantations in Laos have been established in a way that enables local farmers to grow rice and cash crops between the trees. Before establishing plantations, Stora Enso makes the land safe by removing unexploded bombs dropped over Laos during the Vietnam War.

In Laos, we have established a village development fund to share benefits among local villagers, and to further support local development and livelihoods. Most of the 2018 funding was directed to projects such as electricity provision, purchases of livestock to enhance food security, and the repair of a school building. These projects have been designed together with the villagers according to their needs. All the projects are endorsed by the local authorities. For more information about our human rights work in Laos, see page 15.



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## Business ethics

For Stora Enso, complying with regulations is only the beginning. A culture of honesty, transparency, and ethical behaviour is key to our long-term success.



## Code of Conduct Index

# 85/100

### Opportunities and challenges

#### Broad ethical approach beyond compliance

Stora Enso operates in locations including high-risk markets that offer good business opportunities, but may also entail exposure to serious risks relating to topics such as corruption and fraud. Joint venture agreements may also involve risks related to competition law. The US Foreign Corrupt Practices Act, the UK Bribery Act, and the French Loi Sapin II are all examples of effective legislation that governments and authorities have introduced to combat corruption. These laws place high demands on companies' controlling mechanisms, but they also help to build accountability and trust among stakeholders. Complying with international trade sanctions may also require companies to take new measures.

Digitalisation brings great opportunities for organisations, but it also presents challenges regarding cybersecurity and the treatment of stakeholders' personal data. New legislation such as the EU General Data Protection Regulation (GDPR) sets requirements concerning the processing of personal data, with heavy fines imposed for infringements. While compliance with laws and regulations is always the highest priority for us, we believe that adopting a wider ethical approach is also crucially important.

### Our policies

#### Comprehensive approach to ethics and compliance

Our code of conduct, renewed and rebranded as the **Stora Enso Code** in 2018, is a single set of values for all our employees that explains our approach to ethical business practices, human and labour rights, as well as environmental values. These values are applied wherever we operate.

Other policies relevant to ethics and compliance include our:

- **Business Practice Policy**
- **Data Privacy Policy**
- **Supplier Code of Conduct**

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## How we work

### Combating misconduct on all fronts

Stora Enso's Ethics and Compliance function is a sub-function operating within our Legal team, headed by our General Counsel, who reports directly to the CEO. Our Ethics and Compliance Management Committee, a governance body appointed by the CEO, monitors Stora Enso's legal compliance and ethical business conduct by following up on our Ethics and Compliance Action List. The Committee met four times during 2018.

Stora Enso's Ethics and Compliance Strategy forms the basis for annual action plans. The strategy has five focus areas:

- Top level commitment
- Improved communication and training
- Intensified efforts in countries with heightened concerns
- Developing our grievance channels
- Ethics and compliance as a competitive edge.

Stora Enso is represented in Transparency International's (TI) Steering Committee for Business Principles for Countering Bribery, where we actively participate in the network's efforts to combat corruption globally and nationally. We are also a member of TI's Corporate Supporters' Forum.

### Top-level commitment

In our efforts to make Stora Enso a more value-driven organisation, we highlight the significance of top-level commitment. All managers in key positions are required to participate in training and make a personal commitment to the Stora Enso Code and our Business Practice Policy, and to provide related information for employees within their respective organisations.

### Training our employees

We strive to ensure that Stora Enso's employees and business partners all understand what ethical behaviour is, and how they should respond to any ethical dilemmas that arise. Communications and training are a crucial part of this work.

Our employees receive Stora Enso Code training, either through an e-learning tool, or through face-to-face training provided for those who do not have direct computer access. We aim to ensure that our new employees receive such training within their first month of employment. In addition, an in-depth e-learning course on anti-trust and anti-corruption is mandatory for all members of our

**Our code of conduct was renewed and rebranded as the Stora Enso Code in 2018.**



We have a zero tolerance for corruption, and we strive to ensure that our partners are aware of and share our commitment.

Group Leadership Team, for divisional and mill management teams, and for employees dealing with competitor contacts, purchasing, marketing, and sales. The training has been run since 2013 and was updated in 2018 to be more interactive and to better reflect the challenges of today's work environment. All relevant employees will receive the updated training during 2019.

The Stora Enso Data Privacy Policy aims to protect the company against risks related to breaches of data privacy, to let our employees know how Stora Enso collects and uses their personal data, and to ensure that the privacy rights of our employees, business partners, and other stakeholders are protected. All white-collar Stora Enso employees are required to complete our e-learning training on data privacy. By the end of 2018, 7 432 white-collar employees had been trained.

### Comprehensive risk assessments on compliance

Operating in high-risk markets and entering into joint ventures can entail exposure to serious risks. Our risk assessment procedures on compliance cover all our units. The most significant compliance risks in our global operations relate to anti-trust and corruption.

The management and employees of our fully and jointly owned operations in Brazil, Uruguay, and China receive training on our Business Practice Policy. Employees in our joint operations in Brazil and Uruguay additionally receive training on their respective Codes of Conduct and Business Practice Principles, covering topics such as human rights, environmental impacts, safety, and ethical practices. Anti-trust guidelines designed for our joint operations are implemented with the help of related training in Uruguay, Brazil, and China.



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During 2018, our Ethics and Compliance team continued to provide training in Brazil, China, and the Baltic countries. This training involved meetings with local employees and managers face-to-face, to gain a better understanding of local ethical dilemmas, and to train local personnel on key topics.

#### Formal grievance mechanisms

Our employees are encouraged to report suspected cases of misconduct or unethical behaviour.

Stora Enso uses an additional external service through which our employees globally, and also external stakeholders in certain locations, can anonymously report potential non-compliance cases by phone, mail, or online. This service is available 24/7. Our operations in China and Laos have established internal grievance channels in local languages for those stakeholders whose knowledge of the main language is inadequate.

All potential non-compliance cases are duly investigated. Any findings are recorded and reviewed by the heads of our Internal Audit and Ethics and Compliance functions, and reported both to our Ethics and Compliance Management Committee, and to our Board of Directors' Financial and Audit Committee. Proven cases of non-compliance can lead to disciplinary or legal action.

Our joint operations Veracel in Brazil and Montes del Plata in Uruguay each have their own local grievance mechanisms.

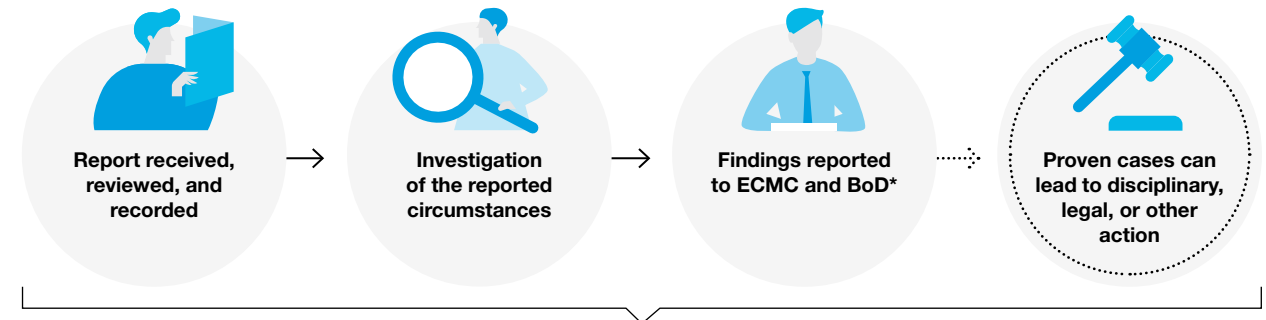
In 2018, a total of 68 reports received through Stora Enso's various grievance channels were identified as potential non-compliance cases (61 in 2017). Based on the investigations finalised by end of the year 2018, proven misconduct leading to disciplinary actions, legal actions and/or process improvements was identified in 20 (14) of the completed investigations, while 18 (22) further complaints were found to be valid without involving misconduct.

Based on our assessments, two of the proven misconduct cases can be considered relating to corruption and/or fraud. Both cases resulted in employee dismissal or disciplinary process, and in one the business relationship with an external party was terminated.

#### Breakdown of potential non-compliance cases

	2018	2017
Anti-trust	1	8
Conflict of interest	7	6
Corruption	9	14
Fraud	2	4
General human resources	33	16
Health and safety	3	2
Miscellaneous	13	11
<b>Total</b>	<b>68</b>	<b>61</b>

#### How we investigate suspected non-compliance cases



Heads of Internal Audit and Ethics and Compliance functions are responsible for the overall process.

\* ECMC = Ethics and Compliance Management Committee

BoD = Board of Directors' Sustainability and Ethics Committee and Board of Directors' Financial and Audit Committee

#### Competitive advantage from business ethics

Being value-driven gives Stora Enso a competitive advantage at a time when stakeholder interest for business ethics is growing, as it builds trust both within Stora Enso and with external stakeholders such as customers and potential employees. We are committed to conducting our business ethically and strive to ensure that our business partners are aware of and share our commitment.

#### Progress

##### Comprehensive monitoring

We use an index to monitor and evaluate employee perceptions of our work on topics covered by our code of conduct. The index is based on employee responses to related questions in our annual employee survey. In 2018, this index improved to 85 (83 in 2017). Our goal is to maintain this positive trend. By the end of 2018, 20 930 Stora Enso employees had received training on our code of conduct.

Following the establishment of the Division Compliance Forums and the Group Function Compliance Forum in recent years, a Wood Supply Compliance Forum was established during 2018. These forums, eight in total by the end of 2018, bring together the heads of key functions and divisions to assess risks and monitor compliance.

Our Ethics and Compliance Self-Assessment Tool (T. E. S. T.), introduced in 2015, was run once in 2018. This tool has been designed

to give our divisions and functions a better overview of the progress their units are making in implementing our policies and compliance measures, while also identifying possible gaps and risks related to compliance. The results are addressed through the Compliance Forums, with action plans subsequently developed, implemented, and monitored as necessary. As of 2018, results are cross-checked between more people within each unit to gain a deeper understanding of their reliability.

##### Focus on data privacy and tax evasion

The EU General Data Protection Regulation (GDPR) came into force in May 2018, entailing new responsibilities for data controllers such as Stora Enso. With preparations for the requirements on-going since 2015, Stora Enso is well-equipped to comply with the regulation. We have, for example, documented our personal data processing, implemented required actions to IT systems and other registers, trained employees, and established processes to manage new obligations such as the identifying and reporting of personal data breach incidents and fulfilling the requests of data subjects.

The UK Criminal Finances Act makes companies liable for failing to prevent the facilitation of tax evasion and allows authorities to use new investigatory tools. To reflect the Act's requirements, we updated our tax policy in 2018 to highlight our commitment to national and international tax laws and regulations. We have also taken measures to improve tax risk assessments, train relevant personnel, and raise awareness internally.

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## Stora Enso is represented in Transparency International's Steering Committee for Business Principles for Countering Bribery.

### Encouraging employee discussions on ethics

We continued to use our internal communications concept "Ethical Spotlight of the month" to help managers discuss ethics topics with their teams. The concept includes topic-related communications materials to facilitate discussions. In 2018, topics included sexual harassment, protecting company assets, promoting the culture of listening, and ethics issues related to digitalisation.

Compliance rules can be complicated and ensuring that all our employees know Stora Enso's purpose, values, goals, and policies can be challenging. In 2018, our Ethics Ambassadors, consisting of Stora Enso employees, continued their work in voluntarily supporting our Ethics and Compliance function by running training sessions, clarifying our rules, and answering questions in their respective units.

During 2018, new functionalities were added to our "Do What's Right" mobile application. The app gives all our employees access to all relevant compliance policies whenever and wherever needed and allows employees to report suspected violations. The new features also make it easier for the company to inform employees about regulatory or policy changes directly through their mobile devices.

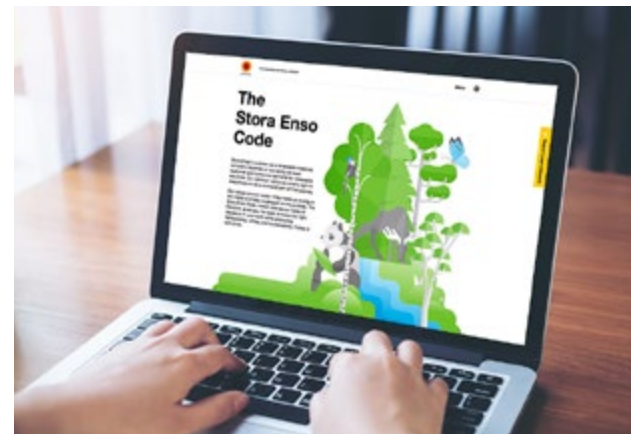
### Enhanced compliance control processes

Making sure that laws, regulations, and company rules are complied with is an essential part of our business. To ensure this compliance control, we developed and implemented a more comprehensive due diligence system for on-boarding critical business partners in 2018.

In 2018, we also incorporated a function into our travel cost reimbursement tool that controls the gifts and hospitality offered to public officials, customers, and suppliers. The change improves the visibility and enforcement of our requirements for appropriate gifts, hospitality, and entertainment.



Making sure that laws, regulations, and company rules are complied with is an essential part of our business.



### Doing what's right

Could I hire my brother? Who should I tell about the unsafe behaviour I saw? Making the right, ethical decision in our daily work is not always easy. The Stora Enso Code, our updated Code of Conduct, helps employees work out ethics questions.

"We have also introduced Ethics Ambassadors," says **Yang Zhang**, Legal Counsel in Stora Enso's Ethics and Compliance team. "They are more trained in ethics than their peers and are better equipped to notice when something is off and can raise their voice. That's all we need."

Read the full article at › [storaenso.com/sustainability](https://storaenso.com/sustainability)



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# Environmental agenda

We use natural resources with care, combat global warming, and respect the environment.

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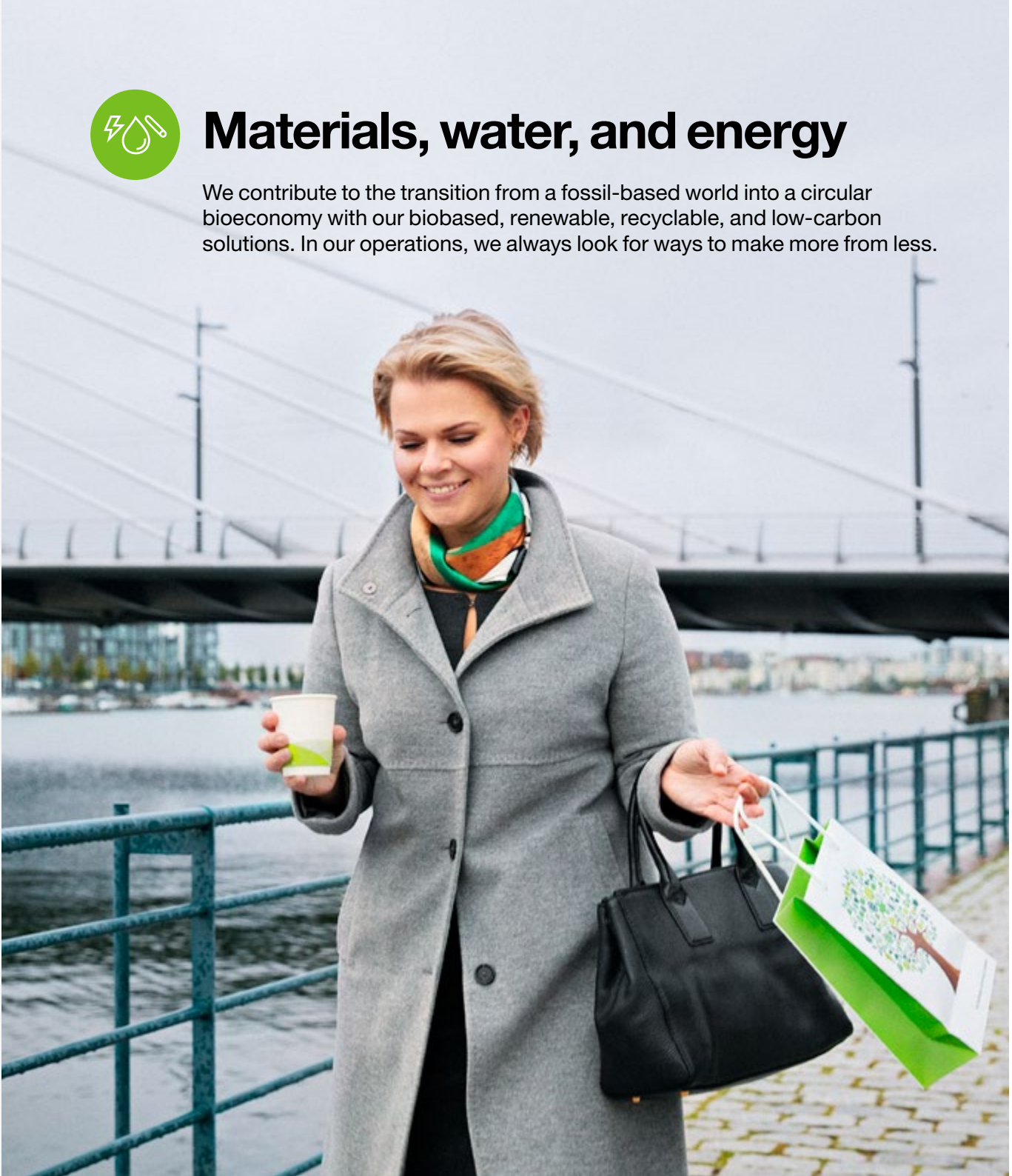
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# Materials, water, and energy

We contribute to the transition from a fossil-based world into a circular bioeconomy with our biobased, renewable, recyclable, and low-carbon solutions. In our operations, we always look for ways to make more from less.



Share of biomass  
in our internal  
energy production

81%

Process  
residuals  
utilisation rate

98%

### Opportunities and challenges

#### Reduced waste, maximum value

Global megatrends such as global warming, population growth, eco-awareness, and urbanisation are affecting consumer and corporate decision-making around the world. At Stora Enso, we proactively respond to these trends by developing products and solutions based on materials that are both renewable and recyclable.

#### Materials

As a renewable materials company, Stora Enso operates at the heart of the bioeconomy and contributes to a circular economy. In a circular economy, waste is minimised as materials are reused and recycled to maximise environmental and financial value. The European Commission (EC) has adopted several legislative proposals on waste reduction within its Circular Economy Package, as well as strategies on plastics and bioeconomy to protect the environment from plastic pollution whilst fostering growth, bio-based innovation, and recycling and reuse initiatives. The EC has for example announced the establishment of a EUR 100 million Circular Bioeconomy Thematic Investment Platform to bring bio-based innovations closer to the market and lower the risk for private investments in sustainable solutions. The objectives of these ambitions provide business opportunities for Stora Enso.

#### Water

Water plays a central role in Stora Enso's production, heating, cooling, and cleaning processes, and in generating renewable electricity from the hydropower we purchase. We clean process water in our high-performance water treatment plants before discharging it back into the nature. Sustainably managed forests and plantations have a key role in maintaining natural water cycles and increasing resilience to the impacts of global warming. We consider water in the planning and management of our forest and plantation operations. Our forests and plantations also need rainwater for growth, and active water management in plantations contribute to positive effects on total water balance, water storage, purity and quality.



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While water is relatively abundant in most of our production locations, water scarcity may still impact operations locally and through our wider supply chains, as controls on pollution, recycling, and water pricing are tightened. Some mills have been impacted by water stress in terms of availability and increased water temperatures, and we consider water stewardship to be an area of increasing importance. At the same time, such challenges give us opportunities to reduce costs by using water more efficiently.

### Energy

The EU's 2020 Climate and Energy Package, 2030 Climate and Energy Framework, and 2050 Low Carbon Economy Roadmap outline the way forward for industrial energy. The rules for the next trading period of the Emissions Trading System (for more information, see page 43) have also been decided.

The Energy Efficiency Directive II sets new energy efficiency targets for 2030 requiring energy savings of 0.8% per year on energy consumed. Additionally, the Renewable Energy Directive II sets member states a binding collective target on EU level to derive 32% of their final energy consumption from renewable sources by 2030. With its high proportion of biomass-based energy, the forest industry can help the EU achieve its targets.

A high proportion of biomass is used in the internal energy production of most of our mills. This renewable energy is generated from by-products and residuals from our own production processes, harvested residues, recovered wood, and waste streams.

### Our policies

#### Guidance throughout the supply chain

Stora Enso's policies relevant to our use of materials, water, and energy include our:

- **The Stora Enso Code** – our Code of Conduct that guides us on issues related to resource use.
- **Supplier Code of Conduct** – includes practical instructions for Stora Enso's suppliers, Purchasers' Instructions, Sourcing Policy, and Sourcing Guidelines: a guiding framework for the responsible sourcing of materials and energy.
- **Policy on Wood and Fibre Sourcing, and Land Management** – our commitment to the responsible integration of forestry, land use, sourcing, and water stewardship into our sustainable forest management and land use practices.
- **Policy on Energy and Carbon** – a policy stating our ambitions in combatting global warming.
- **Environmental Guidelines** – a comprehensive overview of our policy objectives and how we work to achieve them.

### How we work

#### External initiatives guide our work

We apply precautionary management actions to mitigate and remedy potential adverse environmental impacts. The environmental work at our mills, including water and energy management and resource



Compliance with legislation and permits is monitored by the environmental authorities and by our mills.

efficiency, is supported by third-party certified environmental management systems. All our board, pulp, and paper mills and sawmills are certified to the ISO 14001 environmental management system standard, along with all but one corrugated packaging unit. The interests of local communities and forestry operations are respected in our approach to systematic Environmental and Social Impact Assessments (ESIAs) in due diligence executed in conjunction with mergers, acquisitions, and divestments (see page 13).

By the end of 2018, 95% of our total energy consumption was certified to the ISO 50001 energy efficiency management system standard. For unit-specific information on certificates, see page 69.

The emissions generated by each of our mills are regulated by the relevant authorities, with limits set through environmental permit processes that consider local environmental conditions, stakeholders, and legislation. Compliance with legislation and permits is monitored by the environmental authorities and by the mill

**By 2018, 95% of our total energy consumption was certified to the ISO 50001 energy management system.**

in question. Non-compliances and incidents are reported by mills to Group management on a quarterly basis, and significant incidents are reported immediately. For details of all significant incidents and violations of environmental permits in 2018, see page 41.

Environmental improvements and investments at our production units are driven by regional and local conditions. The EU's Best Available Techniques (BAT) Reference Documents have limits for

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Our wood-based biocomposites offer a bio-based alternative to fossil-based plastics and can reduce a product's CO<sub>2</sub> footprint by up to 80%.

effluents and emissions to air, and the BAT conclusions for pulp and paper, as well as medium and large combustion plants apply to board, pulp, paper, and sawmills in Europe. The related investments are proactively planned as part of Group investment processes. These investments fit into Stora Enso's normal capital expenditure framework and policy.

#### Contributing to the circular bioeconomy

Stora Enso works proactively to support the transition towards a global circular bioeconomy. We minimise waste and resource use and aim to maintain the value of products and materials for as long as possible through product design, innovation and recycling. When a material or product has reached its end-of-life, we promote recycling and energy recovery to create further value.

In 2018, Stora Enso became a signatory to the New Plastics Economy Global Commitment led by the Ellen MacArthur Foundation, in collaboration with UN Environment.

As a founding board member of WBCSD's circular economy initiative, Factor10, we worked to develop forward-looking policy recommendations and pilot metrics for our material flows in the circular economy. Stora Enso also launched a platform to increase recycling throughout Europe together with other members of the Alliance for Beverage Cartons and the Environment (ACE).

#### Value from waste and residuals

In addition to our traditional products as well as lignin, tall oil, turpentine and energy pellets, Stora Enso's production processes generate various residuals and wastes, including ash, sawdust, bark, and wastewater treatment sludge. Many of these materials are used in our internal bioenergy generation and pulp production, or supplied to partners to be used in applications such as agriculture, or land and road construction. We are constantly innovating to improve resource efficiency and make profitable use of material streams that would otherwise end up as waste.

**In 2018, Stora Enso became a signatory to the New Plastics Economy Global Commitment, led by the Ellen MacArthur Foundation.**

@storaenso June 5



Did you know that there is a sustainable alternative to fossil-based plastics? The journey towards a plastic free world has started. #BeatPlasticPollution #WorldEnvironmentDay #Biocomposites #whatatreecando <https://youtu.be/KICxh2sx8Kk>

We ensure that hazardous waste is safely processed at suitable facilities, and we report on hazardous waste disposal in accordance with relevant regulations. Our third-party certified ISO 14001 systems comprise of on-site management procedures for handling chemicals and waste at our mills. Expertise and best practices related to optimising material streams are shared within Stora Enso by networks focusing on the environment, materials, Paper for Recycling, chemical safety, and product safety.

Stora Enso's long-term circular economy vision is to maximise the value of material streams, and work towards zero process waste. We will achieve this by emphasising circular material flows in our value chain and by maximising the net value of waste and residuals while reducing waste to landfill to as close to zero, whenever legally, technically and commercially possible.

During 2018, we continued to monitor our financial value creation from process waste and residuals and commercialise new product applications.



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### Paper for Recycling

Wood and fibre are the main raw materials in Stora Enso's production processes. Materials made with virgin fibre are used for products with special safety requirements such as food packaging and pharmaceuticals. For more information about our wood procurement, see page 51.

Virgin fibre is needed in the paper recycling process. After several recycling rounds, paper fibres become too short to be reused but can be burned for bioenergy, which drives the need for new virgin fibre. Stora Enso also uses paper for recycling (PfR) wherever it makes environmental and economic sense. Seven of Stora Enso's mills currently use PfR. Recycled newspapers and magazines are used to produce certain paper grades at Langerbrugge Mill in Belgium (where they account for 100% of sourced fibre), Sachsen Mill (100%) and Maxau Mill (approximately 75%) in Germany, Dawang Mill in China (95%), and Hylte Mill in Sweden (55%). Recovered board is used to make specific containerboard grades at Ostrolęka Mill in Poland (90% of fibre sourced for containerboard production) and at Varkaus Mill in Finland.

Through cooperation with local authorities and waste management companies, and our own collection facilities, we secure sufficient PfR from industrial, commercial and domestic sources. In Poland, we own and manage a network of 21 depots where PfR is collected and baled for transportation to our Ostrolęka Mill.

According to the Confederation of European Paper Industries (CEPI), Europe's overall PfR collection rate has been high for many years. In 2017, the rate was 72.3%, which is equivalent to 57 million tonnes of PfR (+1.2% compared to 2016). This is a noteworthy achievement as not all paper can currently be recycled, such as tissue paper. While overall collection rates within the EU are relatively high, certain central and southern European countries still have potential to improve. Focusing on EU countries with collection rates below 60%, Stora Enso and the paper industry are actively supporting best practices while these countries establish sustainable collection systems.

### Responsible water use

Production at Stora Enso's mills requires large amounts of water. However, only around 4% is consumed in our production processes while almost 96% is recycled and returned to the local environment. Process water is purified by our treatment plants and then discharged, whereas cooling and other non-process water can be safely released without treatment.



Our strategic approach to water stewardship builds upon six pillars:

- assessment of conditions in mills and water basins where we operate,
- setting ambitious levels and goals,
- investments,
- mill water use mapping to identify saving potential,
- performance measurement, and
- communication and engagement with stakeholders.

Stora Enso withdraws 98.8% of its total water from surface water, 1.1% from municipal sources and 0.1% from groundwater. We have applied the Global Water Tool devised by WBCSD to assess the

### Stora Enso's water withdrawal and consumption



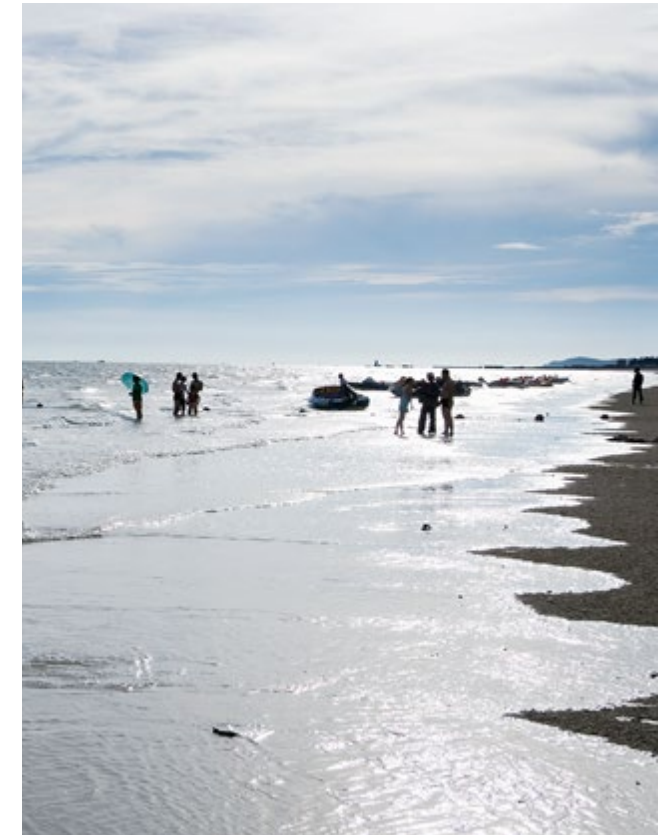
-  Almost **96%** of the water we withdraw is recycled back to the local environment after being carefully purified.
-  Some **4%** of the water we withdraw is consumed in our production.

related risks at our production units. The assessment identified five mills operating in water basins where water stress occurs. It also calculated the total proportion of our water withdrawn from water-stressed basins to be 2%.

As a public commitment to water resource management and the development of sustainable water strategies, Stora Enso signed the United Nations Global Compact's CEO Water Mandate in 2009. We actively follow the latest water footprint methodology developed by researchers and standardisation bodies. In 2018, we also signed the Finnish Water Stewardship Commitment.

In 2018, we transparently disclosed our water-related strategies and performance to CDP Water (score of B-).

Our strategic water goals are to reduce impacts on water use, to minimise impacts on quality, and to recycle water within mills when possible to reduce the need for water intake. Our Group targets are to



### Safeguarding marine environments at Beihai Mill

Stora Enso's Beihai board mill in Guangxi province is located beside the South China Sea. Having industrial production so close to the sea shore requires special considerations for the marine environment, especially since large amounts of water are circulated in the mill's production and cooling processes.

"The vast majority of the water we use is released back into the environment – to the sea – after being carefully purified," says Mill Manager **Weiyang Zhu**. "The water we release to the sea is significantly cleaner than the sea water, and we even have tilapia fish living in the discharge pond."

Read the full article at › [storaenso.com/sustainability](https://storaenso.com/sustainability)

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decrease both total water withdrawal and process water discharges. Quantified water targets are always set based on the local context as part of our mill environmental management systems to drive continuous improvement.

Approximately 2% of our water use is recycled internally by reusing cooling and non-contact water as process water. Optimising our water use also reduces the need for water pumping and heating, which creates energy savings and makes the purification of the remaining wastewater more efficient.

We continue to explore the potential to use refined wastewater residue in new products. For example, our Skoghall Mill in Sweden is working together with the University of Karlstad to use wastewater residues to create bio-based products such as bioplastics and hydrogen gas from biosludge. Several Stora Enso mills in Sweden are involved in a research programme led by the independent research foundation Mistra in cooperation with the mining industry to refine other challenging residuals such as green liquor dregs and lime mud.

#### Long-term energy supply contracts

Board, pulp, and paper production processes are the most energy-intensive phases in Stora Enso's value chain, which makes it essential for our mills to have access to a reliable energy supply at a reasonable cost. Stora Enso's energy supply is managed under long-term contracts, direct market access through energy exchanges, efficient

combined heat and power production, and shareholdings in power generation companies such as Pohjolan Voima Oy and Teollisuuden Voima Oy in Finland. For more information on these partnerships, see our **Financials 2018** (Note 14).

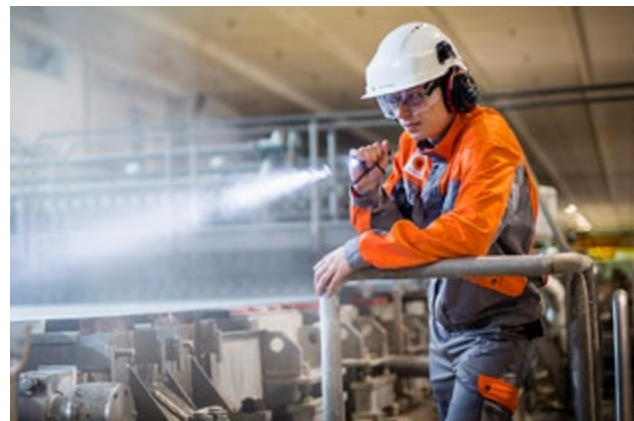
Stora Enso is committed to continuous improvement in energy efficiency and energy self-sufficiency. We always assess the opportunities to use fuels from biomass residual streams or other low-carbon options in connection with energy investments.

#### Structured approach to energy management

Stora Enso's Energy Services team is responsible for procuring energy and managing the implementation of our energy strategy. This work involves the hedging of energy prices, managing the trading of emission rights, consulting our mills on a wide range of energy topics, trading in green certificates, and monitoring our carbon dioxide allowance balance. We also monitor and contribute to developments in energy legislation.

The biomass residue streams used for energy within Stora Enso's operations is mainly purchased by our Wood Supply organisation, whereas each mill is individually responsible for the procurement of most other fuels. Mills are also responsible for optimising their energy efficiency using internal tools and certified environmental and energy management systems, with support from our energy efficiency teams.

## We continue to explore the potential of using refined wastewater residue in new products.



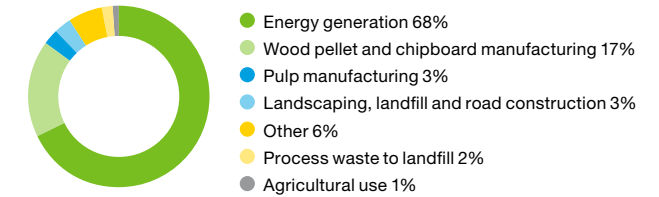
#### Always be better: finding new ways to save energy

Energy efficiency doesn't happen on its own. People make it happen by always looking for ways to make our processes, tools, and ways of working better. At Anjala Mill, a new innovation will save 50 000 MWh in energy and 5 000 tonnes in CO<sub>2</sub> emissions every year.

"We need to use a lot of electricity to ensure a steady production of paper and board, so direct reductions in electricity use are challenging," says **Risto Mänttari**, Engineering Manager at the mill. "But we've found many ways to be more energy efficient."

Read the full article at ➤ [storaenso.com/sustainability](https://storaenso.com/sustainability)

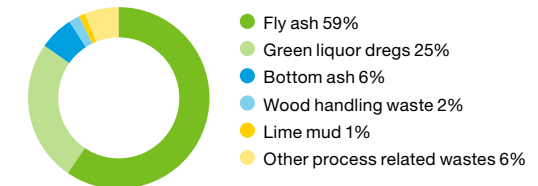
#### Utilisation of process waste and residual materials<sup>1</sup>



<sup>1</sup> Covers all Stora Enso production units, as dry tonnes. Excluding joint operations.

#### Process waste to landfill<sup>1</sup>

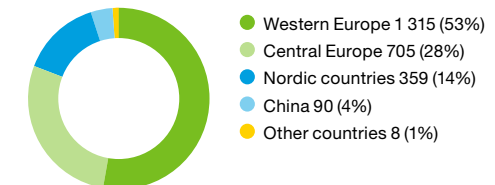
68 615 tonnes



<sup>1</sup> Covers all Stora Enso production units. Excluding joint operations. In addition to process waste to landfill, Stora Enso's production units created a total of 1 990 tonnes of non-process waste, and 70 971 tonnes of process waste was sent to on-site storage facilities.

#### Paper for Recycling: procurement by origin

Thousand tonnes<sup>1</sup>



<sup>1</sup> Total amounts of Paper for Recycling (recovered paper and board) procured within these regions for delivery to our mills.



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Nine Stora Enso's board and paper mills in Europe and five of our Nordic sawmills monitor their energy efficiency online in real time. All Stora Enso's board, pulp, and paper mills are part of an energy efficiency best practice network.

#### Progress

#### Materials

##### Value from waste

Stora Enso's utilisation rate for process residuals and waste across the Group includes internal and external uses amounted to 98% in 2018 (98% in 2017). During the year, Stora Enso's revenue from residuals amounted to EUR 34 million (EUR 26 million in 2017). We continued the commercialisation and product development applications for fly ash from several paper mills. One example of circularity from our Paper division is the beneficial use of fly ash at Oulu Mill in Finland. Annually 15 000 tons of fly ash from the solid fuel boiler is granulated onsite at Rakeistus Oy's granulation plant. The granules are used as natural fertiliser in the forests in the vicinity of the town of Oulu. The financial yearly savings compared to landfill are approximately EUR 0.8 million.

##### Hazardous waste

During 2018, Stora Enso's production units generated a total of 5 229 tonnes of hazardous waste, up from 3 858 tonnes in 2017. This waste includes oils, solvents, paints, laboratory chemicals, and batteries. In addition, 8 309 tonnes of sludge classified as hazardous waste was generated at the disused Falun copper mine in Sweden (16 276 tonnes).

#### Paper for Recycling

Stora Enso used 2.5 million tonnes of paper for recycling (PfR) in 2018 (2.5 million tonnes), making us one of the largest PfR consumers in Europe. The PfR utilisation rate in our paper and board production was 26% (26%).

#### Chemical safety management

During 2018, Stora Enso started to roll out Group-wide Chemicals Management Instructions, which outline the minimum requirements for all our units globally, including occupational health and safety and environmental safety. During the year, we identified the properties of chemicals that need restricted use or should be replaced. To further improve chemical safety, we have implemented new routines to help us share learnings between all divisions. Compliance with the instructions will be verified in 2019 as part of our Safety Toolbox and management system audits.

#### Water

##### Promoting water efficiency

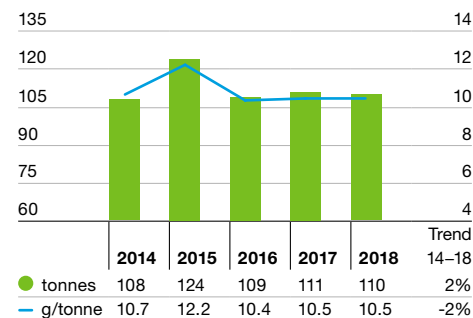
We continued to identify mill-specific water-related challenges and opportunities in 2018. The work focused on assessing water efficiency activities at Imatra, Sunila, and Enocell Mills in Finland.

A good example of achieved combined heat and water savings in 2018 was a project at our Anjala Mill in Finland, where investments were made to improve hood ventilation, heat balance, and water balance. The objective was to save natural gas, replace fresh steam with recovered heat energy, and reduce fresh water consumption. The achieved energy savings amounted to 35 GWh/year and, and water savings 1.4 million m<sup>3</sup>/year. Efficiency work will continue at other mills in 2019 as part of our approach to define business cases in water and energy stewardship.



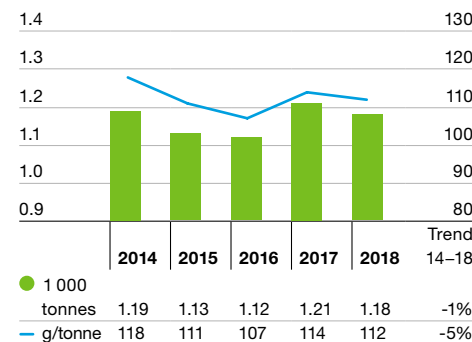
Lignin-based products, such as Lineo™ by Stora Enso, can be used as non-toxic, renewable alternatives to fossil-based materials.

#### Phosphorus<sup>1</sup>



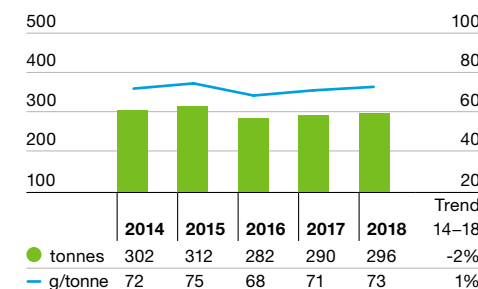
<sup>1</sup> Figures cover board, pulp, and paper production units. Excluding joint operations. Normalised figures are reported per unit of sales production.

#### Nitrogen<sup>1</sup>



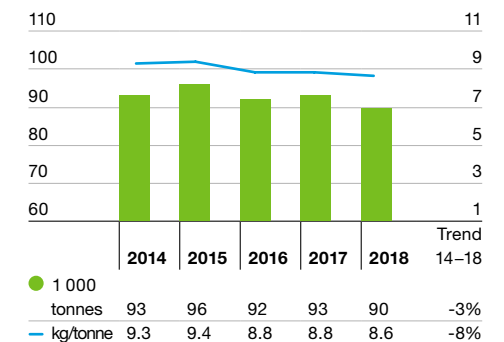
<sup>1</sup> Figures cover board, pulp, and paper production units. Excluding joint operations. Normalised figures are reported per unit of sales production.

#### Absorbable organic halogen compounds (AOX)<sup>1</sup>



<sup>1</sup> Figures from bleached chemical pulp production units only. Excluding joint operations. Normalised figures are reported per unit of bleached chemical pulp production.

#### Chemical oxygen demand (COD)<sup>1</sup>



<sup>1</sup> Figures cover board, pulp, and paper production units. Excluding joint operations. Normalised figures are reported per unit of sales production.

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Several mills experienced water stress situations related to water availability and cooling capacities due to the unusually long, warm, and dry summer season in northern Europe. The most severe situation occurred at Nymölla Mill in Sweden. The mill was forced to close production on one pulp line and one paper machine in October due to extremely low water levels in the Lake Ivö, which supplies water for mill operations.

Our EUR 25 million investment at Maxau Mill in Germany to install a new steam turbine with a closed-loop cooling system and additional biomass storage is expected to be completed in 2020. The cooling system will relieve pressure on the Rhine River through a lower thermal output and by withdrawing considerably less water.

Stora Enso and energy company Gasum signed a contract in 2018 to build a biogas plant at Stora Enso's Nymölla Mill in Sweden. The plant, built and operated by Gasum, will turn the mill's wastewater effluent into renewable energy.

The objective of our KPIs on total water withdrawal and process water discharges is to drive a downward trend from our 2016 baselines of 57 m³ and 27 m³ per saleable tonne, respectively. In 2018, our total water withdrawal was 56 m³ per saleable tonne (56 in 2017) and our process water discharges amounted to 26 m³ per saleable tonne (26 in 2017).

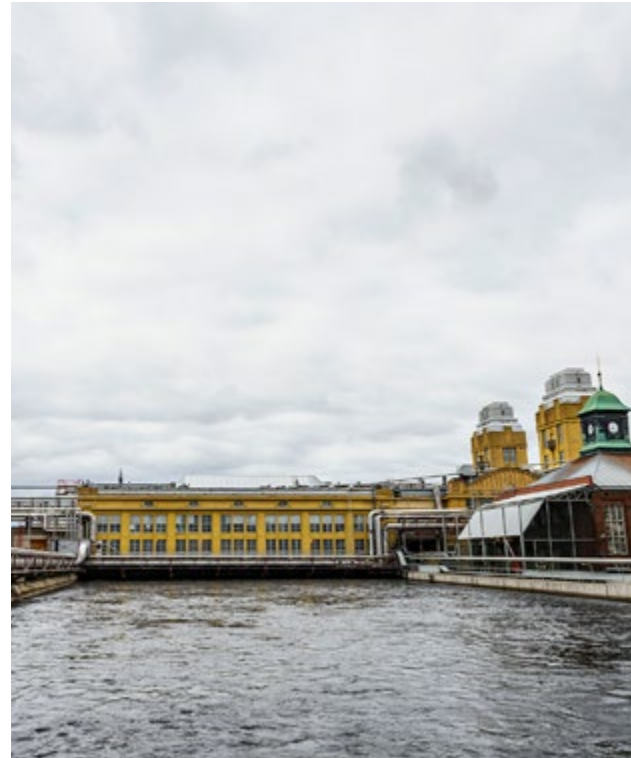
#### Effluents to water

The wastewater treatment facilities treating process water from our production processes release effluents to water. These effluents include phosphorus (P), nitrogen (N), chemical oxygen demand substances (COD), and absorbable organic halogen compounds (AOX). The wastewater treatment facilities ensure that discharged water is ecologically safe. The discharge of process water that has not been properly treated can contribute to local environmental impacts. Excessive concentrations of phosphorus compounds in water, together with nitrogen compounds and organic substances, can lead to increased biological activity in natural watercourses through eutrophication. AOX is a collective term for the amount of chlorine or other halogens bound to organic matter such as wastewater. In 2018, Stora Enso's Group-wide nitrogen effluents to water amounted to 1 180 tonnes (1 210 tonnes), phosphorus effluents to 110 tonnes (112 tonnes), and AOX to 300 tonnes (297 tonnes).

In 2018, Stora Enso announced the EUR 22 million investment in wastewater treatment improvements at Skoghall Mill in Sweden. The investment will reduce the effluents of COD and total suspended solids, including remaining low effluents of nitrogen and phosphorus being discharged into Lake Vänern. The investment, consisting of rebuilding the biological water treatment process including extended pre-sedimentation, will be completed in 2020.

#### Energy

Our Group-wide target is to reduce specific electricity and heat consumption per tonne of pulp, paper, and board production by 15% by 2020, compared with the baseline year of 2010. In 2018, this indicator was 4.2% lower than the 2010 baseline (4.2% in 2017). Specific energy consumption has been reduced by structural factors such as production line closure or conversion to new products in



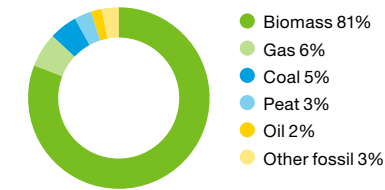
In 2018, we assessed water efficiency activities at three Finnish mills.

#### Water withdrawal and consumption<sup>1</sup>

Million m³	2014	2015	2016	2017	2018	Trend 14–18
Process water	287	306	297	291	291	1%
Cooling water (net)	323	283	301	304	297	-8%
<b>Total water withdrawal</b>	<b>610</b>	<b>589</b>	<b>598</b>	<b>595</b>	<b>587</b>	<b>-4%</b>
m³/tonne	61	58	57	56	56	-8%
<b>Water consumption</b>	<b>25</b>	<b>23</b>	<b>23</b>	<b>25</b>	<b>23</b>	<b>-7%</b>
m³/tonne	2.5	2.2	2.2	2.3	2.2	-12%
<b>Process water discharges</b>	<b>266</b>	<b>272</b>	<b>280</b>	<b>272</b>	<b>273</b>	<b>3%</b>
m³/tonne	27	27	27	26	26	-2%

<sup>1</sup> Figures from board, pulp, and paper production units. Normalised figures are reported per unit of sales production.

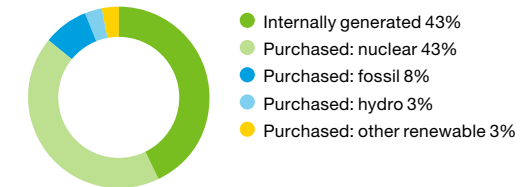
#### Fuels<sup>1</sup>



Our total annual fuel consumption was 153 862 terajoules (TJ) in 2018 (150 864 TJ in 2017). 1 TJ = 10<sup>12</sup> joules

<sup>1</sup> Figures cover board, pulp, and paper production units. Excluding joint operations.

#### Electricity<sup>1</sup>



During 2018 we generated and purchased 12.6 terawatt hours (TWh) of electricity and consumed 12.3 TWh (12.8 and 12.4 during 2017). 0.3 TWh was sold (0.4). TWh (terawatt hour) = 10<sup>9</sup> kilowatt hours.

<sup>1</sup> Figures cover board, pulp, and paper production units. Excluding joint operations. Electricity from Pohjolan Voima Oy (PVO) included in purchased electricity.



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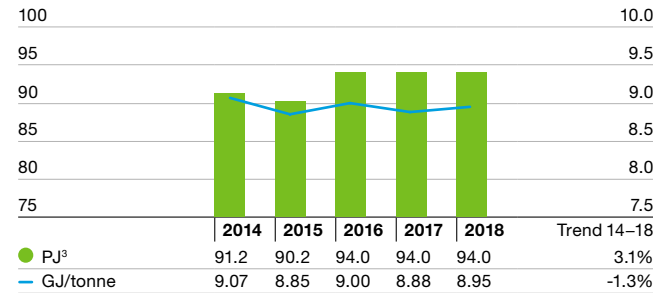
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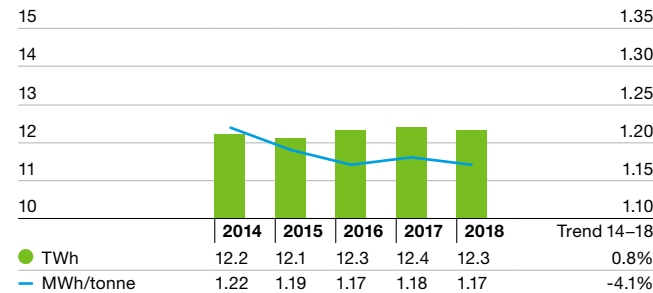
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#### Heat consumption<sup>1 2</sup>



<sup>1</sup> Figures cover board, pulp, and paper production units. Excluding joint operations. Normalised figures are reported per unit of sales production.  
<sup>2</sup> Excluding heat used for electricity generation.  
<sup>3</sup> 1 PJ = 10<sup>15</sup> joules.

#### Electricity consumption<sup>1</sup>



<sup>1</sup> Figures cover board, pulp, and paper production units. Excluding joint operations. Normalised figures are reported per unit of sales production.

**In 2018, EUR 10 million were earmarked for energy efficiency investment projects at our mills.**

our mills, as well as product portfolio choices and operational issues on production lines. Stora Enso's science-based target is to reduce greenhouse gas emissions from our operations by 31% per tonne of board, pulp, and paper produced by 2030 from the 2010 baseline. For more information, see page 46.

In 2018, our total energy self-sufficiency rate<sup>1</sup> was 63% (63%). The share of biomass in our internal energy production was 81% (82%). During the year, our electricity self-sufficiency level<sup>1</sup> was 44% (43%).

Approximately 86% (86%) of our purchased electricity<sup>1</sup> was generated from low-fossil carbon sources, including nuclear and renewable energy. Existing contracts and our internal electricity generation capacity are estimated to cover around 77% of our needs for the next five years (80% in 2017). Energy accounted for 10% of Stora Enso's variable costs in 2018 (10% in 2017).

#### Energy efficiency high on the agenda

Stora Enso continued to enhance energy efficiency throughout the Group's operations in 2018. Six sawmills received ISO 50001 energy management certification during the year: Imavere, Näpi, Launkalne, Amsterdam, Murow, and Hylte. All Stora Enso's sawmills are now certified to ISO 50001. Our Beihai Mill also received ISO 50001 energy management certification in 2018.

We are committed to the voluntary Energy Intensive Industries Agreement managed by Finnish Forest Industries (FFI), which aims at a national 4% energy use reduction among its signatories between 2017 and 2020, and a 3.5% reduction (cumulative, in MWh) during 2021–2025.

We also participate in national groups that share industry best practices on energy efficiency in Finland, and promote energy efficiency at our most energy intensive mills.

We actively seek ways to optimise fuel use and increase the proportion of biomass in our energy production. The plan to install a new steam turbine with a closed-loop cooling system and additional biomass storage at our Maxau Mill in Germany is a significant step towards this goal. The investment contributes to Stora Enso's carbon neutral roadmap and science-based targets through a higher proportion of biomass and greater efficiency, which is expected to result in savings of over 50 000 tonnes of CO<sub>2</sub> emissions every year.

In 2018, we also invested in a new turbine at Hylte Mill in Sweden. The turbine will improve the mill's energy efficiency and electricity self-sufficiency.

#### Stora Enso's energy efficiency fund

Stora Enso's central energy efficiency investment fund is another important part of our work. In 2018, this fund amounted to EUR 10 million (EUR 10 million in 2017) and was earmarked for energy efficiency investment projects at our mills. The fund had financed 55 (28) projects by year-end, including LED lighting projects at 14 units, the Ostrołęka power plant controlling project, and a new energy-efficient method of producing mechanical pulp at our Anjala Mill. When fully implemented, the projects financed in 2018 are estimated to generate annual energy savings of at least 259 GWh (73 GWh electricity and 186 GWh heat). These figures are equivalent to 0.6% of our annual



We always assess the opportunities to use fuels from biomass residual streams.

electricity consumption and 0.6% of our annual heat consumption. The projects are estimated to eliminate over 16 000 tonnes of annual direct fossil CO<sub>2</sub> emissions.

#### Emissions to air

Our atmospheric emissions primarily result from the combustion of fuels used to generate energy. These emissions include carbon dioxide (CO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and fine particles. When not properly managed, CO<sub>2</sub> contributes to global warming while SO<sub>2</sub> and NO<sub>x</sub> emissions affect air quality and cause acid rain and soil acidification. We work to reduce our air emissions by using more renewable energy, improving energy efficiency, and using advanced technologies such as scrubbers and boiler process control systems.

In 2018, Stora Enso completed the EUR 14 million investment at Imatra Mills to replace and modernise its odorous gas treatment system including a new boiler. The new boiler went into operation in 2017 and is estimated to reduce the boiler's NO<sub>x</sub> and SO<sub>2</sub> emissions by 10%. Air quality in the surrounding residential areas has improved and measurements have shown that the number of hours with traces of malodorous gases in the air has been reduced.

In 2018, Stora Enso's Group-wide SO<sub>2</sub> emissions amounted to 2 900 tonnes (3 030 tonnes in 2017), NO<sub>x</sub> emissions totalled 10 840 tonnes (10 920 tonnes), and emissions of fine particles amounted to 1 740 tonnes (2 190 tonnes).

<sup>1</sup> Electricity from Pohjolan Voima Oy (PVO), where Stora Enso is a minority shareholder, is considered purchased electricity in the energy consumption figures.

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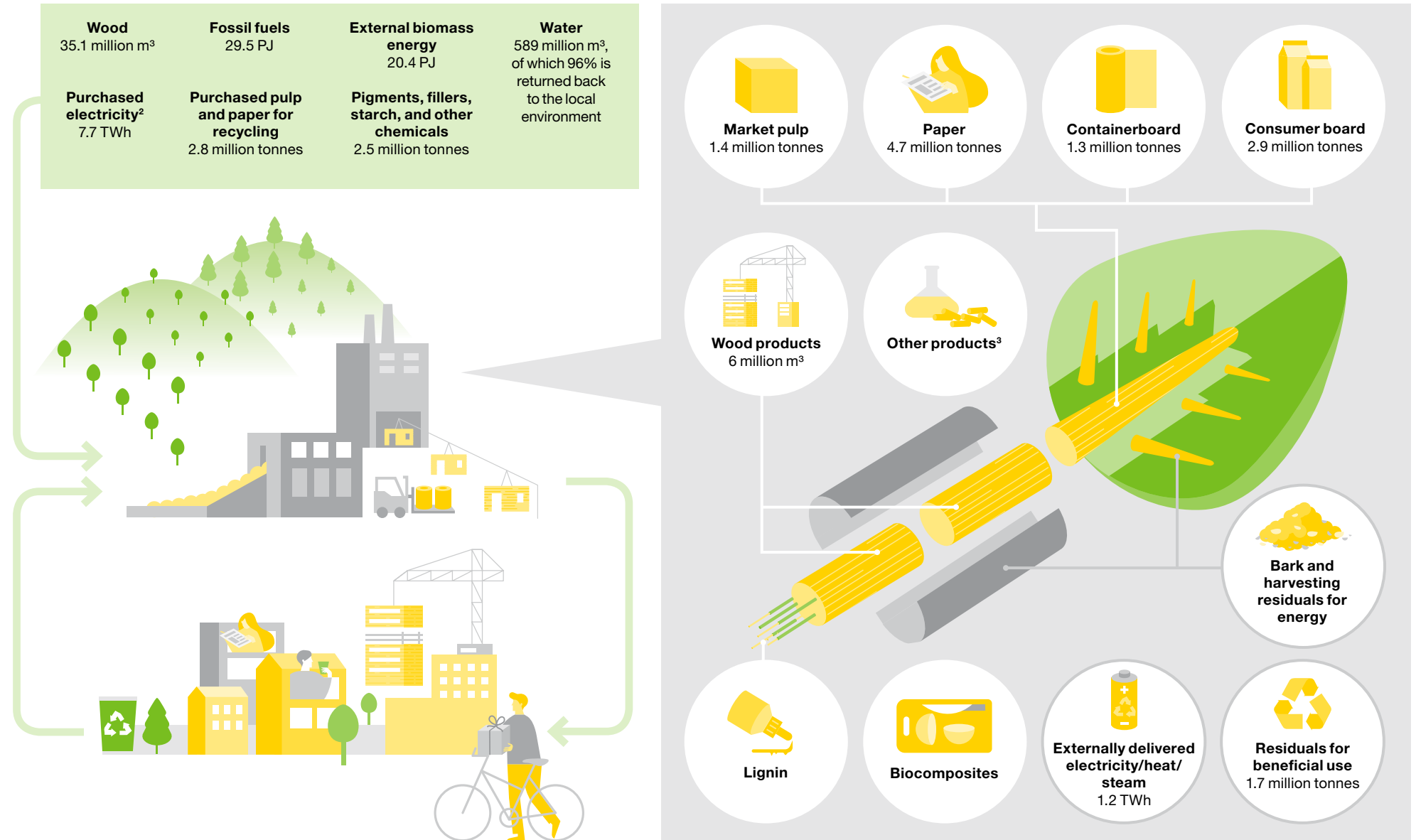
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## Efficient use of materials in circular bioeconomy<sup>1</sup>



<sup>1</sup> Covers all Stora Enso production units. Excluding joint operations. The illustration shows the key materials used in our processes, together with our production figures as reported in our environmental reporting system. For a comprehensive illustration on how we create value see our Strategy 2018. <sup>2</sup> Electricity from PVO included in purchased electricity. <sup>3</sup> Other products include mainly pellets, wood chips, tall oil and turpentine.



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## Environmental incidents in 2018

During 2018, Stora Enso continued to develop the procedures for effective Group-wide reporting and management of environmental incidents at our production units. The list below gives details of environmental incidents involving a non-compliance with environmental legislation or permit, or a significant stakeholder concern related to environmental performance.

Unit	Incident	Corrective actions
<b>Anjala/Ingerois mill integrate</b>	The mill's daily COD limits during March and annual Chemical Oxygen Demand (COD) and phosphorus effluent limits were exceeded. This was due to a mechanical malfunction in the bio-sludge thickener and increased bio-sludge content in the wastewater treatment plant. The authorities were regularly informed and there was no environmental impact in the receiving waters.	The mechanical malfunction was repaired, and the wastewater treatment process was optimized. The recovery of the bio-sludge and activated sludge process took a few months to complete. Process performance was improved by using an online database control system utilising predictive analytics and simulation.
<b>Heinola Fluting Mill</b>	The mill's monthly limits for effluent containing COD, biological oxygen demand (BOD) and phosphorus were exceeded in May during the start-up of the mill and wastewater treatment plant after a longer than normal investment shutdown. There was no environmental impact in the receiving water.  The mill's annual limit for diffuse sulphur dioxide (SO <sub>2</sub> ) was exceeded. This was due to malfunctioning recovery plant absorption tower equipment.	Actions were taken to decrease the load into the treatment plant to speed up and support its recovery.  Corrective actions were taken related to new alarm limits set in the factory system. Investigation of the case was initiated.
<b>Enocell Mill</b>	The mill's monthly limit for effluent containing phosphorus was exceeded in July and August due to a combination of phosphorus in the incoming effluent during the summer and improper operation of the sludge treatment. The environmental impact was not significant.	Corrective actions were taken related to sludge dewatering and chemicals were added to precipitate phosphorus.
<b>Skutskär Mill</b>	Pitch oil from the pulp production process was accidentally discharged to clean water effluent in the port basin during October. During start-up after a maintenance stop the preheater for pitch oil to the lime kilns broke due to high pressure in the preheater. The environmental permit was not breached as effluent was kept within the permit limit for suspended solids. Part of the oil leaked from the port basin to the Baltic sea where small amounts landed in shores and island in Gävle archipelago. Pitch oil is not toxic or dangerous to the environment, but it is sticky in texture and can cause problems for sea life.	Troubleshooting and cleaning measures were started immediately upon detection. The removal of pitch oil from the port basin and the sea, beaches and islands in the bay of Gävle outside the mill was finalised during November. Preventive actions have been taken and procedures were reviewed to make sure the incident will not happen again.
<b>Sunila Mill</b>	The dust emission permit limit was exceeded at one recovery boiler in April and November.	Rebuild of existing equipment will be made in spring 2019. Option for additional rebuild or installation of new equipment may be planned for the 2020 maintenance stop.

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# Carbon dioxide

We combat global warming with renewable materials, resource and energy efficient production processes, and sustainable forest management.



Our CO<sub>2</sub>e emissions were

**18% lower**

than the 2010 base-year level

### Opportunities and challenges

#### Contributing to a low-carbon economy

Global warming is one of the greatest challenges of our time. Stora Enso and the forest industry have an opportunity not only to contribute, but to pioneer the transition to a fossil-free, sustainable world. As a leading renewable materials company with access to carbon neutral biomass, we are in a unique position to combat global warming. The use of renewable materials enables us to contribute towards a low-carbon economy. Trees in sustainably managed forests absorb carbon dioxide (CO<sub>2</sub>) from the atmosphere and together with wood-based products act as carbon storage. Our products help our customers and society at large to reduce CO<sub>2</sub> emissions by providing low-carbon alternatives to solutions based on fossil fuels and other non-renewable materials.

The first truly global climate agreement was approved at the Paris Climate Conference (COP21) in 2015 and entered into force in November 2016. Ahead of COP21, Stora Enso signed a pledge to combat global warming with science-based reduction targets for greenhouse gas (GHG) emissions. In December 2017, we became the first forest products company to have their climate targets approved by the Science Based Targets initiative. Our ambitious targets, which address significant emissions throughout our value chain, were announced in early January 2018 and are well below the 2°C limit set by the Paris Agreement.

The Science Based Targets initiative is a collaboration between CDP, World Resources Institute (WRI), the World Wide Fund for Nature (WWF), and the United Nations Global Compact (UNGC). It is also one of the commitments of the We Mean Business Coalition to drive ambitious corporate climate actions.

**Growing trees in sustainably managed forests absorb CO<sub>2</sub> from the atmosphere.**



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The Intergovernmental Panel on Climate Change (IPCC) released a special report in 2018. The report states that the Paris Agreement is not enough to keep global average temperatures well below 2°C and close to 1.5°C. Due to the IPCC report, target setting criteria for SBTs will most likely change. When launched in 2019 by the SBT Initiative, we will review our approved science-based targets to assess what more we can do.

The EU's Emissions Trading System (ETS) is the largest mandatory international system for trading greenhouse gas emission allowances, and a major element of the EU's efforts to combat global warming. The ETS grants "carbon leakage" status to industries where it is considered that costs related to climate policies might cause businesses to transfer production to countries outside the EU with less demanding requirements. The EU forest industry currently has carbon leakage status for the period 2015–2019. It will continue to enjoy this status for the recently agreed 2021–2030 period.

The number of free emission allowances will be reduced gradually in the next trading period. This has already led to increased emissions allowance costs during 2018.

In late 2018, the European Commission presented its strategy for a carbon neutral EU by 2050. The strategy relies on the circular economy, natural carbon sinks, and lifestyle changes and suggests emission cuts from all main sectors including power generation, industry, transport, buildings, construction, and agriculture. As an overall ambition level, it states that by 2050, the EU should achieve net zero greenhouse gas emissions, with an unchanged milestone of a 40% reduction by 2030 compared to 1990 levels. The role of a competitive EU industry is considered a key enabler in the strategy, and it specifically refers to reaping the full benefits of the bioeconomy. The strategy will be discussed during 2019 and should be adopted in early 2020.



Our science-based targets have been informed by the Intergovernmental Panel on the Climate Change (IPCC) to keep global average temperatures well below 2°C.

## Our policies

### Comprehensive carbon strategy

Agreed in 2016, our carbon strategy states that it is our firm intention to drive down our fossil fuel use, so that we get as close to zero as possible within a decade using technically and commercially feasible means. Relevant policies guiding and steering our efforts to combat global warming include our:

- **Policy for Energy and Carbon**
- **Environmental Guidelines** – a more comprehensive overview of our policy objectives and how we work to achieve them.
- **Supplier Code of Conduct and Practical Guide for Suppliers** – guides us on how CO<sub>2</sub> emissions can be reduced in our supply chain.

## How we work

### Scenario-driven work

For over a decade, we have been actively reducing the energy intensity of our operations – and in many places also our dependency on fossil fuels. We measure our progress to reduce greenhouse gas (GHG) emissions as a key performance indicator (KPI). Stora Enso's science-based target is to reduce greenhouse gas (GHG) emissions from our operations by 31% per tonne of pulp, paper and board produced by 2030 compared with the 2010 base-year. We report on our progress in our Sustainability report and quarterly Interim Reports.

Our science-based targets have been informed by the Intergovernmental Panel on Climate Change (IPCC) well below 2 °C scenario and the Sectoral Decarbonisation Approach, which is a method for setting corporate emission reduction targets in line with climate science. A key tool in the scenario assessment and the establishment of reduction targets was the Stora Enso Carbon Neutrality Roadmap, which guides our long and short-term fossil CO<sub>2</sub> reduction actions. Read more about our actions in the Progress section of this chapter.

### Improving our energy efficiency

Greenhouse gases emitted by our operations include carbon dioxide, methane and nitrous oxide – with carbon dioxide being by far the most significant. The most effective ways to reduce our direct fossil CO<sub>2</sub> emissions are to further improve our energy efficiency, and to continue to increase our use of biomass fuels. Significant investments in recent years, particularly in multi-fuel boilers, have achieved large reductions in our fossil CO<sub>2</sub> intensity.

### Evaluating risks and opportunities

A proactive approach to decreasing our dependency on fossil fuels and reducing our direct and indirect fossil CO<sub>2</sub> emissions creates new business opportunities and helps us to manage costs and risks. Stora Enso evaluates the risks and opportunities related to global warming through its annual Enterprise Risk Management (ERM) process, which forms an integral part of the Group's management approach (for more details see our **Financials 2018**). We routinely

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calculate the financial impacts of potential cost increases in relation to emission allowances, including the impacts of possible increases in energy prices. Our production units systematically work to meet their environmental regulatory requirements and to improve their energy efficiency. Their work is supported by international third-party-certified systems such as the environmental management standard ISO 14001 and the energy management standard ISO 50001. For unit-specific information on certification, see page 69.

The Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) recommends a framework for disclosing climate related risks and opportunities that goes beyond current practices. The TCFD recommendations respond to a growing demand for improved financial disclosures from companies in relation to climate risks. In addition to investors and regulators, leading companies are also communicating their support for the recommendations through



### A wooden home grows back

When you think of a wooden house, what do you see? Many of us will imagine a small wooden cabin, or possibly a quaint old house in the countryside, undisturbed by the modern world. But a wooden home has many faces.

"Concrete, steel, and bricks represent between 8–15% of global greenhouse gas emissions so when we can replace or complement non-renewable construction materials with renewable wood, we are combatting global warming," says **Mathieu Robert**, Head of Building Solutions business at Stora Enso. "Wooden homes store carbon for decades, or even centuries. Wood is recyclable like many other materials, but recyclability is no longer enough – wood is the only major construction material that is also renewable."

Read the full article at ➤ [storaenso.com/sustainability](https://storaenso.com/sustainability)

Statements of Support by Accounting for Sustainability (A4S). In 2018, Stora Enso's CFO signed an A4S Statement of Support to promote better disclosure of climate risks and opportunities.

### Detailed carbon reporting

We publicly report on our greenhouse gas emissions in three categories:

- Carbon dioxide equivalent (CO<sub>2</sub>e) emissions from operations we directly own or control, including on-site energy generation facilities and our own processes, power boilers, lime kilns and on-site vehicles (Scope 1).
- CO<sub>2</sub>e emissions related to the electricity and heat we purchase externally for use in our operations (Scope 2).
- Estimated CO<sub>2</sub>e emissions from other indirect sources along our value chain (Scope 3).

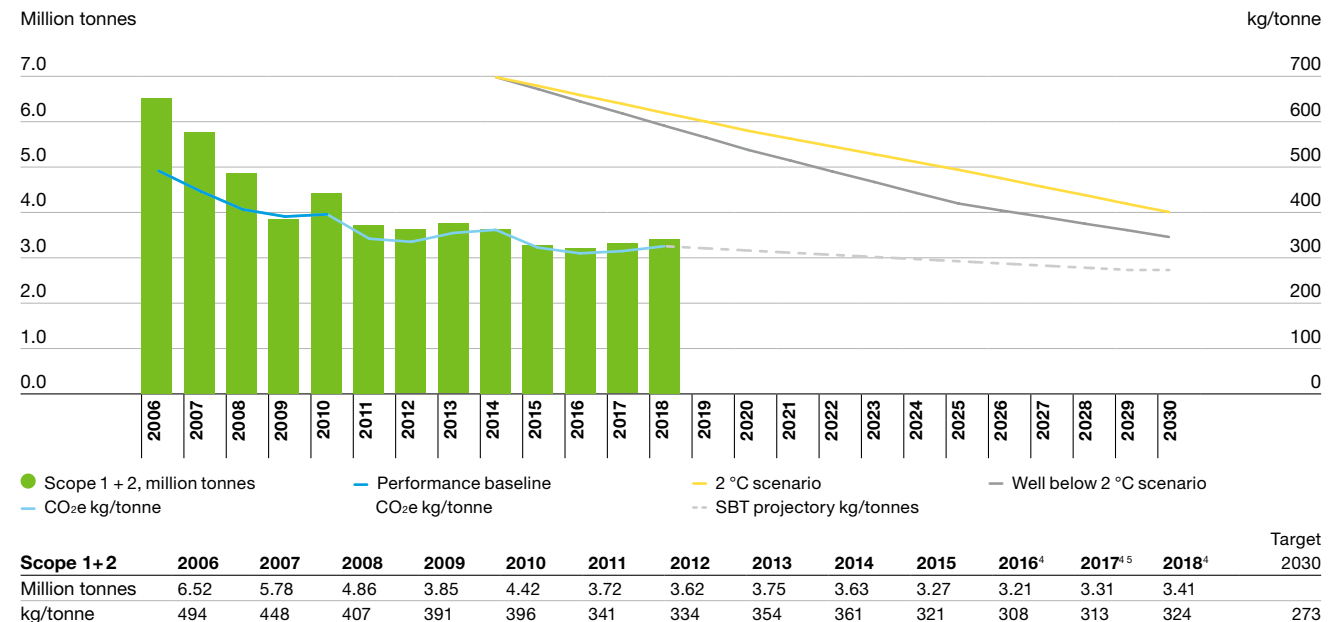
All our units report quarterly on carbon emissions for Scopes 1 and 2. A Group-level estimate for Scope 3 emissions is updated biannually. Our carbon footprint accounting is based on guidelines provided by the Greenhouse Gas Protocol of the World Resource Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). In 2018, we continued to have the reporting of our direct and indirect CO<sub>2</sub>e emissions (Scopes 1 and 2) externally assured to a Reasonable Level – as one of the few companies in the world to do so. For more details, see page 72.

### External recognition and partnerships to combat global warming

In November 2018, Stora Enso was top-ranked in greenhouse gas management for the second time in a row. The Transition Pathway Initiative (TPI) is an asset owner-led initiative supported by Grantham

### Stora Enso's GHG performance<sup>1</sup> and scenarios for forest industry<sup>2</sup>

Greenhouse gas emissions (GHG) in relation to production



<sup>1</sup> Covering direct and indirect emissions as fossil CO<sub>2</sub> equivalents (scope 1 and 2) from board, pulp, paper, and corrugated production units. Excluding joint operations. Normalised figures are reported per unit of sales production.

<sup>2</sup> GHG reduction pathways for 2°C scenario and well below 2°C scenarios based on information from the Transition Pathway Initiative (TPI)\* including scenarios data from the Energy Technology Perspectives report by the International Energy Agency.

<sup>3</sup> CO<sub>2</sub>e emissions data from our operations (scope 1+2) have been verified at reasonable assurance level since 2015 and calculated according to the GHG protocol and GHG Scope 2 guidance.

<sup>4</sup> Adversely affected by the coal-based energy consumption at our Beihai Mill in China.  
<sup>5</sup> Historical figures recalculated due to accuracy improvements.

\* Asset owner-led initiative supported by Grantham Research Institute and London School of Economics.

SBT= Science-based target



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Research Institute and London School of Economics. It evaluates and tracks the quality of a company's management of greenhouse gas emissions and of risks and opportunities related to the low-carbon transition. It also evaluates how a company's future carbon performance would compare to the international targets and national pledges made as part of the Paris Agreement. In its assessment of how 18 of the largest paper producers globally are preparing for the transition to a low-carbon economy, TPI top-ranked Stora Enso in both management quality and carbon performance. Stora Enso was the only company that both ranked on the highest possible level in management quality and had an emissions reduction target set until 2030, aligned with keeping the global temperature rise below 2°C.

Stora Enso was top-rated in combatting global warming by the international non-profit organisation CDP. Stora Enso was included on CDP's new 2018 Climate A List, which identifies the global companies that are taking leadership in climate action.

Stora Enso endorses the Corporate Leaders Group (CLG) policy statement on net-zero strategies. The CLG brings together European business leaders to accelerate progress towards a low-carbon, sustainable economy.

Stora Enso is a member of the We Mean Business coalition. The coalition brings together non-profit organisations, businesses, and investors who recognise that transitioning to a low-carbon economy is the only way to secure sustainable economic growth.



“The world should be seeking to half greenhouse gas emissions in little more than a decade and reach net zero around 2050. Stora Enso has demonstrated that it is committed to acting on this challenge – setting science-based targets and showing real commitments to action. They are also looking at what such a comprehensive change to our economy means for them and their business in the long-term.”

**Eliot Whittington**  
Director  
The Prince of Wales's Corporate Leaders Group  
University of Cambridge Institute for Sustainability Leadership



Wooden buildings store carbon for decades, or even centuries.

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The CO<sub>2</sub> emissions generated during the transportation of our raw materials and products are mainly produced by external logistics service providers.

### Progress

#### Our science-based targets

In 2018, our CO<sub>2</sub>e emissions per saleable tonne of board, pulp, and paper were 18% lower than the 2010 benchmark level (21% lower in 2017). The full-year performance declined three percentage points from 2017, mainly due to the increased use of peat at two Finnish mills and a higher fossil content in the generation of the purchased electricity in Finland and Poland. In absolute terms, our direct and indirect CO<sub>2</sub>e emissions were 23% lower than in 2010. Direct CO<sub>2</sub>e emissions per unit of sales production were 7% lower than in 2010. The CO<sub>2</sub>e emissions resulting from the generation of purchased electricity and heat during 2018 were 37% lower than in 2010 per unit of sales production.

The total direct and indirect CO<sub>2</sub>e emissions from Stora Enso's board, pulp, and paper mills amounted to 3.41 million tonnes in 2018 (3.31 million tonnes in 2017).

Fourteen of Stora Enso's mills use production process residuals to generate renewable energy and distribute it to local district heating systems (approximately 80%) and industrial partners (approximately 20%). In most cases the heat supplied from our production units directly reduces the local use of oil and other fossil fuels. In 2018, a total of 3.3 PJ of heat was sold to these district heating systems serving twelve communities (3.3 PJ in 2017). Using this amount of renewable energy instead of light fuel oil for heating for example resulted in estimated emission reductions amounting to 0.24 million tonnes of fossil CO<sub>2</sub> (0.25 million tonnes).

## In 2018, 80% of the total CO<sub>2</sub> emissions from our own operations were carbon neutral.

### Investing in a low-carbon future

We strive to increase the proportion of biomass in our internal energy generation. In line with our policy to give preference to energy from low-fossil carbon sources, Stora Enso announced plans to invest EUR 25 million to boost green energy generation at Maxau Mill. For more information, see page 39.

In 2018, Stora Enso and energy company Gasum signed a contract to build a biogas plant at our Nymölla Mill in Sweden. The plant, built and operated by Gasum, will turn sludge from the mill's wastewater treatment plant into renewable energy. The expected Liquefied Biogas production of the plant is 75-90 GWh per year, which is equivalent to 20 000 tonnes of avoided fossil CO<sub>2</sub> emissions per year when replacing conventional diesel in transportation.

Another important part of our work is our central energy efficiency investment fund. When fully implemented, the projects financed in 2018 are estimated to eliminate over 16 000 tonnes of annual fossil direct CO<sub>2</sub> emissions. For more information, see page 39.

### Investigating non-fossil fuel alternatives for Beihai Mill

At our Beihai Mill in Guangxi province, China, coal is currently the only feasible energy source for an industrial project of its scale in the region, as there are inadequate sustainable supply chains for non-fossil fuels at present. We continue to investigate long-term options to gradually move away from coal to biomass and other non-fossil fuels. The power boiler at Beihai Mill is technically able to use a variety of fuel mixes, and in 2018 modest amounts of wastewater sludge, forest residuals and other side streams from our production processes were used. The medium-term objective is to annually replace 10 000 tonnes of coal with these steps. For more information about our coal sourcing, see page 63.

### Carbon neutral emissions

Carbon neutral CO<sub>2</sub> emissions are fossil-free emissions generated during the combustion of biomass-based fuels sourced from sustainably managed forests<sup>1</sup>. These emissions are carbon neutral as the forests are regenerated and the new generation of trees absorb CO<sub>2</sub> while growing. When forests are sustainably managed, this cycle can continue indefinitely. Stora Enso's operations utilise renewable biomass-based fuels to a large extent, which means that the proportion of carbon neutral CO<sub>2</sub> emissions in our total emissions is high. In 2018, 80% (80%) of the total CO<sub>2</sub> emissions from our own operations were carbon neutral.



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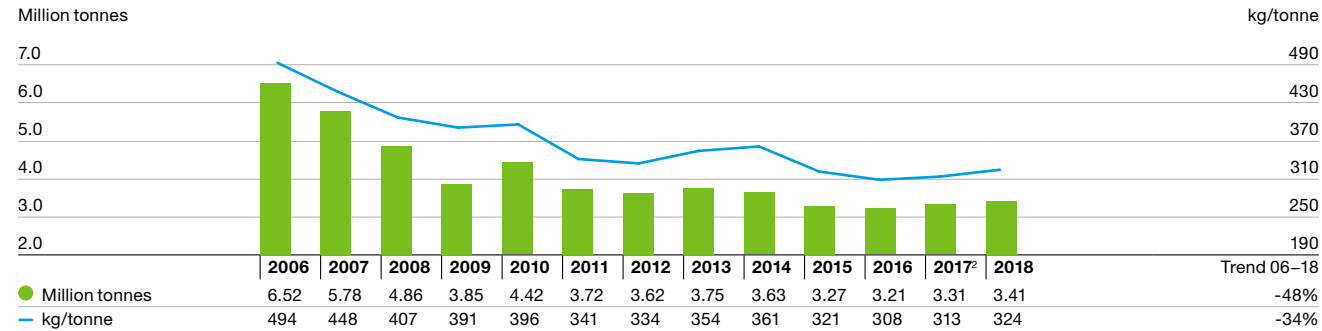
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## Greenhouse gas emissions in relation to production<sup>1</sup>



<sup>1</sup> Covering direct and indirect emissions as fossil CO<sub>2</sub> equivalents (scope 1 and 2) from board, pulp, paper and corrugated production units. Excluding joint operations. Normalised figures are reported per unit of sales production.

<sup>2</sup> Historical figures recalculated due to accuracy improvements.

### Our carbon footprint

Direct emissions from our operations account for 22% (20% in 2017) of our carbon footprint, while emissions related to the electricity and heat we purchase for use in our operations account for 9% (10%) of our total carbon emissions. According to our estimates, 69% (70%) of the emissions in our carbon footprint are generated elsewhere along our value chain. The majority of our emissions are generated in the sourcing and manufacturing of our raw materials and services (30% of the total Scope 3 emissions); in the further processing of our products by customers (42%); and in the transportation of raw materials to our mills and our final products to our customers (20%). To identify potential for further reducing our emissions in Scopes 1, 2, and 3, we strengthened our internal steering processes in accordance with the actions agreed in our science-based targets. We continued to implement methodologies for calculating the quantities of carbon sequestered in forests and plantations owned and managed by Stora Enso and our associate companies. We also continued our work with external experts to identify a credible methodology to calculate the positive substitution effect our renewable products have when compared to fossil CO<sub>2</sub> intensive alternatives.

### Value chain emissions

The CO<sub>2</sub> emissions generated during the transportation of our raw materials and products, which are the most significant environmental impacts associated with our logistical operations, are mainly produced by external logistics service providers. Transportation

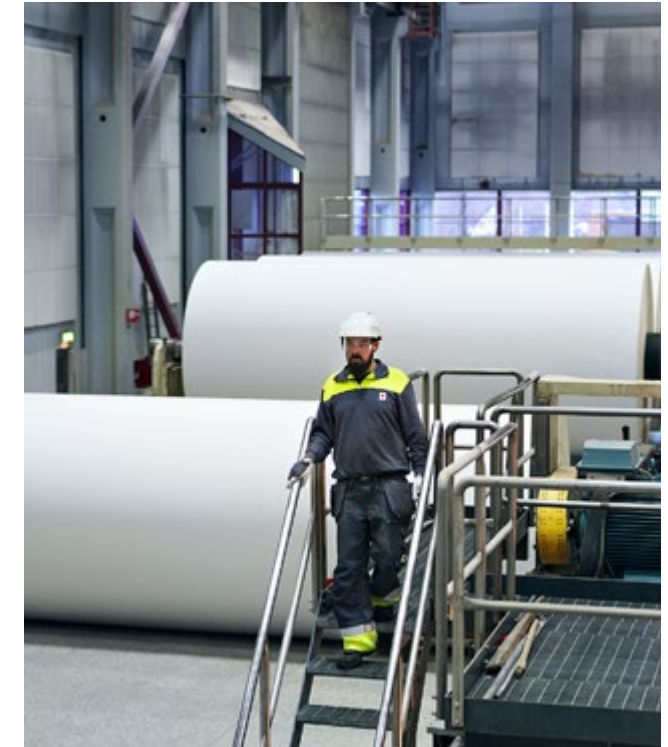
accounts for 20% of all our Scope 3 CO<sub>2</sub> emissions. One example of good practice is our "Right Method" system to pre-plan logging roads, which reduces damage to the soil and fuel consumption by about 10%, according to studies made by our wood supply organisation in Sweden. Sea transport accounts for approximately 89% of all our product transportation by weight and distance, while road and rail transportation account for 9% and 2% respectively.

Our commitment to science-based targets includes engagement targets for Scope 3. To reduce emissions in the value chain, Stora Enso commits to having 70% of its non-fibre raw material suppliers and downstream transportation suppliers in terms of spend set their own greenhouse gas (GHG) reduction targets by 2025, towards the aim of adopting science-based GHG reduction targets by 2030.

In 2018, we began using sustainability criteria in the tendering phase of our sourcing process and collecting data on supplier performance. Suppliers now need to respond to a set of questions about their financial stability, CO<sub>2</sub> emissions, and accident rates. These criteria are part of every tender, regardless of previous contracts with the same supplier. For more information, see page 61.

In addition, we will educate 100% of our customer-facing staff on the advantages of setting science-based targets by 2020. In 2018, we created e-learning material to progress this target.

<sup>1</sup> Recommendations on Biomass Carbon Neutrality, WBCSD 2015.



## Stora Enso's carbon footprint 2014–2018<sup>1 2</sup>

	Fossil CO <sub>2</sub> equivalent (million tonnes) <sup>3</sup>					Trend 14–18
	2014	2015	2016	2017	2018	
Scope 1: Direct emissions from our operations.	2.40	2.24	2.40	2.34	2.49	4%
Scope 2: Emissions from purchased energy consumed in our operations. <sup>3</sup>	1.41	1.19	0.97	1.10	1.06	-25%
Scope 3: Emissions from other sources along our value chain. <sup>4</sup>	6.88	7.26	7.65	7.97	7.89	15%
<b>Total</b>	<b>10.69</b>	<b>10.69</b>	<b>11.02</b>	<b>11.41</b>	<b>11.44</b>	<b>7%</b>

<sup>1</sup> Covers all Stora Enso production units. Excluding joint operations.

<sup>2</sup> Historical figures recalculated due to accuracy improvements.

<sup>3</sup> The CO<sub>2</sub> factors we use for purchased energy (scope 2) largely follow the market-based methodology, which means that almost all our units apply CO<sub>2</sub> factors provided by their energy suppliers. When applying currently available location-based factors our scope 2 emissions for 2018 are 1.30 million tonnes of CO<sub>2</sub> equivalents.

<sup>4</sup> Historical scope 3 emissions recalculated bi-annually against the most recent methodology in order to ensure comparability.

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## Stora Enso's carbon footprint<sup>1</sup>



<sup>1</sup> Covers all Stora Enso production units, a total of 11.44 million tonnes of fossil CO<sub>2</sub> equivalent (11.41 million tonnes in 2017). Excluding joint operations.



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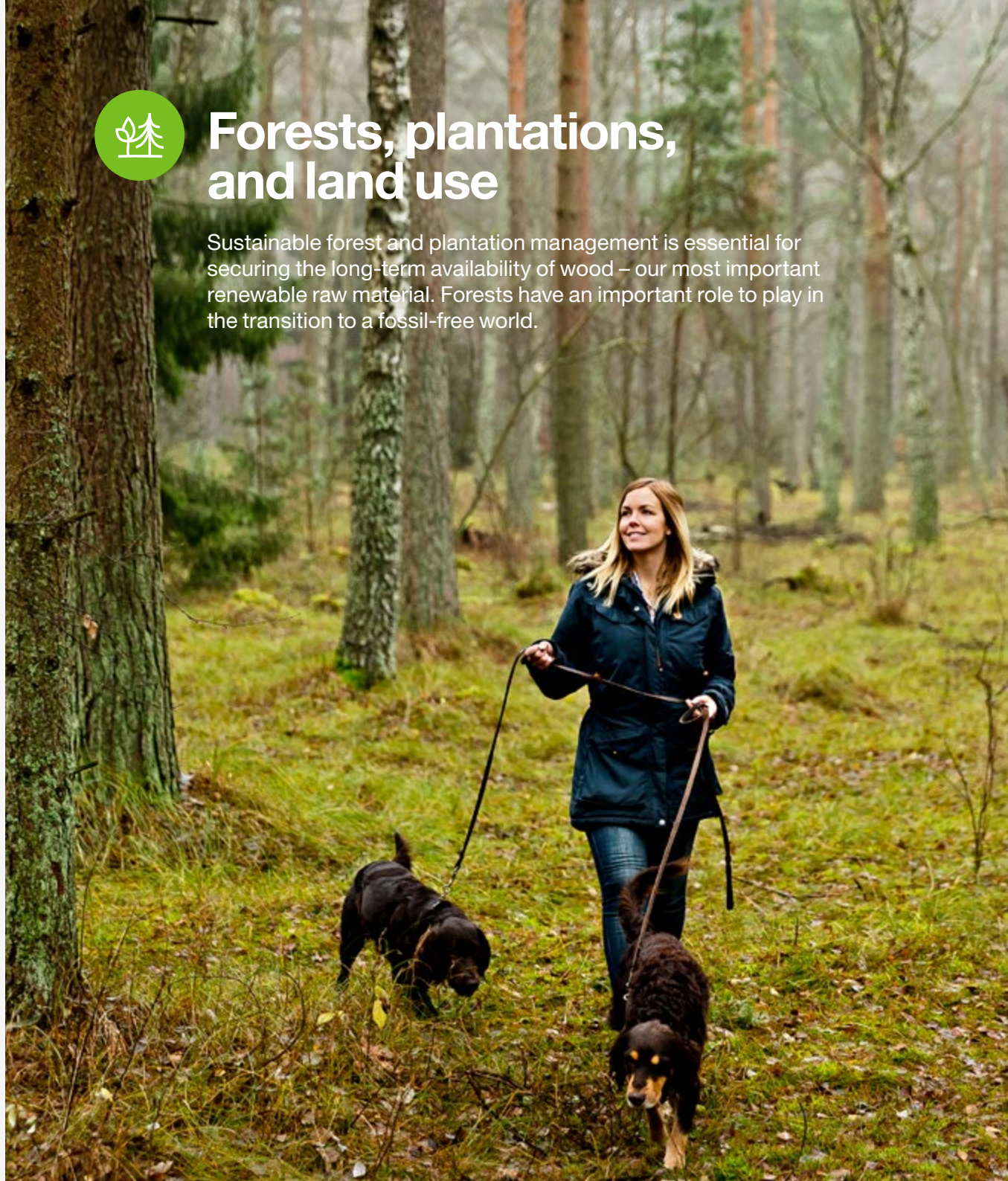
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# Forests, plantations, and land use

Sustainable forest and plantation management is essential for securing the long-term availability of wood – our most important renewable raw material. Forests have an important role to play in the transition to a fossil-free world.



Forest certification coverage for owned and managed lands was

**96%**

### Opportunities and challenges

#### Combating global warming with forestry

Forests and plantations are an increasingly important part of the wider global sustainable development agenda, particularly in relation to combatting global warming. As a renewable natural resource, wood represents a favourable alternative to fossil-based materials. Growing trees absorb carbon dioxide (CO<sub>2</sub>) from the atmosphere, and together with wood-based products act as carbon storage. Sustainable forest management ensures that new generations of trees replace those that are logged. The growing trees absorb more carbon from the atmosphere than is released, increasing the role of forests as carbon storage.

The role of Land Use, Land Use Change and Forestry (LULUCF) in combatting global warming has been broadly recognised. For Stora Enso, it is essential that any regional or national policy fully utilises the potential of sustainable renewable materials and supports the transition towards a bio-based circular economy.

Global warming entails physical challenges and opportunities in relation to forests and plantations, due to changing patterns of temperature, wind, and rainfall, which can all be expected to impact our operational environment. Well-managed forests and plantations can make entire ecosystems more resilient to negative impacts, and even benefit from the positive effects.

Global challenges such as population growth, increasing demand for agricultural land, and the widening gap between the supply and demand for wood, all require us to use natural resources even more efficiently, and to produce more raw materials from less land. At the same time, major global trends such as eco-awareness and the growing middle class drive the world's demand for renewable materials. Because the need to conserve our remaining natural ecosystems is also increasing, we must find new ways to integrate competing land uses. Simultaneously, the trend for more forest-owners to be based in cities away from their landholdings brings new challenges in relation to wood procurement, as forest owners have less connection to day-to-day operations.



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### Our policies

#### Committed to sustainable wood and fibre sourcing

Stora Enso's policy on Wood and Fibre Sourcing, and Land Management covers the entire cycle of forest and tree plantation management. The policy requires sustainable forest management through responsible sourcing and land use – to safeguard the health and ecological functions of ecosystems and to help conserve biodiversity, soil and water resources. To achieve this, we maintain an open dialogue with our stakeholders.

Other relevant policies that promote sustainable forestry include our:

- **Environmental Guidelines** – a more comprehensive overview of our policy objectives and how we work to achieve them.
- **The Stora Enso Code** – our Code of Conduct.
- **Supplier Code of Conduct** – our demands on suppliers.

### How we work

#### Ensuring the sustainability of fibre

Stora Enso's approach to responsible forest and tree plantation management takes into account the economic, social, and environmental aspects of sustainability. Compliance with national legislation and regulatory obligations is only the starting point for our work. We actively support and implement voluntary forest conservation and restoration measures on lands owned, leased, and managed by Stora Enso, and in other areas where we purchase wood.

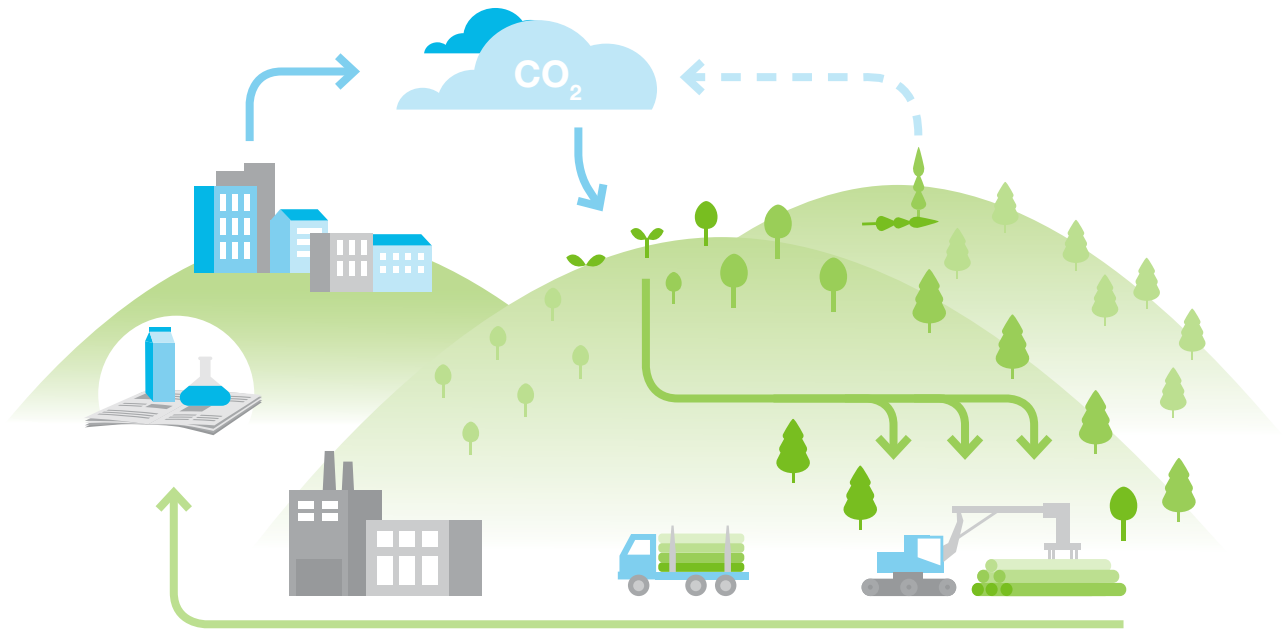
Stora Enso continued its cooperation with World Wildlife Fund for Nature (WWF) in several countries in 2018. Initiatives included



“The New Generation Plantations (NGP) platform is a place to learn about better plantation management through real world experiences, and influence others to follow good examples. The NGP brings together leading plantation companies and some government agencies that manage and regulate plantations. Stora Enso is one of the NGP founding members and has provided good practice examples in the study tours in Brazil, Uruguay and Laos.”

**Luis Neves Silva**  
Lead, New Generation Plantations  
WWF

### Carbon circulates endlessly between the atmosphere, growing trees and wood-based products



Forests have a central role in the carbon cycle. Young forests absorb carbon when they grow and old forests release it as they decay. Carbon is stored in forest products until they decay or are burned at the end of their life when the carbon dioxide is released back into the atmosphere. Growing forests reabsorb carbon from the air.

the New Generation Plantations (NGP) platform, which focuses on the institutional and technological aspects of responsible plantation management. Stora Enso is also cooperating with WWF Finland to promote the conservation and sustainable use of forests. This work includes promoting alternative harvesting practices among private forest owners.

We are active members in numerous local and global forestry associations, networks, and programmes. Stora Enso has been a member of the Forest Solutions Group (FSG) of the World Business Council for Sustainable Development (WBCSD) since the late 1990s. During 2018, we actively participated in finalising its strategic review and initial implementation of the new programme to make FSG a global engagement platform on sustainable forestry and forest products. In 2018, Stora Enso's EVP Sustainability was appointed the new FSG Co-Chair for a period of two years. We also continued to support and participate in The Forests Dialogue (TFD), which is

a platform for multi-stakeholder discussion and collaboration on the most pressing local and global issues facing forests and people.

During the year, we also transparently disclosed our strategies and performance related to tackling deforestation to CDP Forests (score of A-).

In 2018, Stora Enso and the Forest Stewardship Council (FSC) signed an international partnership agreement establishing a long-term strategic collaboration to develop and promote sustainable forestry. Stora Enso promotes all main forest certification systems and is committed to the responsible sourcing of wood and fibre from only sustainably managed forests and tree plantations.

#### Sustainability in our forestry operations

To cover all aspects of sustainability in our forest and plantation operations, we apply the same comprehensive wood procurement process in all our operating regions. Our Wood Supply organisation consists of regional units that source wood for Stora Enso mills.



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Key elements in this work include knowledge sharing, personnel rotation, contractor support, centralised coordination of innovation projects and the use of digitalisation. Our wood procurement process covers the entire management cycle in forests and plantations, including:

- Forest and plantation planning
- Silvicultural operations (everyday forest and plantation management)
- Wood harvesting
- Regeneration of forests and plantations
- Monitoring each stage in the process, for example through audits and self-assessments.

In 2018, the total amount of wood (including roundwood, wood chips, and sawdust) delivered to our mills was 38.7 million m<sup>3</sup> (solid under bark) (37.5 million m<sup>3</sup> in 2017).

### Long-term forestry planning

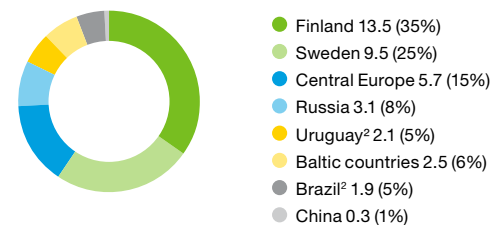
As trees take many years or decades to mature, long-term forestry planning is essential. This involves ecological landscape plans and biodiversity assessments to identify, conserve, and restore vital ecosystems and ecological features. In 2018, 89% (88%) of Stora Enso's wood came from managed semi-natural forests in Europe, most of which are privately owned. Forest planning involves finding ways to optimise wood production and conservation. We work together with forest owners to identify sensitive forest areas in need of protection. Our experts are trained to identify such areas and we regularly consult the authorities on these matters.

### Responsible forestry

In 2018, 11% of Stora Enso's wood came from tree plantations (12%). When establishing new plantations, we use internationally approved principles such as the Food and Agriculture Organisation's (FAO) Voluntary Guidelines on Planted Forests, and we also certify

### Wood procurement by region<sup>1</sup>

38.7 million m<sup>3</sup>



<sup>1</sup> Total amounts of wood (roundwood, chips and sawdust) procured within these regions for delivery to our mills (million m<sup>3</sup>, solid under bark).

<sup>2</sup> Figures for Brazil and Uruguay include 50% of the wood procurement of our joint operations Veracel and Montes del Plata.



our commercial plantations to ensure all aspects of sustainability are taken into consideration. Stora Enso never establishes plantations in natural forests, protected areas, or water-sensitive locations. We only use land with low biodiversity value, such as former pastureland. Stora Enso's employees and forestry contractors are given on-the-job training in ecological management, and we regularly monitor the impacts of our operations on biodiversity, soil, and water resources.

As we recognise that our plantations are an integral part of local land use, we evaluate and define sustainable land use practices specifically for each location. After determining the scope of expected impacts and possible remedies, we decide whether or not to proceed with a proposed project. Stora Enso subsequently remains in constant dialogue with stakeholders and strives to ensure that land contracts are legitimate and fair.

### Protecting biodiversity in forestry operations

Stora Enso closely monitors the management of the forests and plantations from which it sources wood. Wood harvesting is planned to suit the particular characteristics of each harvesting site, making use of appropriate harvesting methods and technologies. Harvesting volumes are aligned with the long-term carrying capacity of particular forests and plantations.

All roundwood, chips, sawdust, and externally purchased pulp supplied to our mills come from sustainable sources. We use a range of tools to ensure this, and to guarantee the sustainability of each part of the forest management cycle. These tools include forest certification and third-party traceability systems such as the Forest Stewardship Council's (FSC) Chain of Custody/Controlled Wood scheme, the Chain of Custody/Due Diligence System of the Programme for the Endorsement of Forest Certification (PEFC),

### A harvesting method better for the soil

The wet and mild winter of 2017–2018 in Scandinavia was challenging for the forest industry, making a method developed by Stora Enso, named "Rätt Metod" (Right method) in Swedish, very useful – both in Finland and Sweden.

"Basically, our method is about making thorough pre-studies of the ground to find the most durable spots within a harvesting area where the wood can be transported without damaging the soil and water streams. In the future, global warming will increase the need for harvesting on soft ground," says **Vegard Haanaes**, Development Manager at Wood Supply Sweden.

Read the full article at ➤ [storaenso.com/sustainability](https://storaenso.com/sustainability)

## In 2018, 89% of our wood came from managed semi-natural forests in Europe.

and the ISO 14001 environmental management standard. In addition, our Supplier Code of Conduct complements these tools by imposing strict contractual requirements on our suppliers. We work actively with our stakeholders to promote sustainable forest management and the wider use of certification systems. As certification programmes cover all three aspects of sustainability (environmental, social, and economic), they are an important indicator of responsible forestry. For this reason, we follow our progress with a key performance indicator measuring the proportion of land in wood production and harvesting owned and managed by Stora Enso that is covered by forest certification schemes.

We regularly audit our suppliers and work together with respected local institutions to ensure everything is done according to the standards set by certification schemes and our own policies.

### Preparing and adapting forestry to changing weather patterns

Global warming is increasing the occurrence of extreme weather events in the areas in which we operate. We use long-term planning to ensure our forestry operations are preparing and adapting to the changing climatic conditions. Stora Enso evaluates risks and opportunities related to global warming through the annual Enterprise

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Risk Management (ERM) process, which forms an integral part of the Group's management approach (for more details see our **Financials 2018**).

In the summer of 2018, a long drought caused a number of forest fires in Sweden. We adapted our operations to the prevailing weather conditions, observed the greatest caution, and supported the rescue services. Our personnel have significant expertise in fire safety issues that we offered to fire-fighting activities, such as the management of major controlled burns in collaboration with government agencies.

In 2018, Stora Enso and the Swedish Meteorological and Hydrological Institute (SMHI) began an eighteen-month cooperation project. SMHI's data is combined with forest data in a digital service that can be used to plan harvesting activities. The service is based on the forest industry's need to reduce soil damage and to pursue more efficient and sustainable forestry. The digital service can provide valuable soil condition forecasts.

### Forest regeneration

We always ensure that the forests and plantations where we harvest wood are duly regenerated. This is often done through active planting or sowing, although in many areas active regeneration is complemented by natural seed dispersal from nearby forests, by leaving seed trees standing in the harvesting area, or by coppicing. Whatever the methods used, we always ensure the forest will regenerate.



The Veracel Station rainforest research and conservation centre celebrated twenty years of operation in 2018.

In Brazil, our joint operation Veracel goes beyond regeneration by conserving and restoring areas of natural Atlantic Rainforest. All Veracel's tree plantations were established on degraded pasture lands, and no rainforest has been converted into plantations. When Veracel's plantations were established in 1991, less than 7% of the original Atlantic rainforest was left in the region following extensive logging and clearing for cattle ranching between the 1960s and 1980s. Since the plantations were established, Veracel has worked systematically to protect and restore local biodiversity.

Approximately half of Veracel's 213 500 hectares of land are dedicated to rainforest preservation and restoration. Veracel aims to restore approximately 400 hectares of rainforest habitat every year. A total of 7 217 hectares of forest has been restored between 1994 and the end of 2018. This work is part of a regional restoration programme that helps connect the remaining areas of valuable natural habitat to each other with forest corridors that enable wildlife to move more freely from one area to another. Veracel's significant contribution to the conservation of natural Atlantic rainforest and its rich biodiversity has been recognised by both the Brazilian authorities and international stakeholders.

The Veracel Station visitor centre, established in an area of preserved rainforest habitat, conducts research, conserves native and endangered ecosystems, and raises environmental awareness among visitors.

### Tree breeding

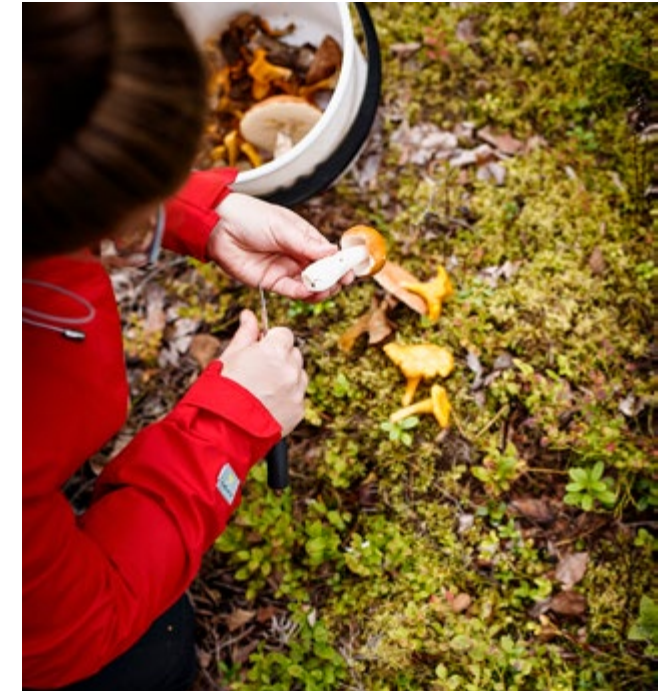
Stora Enso is continuously working towards the long-term goal of improving the productivity and quality of the eucalyptus trees grown in our plantations, so as to sustainably enhance wood production per unit of land. Tree breeding primarily targets increased biomass production (i.e. volume and density) and cellulose yield. Other targets may include improved rooting or resistance to frost, drought, pests, or diseases, depending on local conditions and the species in question. We test and apply modern scientific tools for tree improvement and the management of genetic diversity. This may involve selecting "elite trees" or conducting marker-assisted breeding and genetic engineering.

Our genetic engineering activities are in the research and development phase. As with traditional clone improvements, it will take many years to develop genetically engineered clones. During 2018, we continued the process to establish field trials in areas totalling less than 30 hectares in Brazil. These trials will fully comply with the relevant national regulations. Stora Enso will not carry out any trials considered by the authorities to be unsafe or otherwise not permitted. Currently we have no plans to plant genetically engineered trees in any of our commercial plantations.

### Progress

#### Wood from sustainable sources

Globally, Stora Enso owns or leases lands covering a total area of 933 000 hectares. We follow our progress on responsible forestry with a key performance indicator measuring the proportion of land in wood production and harvesting owned and managed by Stora Enso



Forests have important recreational value as a location for activities such as hiking, mushroom foraging, and hunting.

that is covered by forest certification schemes. Our target is to maintain the high level of 96%. In 2018, coverage amounted to 96% (97% in 2017<sup>1</sup>). The KPI was reviewed in 2018, and as of January 2018, the scope excludes forest management units whose primary purpose is not wood production and harvesting, such as test and pilot sites.

The proportion of third-party certified wood in our total wood supply was 76% in 2018. As of 2018, the share of certified wood excludes externally delivered certified wood. This decreased the certified share compared to previous years.

In Russia, we continued to work with WWF Russia during 2018. During the year, Stora Enso and WWF Russia organised training for all forestry certification group members in Karelia. The total area covered by group certifications in Russia was 1 312 500 hectares (1 336 000 hectares in 2017). Our Russian subsidiaries have been FSC-certified since 2006, and the lands leased by Stora Enso in Russia are included in the total certified area. For details about lands leased and managed by Stora Enso in Russia, see the table on page 54. We also continued to actively promote economically viable and ecologically responsible

<sup>1</sup> Recalculated according to the reviewed definition.



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forestry throughout Russia during 2018 through cooperation with the Boreal Forest Platform (BFP), a stakeholder forum organised by WWF Russia.

In Finland, Stora Enso offers FSC forest certification services for private forest owners. In 2018, the number of members of Stora Enso Wood Supply Finland's FSC group grew from around 20 to 135 private forest owners, which is equivalent to an increase in forest area from around 4 000 hectares to more than 30 000 hectares.

Since 2011, Veracel has promoted group certification among its tree farmers in Brazil. In 2014, Aspex, an association representing certified tree farms, took over the management of the certification process, using certificates granted by both FSC and Cerflor (PEFC). By the end of 2018, dual forest certificates had been obtained by 73 farmers (74 at the end of 2017) for areas totalling 38 054 hectares (37 831), including 15 992 hectares (15 895) planted with eucalyptus.

## We work actively with our stakeholders to promote sustainable forest and plantation management.

### Stakeholder concerns and dialogues

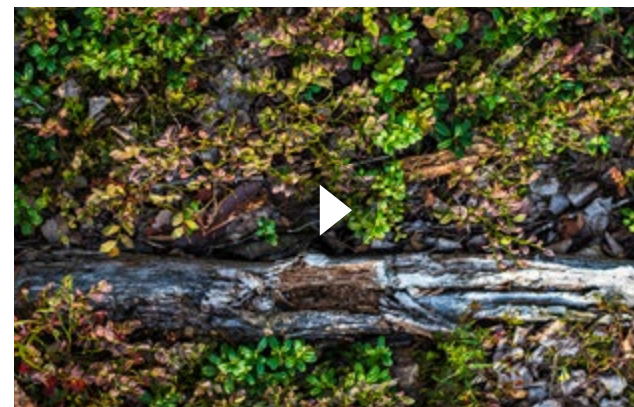
Stora Enso recognises that the areas where we operate are of value to different stakeholders. We have therefore adopted an integrated approach to land use around our plantations. This includes applied innovative land use models in Laos, Uruguay, and Brazil to benefit local farmers and communities as well the company. For details of these integrated land use practices, see pages 24–26.

In 2018, sustainable forestry particularly in the northern hemisphere was of stakeholder interest, with environmental NGOs widely calling for forests to be better protected.

In our stakeholder communications during the year, we stressed our commitment to forest certification, wood traceability, and open stakeholder dialogues, and that we always ensure that all the wood we use comes from sustainably managed sources. We believe that the most sustainable way to protect high conservation value is through national and regional multi-stakeholder processes. During the year, Stora Enso engaged in continuous dialogues with NGOs and other stakeholders. We also encouraged our business partners and NGOs to participate in such engagements.



We always ensure that the forests and plantations where we harvest wood are duly regenerated.



### How can we harvest trees and still protect biodiversity?

“The big challenge for modern forestry is to maintain biodiversity for future generations,” says **Göran Ericsson**, Professor in Wildlife Ecology at the Swedish University of Agricultural Sciences, in our video. “If we lose biodiversity, we might have very few options remaining if we are challenged with a crisis with global warming.”

Watch the video ➤ [storaenso.com/biodiversity](https://storaenso.com/biodiversity)



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Forests, plantations and lands owned by Stora Enso<sup>1</sup> as of 31 December 2018

Unit	Area	Certification coverage	Details of local landscapes and protected areas
Montes del Plata plantations and lands, Uruguay (joint operation with Arauco)	190 279 ha, of which 103 847 ha planted	PEFC and FSC for 190 279 ha	Mainly pasturelands and agricultural fields. Remnants of native ecosystems, such as grasslands and riparian forests, are protected within the company's lands.
Veracel plantations and lands, Bahia, Brazil (joint operation with Suzano)	213 594 ha, of which 75 865 ha planted for pulp production	CERFLOR (PEFC) for 186 158 ha; FSC for 186 158 ha	Dominated by pasturelands cleared from Atlantic rainforest between the 1960s and 1980s. 112 746 ha of Veracel's lands are protected, including a 6 063 ha Private Natural Heritage Reserve. These protected areas mostly consist of native forest remnants at different stages of regeneration.
Wood Supply, Estonia	137 ha, of which 124 ha planted		No protected areas within this area.

<sup>1</sup> Including operations where Stora Enso's shareholding is at least 50% and size of the area exceeds 100 hectares. In addition to the forest and plantation areas listed above, Stora Enso owns: 49% of Bergvik Skog, which owns 2.3 million hectares of land in Sweden; and 41% of Tornator, which owns 0.6 million hectares of forestland in Finland, 60 000 hectares in Estonia, and 12 000 hectares in Romania.

Forests and plantations leased and managed by Stora Enso<sup>1</sup> as of 31 December 2018

Unit	Area	Certification coverage	Details of local landscapes and protected areas
Wood Supply, Russia	369 464 ha	FSC group certificate	In Russia, protected areas are generally excluded from lease agreements. Areas amounting to 2 266 ha are protected as natural monuments including genetic pine reserves and watercourses.
Plantations and lands, Guangxi, China	83 270 ha, of which 77 326 ha planted	Chinese Forest Certification Council certificate (PEFC) for 83 270 ha; FSC for 83 270 ha	Mosaic landscape including agricultural crop fields, forest plantations and settlements. No native ecosystems are found in the leased lands. Areas totalling around 1 300 ha are protected (including 184 ha of public benefit forest), consisting of steep slopes, buffer zones and other important areas for watershed protection.
Montes del Plata	61 406 ha, of which 48 666 ha planted	PEFC and FSC for 54 409 ha	Mainly pasturelands and agricultural fields. Protected and sensitive areas are not included in lease agreements.
Veracel	11 050 ha, of which 4 212 ha planted	PEFC and FSC for 11 050 ha	5 404 ha of leased lands are protected. They mostly consist of native forest remnants at different stages of regeneration.
Trial plantations, Laos	3 805 ha, of which 3 113 ha planted	FSC for 3 113 ha	The plantations are located within a mosaic of intensive shifting cultivation lands and traditionally protected remnants of native forests with variable degree of human influence. One plantation area is located close to a National Biodiversity Conservation Area. The majority of the total area is covered by agroforestry production schemes.

<sup>1</sup> Including operations where Stora Enso's shareholding is at least 50% and size of the area exceeds 100 hectares.



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# Economic agenda

We help customers be sustainable, choose like-minded partners, and reward investors sustainably.

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# Customers

As the renewable materials company, Stora Enso develops and produces solutions based on wood for a range of industries and applications worldwide.



# 25

of our production units  
were registered in Sedex

### Opportunities and challenges

#### Demand for sustainable solutions

In many countries around the world, the global middle class is on average growing at a pace greater than the world population, which is leading to an increased demand for lifestyles that can seriously burden the planet's resources. At the same time, consumer awareness of limited natural resources, the environmental impacts of products, and social responsibility is growing, which places pressure on brand owners to pay more attention to product and supply chain responsibility. Combined with policies, regulations and economic incentives, these megatrends are also driving our customers to use renewable raw materials and to increase the recycling of products and materials.

In the long term, we believe societies will increasingly choose to replace fossil-based materials with renewable alternatives. Stora Enso's various wood and fibre-based products, including bio-based chemicals and biocomposites, are well-positioned to respond to this new market demand.

The European Commission (EC) has adopted legislative proposals on waste reduction within its Circular Economy Package, as well as strategies on plastics and the bioeconomy. These are designed to protect the environment from plastic pollution, underline the role of bio-based innovation, and enhance recycling and reuse initiatives, whilst promoting economic growth. The objective of the first-ever European Strategy for Plastics in a Circular Economy, adopted in January 2018, is to transform the way plastic products are designed, used, produced, and recycled in the EU. In May 2018, the EC proposed new EU-wide rules to target the 10 most common single-use plastic products that litter Europe's beaches and seas, as well as lost and abandoned fishing gear. Together these items account for 70% of all marine litter.

The objectives of these ambitions provide business opportunities for Stora Enso, such as the development of more sustainable bio-based alternatives that can replace fossil-based plastics.



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With tailored renewable packaging we can extend product shelf-life and help reduce food waste.

#### Our policies

##### A single set of values

**The Stora Enso Code** – the Stora Enso Code of Conduct, which constitutes a single set of values for all our employees and explains our approach to ethical business practices, human and labour rights, as well as environmental values. These values are applied wherever we operate.

#### How we work

##### Focus on customers and innovation

At Stora Enso, we are strengthening our expertise in renewable materials and products with high sustainability performance to meet the needs of our current and future customers. Our business is organised into five divisions, each with their own focus areas and products that cater to a broad range of customers. Our product portfolio includes various boards for packaging and printing, several

pulp grades, wood and fibre-based products for construction, biocomposites, energy pellets, paper products made from virgin and recycled fibre, and lignin, which can be used to replace fossil-based phenols. Stora Enso is also researching new uses for lignin, including formaldehyde-free binders, carbon fibre and energy storage applications. Our products are made from wood and wood fibre, which are renewable and recyclable raw materials. Stora Enso promotes and participates in successful recycling schemes, particularly for paper and board. We also sell and reuse a variety of valuable by-products and residuals from our production processes. For more information, see page 34.

We actively work with our customers to improve material efficiency and decrease the environmental impact of our products and related production processes. We also systematically measure customer satisfaction.

We foresee many possibilities for bio-based chemicals, bio-barriers, lignin, and biocomposites to meet industry and consumer demands for more sustainable solutions that can replace fossil-based materials.

**We actively work with our customers to decrease the environmental impact of our products.**

@storaenso October 16



30% of all food produced globally goes to waste. Something needs to be done. Learn more about how good packaging can help, in the Renewable Future podcast. #WorldFoodDay [bit.ly/2IXQ9qs](https://bit.ly/2IXQ9qs)

#### Prioritising product safety

Stora Enso's products covered by specific safety regulations and demands include food contact materials, materials for toys, packaging for pharmaceuticals, and construction materials. Our in-house product safety and quality control systems cover product development, raw material sourcing, and the manufacturing and delivery of products. We demand that our suppliers comply with our product safety requirements.

Our units producing sensitive packaging materials follow Good Manufacturing Practices, a set of widely recognised guidelines incorporated into EU regulations. All our Consumer Board mills and most of our Packaging Solutions mills are additionally certified according to recognised hygiene management standards. Food safety compliance for essential raw materials is also verified with our suppliers prior to any purchasing decision. We provide our customers with information on product hygiene and safety aspects through compliance declarations.

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We follow legislation designed to protect our employees' health, public health, and the environment. These include the EU's REACH, Biocidal Products, the Classification, Labelling, and Packaging Regulation, as well as relevant food contact legislation and demands concerning food safety. When producing food contact materials, we only use chemicals that have been specifically approved for this purpose, after verifying their safety and legal compliance. Many of our wood products are CE-marked to guarantee that they comply with the relevant EU legislation. Our divisions have Product Safety Networks in place, and all our mills work to ensure that their products meet the relevant product safety requirements. The ISO 22000, FSSC 22000, and FDA product safety certificates issued to many of our units further ensure that we apply a systematic approach to food safety issues. In addition, ISO 9001 certified quality management systems help our units to identify and meet customer requirements, and systematically improve product quality.

#### Certified sustainability in product stewardship

In 2018, Stora Enso's Wood Products division continued to be a member of the stakeholder committee of the Sustainable Biomass Program (SBP) certification system. The SBP certification system enables verification of the legal and sustainable sources of wood as well as energy and carbon data throughout the biomass supply chain. Our sawmills producing pellets as by-products also work with ENplus™ certification, which includes criteria for product quality, wood origin, and greenhouse gas emissions.

For unit-specific details of our sustainability certificates, see page 69.

#### Life cycle assessments and ecolabels

Stora Enso's experts collect product-specific life cycle inventory (LCI) data, which is typically used in life cycle assessments (LCAs) conducted by our own experts, our customers, or brand owners. The environmental performance of our paper and board products is reported in line with the voluntary Paper Profile initiative. Paper Profiles have been calculated for all our paper and containerboard products, and all main paperboard products.

More than 90% of our Paper division's own brands are covered by one or more recognised ecolabels, including the EU Ecolabel, the Nordic Ecolabel, and the German Blue Angel (Blauer Engel). Many of our graphical board brands are also available as EU Ecolabel certified. Ecolabel criteria cover the entire life cycle of a product, from the extraction of raw materials through to production, product use, and disposal. Ecolabels are voluntary tools created to help customers and consumers identify products and services with environmental excellence compared with other similar products.

During 2018, our Packaging Solutions division focused on a deeper understanding of LCA impacts through selected product specific deep dives, for example the EcoFishBox™. This more detailed information has been valuable in interaction with customers to truly understand the benefits of renewable packing solutions.

Many Stora Enso products are sold as FSC or PEFC-certified, which validates that they have been produced using wood from responsibly managed sources, and that the entire journey of the



In 2018, Stora Enso joined H&M and IKEA in the TreeToTextile initiative which aims to develop new textile fibres in a sustainable way at attractive cost levels.



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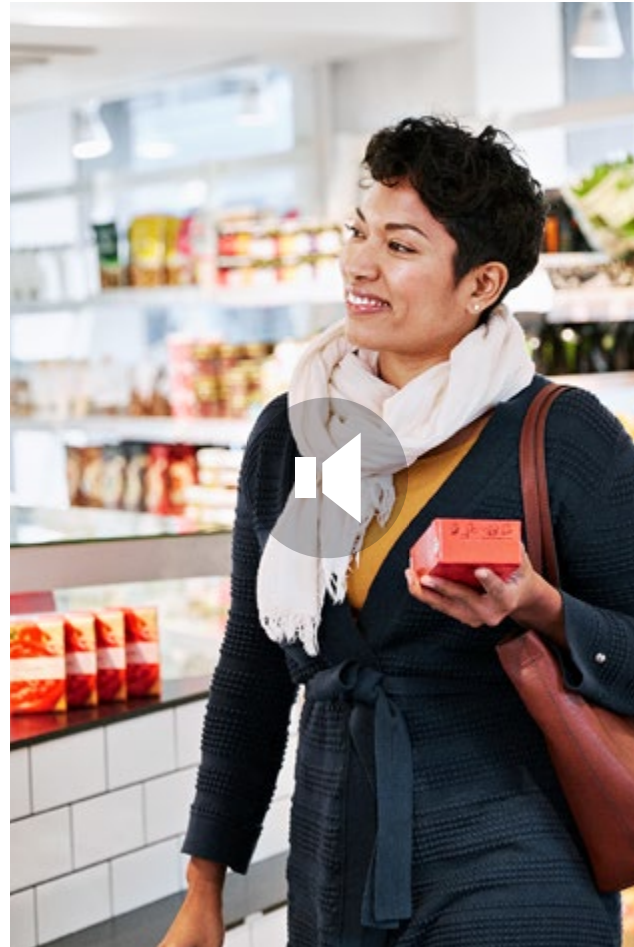
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#### How to consume in an environmentally friendly way

Consumers want to make the right environmental choices when they go shopping but how exactly do you go about it? How should we be thinking about the packages our purchases arrive in?

“One helpful guideline is to avoid unnecessary packaging and buy products and packaging you can reuse or recycle. Another aspect to keep in mind is to prefer renewable materials”, says **Tiina Pursula**, Director of Sustainability, Consumer Board division, Stora Enso.

Listen to the podcast at ▶ [storaenso.com/en/inspiration-centre](https://storaenso.com/en/inspiration-centre)

raw material – from forest to store shelf – has been verified by a third party. For more information about our responsible forestry and forest certification work, see pages 49–54.

Third-party verified Environmental Product Declarations (EPDs) offer transparent information about the footprint of a product throughout its life cycle. Most Stora Enso's wood products, such as Classic Sawn Timber and Cross Laminated Timber (CLT) have an EPD in place. EPDs are used by our customers to help optimise environmental performance using whole building LCA and to achieve green building certification. In 2018, Stora Enso developed the capability to help our customers perform whole building LCAs.

#### Progress

##### Continuous customer engagement

Customer needs are a key element in developing our products, services, and processes. We identify these needs by collecting systematic feedback from our customers and by exchanging expertise with them on various sustainability topics. When it comes to new products, such as lignin and biocomposites, we collaborate closely with customers to create applications that meet their needs throughout the value chain. For example, our Biomaterials division is collaborating with the textile industry to create a more sustainable and traceable value chain for clothing products.

Biocomposite granule production began at our Hylte Mill in Sweden in 2018. Consisting of wood fibres and synthetic polymers, these granules significantly reduce the amount of fossil-based raw materials in plastic products. The DuraSense™ product family is suitable for a wide range of applications from consumer goods to industrial applications including furniture, pallets, hand tools, automotive parts, beauty and lifestyle products, toys and items such as kitchen utensils and bottle caps. Significant environmental benefits can be achieved through taking customer insights onboard early in the product innovation process. In 2018, the Husqvarna Group named Stora Enso its most innovative supplier. Together, the companies created a cone shaped box for chainsaws that has enabled Husqvarna to save on transportation costs and significantly reduce CO<sub>2</sub> emissions in its logistics chain.

We provide training and support for customers on sustainability topics. In 2018, Stora Enso conducted four Paper & Print Academy training sessions with over 60 participants from customer companies. The sessions enable participants to follow the entire supply chain – from forest management and harvesting to the final paper product. They encourage discussions about certificates, ecolabels, on-product labelling, and efficient ways to print and convert certified paper.

##### Enhancing paper cup recycling processes in Europe

Our Consumer Board division continues to support the Alliance for Beverage Cartons and the Environment (ACE). In 2018, ACE launched a dedicated platform across Europe to drive the industry's engagement in beverage carton recycling, including the non-paper components of packages. The new platform will be based in

## More than 90% of our paper brands are covered by ecolabels.

Frankfurt and support ACE's role as the industry's voice towards EU policy makers. It will also closely collaborate with national carton industry associations, member company initiatives and other stakeholders.

Our Consumer Board division also works with the Paper Cup Alliance, where Stora Enso is actively involved with many of our customers and brand owners to facilitate recycling of these products in the UK.

##### Partnering with the food industry to combat food waste

To help reduce food loss and waste globally, Stora Enso joined Food Reform for Sustainability and Health (FReSH), an initiative by the World Business Council for Sustainable Development (WBCSD) and EAT, which is the science-based global platform for food system transformation. With business solutions that are aligned with science-based targets, FReSH aims to create healthy, enjoyable food for all, produced responsibly within planetary boundaries, by 2030. Renewable packaging plays a significant role in this value chain. With safe and intelligent packaging, we can for example guarantee food safety, extend the shelf-life of products, or design right-sized packaging to help cut food waste in smaller households.

##### Sharing information as a responsible supplier

By the end of 2018, 25 (26 in 2017) of Stora Enso's production units were registered in the Supplier Ethical Data Exchange (Sedex). Sedex gives us a platform to share information with customers on our compliance with the Ethical Trading Initiative's base code and other key sustainability topics throughout the supply chain. Sedex makes it easy for suppliers to share sustainability information with multiple customers in an agreed format and level of detail, reducing the need for individual systems and queries. We update the sustainability information regularly in the Sedex platform. When our units are audited through Sedex Member Ethical Data Audits (SMETA), they make the summary audit reports visible to customers in the platform.

Stora Enso is also a member of the ethical supplier rating system Ecovadis. In January 2019, we obtained a score of 82/100 and were included in the top 1% of industry supplier performers, achieving the highest recognition level, Gold.

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## Suppliers

In addition to wood and fibre, Stora Enso sources other raw materials, products, and services from over 20 000 suppliers globally. We have strict sustainability requirements for all of them.



**95%**  
of supplier spend was covered  
by our Supplier Code of Conduct

### Opportunities and challenges

#### Driving change in our supply chains

As a global business with an extensive worldwide supplier base, Stora Enso can use its purchasing power to drive its suppliers to make their operations more sustainable. This helps create a larger pool of more sustainable suppliers globally. On the other hand, developing a comprehensive understanding of a supplier's sustainability performance remains a challenge, even with very strict sourcing processes in place.

Although Stora Enso works in a variety of regulatory environments, we consistently respond to the demands of our stakeholders concerning transparency and the sustainability performance of our suppliers. Similarly, we are looking for ways to address the growing stakeholder demand for less plastic when sourcing materials. Digitalisation brings new opportunities to increase supply chain transparency. Imposing sustainability requirements on our direct suppliers encourages them to develop their capacity to meet such new demands and improve their overall performance.

**In 2018, we began using sustainability criteria in every tender, for both new and existing suppliers.**



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## Our policies

### Strong guidance for responsible sourcing

The Stora Enso Supplier Code of Conduct (SCoC) is the cornerstone of our approach to responsible sourcing. The code is a legally binding document that imposes supplier sustainability requirements on human and labour rights, occupational health and safety, environmental commitments, and responsible business practices. It applies to all our sourcing categories globally.

Several other Stora Enso policies and documents also support responsible sourcing, including our:

- **Sourcing Policy** – our statement on the sourcing framework and objectives at Stora Enso.
- **Sourcing Guideline** – defines how sourcing should be executed, managed, and controlled.
- **Practical Instructions for Stora Enso Suppliers** – detailed guidance and examples on the topics included in the SCoC.
- **Comprehensive internal guidance** for our Sourcing and Logistics personnel to help them address challenges related to sustainability.
- **Policy on Wood and Fibre Sourcing, and Land Management** – includes standards that apply to our wood and fibre suppliers.
- **Environmental Guidelines** – guidance on how to reduce our environmental impact through sourcing.
- **Human Rights Policy, Energy and Carbon Policy, Occupational Health and Safety Policy** – include commitments that apply to our suppliers.

## How we work

### Supporting supplier sustainability

Materials and products sourced by Stora Enso include wood and fibre-based materials such as pulp and Paper for Recycling (PfR), chemicals, fillers, energy, fuels, and spare parts, as well as maintenance, logistics, and IT services. In 2018, purchases of materials, goods, and services represented 50% of our total variable cost (49% in 2017) while fibre procurement accounted for 50% (51%).

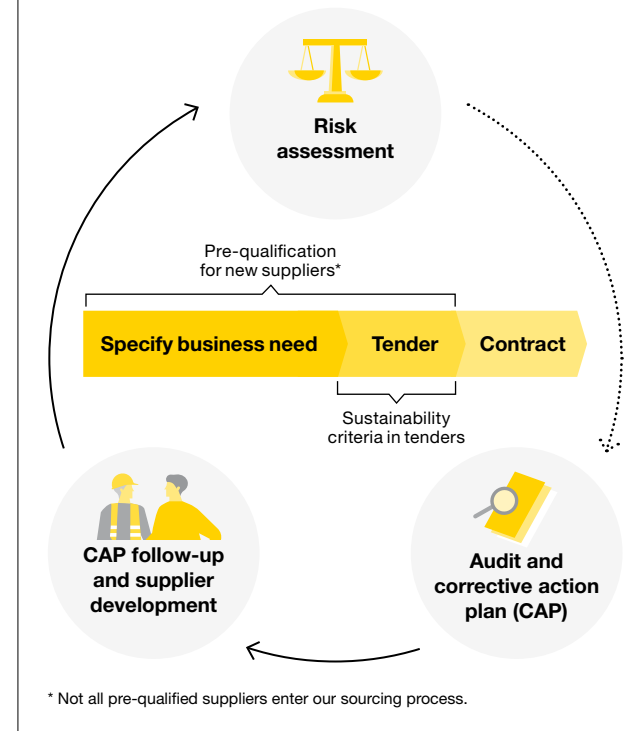
For Stora Enso, responsible sourcing means drawing on our deep commitment to sustainability and proactively driving change in our supply chains. We address the concerns of key stakeholders, comply with regulatory frameworks, adhere to best practices, and manage supply risks. These principles are put into practice every day by our employees working with sourcing.

Sourcing is a centrally led function at Stora Enso, serving the entire Group and enabling clear and transparent decision-making. Sourcing initiatives are reviewed and resolved by dedicated committees that meet when the sourcing need is specified, during the tendering process, and when a contract is drafted.

All suppliers wishing to do business with Stora Enso must first pre-qualify, during tendering, or at the latest before a contract is drafted. Instead of using our own supplier numbering, we use D-U-N-S® numbering, which is a globally recognised system for identifying companies. To pre-qualify, suppliers must complete

## Our process for responsible sourcing

Risk assessments and audits can be conducted prior to pre-qualification and at any stage of the supplier contract.



a questionnaire, submit confirmation of their compliance with our SCoC, and complete our safety management online training. Our suppliers are also asked to provide information about their own suppliers, including sub-suppliers operating in high-risk countries.

In 2018, we began using sustainability criteria in the tendering phase of our sourcing process and collecting data on supplier performance. Suppliers now need to respond to a set of questions about their financial stability, accident rates, and carbon dioxide (CO<sub>2</sub>) emissions, which contributes to our ambitious science-based targets. These criteria are part of every tender, regardless of previous contracts with the same supplier.

### Risk mapping and auditing

In addition to enforcing our SCoC, we help our suppliers improve their sustainability performance. Our topic-based “deep dives”



We purchase materials such as pulp, chemicals, and fillers to make the best out of our raw material, wood.

or thorough reviews help us better understand the operations, opportunities, and challenges of a supply chain related to a specific topic or category. They also serve the information needs of our customers. In addition, we conduct on-site visits and focused audits to monitor and improve supplier sustainability performance. Focused audits are conducted based on risk assessments or concerns raised by our stakeholders.

Stora Enso's supplier sustainability risk mapping tool, created in collaboration with an international non-profit organisation, supports our purchasers in making risk assessments. This tool was updated in 2018 to provide a more detailed risk assessment of sub-categories such as the different energy forms under the sourcing category for energy. Based on a pre-evaluation of a supplier's social and environmental risk profile, they may be selected for a third-party sustainability audit, conducted together with our purchaser.

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#### Supplier non-conformances

Any suspected SCoC non-conformances brought to our attention through our many grievance channels are investigated and followed up. Similarly, any non-conformances identified during audits are followed up with supplier meetings where the findings are discussed, and corrective action plans devised. Suppliers must sign up to these plans, and our purchasers follow up on their implementation. If a supplier does not take the necessary corrective actions, new discussions are held to examine the reasons, and at a higher management level if necessary. In cases when a supplier is not willing to improve their performance, the relationship is terminated.

#### Contractors

Some of our suppliers are contractors hired for long-term work, such as forest and plantation management, and others on a shorter-term basis, for example in large-scale investment or mill maintenance projects. Our SCoC and sourcing process applies to all contractors. While contractors are primarily responsible for their own employees, we strive to ensure that everyone working on our premises is treated fairly and receives adequate safety training.

#### Pulp procurement

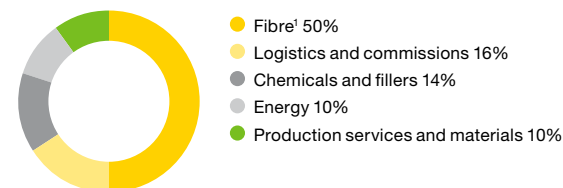
Most of the pulp used in Stora Enso's operations is produced internally at our mills. For quality and logistical reasons, a small proportion of the pulp for our paper and board production is purchased from external suppliers. As with wood procurement, we ensure that all the pulp we purchase is sustainably sourced by applying third-party-verified traceability systems and forest certification systems, and by complying with the relevant regulations. For more information about our approach to sustainable wood procurement, see page 50.

#### Paper for Recycling

Stora Enso sources paper for recycling (PfR) from local authorities and waste management companies. For more details of our PfR use, see page 35.

#### Breakdown of raw material and service costs

% of our total variable costs



<sup>1</sup> Wood, Paper for Recycling and purchased pulp



#### Buying with care

Ensuring that all our over 20 000 suppliers are committed to sustainability is a challenge like no other, but by supporting them in this process we can help bring about powerful change. Every day this ambitious task is driven by our employees in charge of purchasing.

"It's vital that you know the product or service you're buying," says **Markus Koskinen**, Procurement Manager in charge of domestic land transports from our mills in northern Finland. "Not only is it important to understand things like pricing and product quality, but a purchaser must also know what can be expected of the supplier – regarding human rights, for example."

Read the full article at ▶ [storaenso.com/sustainability](https://storaenso.com/sustainability)

#### Progress

##### New sustainability criteria in tenders

Stora Enso's key performance indicator (KPI) for responsible sourcing measures the proportion of our total supplier spend covered by our SCoC, including all categories and regions. By the end of 2018, 95% of Stora Enso's total spend on materials, goods, and services was covered (95% at the end of 2017), which meets our target to maintain the level of 95%. 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 included in our total supplier spend.

In 2018, we began using sustainability criteria in the tender phase of each sourcing process and by year-end, they were included in the majority of tenders. These criteria will help us make more balanced sourcing decisions and create incentives for our suppliers to invest in sustainability reporting. Supplier responses to our inquiries show that many do not collect this data or are not familiar with it. On the other hand, many have also indicated they will begin measuring the requested data.

We updated our risk assessment tool in 2018 to provide a more detailed risk assessment of sub-categories, conducted by internal experts, and to have more of a focus on human rights. After

screening our active suppliers using the updated tool, we identified 239 high-risk suppliers. By the end of 2018, about 7% of high-risk suppliers were audited.

In 2018, we also began efforts to automate the collection of supplier sustainability performance data, starting with their carbon footprints. The goal is to use search robotics and artificial intelligence to access CO<sub>2</sub> data in publicly available supplier reporting. In our initial screening, slightly over 200 out of our approximately 1 300 top suppliers by spend had publicly reported their CO<sub>2</sub> data.

Safety Trail is a safety capacity building e-learning tool for existing suppliers and a mandatory element in the pre-qualification process for potential suppliers. At least one management-level employee of the supplier must complete the training and commit to sharing it within their organisation. Our target for 2018 was to cover 75% of our total supplier spend, and this target was achieved with a coverage of 80% by year end.

In 2018, we improved our systematic analysis of supplier data to identify suppliers with a statistically higher accident rate than average, made possible by our Group-wide reporting platform that provides more data than was previously available. We discussed the results with the relevant suppliers and will follow up on their safety performance. For more information about Stora Enso's approach to occupational safety, see page 18.



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Focused supplier audits are conducted based on risk assessments or concerns raised by our stakeholders.

#### Continued focus on risk-based supplier audits

In 2018, Stora Enso's third-party supplier audits continued to focus on suppliers with heightened sustainability risk, as identified by our risk assessment tool. Other focus areas were the chemical value chain, energy sourcing, and people-intensive sourcing categories such as service providers and land logistics.

During 2018, we conducted a total of 52 third-party supplier audits (26 in 2017). These audits revealed non-conformances particularly related to working hours, basic worker rights, and emergency preparedness. Several non-conformances were also related to missing documentation and policies. No supplier relationships needed to be terminated in 2018 (none in 2017). 23 supplier visits were conducted using the purchaser checklist template introduced in 2017.

#### Sourcing developments in China and the USA

##### Coal sourcing for Beihai Mill in China

In southern China, coal is currently the only feasible energy source for an industrial facility as large as Stora Enso's Beihai Mill. However, as part of our long-term planning, we are investigating opportunities to use more renewable energy – for more information, see page 46. In 2018, we continued to look for more sustainable alternatives to coal.

Following a thorough mineral supply chain audit in China, a rare opportunity in the country, we continued to follow up on corrective actions in 2018. Unfortunately, not enough improvement was made by our current supplier and we continued to look for alternative coal suppliers with the aim to identify a supplier that best fulfils our



“Integrating human rights into supply chain management is a daunting task. Stora Enso is taking a strategic and pragmatic approach, but I encourage them to continuously look for ways to improve their work.”

**Peter Nestor**  
Director, Human Rights  
BSR

criteria. Many coal suppliers in the Chinese market are not familiar with detailed sustainability requirements such as our Supplier Code of Conduct, which makes the search for the ideal supplier challenging. However, after several attempts, we made progress in 2018 in pre-qualifying alternative coal mines with potentially better sustainability performance than our current supplier.

##### Sourcing sugar industry by-products in the USA

Stora Enso's demonstration plant in Raceland, Louisiana, USA, validates extraction and separation technologies by converting cellulosic biomass into highly refined xylose sugars. The first batches of xylose were produced in 2018. For feedstock, the demonstration plant purchases bagasse, a residual from the sugar-making process, from a nearby sugar mill.

Due to the seasonal nature of the work and the shortage of available local workers, the sugar industry in Louisiana is dependent on seasonal foreign migrant workers for harvesting, transporting, and sugar-making during a compressed 100-day period of production. Since there is no federal legislation in the United States, nor state legislation in Louisiana to directly limit maximum working hours, Stora Enso has been monitoring labour rights in its bagasse supply chain for several years to ensure that working hour schedules do not have adverse impacts on worker health and safety. In 2018, we continued to monitor and support our bagasse supplier in adopting our SCoC requirements, while continuously pushing for improvements.

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## Investors

We aim to keep investors informed about our progress and future direction with consistent and transparent communications and reporting.



ESG was discussed in  
**7%** of investor meetings

### Opportunities and challenges

#### Sustainability changing the investment industry

Investors are increasingly recognising the importance of corporate sustainability in their investment decision-making by exploring ways to integrate environmental, social, and governance (ESG) performance into their investment strategies. In addition to the growing interest in sustainability aspects, investors perceive sustainability as a valuable growth driver for companies and sustainability reporting as an important tool in identifying investment opportunities that can generate long-term shareholder value. Hence, companies are encouraged to aim for more sustainable operations. Simultaneously, investors expect financial rewards from their investments.

At Stora Enso, we believe that long-term financial success results from truly sustainable operations. Stora Enso's Investor Relations work is guided by several laws and regulations, including the EU's Market Abuse Regulation (MAR), the Finnish Securities Markets Act, Nasdaq rules in Helsinki and Stockholm, and the standards of the Finnish Financial Supervisory Authority.

### Our policies

#### Guiding our Investor Relations

Company policies and guidelines related to Stora Enso's Investor Relations include our:

- **Disclosure Policy** – a set of rules covering all our communications with investors and other stakeholders. Encompasses insider guidelines, closed periods, communications governance, and communications procedures.
- **The Stora Enso Code** – the Stora Enso Code of Conduct, applied to all our operations around the world, including Investor Relations.

**Stora Enso has the long-term aim to secure funding partners that have sustainability as a fundamental part of their agenda.**



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## How we work

### Sustainability as a key metric

Many investors today are committed to integrating ESG factors into their investments. Aspects of sustainability, such as global warming and sustainable forest management, are important to Stora Enso's investors. Our main shareholders are long-term investors that place high value on sustainable business practices and continuously monitor and evaluate our performance. For more information on how we create value with a sustainable business model, see our **Strategy 2018**. For details of Stora Enso's ownership distribution see our **Financials 2018**.

Timely and transparent communication with investors is a top priority for Stora Enso. We actively maintain open dialogue with our investors on ESG matters through face-to-face meetings, conference calls, seminars, and webcasts. We also regularly share updated information on our sustainability performance with our investors in our Interim and Annual Reports, stakeholder letters, web updates, and investor newsletters. We regularly participate in sustainability events of interest to investors. For more information about our investor relations, see [storaenso.com/investors](https://storaenso.com/investors).

Stora Enso's Sustainable Finance strategy is an integrated part of our overall strategy. Stora Enso should have access to sufficient and competitively priced funding at any time to be able to pursue its strategy and achieve its targets. In order to accomplish this, our emphasis is on debt capital markets funding. In the long-term, Stora Enso's aim is to secure funding partners that have sustainability as a fundamental part of their agenda. We aim at contributing to a scenario where the sustainability of business is a key metric for credit risk assessment. We aim to influence and develop the financial markets to ensure that sustainability becomes an integral part of decisions and credit evaluation.



Investors are increasingly recognising the importance of corporate sustainability in their decision-making.

## Progress

### ESG topics embedded in investor relations activities

In 2018, ESG topics were discussed in 7% of all Stora Enso investor activities. More than 60 external participants, representing 9% of all participants, joined these discussions in one-to-one meetings, conference calls, a group meeting, and a webinar. The focus was on Stora Enso's sustainability strategy and activities.

During the year, we also continued our strategy to enhance the availability of ESG information to investors, and to prioritise Stora Enso's participation in questionnaires and assessments for the ESG index and ratings schemes that are most material for our investors.

In September 2018, Stora Enso's CFO signed an A4S Statement of Support to promote improved disclosure of climate risks and opportunities. The Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) recommends a framework for disclosing climate related risks and opportunities that goes beyond current practices.



### Not just talk: the role of business in combatting global warming

"Things do not get done unless they are measured," says our CFO **Seppo Parvi**. "It's important to make sure that climate efforts are not talk only, but that they become a part of the company's daily work. Setting targets and reporting on them are proof of our progress. Making targets public also creates pressure to reach those targets, to stay on track – or to publicly explain why they were not reached."

Read the full article at › [storaenso.com/sustainability](https://storaenso.com/sustainability)

### Green funding at Stora Enso

In 2018, Stora Enso launched a Green Bond Framework as part of its Sustainable Finance approach. The ambition is to offer a type of loan that supports sustainability-focused fixed-income investors, and to report the direct environmental impacts of some investments and business activities. Stora Enso strives to build confidence and a track record with fixed-income investors by being informative and transparent. In December 2017, Stora Enso signed a Revolving Credit Facility (RCF) loan where part of the pricing is based on Stora Enso's ability to reduce greenhouse gas emissions per tonne of pulp, paper, and board produced, in accordance with the Science Based Targets initiative.

The Green Bond Framework is aligned with the 2017 version of the Green Bond Principles (GBP) published by the International Capital Markets Association (ICMA). To confirm such alignment, Stora Enso commissioned Sustainalytics as an external reviewer to provide a third-party opinion on the framework.

@storaenso October 24



Reasonable assurance for data & externally verified targets can contribute to better financing decisions. Stora Enso's ability to deliver on its #ScienceBasedTargets has been tied to the pricing of a revolving credit facility. @MorrisNoel #CMSingapore18 @wbcsd

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## ESG indices and other external recognition in 2018



### Euronext Vigeo

Stora Enso is listed in the Euronext Vigeo World, Europe, and Eurozone 120 indices as one of the 120 most advanced companies in terms of environmental, social, and governance performance.



### FTSE4Good Index

Stora Enso is included in the FTSE4Good Index Series. These indices measure the performance of companies that meet globally recognised corporate responsibility standards.



### ECPI Ethical Indices

Stora Enso is included in the ECPI EMU Ethical Equity index, which covers environmental, social, and governance criteria.



### ISS-oekom Research

Stora Enso is classified as "Prime" by ISS-oekom Research's environmental, social, and governance rating methodology. In 2018, Stora Enso also received the best possible Environmental & Social quality score by the Institutional Shareholder Services (ISS).



### MSCI

Stora Enso is included in several of MSCI's ESG indices.



### Ecovadis

Stora Enso was included in the top 1% (industry suppliers) of the Ecovadis ethical supplier rating system, and achieved the highest recognition level (Gold).



### OMX GES Sustainability Finland index

Stora Enso is included in the NASDAQ OMX and GES Investment Service's OMX GES Sustainability Finland index.



### STOXX ESG indices

Stora Enso is included in several STOXX ESG indices. These indices rate leading global companies according to environmental, social, and governance criteria.



### Ethibel

In 2018, Forum Ethibel included Stora Enso in the Ethibel PIONEER Investment Register which indicates that the company can be qualified as a sector leader in terms of Corporate Social Responsibility (CSR). Stora Enso is also listed in the Ethibel Sustainability Index Excellence Europe.



### Transition Pathway Initiative (TPI)

In 2018, Stora Enso was top-ranked in greenhouse gas management and performance by the TPI. An asset owner-led and asset manager-supported global initiative, the TPI assesses companies' preparedness for transition to a low carbon economy, supporting efforts to address climate change.



### CDP

CDP has included Stora Enso on its new 2018 Climate A List, which identifies the global companies that are taking leadership in climate action.



### Sustainability Reporting Awards Finland

Stora Enso's Sustainability Report 2017 was ranked best by the media in a competition organised by seven not-for-profit organisations representing various sectors of society. The report was short-listed among the 10 best reports in the overall competition.



### ReportWatch

Stora Enso's Sustainability Report 2017, part of our Annual Report, was included in ReportWatch's Best Practices in Annual Sustainability Reporting.



### WBCSD

Stora Enso's Sustainability Report 2017 was included in the top ten sustainability reports globally according to the 2018 Reporting matters publication by the World Business Council for Sustainable Development (WBCSD).



### Sustainable Brand Index

Stora Enso was ranked "Industry Leader 2018" in the Sustainable Brand Index™ B2B, which is the largest brand study on sustainability in the Nordics.



### Equileap

Stora Enso was ranked number 12 globally and the best performing Finnish company in gender balance and gender equality by Equileap, an organisation set up to accelerate progress toward gender equality at work.

### Most sustainable company 2018

In November 2018 Stora Enso was ranked as the most sustainable listed company in Sweden by Dagens Industri, Aktuell Hållbarhet, and Lund University School of Economics and Management.



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# Data and assurance

Sustainability 2018 is assured by an independent third-party assurance provider with a level of limited assurance. A level of Reasonable Assurance has been provided for our direct and indirect fossil CO<sub>2</sub>e emissions.

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# Reporting scope

At Stora Enso, we regularly review the priorities in our Sustainability Agenda and ensure that our reporting duly addresses them. When defining the materiality of issues impacting our sustainable business model, we consider the expectations of our major internal and external stakeholders. For more information on our approach to materiality, see page 7.

#### Data boundaries

Unless otherwise stated, the Group's consolidated performance data expressed in this report covers the parent company, Stora Enso Oyj, and all companies in which we hold over 50% of voting rights directly or indirectly. The consolidated figures and reporting on human rights, occupational safety, community, and forests, plantations, and land use also include the 50% owned joint operations Veracel in Brazil and Montes del Plata in Uruguay, due to their materiality to the Group's sustainability impacts and stakeholder interest. Otherwise the consolidated figures do not include equity-accounted investments where Stora Enso's ownership is between 20% and 50%, or companies in which our ownership share is less than 20%.

Consolidated environmental and energy data covers our production units. Stora Enso's sawmills and converting facilities are excluded from water, energy, and certain CO<sub>2</sub> indicators that are normalised per tonne of sales production unless otherwise specified in the respective footnotes. This is due to the lower materiality of sawmills and converting facilities in the Group's related performance and different metric for sales production (cubic metre and square metre, respectively), compared with board, pulp and paper mills (tonnes).

Human Resources (HR) data is derived from separately collected statistics. Unlike in our financial reporting, consolidated HR data in this Sustainability report excludes employees of our 50% owned joint operations Montes del Plata and Veracel. The HR data presented covers our permanent and temporary employees as of 31 December 2018 and are expressed as a headcount (rounded to the nearest 10). Certain administrative functions and sales offices are not included in the Group's consolidated occupational health and safety (OHS) data due to data availability and lower occupational safety risk compared to production units.

#### Significant changes in scope during 2018

During 2018, there were no significant organisational changes affecting our sustainability reporting. The divestment of the wood

supply company in Rio Grande do Sul, Brazil was completed during the second quarter. For more information on the Group's acquisitions and disposals, see [note 4](#) in **Financials 2018**.

Our principle in our environmental and energy reporting is that new production units are included in the reporting after production has started. In 2018, our Packaging Solutions division inaugurated a new corrugated packaging unit in Wujin, China, and our Wood Products division started the production of biocomposites in Hylte, Sweden. Both new units are included in the reporting.

In our environmental and energy reporting, divestments and closures are managed according to the international Greenhouse Gas Protocol. This means that figures for historical performance are recalculated following the removal of divested units from the baseline when necessary. However, closed units are maintained in the environment and energy target and trend calculation baselines as per the internationally accepted rules.

#### In accordance with the GRI Standards

Our reporting is prepared in accordance with the GRI Standards: Core option. This means that our reporting covers all the General Disclosures, as well as the Topic-specific Standards we deem material. Our [GRI Content Index](#) lists our disclosures with reference to the GRI Standards, and refers to the locations (supported by URL links) where these issues are addressed in our reporting. The location references are complemented in the index with additional information, such as explanations on reasons for omissions as necessary.

Impacts that make sustainability topics relevant to us may occur outside Stora Enso, or they may only be material for some of our operations or locations. When our reporting on a sustainability disclosure only concerns specific units, geographical regions or other data collection boundaries, based on the identified materiality, this is specified in connection with the respective disclosure.

#### External assurance

This report 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 appears on page 72. PwC has provided a limited level of assurance covering the entire contents of this report, based on an assessment of materiality and risk. For the fourth year running, a level of reasonable assurance has been provided for Stora Enso's reporting on direct and indirect fossil CO<sub>2</sub>e emissions (Scopes 1 and 2).

#### The UN Global Compact

Stora Enso supports the ten principles of the United Nations Global Compact, an initiative set up in 2000 to encourage businesses worldwide to embed responsibility into their operations. We respect and promote these principles throughout our operations, and report on our progress in this report. We annually upload our Communication on Progress to the [UN Global Compact website](#) as a public record of our commitment.





# Data by production unit

This table presents unit-specific information on environmental performance, production, certificates and numbers of employees. Joint operations are excluded.

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	Number of employees <sup>a)</sup>	Production capacity <sup>b)</sup>	Products	Recovered fibre <sup>c)</sup>	Certificates								Fossil CO <sub>2</sub> emissions												
					ISO 9001	ISO 14001	ISO 22000	FSSC 22000	FDA	ISO 50001	OHSAS 18001	FSC® CoC	PEFC™ CoC	Process waste to landfill	Hazardous waste <sup>d)</sup>	SO <sub>2</sub> <sup>e)</sup>	NO <sub>x</sub> as NO <sub>2</sub>	Direct CO <sub>2</sub> <sup>f)</sup>	Indirect CO <sub>2</sub> <sup>g)</sup>	CO <sub>2</sub> , on-site transportation <sup>h)</sup>	Carbon neutral CO <sub>2</sub> , biomass fuels <sup>h)</sup>	COD	AOX	Phosphorus	Nitrogen
Unit		1 000 t																							
		t			t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	t	1 000 m <sup>3</sup>	
Belgium																									
Langerbrugge	338	555	④	x	x	x			x	x	x	x	11 239	58	2	303	123 512	22 626	1 433	482 312	1 112	0.7	3.5	11.5	6 865
China																									
Beihai	418	470	①		x	x		x	x	x	x	255	14	214	224	467 372	77 898	1 049	37 863	183		0.8	13.4	4 293	
Dawang	222	140	④	x	x	x			x	x		1					118 252	2		45			1.4	968	
Dongguan	1 196	30*	③		x	x				x	x		5				5 517	6		14		0.0	0.6		
Jiashan	399	20*	③		x	x				x	x		3				1 558	9			0.0	0.0	0.0	6	
Qian'an	1 901	25*	③		x	x				x	x		6				8 667	68						1	
Wujin <sup>g)</sup>	225	5*	③										1				135								
Estonia																									
Tallinn	35	18*	③		x	x	x				x	10				81	790	24						1	
Finland <sup>h)</sup>																									
Anjala/Ingerois	569	435/280	④ ①		x	x		x <sup>i)</sup>		x	x	x		89	5	277	94 508	114 680	1 497	158 788	4 377		6.9	176.3	10 120
Enocell	263	490	②		x	x				x	x	x	6 945	57	87	912	55 137	-1 471	158	1 449 845	8 340	54.6	3.9	55.7	21 460
Heinola Fluting	175	300	①		x	x	x			x	x	x	1 024	170	608	319	132 950	9 596	160	181 916	1 260		2.4	35.3	1 294
Imatra	1 318	1 200	① ②		x	x	x	x	x	x	x	x	484	325	106	2 158	193 938	66 271	1 566	2 178 384	19 596	94.0	15.0	200.0	62 111
Kristiinankaupunki	51	20*	③		x	x	x			x	x	x				192	80	7						1	
Lahti	283	130*	③		x	x	x			x	x	x		343			5 488	198		6		0.0	0.3	27	
Oulu	762	1 080	④ ②		x	x				x	x	x	13	290	383	1 029	262 707	30 185	2 901	1 117 530	7 580	39.3	9.8	75.0	17 741
Sunila	232	375	② ⑤		x	x				x	x	x	4 870	154	103	669	27 304	5 300	439	807 955	4 825	30.0	5.5	14.9	12 921
Varkaus	307	390	①	x	x	x				x	x	x	2 570	168	95	566	63 011	16 872	323	748 327	1 685		3.2	58.0	14 932
Veitsiluoto	536	790	④		x	x				x	x	x	460	29	316	997	201 255	43 436	296	1 069 672	8 559	24.3	6.0	134.0	10 211
Germany																									
Maxau	426	530	④	x	x	x				x	x	x	5	425	1	290	99 854	141 090	3	324 029	1 717	0.4	3.5	12.6	5 584
Sachsen	251	310	④ ②	x	x	x				x	x	x		2	3	148	169 671	2 159	836	34 736	709	0.4	0.4	13.3	3 657
Latvia																									
Riga	159	105*	③		x	x	x			x		x		72		2	2	594	190						15
Lithuania																									
Kaunas	54	20*	③		x	x	x				x		3				274	61						3	

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	Number of employees <sup>a)</sup>	Production capacity <sup>b)</sup>	Products	Recovered fibre <sup>c)</sup>	Certificates								Fossil CO <sub>2</sub> emissions										Process water discharges			
					ISO 9001	ISO 14001	ISO 22000	FSSC 22000	FDA	ISO 50001	OHSAS 18001	FSC® CoC	PEFC™ CoC	Process waste to landfill	Hazardous waste <sup>d)</sup>	SO <sub>2</sub> <sup>e)</sup>	NO <sub>x</sub> as NO <sub>2</sub>	Direct CO <sub>2</sub> <sup>f)</sup>	Indirect CO <sub>2</sub> <sup>g)</sup>	CO <sub>2</sub> , on-site transportation <sup>h)</sup>	Carbon neutral CO <sub>2</sub> , biomass fuels <sup>i)</sup>	COD		AOX	Phosphorus	Nitrogen
Unit		1 000 t									t	t	t	t	t	t	t	t	t	t	t	t	t	1 000 m <sup>3</sup>		
Poland																										
Łódź	267	135*	③		x	x	x				x	x	x	1		3	3 062	9 466								
Mosina	104	20*	③		x	x	x				x	x	x	63			441	1 818	31					1		
Ostrołęka Corrugated <sup>l)</sup>	256	145*	③	x	x	x	x				x	x	x	27	111	342	309 067	201 044	1 782	426 471	918		5.6	18.3	8 750 <sup>j)</sup>	
Ostrołęka Containerboard <sup>l)</sup>	999	723	① ④		x	x					x	x	x	2				12 448	111							
Tychy	161	135*	③		x	x	x				x	x	x	5			2 761	5 296	163					13		
Russia																										
Arzamas	168	100*	③		x	x	x				x			16	9	1	5	3 602	14 179	81		9		0.0	0.4	29
Balabanovo	342	165*	③		x	x	x				x			84	5	1	2	4 675	21 359	108		12		0.1	0.4	28
Lukhovitsy	135	100*	③		x	x	x				x			61	3		2	2 546	13 975	113		3		0.0	0.1	20
Sweden																										
Falu Rödfärg	k)		⑥		x	x								8 309	1		480									
Fors	573	455	①		x	x		x	x	x	x	x	x	160	5	104		87	616	265 252	1 671	0.5	1.7	27.9	4 204	
Hylte	420 <sup>h)</sup>	480	④	x	x	x					x	x	x	51		122	4 451	156	1 027	252 258	907	1.4	2.0	19.7	5 514	
Jönköping	180	100*	③		x	x							x	33			200	498	42						10	
Kvarnsveden	473	550	④		x	x					x	x	x	155	15	105	27 227	274	12	216 133	1 924	0.5	2.1	46.5	7 901	
Nymölla	575	485	④ ②		x	x					x	x	x	158	509	486	-496	54	1 664	754 394	11 581	0.5	8.4	73.5	29 100	
Skene	145	100*	③		x	x							x	1				20	39						15	
Skoghall	734	875	① ②		x	x	x	x			x	x	x	6 355	1 513	133	498	50 121	137	1 695	936 458	8 599	14.6	9.9	94.5	25 564
Skoghall (Forshaga)	106	120	①		x	x	x	x	x		x	x	x	4			2 223	4	309							
Skutskär	394	540	②		x	x					x	x	x	10	179	742	136	27	1 586	1 613 010	4 798	38.5	19.5	96.7	19 460	
Vikingstad	66	75*	③		x	x							x	1			1 014	46	1						23	
Total board, pulp, paper, converted products		11 573 <sup>m)</sup>												62 371	12 725	2 876	10 305	2 303 004	950 887	20 607	13 055 331	90 430	299.7	110.3	1 180.3	272 840
Total, wood products		n)																								
Wood products units <sup>n)</sup>					o)	o)	o)	o)	o)	o)	o)	o)	o)	6 243	803	25	536	3 861	106 428	16 530	505 511					
Grand Total																										
All units														68 615	13 528	2 901	10 841	2 306 864	1 057 315	37 137	13 560 843	90 430	299.7	110.3	1 180.3	272 840

a) At year-end.

b) Production capacities of integrated board, pulp, and paper mills only include paper and board production capacities.

c) Mills using recovered fibre as raw material (fully or partly).

d) Reported on the basis of country-specific definitions applied in national regulations.

e) Total sulphur is reported as sulphur dioxide (SO<sub>2</sub>) equivalent, but includes all sulphurous compounds.

f) All CO<sub>2</sub> figures are calculated using the WRI/WBCSD Greenhouse Gas Protocol and Scope 2 Guidance.

g) Wujin Mill began operation in June 2018.

h) Also includes those employees of our maintenance company Efora Oy that are located on site.

i) Only covers board production at Ingeröis.

j) Water discharges reported together from both Ostroleka units.

k) Does not have its own personnel but hires personnel from Stora Enso AB.

l) Number of biocomposite production line employees is included. See separate table for Wood Products units for biocomposite production data.

m) Excluding total corrugated board capacity 1 428 million m<sup>2</sup>.

n) Production capacities for sawn timber 5 197 000 m<sup>3</sup> and for wood pellets 369 000 t.

o) See separate table for Wood Products units.

Products:

- ① board and packaging paper
- ② market pulp
- ③ converted products (e.g. cores, corrugated board)
- 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.

Up-to-date certificate information can be found at [storaenso.com/certificates](https://storaenso.com/certificates)

\* million m<sup>2</sup>



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	Capacities						Certificates								Fossil CO <sub>2</sub> emissions							
	Number of employees <sup>a)</sup>	Sawn products	Further processed	CLT	Wood pellets	LVL	Biocomposite	ISO 9001	ISO 14001	ISO 50001	OHSAS 18001	FSC® CoC	PEFC™ CoC	SBP	Process waste to landfill	Hazardous waste <sup>b)</sup>	SO <sub>2</sub> <sup>c)</sup>	NO <sub>x</sub> as NO <sub>2</sub>	Direct CO <sub>2</sub> <sup>d)</sup>	Indirect CO <sub>2</sub> <sup>d)</sup>	CO <sub>2</sub> , on-site transportation <sup>d)</sup>	Carbon neutral CO <sub>2</sub> biomass fuels <sup>d)</sup>
Unit		1 000 m <sup>3</sup>	1 000 m <sup>3</sup>	1 000 m <sup>3</sup>	1 000 t	1 000 m <sup>3</sup>	1 000 t								t	t	t	t	t	t	t	t
Wood products units																						
Austria																						
Bad St. Leonhard	248	350	105	80				x	x	x	x	x	x			47		4			1	
Brand	207	440	260					x	x	x	x	x	x			32				1		
Ybbs	394	610	440	90				x	x	x	x	x	x			56				1		
Czech Republic																						
Planá	243	370	220					x	x	x	x	x	x		513	28	1.3	54			1 964	28 006
Žďelec	277	550	220		75			x	x	x	x	x	x		3 702	35	0.7	159			2 192	126 337
Estonia																						
Imavere	326	340	160		100			x	x	x	x	x	x	x	46	77	5.4	54		49 363	1 834	59 111
Näpi	92	47	160		14			x	x	x	x	x	x		21	11	0.6	6	27	12 644	340	7 339
Finland																						
Honkalahti	116	310	70					x	x	x	x	x	x			2		27	67	3 541	678	38 893
Kitee	98	260	110		25			x	x	x	x	x	x		10	15	0.3	17		2 536	478	37 707
Uimaharju	68	240	20					x	x	x	x	x	x			38				2 862	745	1 479
Varkaus	120	150	10			70		x	x	x	x	x	x		33	67				6 154	677	
Veitsiluoto <sup>e)</sup>	55	200						x	x	x	x	x	x				9.0	20		5 560	615	
Germany																						
Pfarrkirchen	102		145					x	x	x	x	x	x			20	2.0	14			260	6 245
Latvia																						
Launkalne	133	190	20					x	x	x	x	x	x		534	4		31	538	1 736	2	25 060
Lithuania																						
Alytus	236	200	90					x	x	x	x	x	x			28	1.9	15		2 626	1 165	28 089
The Netherlands																						
Amsterdam	42		80					x	x	x	x	x	x		16	1			13	1 005	1	
Poland																						
Murow	278	260	210					x	x	x	x	x	x			275	2.7	15			1	15 570
Russia																						
Impilahti	112	140	10		20			x	x	x	x	x	x					9		4 458	1 185	19 467
Nebolchi	176	180	45		40			x	x	x	x	x	x	x	1 369		0.5	47		8 295	1 146	27 695
Sweden																						
Ala	161	370	50		95			x	x	x	x	x	x			60	0.7	63		10	1 852	84 513
Gruvön	178	370	150		100			x	x	x	x	x	x			9			3 216	5 573	1 391	
Hylte	10						15	x	x	x	x	x	x							67		
Wood products units total		5 577	2 575	170	469	70	15								6 243	803	25.0	536	3 861	106 428	16 530	505 511

a) At year-end.

b) Reporting is based on country-specific definitions applied in national regulations.

c) Total sulphur is reported as sulphur dioxide (SO<sub>2</sub>) equivalent, but includes all sulphurous compounds.

d) All CO<sub>2</sub> figures are calculated using the WRI/WBCSD Greenhouse Gas Protocol and Scope 2 Guidance.

e) Sawing capacity reported with the Paper division.

Certificate documents can be found at [storaenso.com/certificates](https://storaenso.com/certificates)

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# Auditor's assurance report

To the Annual General Meeting of Stora Enso Oyj

We have been engaged by the Board of Directors and the Group Leadership Team of Stora Enso Oyj (hereafter Stora Enso) to provide limited assurance on Stora Enso's Sustainability Report 2018 as a whole, and reasonable assurance on Stora Enso's direct and indirect (scopes 1+2) fossil CO<sub>2</sub> emissions as disclosed in the Sustainability Report.

## Responsibilities of the Board and Management

The Board of Directors and Group Leadership Team of Stora Enso Oyj are responsible for preparing the Sustainability Report in accordance with the Reporting Criteria as set out in the Company's reporting instructions, including the GRI Sustainability Reporting Standards of the Global Reporting Initiative and the Greenhouse Gas Protocol for CO<sub>2</sub> emissions. This responsibility includes the internal control relevant to the preparation of a Sustainability Report that is free from material misstatements, whether due to fraud or error.

## Responsibilities of the Auditor

Our responsibility is to express a conclusion on the Sustainability Report based on the procedures we have performed and the evidence we have obtained. Our assignment is limited to the historical information that is presented and thus does not include future-oriented information. We do not accept, or assume responsibility to anyone else, except to Stora Enso for our work, for this report, or for the conclusions that we have reached.

We conducted the assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000, "Assurance Engagements Other than Audits or Reviews of Historical Financial Information", to provide limited assurance on the Sustainability Report as a whole, 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<sub>2</sub> emissions as disclosed in the Sustainability Report. These standards require that we plan and perform the engagement to obtain the appropriate level of assurance that the information examined is free from material misstatement.

A reasonable assurance engagement includes examining, on a test basis, evidence supporting the selected information in the Sustainability Report. We have evaluated the effectiveness of internal controls and the processes for collecting and consolidating CO<sub>2</sub> emissions data, and performed testing on a sample basis to evaluate whether the CO<sub>2</sub> emissions are reported according to the Reporting Criteria.

A limited assurance engagement consists of making inquiries, primarily of persons responsible for the preparation of the Sustainability Report, reviewing documentation, and applying analytical and other limited assurance procedures based on the auditor's judgement. In addition, we have performed site visits to Beihai (China), Imavere (Estonia), and Varkaus (Finland) to review compliance with reporting policies, assess the reliability of local reporting process, and test data collected for sustainability reporting purposes on a sample basis.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusions below. The conclusion based on our limited assurance procedures does not comprise the same level of assurance as the conclusion of our reasonable assurance procedures. Since this assurance engagement is combined, our conclusions regarding the reasonable assurance and the limited assurance procedures are presented separately below.

## Our independence and quality control

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

PricewaterhouseCoopers applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

## Conclusions

Based on the limited assurance procedures we have performed, nothing has come to our attention that causes us to believe that the Sustainability Report is not prepared, in all material respects, in accordance with the Reporting Criteria.

In our opinion, Stora Enso's direct and indirect (scopes 1+2) fossil CO<sub>2</sub> emissions which have been subject to our reasonable assurance procedures have, in all material respects, been prepared in accordance with the Reporting Criteria.

Helsinki, 13 February 2019

**PricewaterhouseCoopers**

**Samuli Perälä**

Authorized Public Accountant

**Fredrik Ljungdahl**

Sustainability Reporting Specialist





Financials includes the report of the Board of Directors and the financial statements, as well as Stora Enso in capital markets and our tax footprint.



Dividend proposal per share  
**EUR 0.50**

Operational ROCE  
**15.5%**

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**In this report:** This publication consists of both audited and unaudited contents. The audited parts include the consolidated financial statements, the notes to the financial statements, and the Board of Directors' proposal for the distribution of dividend. The unaudited parts – such as the Stora Enso in 2018, the Report of the Board of Directors, Extract from the parent company Stora Enso Oyj financial statements, Stora Enso in capital markets, and Stora Enso as a taxpayer – are marked with a symbol on the top of the page. The contents of Stora Enso as a taxpayer have been assured by an independent third-party assurance provider with a level of Limited Assurance. The official audited financial statements in Finnish and an unofficial Swedish translation can be found on the company's website ▶ [storaenso.com/download-centre](https://storaenso.com/download-centre)



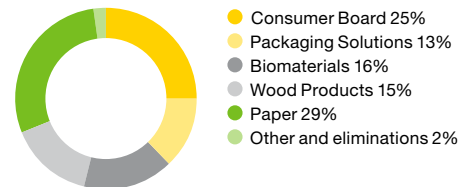
# Stora Enso in 2018

## Why to invest in Stora Enso

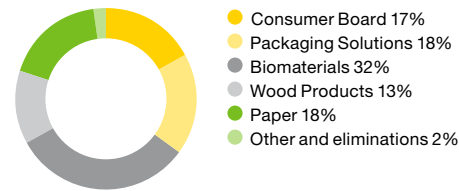
Part of the bioeconomy, Stora Enso is a leading provider of renewable solutions in packaging, biomaterials, wooden constructions, and paper globally. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow. Stora Enso is well-positioned for profitable growth: we estimate our annual sales to increase by 4–6%, excluding Paper and have a target of above 13% for operational return on capital employed (ROCE) for the Group. We have a strong cash flow generation and we aim to maintain the capex at the targeted level, at or below depreciation and depletion over the business cycle. Stora Enso is well within the targeted levels of debt to equity (less than 60%) and net debt to operational EBITDA (below 2.0x). Stora Enso has a dividend policy to distribute 50% of earnings per share (EPS) over the cycle.

Stora Enso shares are listed on Nasdaq Helsinki Oy (STEAV, STERV) and Nasdaq Stockholm AB (STE A, STE R). In addition, the shares are traded in the USA as ADRs (SEOAY).

### Sales 2018



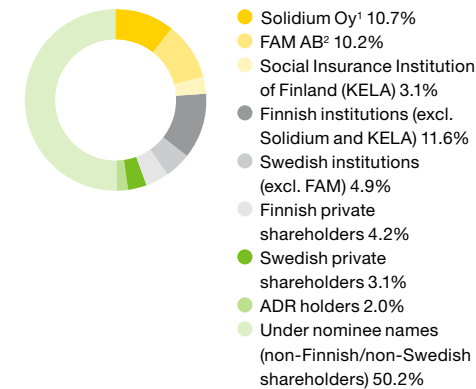
### Operational EBIT 2018



## Key figures

	2018	2017	Change	Target
Sales, EUR million	10 486	10 045	4.4%	
Operational EBITDA, EUR million	1 878	1 587	18.3%	
Operational EBIT, EUR million	1 325	1 004	32%	
Operational EBIT margin	12.6%	10.0%		
Operating profit (IFRS), EUR million	1 390	904	53.7%	
Net profit for the period, EUR million	988	614	61.0%	
Net interest-bearing liabilities, EUR million	2 092	2 253	-7.1%	
Operational ROCE, %	15.5%	11.9%		>13%
EPS (basic), EUR	1.28	1	62.5%	
Net debt/last 12 months' operational EBITDA ratio	1.1	1.4		<2.0
Net debt/equity ratio	0.31	0.38		<0.60
Fixed costs to sales, %	23.6%	25.1%		<20%

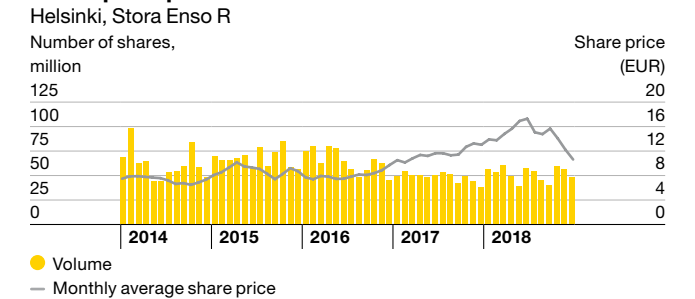
### Ownership distribution, % of shares held



<sup>1</sup> Entirely owned by the Finnish state.

<sup>2</sup> As confirmed to Stora Enso.

### Share price performance and volumes



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# Report of the Board of Directors

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### Stora Enso introduction

Part of the bioeconomy, Stora Enso (the Group or the Company) is a leading global provider of renewable solutions in packaging, biomaterials, wooden constructions and papers. Our customers include packaging manufacturers, brand owners, paper and board producers, publishers, retailers, printing houses, converters, and joinery and construction companies.

Our fibre-based materials are renewable and recyclable. Our solutions offer low-carbon alternatives to products based on fossil fuels and other non-renewable materials. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.

We make every effort to use 100% of a tree for our products as well as for producing bioenergy. In production, we are driving down the use of fossil fuels and pushing towards carbon neutrality as much as it is technically and commercially feasible. We practice and promote sustainable forestry, and work to ensure that more trees are planted than are harvested.

Stora Enso has some 26 000 employees. Our sales in 2018 were EUR 10.5 billion, with an operational EBIT of EUR 1.3 billion. Stora Enso shares are listed on Nasdaq Helsinki Oy (STEAV, STERV) and Nasdaq Stockholm AB (STE A, STE R).

### Markets and deliveries

Demand for cartonboard increased by 2% in Western Europe and continued to grow strongly in Eastern Europe, reaching almost 5% growth in 2018. Demand for cartonboard in North America decreased slightly by 1% and demand in Asia Pacific declined 2% after a long period of strong demand growth. This was due to a 5% market decline in China.

Containerboard demand was healthy in 2018. However, the annual average growth rate decreased slightly towards the end of the year due to global economic uncertainties related to e.g. trade dispute among other factors. Demand growth of corrugated board was strong; the annual average growth rate in our European focus countries was almost 3%.

World chemical market pulp demand slowed down from previous year and rose approximately 1.2% during 2018. Softwood pulp demand contracted by 2.5%, and hardwood pulp demand grew by 3.7% compared to 2017. Global demand increased in Europe and China and was stable or declined in other regions. The global increase in supply was again concentrated on the hardwood pulp segment.

Strong market and record high price levels were supported by numerous unexpected disruptions in the supply side over the year, especially in the softwood pulp sector. New capacity and substitution from softwood to hardwood pulp kept the hardwood pulp demand strong. High inventories and weakness in the Chinese paper and board sector started to contract pulp demand in the latter part of the year.

Global market pulp capacity rose around 4.7%, equivalent to 3.1 million tonnes in 2018. Hardwood capacity increased by 5.7% or 2.1 million tonnes. Major increases took place in Asia and Latin America. Softwood capacity expansion accounted 3.5% equivalent to 1 million tonnes mainly in Europe. The overall demand-capacity balance stood at 88%, 4 percent points down from 2017.

Softwood sawn demand remained good in 2018, but with some slowdown in Europe towards the year-end. Market demand in the USA was also good, driving prices to historically high levels during the summer months. Overall market demand was favourable in most markets, but overall uncertainty in global economy was visible in the latter part of the year. The Australian sawn wood market remained active with increased prices, and market was struggling with undersupply for most of the year. Japanese housing market was somewhat below the 2017 level and the market remained overstocked in some products. There was a slight increase in European sawn softwood production, driven by growing consumption in sub region and increasing overseas exports.

Structural erosion of paper demand continued in Europe and North America during 2018. European paper demand was 6% weaker than in 2017. However, European supply and demand was balanced especially in newsprint and uncoated magazine paper grades as result of substantial capacity closures. In North America demand declined by 4% compared to 2017. In Asia demand declined 2%. Global paper consumption was 4% lower than 2017. However, variation between paper grades was wide. Global demand for uncoated fine paper was stable, whereas newsprint declined by 8%.

### Deliveries and production

	2018	2017	Change % 2018–2017
Consumer board deliveries, 1 000 tonnes	2 914	2 816	3.5%
Consumer board production, 1 000 tonnes	2 922	2 871	1.8%
Containerboard external deliveries, 1 000 tonnes	985	1 023	-3.8%
Containerboard production, 1 000 tonnes	1 320	1 333	-1.0%
Corrugated packaging deliveries, million m <sup>2</sup>	1 059	1 103	-4.0%
Market pulp external deliveries, 1 000 tonnes	2 017	2 135	-5.5%
Wood product deliveries, 1 000 m <sup>3</sup>	5 095	5 097	0.0%
Paper deliveries, 1 000 tonnes	4 591	4 713	-2.6%
Paper production, 1 000 tonnes	4 633	4 672	-0.8%

### Estimated consumption of board, pulp, sawn softwood, and paper in 2018

Tonnes, million	Europe	North America	Asia and Oceania
Consumer board	11.2	9.2	26.9
Containerboard	33.5	32.1	80.9
Corrugated board (billion m <sup>2</sup> ) <sup>1</sup>	10.5	n/a	75.2
Chemical market pulp	18.3	7.6	32.2
Sawn softwood (million m <sup>3</sup> )	96.5	99.5	n/a
Newsprint	5.5	2.7	9.9
Uncoated magazine paper	3.1	1.3	0.2
Coated magazine paper	4.6	2.3	3.1
Coated fine paper	4.7	3.5	10.8
Uncoated fine paper	7.3	7.5	20.6

<sup>1</sup> European focus markets (Baltics, FI, PL, RU, SE) and China.

Source: Pöyry, ICCA, RISI, Numera, Euro-Graph, PPC, Stora Enso, UNECE

The Group's consumer board deliveries totalled 2 914 000 tonnes, which is 98 000 tonnes or 3.5% higher compared to a year ago. This was mainly due to increased volumes in Europe. External containerboard deliveries decreased by 38 000 tonnes or 3.8%, from 1 023 000 tonnes to 985 000 tonnes, mainly due to the investment shutdown at Heinola fluting mill during 2018. Corrugated board deliveries decreased slightly to 1 059 000 m<sup>2</sup>. Market pulp deliveries decreased by 118 000 tonnes or 5.5% to 2 017 000 tonnes, due to challenges in Nordic wood sourcing in the beginning of the year, and lower deliveries from Montes del Plata pulp mill. Wood products deliveries remained unchanged at 5 095 000 m<sup>3</sup>. Paper deliveries totalled 4 591 000 tonnes, down 122 000 tonnes or 2.6% from 2017, negatively impacted by the shutdown of the paper machine 8 at Kvarnsveden Mill.

### Operational key figures, items affecting comparability and other non-IFRS measures

The list of Stora Enso's non-IFRS measures and the calculation of our key figures are presented at the end of the Report of the Board of Directors. See also the chapter Non-IFRS measures at the end of this report.



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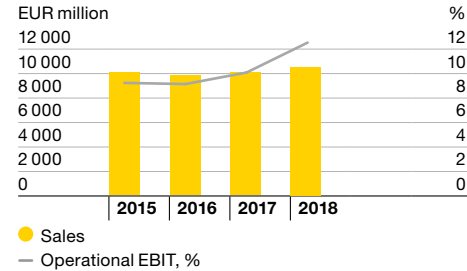
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### Financial results – Group

Sales at EUR 10 486 (10 045) million were 4.4% higher than a year earlier, mainly due to higher sales prices and active mix management in all divisions. The impact of the foreign exchange rate movements on sales was EUR 149 million negative. Sales excluding the paper business increased by 4.1%.

Operational EBIT at EUR 1 325 (1 004) million increased 32.0% or EUR 321 million and represents a margin of 12.6% (10.0%).

### Sales and operational EBIT



Improved sales prices and active mix management in all divisions increased operational EBIT by EUR 795 million. Variable costs were EUR 387 million higher, especially wood costs as well as higher pulp, chemical, and transportation costs. Fixed costs increased EUR 55 million, mainly due to higher personnel and maintenance costs. The net foreign exchange impact decreased operational EBIT by EUR 34 million and the operational result from equity accounted investments was EUR 8 million lower. The positive impact from lower depreciation was EUR 20 million.

The share of the operational results of equity accounted investments amounted to EUR 81 (89) million, with the main contributions from Bergvik Skog and Tornator.

The IFRS operating profit includes a negative net effect of fair valuations of EUR 6 (negative 7) million from the accounting of share-based compensation and CO<sub>2</sub> emission rights. In addition, the IFRS operating profit includes a negative net effect of EUR 2 (negative 6) million from IAS 41 forest valuation from subsidiaries and joint operations and also a positive net effect of EUR 53 (negative 3) million from Stora Enso's share of net financial items, taxes and IAS 41 forest valuations of equity accounted investments. The positive impact came mainly from an increase in fair valuation of forests of the Nordic equity accounted investment Bergvik.

Fixed asset impairments amounted to EUR 1 (27) million.

The Group recorded items affecting comparability (IAC) with a positive impact of EUR 20 (negative 84) million on its IFRS operating profit and a negative impact of EUR 27 (positive 11) million on income taxes. The IAC's relate to Stora Enso's share of the disposal gain of EUR 47 million from associated company Bergvik Skog's Latvian subsidiary and the divestment of the wood supply company in Rosário do Sul, Brazil to Copa Florestal III FIP Multiestrategia. The latter transaction resulted in a loss of

EUR 28 million, due to cumulative currency translation adjustment being released from equity through P&L at closing in Q2 2018. The negative impact on income taxes relates to a provision because of an ongoing dispute in Sweden concerning interest deductions for years 2013–2016. The IFRS operating profit was EUR 1 390 (904) million.

### Segment share of operational EBIT, IAC, fair valuations and non-operational items and operating profit/loss

EUR million	Year Ended 31 December					
	Operational EBIT		IAC, Fair Valuations and Non-Operational items		Operating Profit/Loss	
	2018	2017	2018	2017	2018	2017
Consumer Board	231	285	-1	-32	230	253
Packaging Solutions	245	170	-1	-4	244	166
Biomaterials	427	264	-3	-10	425	254
Wood Products	165	111	-1	-9	164	102
Paper	234	128	0	-22	234	106
Other	23	46	71	-23	93	23
<b>Total</b>	<b>1 325</b>	<b>1 004</b>	<b>65</b>	<b>-100</b>	<b>1 390</b>	<b>904</b>
Net financial items					-180	-162
<b>Profit before Tax</b>					<b>1 210</b>	<b>742</b>
Income tax expense					-221	-128
<b>Net Profit</b>					<b>988</b>	<b>614</b>

Operational EBIT comprises the operating profit excluding IAC and fair valuations of the segments and Stora Enso's share of the operating profit excluding IAC and fair valuations of its equity accounted investments (EAI). IAC = Items affecting comparability. These are exceptional transactions that are not related to recurring business operations. The most common IAC's are capital gains and losses relating to disposal of fixed assets, impairments or impairment reversals, disposal gains and losses relating to group companies, environmental provisions, provisions for planned restructurings, other provisions and penalties. Items affecting comparability are normally disclosed individually if they exceed one cent per share. Fair valuations and non-operational items include equity incentive schemes and related hedges, CO<sub>2</sub> emission rights, valuations of biological assets and the Group's share of tax and net financial items of EAI.

### Items affecting comparability, fair valuations and non-operational items

EUR million	Year Ended 31 December	
	2018	2017
Impairments and impairment reversals of intangible asset and property, plant and equipment and biological assets	0	-8
Restructuring costs excluding fixed asset impairments	0	-14
Disposals	20	-28
Other	0	-34
Items affecting comparability	20	-84
Fair valuations and non-operational items	45	-16
<b>Total</b>	<b>65</b>	<b>-100</b>

### Segment share of operative assets, operative liabilities and operating capital

EUR million	Year Ended 31 December					
	Operative Assets		Operative Liabilities		Operating Capital	
	2018	2017	2018	2017	2018	2017
Consumer Board	2 486	2 477	535	537	1 951	1 940
Packaging Solutions	1 138	1 100	215	223	923	877
Biomaterials	2 722	2 578	260	253	2 462	2 325
Wood Products	866	789	245	238	621	551
Paper	1 588	1 561	792	811	796	750
Other and eliminations	2 668	2 339	466	389	2 202	1 950
<b>Total</b>	<b>11 468</b>	<b>10 844</b>	<b>2 513</b>	<b>2 451</b>	<b>8 955</b>	<b>8 393</b>

### Key figures

	2018	2017	2016
Sales, EUR million	10 486	10 045	9 802
Operational EBIT, EUR million	1 325	1 004	884
Operational EBIT margin	12.6%	10.0%	9.0%
Operating profit (IFRS), EUR million	1 390	904	783
Operating margin (IFRS)	13.3%	9.0%	8.0%
Return on equity (ROE)	15.5%	10.3%	7.2%
Operational ROCE	15.5%	11.9%	10.2%
Debt/equity ratio	0.31	0.38	0.47
EPS (basic), EUR	1.28	0.79	0.59
EPS excluding IAC, EUR	1.29	0.89	0.65
Dividend and distribution per share <sup>1</sup> , EUR	0.50	0.41	0.37
Payout ratio, excluding IAC	38.8%	46.1%	56.9%
Payout ratio (IFRS)	39.1%	51.9%	62.7%
Dividend and distribution yield, (R share)	5.0%	3.1%	3.6%
Price/earnings (R share), excluding IAC	7.82	14.90	15.70
Equity per share, EUR	8.51	7.62	7.36
Market capitalisation 31 Dec, EUR million	8 123	10 422	8 085
Closing price 31 Dec, A/R share, EUR	11.05/10.09	13.20/13.22	10.40/10.21
Average price, A/R share, EUR	16.36/14.61	11.93/11.54	8.50/7.88
Number of shares 31 Dec (thousands)	788 620	788 620	788 620
Trading volume A shares (thousands)	3 068	6 768	1 254
% of total number of A shares	1.7%	3.8%	0.7%
Trading volume R shares (thousands)	610 300	571 717	765 122
% of total number of R shares	99.7%	93.4%	125.0%
Average number of shares, basic (thousands)	788 620	788 620	788 620
Average number of shares, diluted (thousands)	789 883	790 024	789 888

<sup>1</sup> See the Board of Directors' proposal for dividend distribution.

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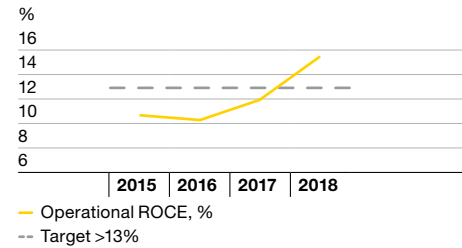
Net financial expenses at EUR 180 (162) million were EUR 18 million higher than a year ago. The increase was mainly due to the net foreign exchange loss of EUR 33 (gain of EUR 34) million coming from the revaluation of foreign currency net debt and related foreign-currency hedges in subsidiaries and joint operations. Net interest expenses at EUR 129 million decreased by EUR 10 million mainly due to reduced average debt levels and lower bank fee amortisation. Other net financial expenses at EUR 18 million were EUR 39 million lower than a year ago mainly due to the absence of bond repurchases related financial expenses that were recorded in 2017.

The net tax charge totalled EUR 221 (128) million, equivalent to an effective tax rate of 18.3% (17.3%), as described in more detail in [Note 9](#) Income taxes, of the Consolidated Financial Statements.

The loss attributable to non-controlling interests was EUR 24 (11) million, leaving a profit of EUR 1 013 (625) million attributable to Company shareholders.

Earnings per share excluding items affecting comparability were EUR 1.29 (0.89) and including items affecting comparability EUR 1.28 (0.79). Operational return on capital employed was 15.5% (11.9%).

### Operational ROCE



The Group capital employed was EUR 8 824 million on 31 December 2018, an increase of EUR 516 million on a year earlier.

### Breakdown of Capital Employed Change

EUR million	Capital Employed
<b>31 December 2017</b>	<b>8 308</b>
Capital expenditure less depreciation	59
Impairments and reversal of impairments	-1
Fair valuation of biological assets	-2
Costs related to growth of biological assets	-66
Available-for-sale: operative (mainly PVO)	104
Equity accounted investments	186
Net liabilities in defined benefit plans	-27
Operative working capital and other interest-free items, net	384
Net tax liabilities	-54
Translation difference	-81
Other changes	14
<b>31 December 2018</b>	<b>8 824</b>

### Financing

Cash flow from operations was EUR 1 365 (1 492) million and cash flow after investing activities was EUR 811 (825) million. Working capital increased by EUR 428 (decreased 37) million, inventories increased by EUR 267 million and short-term receivables by EUR 179 million having a negative impact into working capital. Payments related to the previously announced provisions were EUR 19 million.

### Operative Cash Flow

EUR million	2018	2017
Operational EBITDA	1 878	1 587
IAC on operational EBITDA	20	-76
Other adjustments	-104	-56
Change in working capital	-428	37
<b>Cash Flow from Operations</b>	<b>1 365</b>	<b>1 492</b>
Cash spent on fixed and biological assets	-525	-658
Acquisitions of equity accounted investments	-29	-9
<b>Cash Flow after Investing Activities</b>	<b>811</b>	<b>825</b>

At the end of the period, net interest-bearing liabilities of the Group were EUR 2 092 (2 253) million. Cash and cash equivalents net of bank overdrafts amounted to EUR 1 128 (603) million.

During the third quarter of 2018, Fitch Ratings assigned Stora Enso Oyj an investment grade credit rating of BBB- with stable outlook

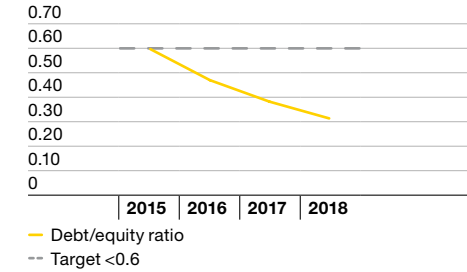
highlighting Stora Enso's improved cash flow generation and strengthened balance sheet. In the fourth quarter of 2018, Moody's Investors Service also assigned Stora Enso Oyj an investment grade credit rating by upgrading the long-term issuer rating from Ba1 to Baa3 with stable outlook.

During 2018 Stora Enso also launched a Green Bond Framework as part of its Sustainable Finance approach. The ambition is to offer a loan-format to support sustainability-focused fixed income investors and to report the direct environmental impacts of some investments and business activities.

Stora Enso has EUR 600 million committed revolving credit facility that was fully undrawn at the year-end. Additionally, Stora Enso has access to various long-term sources of funding up to EUR 1 000 (900) million.

The debt/equity ratio at 31 December 2018 was 0.31 (0.38). The ratio of net debt to the last 12 months' operational EBITDA was 1.1, compared to the ratio of 1.4 at the end of the previous year.

### Debt/equity ratio



The fair valuation of cash flow hedges and equity investments fair valued through other comprehensive income in accordance with IFRS 9 increased equity by EUR 75 (increase EUR 69) million mainly due to higher fair valuation of Group's shareholding in Pohjolan Voima Oy and net gains from outstanding commodity hedges recorded in other comprehensive income partly offset by net loss from outstanding foreign-currency cash flow hedges.

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)	8 August 2018
Moody's	Baa3 (stable) / P-3	1 November 2018



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### Financial results – Segments

#### Consumer Board division

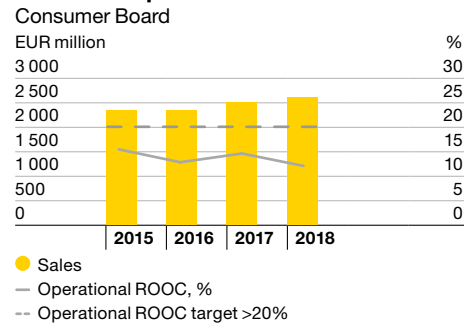
The ambition of the Consumer Board division is to be the global leader in high-quality virgin fibre cartonboard. We aim to be the preferred partner of customers and brand owners in premium end-use packaging and graphical segments. Our wide board and barrier coating selection is suitable for consumer packaging for liquid, food, pharmaceutical and luxury goods.

EUR million	2018	2017
Sales	2 622	2 516
Operational EBITDA	423	477
Operational EBITDA margin	16.1%	19.0%
Operational EBIT	231	285
Operational EBIT margin	8.8%	11.3%
Operational ROOC	11.9%	14.6%
Cash flow from operations	339	458
Cash flow after investing activities	177	218
Board deliveries, 1 000 tonnes	2 914	2 816
Board production, 1 000 tonnes	2 922	2 871

Consumer Board division sales at EUR 2 622 (2 516) million grew over 4%. Sales volumes increased driven by strong operational performance. Average price per ton improved, due to price increases and favourable sales mix development. Currency impact on sales was negative EUR 22 million.

Operational EBIT at EUR 231 (285) million decreased 19%, due to significantly higher raw material prices for wood, pulp, and chemicals. This could not be fully compensated through sales price increases as most of the Consumer Board contracts are long-term. Fixed costs decreased as a result of cost saving actions and the weakening of the Swedish crown.

#### Sales and operational ROOC



#### Packaging Solutions division

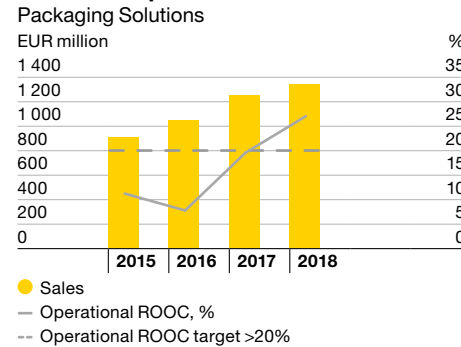
The Packaging Solutions division provides fibre-based board materials and corrugated packaging products and services that are designed for a wide array of applications. Our renewable high-end packaging solutions serve leading converters, brand owners and retailers – including those in e-commerce that are looking to optimise performance, drive innovation and improve their sustainability.

EUR million	2018	2017
Sales	1 344	1 255
Operational EBITDA	313	240
Operational EBITDA margin	23.3%	19.1%
Operational EBIT	245	170
Operational EBIT margin	18.2%	13.5%
Operational ROOC	27.2%	19.6%
Cash flow from operations	272	249
Cash flow after investing activities	172	156
Board deliveries, 1 000 tonnes	985	1 023
Board production, 1 000 tonnes	1 320	1 333
Corrugated packaging deliveries, million m <sup>2</sup>	1 059	1 103
Corrugated packaging production, million m <sup>2</sup>	1 048	1 102

Packaging Solutions division sales were EUR 1 344 (1 255) million, all time high annual sales and up 7% compared to 2017. The increase was driven by higher sales prices in all businesses and sales mix improvements, which were partly offset by lower volumes and currency impact.

Operational EBIT at EUR 245 (170) million was also all time high and 44% up from the previous year, due to significantly higher sales prices. Operational EBIT was negatively impacted by higher raw material costs in Europe, lower volumes due to investment shut down at Heinola Mill, and higher fixed costs in China Packaging.

#### Sales and operational ROOC



#### Biomaterials division

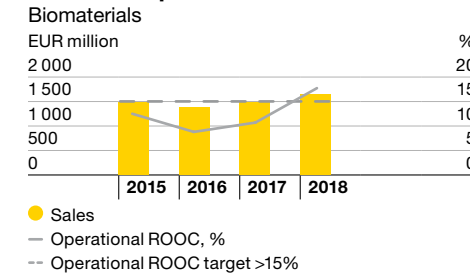
The Biomaterials division offers a wide variety of pulp grades to meet the demands of paper, board, tissue, textile and hygiene product producers. We are maximising the business potential of the by-products extracted in our processes, such as tall oil and turpentine from biomass. Based on our strong innovation approach, all fractions of biomass, like sugars and lignin, hold substantial potential for use in various applications.

EUR million	2018	2017
Sales	1 635	1 483
Operational EBITDA	550	409
Operational EBITDA margin	33.6%	27.6%
Operational EBIT	427	264
Operational EBIT margin	26.1%	17.8%
Operational ROOC	17.9%	10.5%
Cash flow from operations	438	404
Cash flow after investing activities	327	271
Pulp deliveries, 1 000 tonnes	2 432	2 597

Biomaterials division sales were EUR 1 635 (1 483) million, up 10% due to significantly higher pulp sales prices in all grades. Delivery volumes were lower, and currencies had a negative impact to sales.

Operational EBIT at EUR 427 (264) million was 62% up from previous year, due to significantly higher sales prices in all grades. Operational EBIT was negatively impacted by higher wood, chemical and energy costs. Fixed costs were higher due to higher maintenance costs. Foreign exchange rates had a negative impact on operational EBIT.

#### Sales and operational ROOC



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### Wood Products division

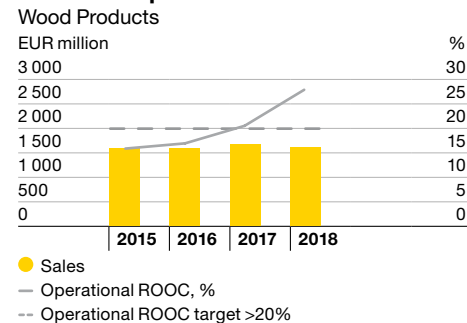
The Wood Products division is a leading provider of innovative wood-based solutions. The product range covers all areas of construction, including massive wooden elements and wooden components. It also includes a variety of sawn timber goods and pellets for sustainable heating. The emerging product range of Biocomposites addresses the opportunities to replace plastics in consumer goods and creates potential in various demanding exterior applications in a cost-competitive way.

EUR million	2018	2017
Sales	1 622	1 669
Operational EBITDA	199	147
Operational EBITDA margin	12.3%	8.8%
Operational EBIT	165	111
Operational EBIT margin	10.2%	6.7%
Operational ROOC	28.1%	20.5%
Cash flow from operations	147	152
Cash flow after investing activities	80	90
Deliveries, 1 000 m <sup>3</sup>	4 932	4 926

Wood Products division sales were EUR 1 622 (1 669) million. Comparable sales grew 5% excluding the Puumerkki divestment in November 2017 and the transfer of the Baltic wood supply operations to Segment Other in the second quarter of 2017. The growth was mainly due to higher sales prices and the ramp-ups of the Varkaus laminated veneer lumber (LVL) mill in Finland and the modernisation and expansion of the Murów sawmill in Poland.

Operational EBIT at EUR 165 (111) million was all time high and 49% up from previous year. Higher sales prices and higher volumes had a positive impact. The impact of higher wood costs in Nordics, Baltics and Russia was more than offset by lower wood costs in Central Europe. Logistics and fixed costs were higher than previous year.

### Sales and operational ROOC



### Paper division

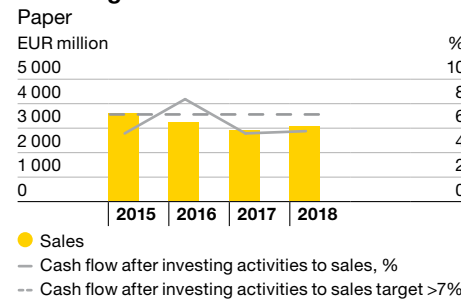
Stora Enso is the second largest paper producer in Europe with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of papers made from recycled and virgin fibre as well as our valuable industry experience, know-how and customer support.

EUR million	2018	2017
Sales	3 066	2 920
Operational EBITDA	345	239
Operational EBITDA margin	11.3%	8.2%
Operational EBIT	234	128
Operational EBIT margin	7.6%	4.4%
Operational ROOC	30.2%	14.8%
Cash flow from operations	222	259
Cash flow after investing activities	175	160
Cash flow after investing activities to sales	5.7%	5.5%
Paper deliveries, 1 000 tonnes	4 591	4 713
Paper production, 1 000 tonnes	4 633	4 672

Paper division sales were EUR 3 066 (2 920) million, up 5% due to price increases in local currencies. Foreign exchange had EUR 43 million negative impact on sales. Volumes were lower, mainly due to the closure of the paper machine 8 at Kvarnsveden Mill in Sweden in June 2017, and lower demand for wood-free coated papers (WFC). Also, Nymölla Mill in Southern Sweden was able to produce only half of its capacity for 11 weeks during Q4 due to water shortage.

Operational EBIT at EUR 234 (128) million was 83% up from 2017 due to higher sales prices which more than offset higher wood, pulp, chemical and transportation costs and lower volumes.

### Sales and cash flow after investing activities to sales<sup>1</sup>



<sup>1</sup> The Paper division's financial target is cash flow after investing activities to sales (non-IFRS), because the division's goal is to generate cash flow for the Group so that it can transform into a renewable materials growth company.

### Other

The segment Other includes the Nordic forest equity-accounted investments, Stora Enso's shareholding in the energy company Pohjolan Voima, operations supplying wood to the Nordic and Baltic mills, plantations not connected to any mill site, and Group shared services and administration.

EUR million	2018	2017
Sales	3 425	2 490
Operational EBITDA	48	75
Operational EBITDA margin	1.4%	3.0%
Operational EBIT	23	46
Operational EBIT margin	0.7%	1.8%
Cash flow from operations	-52	-30
Cash flow after investing activities	-119	-70

Sales of the Segment Other at EUR 3 425 (2 490) million was up from previous year mainly due to higher wood prices, the transfer of the Baltic wood supply operations from Wood Products division to Segment Other in Q2 2017 and the reclassification of transport and freight sales from other operating income into sales line.

Operational EBIT at EUR 23 (46) million was down from previous year mainly due to lower results from the equity accounted investments and higher operational costs in our wood harvesting operations.

### Investments and capital expenditure

Additions to fixed and biological assets including internal costs capitalised in 2018 totalled EUR 574 (640) million. The total amount includes additions in biological assets of EUR 83 (80) million.

During the first quarter of 2018, the EUR 19 million investment consolidating corrugated packaging manufacturing in Finland was completed according to the plan. At Skutskär Mill in Sweden, the EUR 16 million investment to improve the environmental performance by reducing the sulphur emissions was completed. Production of biocomposite granules started at Hylte Mill in Sweden, following the EUR 12 million investment.

During the second quarter of 2018, Stora Enso completed the EUR 28 million investment at its Heinola Fluting Mill in Finland improving quality and increasing production capacity of the AvantFlute SC (semi-chemical fluting) products. Production started as planned at the new fluff pulp line at Skutskär Mill in Sweden following the EUR 26 million investment.

The investment to a new cross laminated timber (CLT) unit at the Gruvön sawmill in Sweden is proceeding as planned. The commercial production is scheduled to begin during Q1/2019. The investment at Imatra Mills to enhance the availability of the chemi-thermomechanical pulp (CTMP) is proceeding as planned. The project is scheduled to be completed during Q1/2019. The investment to increase the dissolving pulp production capacity at Enocell Mill is proceeding as planned and the investment is scheduled to be completed during the second half of 2019.



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In June 2018, Stora Enso announced a feasibility study and an environmental impact assessment (EIA) for a possible investment at Oulu Mill. The feasibility study and the EIA evaluate a potential conversion of the Oulu paper mill into packaging board production. The EIA was finalised in December 2018. Currently, Oulu Mill has a production capacity of 360 000 tonnes of chemical softwood pulp and 1 080 000 tonnes of woodfree coated papers on two paper machines. The potential investment would include a new chemi-thermomechanical pulp (CTMP) plant, a brown-based cartonboard line with a capacity of 450 000 t/a and a kraftliner line with a capacity of 400 000 t/a. The potential conversion of Oulu Mill would enable Stora Enso to further improve its position in the growing consumer board and packaging solutions businesses and take a major step in its transformation. The other option is to continue the current fine paper production.

In July 2018, Stora Enso announced investment of EUR 13 million to increase the sawmilling and planing capacity at Launkalne sawmill in Latvia. The start-up is expected to take place in phases during Q2–Q3/2019.

Also in July, Stora Enso announced investment of EUR 25 million to boost green energy generation at Maxau Paper Mill. The project is scheduled to be completed in 2020. Stora Enso wants to secure the long-term profitable energy production in Maxau Mill by increased electricity generation and higher efficiency. The new 57 MW extraction-condensing turbine complements the existing Combined Heat and Power (CHP) plant which started up in 2010. The investment will reduce the energy cost and secure long term cost competitiveness of the paper mill.

In October 2018, Stora Enso announced investment of EUR 9 million to upgrade and expand the corrugated packaging plant in Riga, Latvia. The project is expected to be completed in 2019.

Also in October, Stora Enso announced investment of EUR 7 million in building a Competence Centre for biocomposites in Hylte mill, Sweden. The investment covers also the installation of new machinery for the milling of large fibres for biocomposites. Production is scheduled to start by the end of 2019.

Stora Enso and the energy company Gasum announced plan to build a biogas plant at Stora Enso's Nymölla paper mill in Sweden. The plant, built and operated by Gasum will turn the mill's wastewater effluent into renewable energy. The total investment for Stora Enso is approximately EUR 5 million.

In December, Stora Enso announced a EUR 22 million investment at Skoghall Mill in Sweden in an expansion of the existing water treatment plant.

Also in December, Stora Enso announced that it will acquire a 25% share in TreeToTextile AB, a joint venture between H&M group, Inter IKEA group and innovator Lars Stigsson, with the aim of developing new textile fibres in a sustainable way at attractive cost levels. Stora Enso will also support the industrialisation of TreeToTextile's production process by setting up a demonstration plant at one of its Nordic facilities. The four partners have an equally big stake in TreeToTextile.

Stora Enso is in a process of restructuring its ownership in Bergvik Skog AB, a Swedish forest holding company. The transaction is planned to be completed during the first half of 2019. Following the transaction, Stora Enso's forest holdings in Sweden will increase to

1.4 million hectares, of which 1.15 million hectares is productive forest land. Stora Enso's 49.8% share of the productive forest land in Bergvik totalled 0.9 million hectares at end of December 2018. The transaction is estimated to increase Stora Enso's balance sheet by approximately EUR 1.0 billion. Bergvik Skog's Swedish forest assets are owned by its subsidiaries Bergvik Väst AB and Bergvik Öst AB, representing approximately 83% and 17% of these assets respectively. As a result of this transaction, Stora Enso will transform its current ownership of 49.8% in Bergvik Skog, to a direct holding of 69.8% of the value of the forest assets in Bergvik Väst.

### Innovation, research and development

Stora Enso's expenditure on innovation, research and development in 2018 was EUR 149 (142) million, which was equivalent to 1.4% (1.4%) of sales. In 2018, Stora Enso expanded the definition to include also innovation costs and the figure for 2017 has been adjusted accordingly.

Transformation towards the renewable materials continues. We believe that everything made with fossil-based materials today can be made from a tree tomorrow.

In 2018, The Wood Products division commenced operations at the Hylte mill for biocomposite production and are currently ramping up the operations and sales of DuraSense™ by Stora Enso. The Biomaterials division launched Lineo™ by Stora Enso for our lignin-based products and Consumer Board division have moved to pilot stage of Microfibrillated Cellulose (MFC) films.

ECO™ by Stora Enso technology enables the RFID tags to be produced on a 100% fibre-based paper label, unlike traditional plastic tags, resulting in a lower carbon footprint for sustainability conscious B2B and B2C companies. The ECO tag can be recycled in an environmentally friendly way together with paper and board materials. Moreover, it offers high conductivity at a lower cost compared with graphene or silver printed antennas. The ECO technology is available for use in multiple ongoing projects across multiple sectors.

Stora Enso defines innovation as the process of translating ideas into new value. Research and Development work is a basic element in the process.

The company focuses on five renewable material R&D themes: Forestry & Biomass, Bio-based chemistry, Material Science and Design, process solutions, and wood as a construction material. Additionally, we focus on Digitalisation, where the focus areas have been Robotic Process Automation (RPA), machine learning, smart operations, transparent supply chain, digital customer experience and Intelligent Packaging.

The strong effort to reduce the use of and replace fossil-based plastics has positively impacted the attractiveness of new fibre based solutions to our customers. These applications include materials for new packaging board grades especially targeting to replace single use plastics and plastic packaging. For long-term success, Stora Enso collaborates with academia and research institutes; for fast results, we work together with startups. Good examples are Sulapac, where the cooperation originates in Stora Enso Accelerator programme and 20tree.ai, where cooperation with the startup shows results of joint efforts with the Combient Foundry Venture Client Program. Sulapac

holds patents in biodegradable materials, and 20tree.ai technology is used for forest valuation based on satellite images.

To trigger innovation processes, we will need ideas, which we will receive from customers, suppliers, various stakeholders and our own employees. WeNovate, our group-wide tool for collecting and evaluating ideas from the Stora Enso divisions and functions, was successfully launched in 2017. It has changed our ideation and innovation culture by engaging an increasing number of employees into the activity. In 2018, we ran 25 campaigns and have 7 idea channels open. In total over 850 ideas were collected, growing from 175 in 2017. The most suitable ideas enter state-gate based innovation processes of the divisions and functions.

Stora Enso has established funds to be used in an agile manner for capital expenditure in novel projects, which have potential business cases. The Innovation Fund is an allocation for new pilot scale opportunities and new business models. The digitalisation fund is an allocation for piloting new digital tools and models. Applications for these resources will be approved in the company's Investment Working Group. We have also allocated an agility reserve to cover operational expenses related to cross-divisional projects in 2019. With this we aim for increased number of good innovation projects.

Stora Enso employs close to 400 people in the following R&D centers:

- Research Centre and Pulp Competence Centre in Imatra (Finland)
- Research Centre and Pulp Competence Centre in Karlstad (Sweden)
- The Innovation Centre for biomaterials in Sickla, Stockholm (Sweden)
- The Innovation Centre for packaging in Helsinki (Finland)
- Support Centre in Mönchengladbach (Germany)
- Biocomposite Competence Centre in Hylte (Sweden)
- Intelligent Packaging Center in Tampere (Finland)
- Virdia demonstration plant in Louisiana and Research Centre in Virginia (United States)

Supporting Stora Enso's innovation strategy, we have several cooperation projects with research organisations and academic institutions. The aim is to build a clearer understanding of how our needs and the universities' capabilities can meet, first and foremost in the research sphere surrounding Stora Enso research themes and the long-term research needs in the divisions. The second target is to widen the contact network. Thirdly, we aim to identify topics where we have special interest regarding the universities' bachelor, master and PhD programmes, also for recruiting talents to mills and research/innovation centres.

Our collaboration partners include Aalto University in Finland, and Chalmers University of Technology in Sweden, the Royal Institute of Technology, VTT Technical Research Centre of Finland, SweTree Technologies Ltd, and Wallenberg Wood Science Center R&D. Stora Enso is a member of national, European and trade associations focused on the bioeconomy and forest agendas including Confederation of European Paper Industries (CEPI), Forest Technology Platform (FTP), and the Swedish and Finnish Forest Industry Federations. Stora Enso

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is also a member in the EU's Biobased Industries Consortium (BIC) and the Bio-Based Industries Initiative Joint Undertaking, a new partnership within the EU Horizon 2020 research programme.

Intellectual property is an increasingly important tool to support Stora Enso's strategy and to differentiate from our competitors. During 2018 Stora Enso continued to strengthen its patent portfolio, with 56 priority founding patent applications filed and over 324 patents granted worldwide. The Group IP has within the Group the responsibility for handling IP matters, including e.g. patentability/trademark/design opinions, assessments, preparations, filings and maintaining of IP rights as well as for investigations, opinions, oppositions and appeals of external parties IP rights. In addition, work with IP Landscaping is crucial before starting R&D projects also as part of the Stora Enso stage gate process. Landscaping can also reveal potential candidates for licensing, cross licensing, possible Joint Development Agreements etc. Group IP takes active part together with Legal Services in drafting various IP related agreements. Furthermore, before launching new products the Freedom to Operate (FTO) needs to be established. The Group IP strategy has been adopted by the CEO supported by the Group IP Steering Team.

### 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 are identified as the Group's key risks.

Risks and policy principles related to these topics are additionally described on pages 10–16. In addition, respect for human rights is explicitly covered below from the risk perspective.

### Business model

Replacing the use of fossil-based resources with renewable raw materials is the foundation for a sustainable bioeconomy. Stora Enso's products contribute to a low-carbon circular economy, in which materials are reused and recycled, while waste is minimised, to maximise environmental, social, and financial added value. Stora Enso's business model description is in the beginning of the Report of Board of Directors and value creation model is presented in **Strategy 2018** on page 10.

### Sustainability

Sustainability is a key element of Stora Enso's corporate governance, promoted by the Board of Directors, the CEO and the Group Leadership Team (GLT). The CEO carries the ultimate responsibility for the successful implementation of the sustainability strategy. Work on sustainability is led by the Executive Vice President, Sustainability, who reports directly to the CEO. The Board of Directors' Sustainability and Ethics Committee oversees the implementation of Stora Enso's Sustainability Strategy and Ethics and Compliance Strategy. The Committee met four times in 2018.

Stora Enso's Sustainability Policy describes our overall approach and governance model. At the same time, our Code of Conduct and other policies, guidelines, and statements on specific sustainability topics all further elaborate our approach, while also guiding our

employees in their everyday work. These documents are available at [storaenso.com/sustainability](https://storaenso.com/sustainability).

More information on Stora Enso's approach to sustainability is published in **Sustainability 2018**.

### Environmental matters

#### Forests, plantations, and land use

**Key policy: Wood and fibre sourcing, and land management policy**  
Progress on responsible forestry is followed with a key performance indicator (KPI) measuring the proportion of land in wood production and harvesting owned and managed by Stora Enso that is covered by forest certification schemes. Our target is to maintain the high level of 96%. In 2018, coverage amounted to 96% (97% in 2017<sup>1</sup>). As of January 2018, the scope excludes forest management units, whose primary purpose is not wood production and harvesting. These areas include, for example, test and pilot sites. At year-end Stora Enso owned or managed lands with a total area of 933 000 hectares.

In 2018, the total amount of wood (including roundwood, wood chips, and sawdust) delivered to our mills was 38.7 million m<sup>3</sup> (solid under bark) (37.5 million m<sup>3</sup> in 2017). The proportion of third-party certified wood in the Group's total wood supply was 76%. As of 2018 the share of certified wood excludes externally delivered certified wood. This decreased the certified share compared to the previous years.

### Carbon dioxide

#### Key policy: Energy and carbon policy

Stora Enso's science-based target (KPI) is to reduce greenhouse gas emissions from our operations by 31% per tonne of pulp, paper and board produced by 2030 compared with the 2010 base-year. In 2018, our CO<sub>2</sub>e emissions per saleable tonne of board, pulp, and paper were 18% lower than the 2010 benchmark level (21% lower in 2017). The performance declined three percentage points from 2017, mainly due to the increased use of peat at two Finnish mills and a higher fossil content in the generation of the purchased electricity in Finland and Poland.

### Social and employee matters

#### Employees and wider workforce

**Key policies: Minimum HR requirements, Health and Safety policy**  
On 31 December 2018, there were 26 100 (25 700) employees in the Group. The average number of employees in 2018 was 26 100, which was approximately 100 lower than the average number in 2017. The numbers include 50% of the employees at Veracel in Brazil and Montes del Plata in Uruguay.

Personnel expenses totalled EUR 1 330 (1 331) million or 12.7% of sales. Wages and salaries were EUR 1 000 (999) million, pension costs EUR 170 (166) million and other employer costs amounted to EUR 153 (158) million.

At the end of 2018, the Group's top three countries in respect to the number of employees were Finland, China and Sweden. 26% (26%) of employees were women.

Personnel turnover in 2018 was 15.0% (14.6%). Illness-related absenteeism amounted to 3.0% (3.1%) of total theoretical working hours.

On January 2018 Stora Enso signed a Global Framework Agreement with the three global unions - IndustriALL Global Union, UNI Global Union and the Building and Wood Worker's International - as another step towards creating working environments where all our employees are treated with respect and in a fair manner.

From the beginning of 2018, Stora Enso changed the main key performance indicator (KPI) for measuring safety performance from the Lost Time Accident (LTA) rate to the Total Recordable Incident (TRI) rate. The TRI rate gives a more comprehensive picture of safety performance as it also includes less-severe accidents.

In 2018, our TRI rate decreased to 6.1<sup>2</sup> (7.4). Compared to 2017, a 18% reduction was achieved on the TRI-rate.

Stora Enso's KPI for leadership, the Leadership Index, measures employee perceptions of their managers. The index is calculated based on our annual employee survey. Our target was to achieve an index of 80/100 by 2018. The Leadership Index in 2018 improved to 83 (81).

Employee-related information including the personnel strategy is discussed in more detail in the Group's **Sustainability 2018** and **Strategy 2018**, published during week 7.

Remuneration to the Board of Directors and key management is described in **Note 7** of the Consolidated financial statements.

### Suppliers

#### Key policy: Supplier Code of Conduct (SCoC)

Stora Enso's key performance indicator (KPI) for responsible sourcing measures the proportion of our total supplier spend covered by our SCoC, including all categories and regions. By the end of 2018, 95% of Stora Enso's total spend on materials, goods, and services was duly covered (95% at the end of 2017), which meets our target to maintain the high level of 95%.

### Community

#### Key policies: Guidelines for Social Responsibility, Human Rights Policy

Guangxi, China

Stora Enso leases 82 217 hectares of land in Guangxi province China, of which 29 265 hectares (29 581 hectares in 2017), corresponding to 36% (36%) of the total area, is social land leased from village collectives, individual households, and local forest farms.

Bahia, Brazil

In Bahia, Brazil, work continued on a 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. In the new agreement Veracel sells 3 300 hectares of previously occupied lands to the movements and related associations, and the movements will leave from Veracel's lands corresponding to 800 hectares. In addition, Veracel donates 225 hectares. After this new agreement, 468

<sup>1</sup> Recalculated according to the reviewed definition.

<sup>2</sup> Recalculated due to additional data after the Q4/2018 Interim Report.



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hectares of productive land owned by Veracel remained occupied by social landless movements not involved in the Sustainable Settlement Initiative or in the new agreement. Veracel will continue to seek repossessions of remaining occupied areas through legal processes. Previously Veracel has voluntarily reserved 16 500 hectares to support the Sustainable Settlement Initiative. At the end of 2018, the total land area owned by Veracel was 213 500 hectares, of which 76 000 hectares are planted with eucalyptus for pulp production.

### Respect for human rights

#### Key policy: Human Rights policy

Stora Enso's human rights commitment covers all our operations, including our employees, contractors, suppliers, and neighbouring communities. In addition to our commitment to the UN Guiding Principles on Business and Human Rights, Stora Enso respects and follows the legal reporting requirements of the UK Modern Slavery Act and we continue to monitor the development of similar legislation in other countries. Human rights are integrated into our Sustainability Agenda, which is aligned with the ten principles of the UN Global Compact, including its principles on human rights.

Human rights risks and impacts shall be taken into account throughout our operations, including investment decisions related to mergers, acquisitions, and divestments. Our investment guidelines stipulate that environmental and social risks and impacts, including those related to human rights, must be duly identified, assessed, and addressed prior to any investments in projects with business-critical risks.

In 2018, we completed the defining of our human rights priorities with support from BSR, an international expert organisation. To reflect this, we updated and published our Human Rights Statement as a Human Rights Policy and confirmed eight group-wide highest priority human rights:

- Health and safety
- Fair employment conditions
- 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 forestry sector).

While we respect and consider all human rights important, our identified highest priority human rights will be the primary focus of our future work. This includes our updated due diligence and monitoring programme, which will be finalised and implemented in 2019. We also aim to develop a new consolidated key performance indicator (KPI) for our human rights work during 2019 to monitor compliance with our eight highest priority human rights.

### Anti-corruption and bribery matters

#### Key policies: Business practice policy, the Stora Enso Code (Code of Conduct)

As to Business Ethics, in 2018, a total of 68 reports received through Stora Enso's various grievance channels were identified as potential non-compliance cases (61 in 2017). Based on the investigations

finalised by end of the year 2018, proven misconduct leading to disciplinary actions, legal actions and/or process improvements was identified in 20 (14) of the completed investigations, while 18 (22) further complaints were found to be valid without involving misconduct.

Based on our assessments two of the proven misconduct cases can be considered relating to corruption and/or fraud. Both cases resulted in employee dismissal or disciplinary process and in one of the cases the business relationship with an external party was terminated.

The company's Code of Conduct index monitors and evaluates employees' perceptions of Stora Enso's work on topics covered by the Stora Enso Code (Code of Conduct) and it is based on the annual employee survey results. In 2018, this index improved to 85 (83 in 2017). Our goal is to maintain this positive trend.

### Environmental investments and liabilities

In 2018 Stora Enso's environmental investments amounted to EUR 46 (65) million. These investments were mainly to improve the quality of air and water, to enhance resource efficiency and energy self-sufficiency, and to minimise the risk of accidental spills.

Stora Enso's environmental costs in 2018 excluding interest and including depreciation totalled EUR 184 (170) million. These costs include taxes, fees, refunds, permit-related costs, and repair and maintenance costs, as well as waste water treatment chemicals and certain other materials.

Provisions for environmental remediation amounted to EUR 99 (108) million at 31 December 2018, details of which are in [Note 22](#), Other Provisions, of the Consolidated financial statements. 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. Cash costs related to environmental remediation measures amounted to EUR 8 (11) million.

### Risks and risk management

#### Our approach to risk management

Risk is an integral component of business, and it is characterised by both threats and opportunities. Stora Enso is committed to ensuring that systematic, holistic and proactive management of risks and opportunities is a core capability and an integral part of all Group activities, and that a risk aware corporate culture is fostered in all decision making. Through consistent application of dynamic risk analysis, we manage risk in order to enhance opportunities and reduce threats to thus achieve our competitive advantage.

#### Risk governance

Stora Enso defines risk as the effect of uncertainty on our ability to meet organisational values, objectives and goals. The Group Risk and Internal Control 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 what an appropriate and

acceptable level of risk is. The Board has established the Financial and Audit Committee to provide support to the Board in relation to the monitoring of the adequacy of the risk management process within Stora Enso, and specifically regarding the management and reporting of financial risks. 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 CFO, is responsible for the design, development and monitoring of the top-down implementation of the Group risk management framework. Each division 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

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, distributed with the annual strategy guidelines.

Business entities and functions identify the sources of risk, events including changes in circumstances and their causes and their 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 appetite is determined across main risk categories on the business division level.

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 while the effectiveness of existing risk reduction is factored in to define the residual risk level. Pre-defined impact scales consider financial, people 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 treatment 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 quarterly basis.

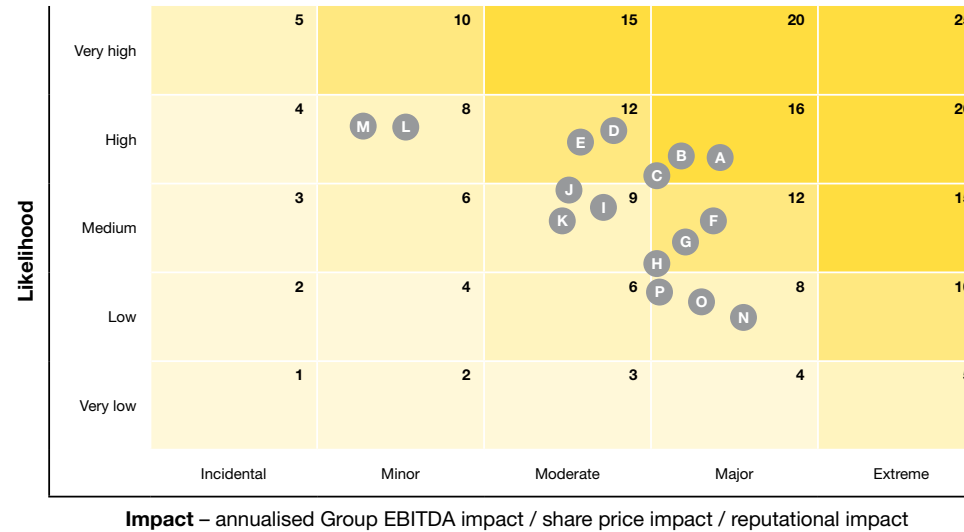
Despite the measures taken to manage risks and mitigate the impact of risks, and while some of the risks remain beyond the direct control of the management, there can be no absolute assurance that risks, if they occur, will not have a materially adverse effect on Stora Enso's business, financial condition, operating profit or ability to meet financial obligations.

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## Main risk factors

### Risk map



### Key risks in 2018

Risk*	Risk classification	Time span	Change vs 2017	Level of possible management influence
<b>Major impact – high likelihood</b>				
A Global warming	E/S	LT	→	<div><div></div></div>
B Macroeconomy, geopolitics and currency rates	E/S/F	ST/LT	↑	<div><div></div></div>
C Sourcing	I/S/O	ST/LT	→	<div><div></div></div>
<b>Moderate impact – high likelihood</b>				
D Regulatory changes	E/S/C	ST/LT	↑	<div><div></div></div>
E Information technology and security	I/O	ST	↑	<div><div></div></div>
<b>Major impact – medium likelihood</b>				
F Ethics and compliance	M/C	ST	→	<div><div></div></div>
G People and capabilities	I/O	ST/LT	↑	<div><div></div></div>
H Strategic investments	M/C	ST/LT	↓	<div><div></div></div>
<b>Moderate impact – medium likelihood</b>				
I Community relations and social responsibility	I/O/C	ST	→	<div><div></div></div>
J Competition and market demand	E/S	ST/LT	↑	<div><div></div></div>
K Product safety	M/O/C	ST	↓	<div><div></div></div>
<b>Minor impact – high likelihood</b>				
L Occupational health and safety	I/O	ST	→	<div><div></div></div>
M Physical assets	I/O	ST/LT	→	<div><div></div></div>
<b>Major impact – low likelihood</b>				
N Digitalisation	I/S	ST/LT	→	<div><div></div></div>
O Forest and land use	I/O/C	ST/LT	→	<div><div></div></div>
P Mergers, acquisitions and divestitures	M/I/O/C	ST	→	<div><div></div></div>

\* Residual risk = risk remaining after risk treatment

#### Symbols

M = Mandatory obligations  
 E = External factors  
 I = Internal capabilities  
 S = Strategic  
 O = Operational  
 C = Compliance  
 F = Financial market and reporting  
 ST = Short-term  
 LT = Long-term

#### Change vs 2017

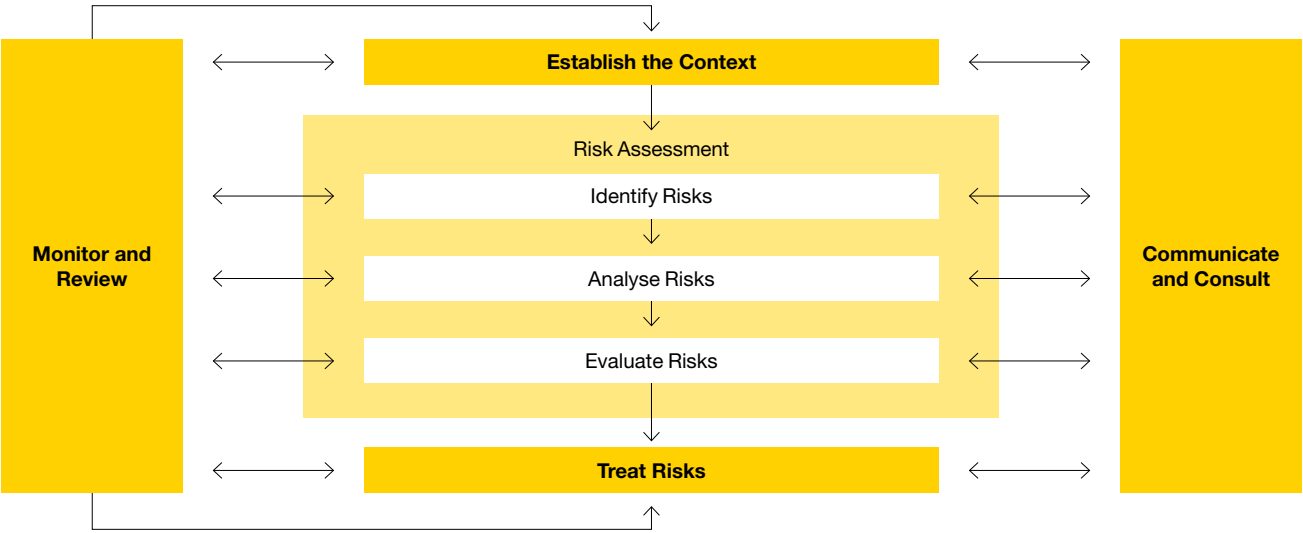
Increased ↑  
 Decreased ↓  
 Stable →  
 Level of possible management influence  
  
 Low High



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### Risk management process



#### Strategic risks

##### Global warming

Changes in precipitation patterns, drought, typhoons and severe frost periods in the subtropics could cause damage to operations and tree plantations. Increases in average temperatures could lead to changes in the tree species composition of forests. Milder winters could impact harvesting and transport of wood in northern regions and the related costs. Additional demand for biomass fuels and agricultural land may limit the availability of land for fibre production, affecting the price of biomass. The increasing global demand for water may in the long-term impact the Group's operations through our supply chains.

##### Policy principles and mitigation measures

Stora Enso is committed to contributing and mitigating the effects of climate change by actively seeking opportunities to reduce the Group's carbon footprint. Risks related to climate change are managed via activities related to finding clean, affordable and safe energy sources for production and transportation, and reducing energy consumption. Additional measures include energy efficiency initiatives, the use of carbon-neutral biomass fuels, maximising the utilisation of combined heat and power, and sequestration of carbon dioxide in forests and products. Diligent plantation planning is ensured to avoid frost sensitive areas and non-controversial tree breeding and R&D programmes are applied to increase tolerance of 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. Agroforestry concepts have been introduced to integrate the different land use forms and to mitigate the competition for land and the effects of increasing food prices.

##### Related opportunities

- With regards to global warming, we believe that the opportunities outweigh risks in near term.
- Products based on renewable materials with a low carbon footprint help customers and society at large to reduce CO<sub>2</sub> emissions by providing an alternative to solutions based on fossil fuels or other non-renewable materials.

##### Macroeconomic, geopolitical, and currency rate risks

Stora Enso operates in more than 30 countries and is affected by the global economy. Changes in broad economic conditions, sharp market corrections, increasing volatility in foreign exchange rates and chronic fiscal imbalances could have negative and material impact on the Group's profit, cash flows and financial position. A prolonged global recession may materially and adversely affect Stora Enso's performance and financial condition. A recession may also materially affect the Group's customers, suppliers and other parties with whom it does business. Exchange rate fluctuations may have a material impact on the reported results through transaction and translation risk impact.

A significant and sustained economic downturn, or any similar event, could have a material adverse effect on the Group's operational performance and financial condition. The Group's reported results and reported net assets may fluctuate as the exchange rates change.

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 using financial instruments to reduce earnings volatility. The main exposures for the Group besides currency risk are interest rate risk, funding risk, commodity price risk and credit risk.

Financial risks are discussed in detail in Note 24, Financial risk management, of the Consolidated financial statements.

##### Policy principles and mitigation measures

The Group has a diversified portfolio of businesses which mitigates exposure to any one country or product segment. We monitor the external environment continuously and our planning assumptions take account of important near- to medium-term and long-term drivers related to key macro-economic factors. We closely monitor the Board-approved risk appetite compliance for specific financial metrics and actively manage cash flow and liquidity. We hedge 50% 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 deterioration in trading conditions. In the event of a significant economic downturn, the Group would identify and implement cost reduction measures to offset the impact on margins from deterioration in sales.

##### Related opportunities

- A diverse business portfolio and geographical presence, competitive strength and resilient balance sheet reduce the Group's risk exposures
- Strategic opportunities in changing currency and macroeconomic environment.

##### Strategic investments

Stora Enso's business strategy is to transform itself from a traditional paper and board producer to a customer-focused renewable materials growth company. The success of this transformation depends on the Group's ability to understand the needs of the customer 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 have serious impacts on our financial performance. Significant, unforeseen changes in costs or an inability to sell the envisaged volumes or achieve planned price levels may prevent us from achieving our business goals.

##### Policy principles and mitigation measures

Risks are mitigated through profound and detailed pre-feasibility and feasibility studies which are prepared for each large investment. Group investment guidelines stipulate the process, governance, risk management and monitoring procedures for strategic projects.

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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.

### Related opportunities

- Replacing fossil-based materials by innovating and developing new products and services based on wood and other renewable materials.

### Competition and market demand

Continued competition and supply and demand imbalances in the raw material, energy and products market may have an impact on profitability. The paper, pulp, packaging and wood products industries are mature, capital intensive and highly competitive. Stora Enso's principal competitors include a number of large international forest products companies and numerous regional and more specialised competitors. Customer demand for products is influenced by the general economic conditions and inventory levels, and affects product price levels. Product prices, which tend to be cyclical in this industry, 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 2018.

### Operating Profit: Impact of Changes +/- 10%, EUR million

Segments	Price	Volume
Consumer Board	251	84
Packaging Solutions	129	59
Biomaterials	162	85
Wood Products	160	44
Paper	283	75

### Policy principles and mitigation measures

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.

### Related opportunities

- Our expertise in wood and other biomass is focused on responding to customer and consumer demand in a changing world.

### Digitalisation

The digital transformation of businesses continues to alter the ways in which organisations operate. Digital capabilities penetrate all

aspects of business and operating models, reshaping how companies and functions generate value. Therefore, digitalisation also involves potentially disruptive forces. Moreover, customers, regulators and other stakeholders expect companies to understand what data they have or could have, what risks it poses, and to have plans to manage it well.

Business process erosion, failure to take advantage of the upside that technology offers or inability to harvest related synergies could significantly impair Stora Enso's competitiveness in the market place.

### Policy principles and mitigation measures

Stora Enso has an extensive digitalisation programme with the aim to develop a competitive advantage by making full use of the opportunities to drive revenue growth and internal efficiency. Stora Enso has established a programme with external partners to search for technological development initiatives with a clear business purpose. With experimental and fast prototyping, these projects will help to identify and further develop initiatives that will speed up Stora Enso's digital maturity by exploring new technologies and capabilities.

### Related opportunities

- Opportunities related to digitalisation clearly exceed related risks
- New technologies offer significant potential for higher level of process optimisation and automation, new business models and enhanced value propositions for customers and consumers.

### Mergers, acquisitions, and divestitures

Failure to achieve the expected benefits from any acquisition or value from assets or businesses sold can have serious financial impacts. The Group could 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. In connection with an acquisition, past practices with targets related to e.g. pollution, competition law compliance or corruption could result in additional costs for Stora Enso and cause reputational damage. Divestments may involve additional costs due to historical and unaccounted liabilities. Business restructuring may also involve reputational impacts.

### Policy principles and mitigation measures

Rigorous M&A guidelines, including due diligence procedures are applied to the evaluation and execution of all acquisitions that require the approval of the Board of Directors. Structured governance and policies such as the policy for responsible rightsizing, are followed when making restructuring decisions.

### Related opportunities

- A strong balance sheet and cash flow enable value enhancing M&A, when the timing and opportunity are right.

## Operational risks

### Sourcing and logistics

Violation of Supplier Code of Conduct could result in contractual, financial and reputational damages and loss of sales if Stora Enso were to be blacklisted by customers. Similarly poor occupational safety performance of subcontractors can be a risk to our reputation. 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 natural gas, oil and coal, and for peat and nearly half of the electricity consumed, leaves the Group susceptible to changes in energy market prices and disturbances in the supply chain.

The following table shows Stora Enso's major cost items.

### Composition of costs in 2018

Operative Costs	% of Costs	% of Sales
Logistics and commissions	11%	10%
<b>Manufacturing costs</b>		
Fibre	34%	30%
Chemicals and fillers	10%	9%
Energy	7%	6%
Material	7%	6%
Personnel	14%	13%
Other	12%	10%
Depreciation	5%	5%
<b>Total costs and sales</b>	<b>100%</b>	<b>88%</b>
<b>Total operative costs and sales in EUR million</b>	<b>9 241</b>	<b>10 486</b>
Equity accounted investments (EAI), operational		81
<b>Operational EBIT</b>		<b>1 325</b>

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 fibre, chemicals and energy, and machinery and equipment in capital investment projects. 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.

### Policy principles and mitigation measures

Input cost volatility is closely monitored on the business unit, divisional and Group level. The Group applies consistent long-term energy risk management. 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



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derivatives. The Group hedges price risks in raw material and end-product markets, and supports the development of financial hedging markets. The Group uses a wide range of suppliers and monitors them 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, and their weak sustainability performance could harm Stora Enso and its reputation. Stora Enso's sustainability requirements for suppliers and audit schemes cover its raw materials, and other goods and services procured. Suppliers are assessed for risks related to their environmental, social and business practices through self-assessment questionnaires and supplier audits. Findings from such assessments are continuously followed up and progressive blacklisting procedures are applied as necessary.

Environmental and social responsibility in wood procurement and forest management is a prime requirement of stakeholders. Failing to ensure that the origin of wood used by the Group is acceptable could have serious consequences in the markets. Stora Enso manages this risk through its policies of sustainable sourcing of wood and fibre, and land management, which set the basic requirements for all Stora Enso wood procurement operations. Traceability systems are used to document that all wood and fibre come from legal and acceptable sources.

### Related opportunities

- Add value and bring innovation to our business globally by building strong and measurable relationships with the best suppliers.
- Enforce harmonised sourcing processes to increase capabilities, increase tender quality to reduce cost, and develop sustainable suppliers to reduce risk.

### Information technology and security

The Group is dependent on IT systems for both internal and external communications and for the day-to-day management of its operations. The Group's information systems, personnel and facilities are subject to cyber security risk. Failure to capitalise on digitalisation and cognitive technologies could impair Stora Enso's competitiveness. Other IT related risks relate to the potential unavailability of IT services due to human error in operations, damaged hardware in data rooms and data centres, network connection issues and the failure of suppliers to follow service level agreements.

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 and other business critical information. Further risks involve the loss of backup media and violation of data privacy regulations.

### Policy principles and mitigation measures

The management of risks is actively pursued in the Information Risk Management System and best practice change management and project methodologies are applied. A number of security controls

have been implemented to strengthen the protection of confidential information and to facilitate compliance with international regulations. Specific measures include a thorough RfP process in supplier selection for business-critical services, supplier audits, annual controls and audit, data centres located in low-risk areas, backup connections for critical services, disaster recovery plans, targeted scanning and investigation activities, encryption of communication, information and devices, remote management of security on devices and information security awareness training.

### Related opportunities

Efficient operations, performance optimisation, innovative product offerings, and new customer services through digitisation and sophisticated IT systems.

### People and capabilities

Recruiting, retaining and developing a competent workforce and managing key talent throughout Stora Enso's global organisation are crucial to success. Competition for personnel is intense and the Group may not be successful in attracting or retaining qualified personnel. A significant portion of Stora Enso employees are members of labour unions and there is a risk that the Group may face labour market disruptions especially in a time of restructuring and redundancies due to divestments and mill closures.

The loss of key employees, the Group's inability to attract new or adequately trained employees, or a delay in hiring key personnel could seriously harm the Group's business and impede the Group and its business divisions from reaching their strategic objectives. Labour market disruptions and strikes could have adverse material effects on the business, financial conditions and profitability.

### Policy principles and mitigation measures

Stora Enso manages the risks and loss of key talents through a combination of different actions. Some of the activities aim at providing a better overview of the workforce of the whole Group, 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.

### Related opportunities

- Skilled and dedicated employees are essential for success.
- Engaged high performing people enable the implementation of transformation strategy and commercial success.

### Community relations and social responsibility

Social risks may harm existing operations and the execution of investments, especially in growth markets. Failure to successfully manage relationships with local communities and non-governmental

organisations (NGOs) could disrupt our operations and adversely affect the Group's reputation. The Group operates in certain countries, where land and resource ownership rights remain unclear and where related disputes may arise.

Potential impacts include reputational impacts and negative media coverage, harm to communities and rights holders, disruption of operations, and loss of the licence to operate.

### Policy principles and mitigation measures

Stora Enso strives to identify and minimise risks related to social issues in good time, in order to guide decision-making in its investment processes as well as in its ongoing operations. Tools such as sustainability risk assessment, human rights due diligence and Environmental and Social Impact Assessments (ESIA) help ensure that no unsustainable projects are initiated and all related risks and opportunities are fully understood in all operations. These tools also enable project plans and operating practices to be adapted to suit local circumstances. Furthermore, dialogue with NGOs is a part of the Group's stakeholder engagement. More information on community engagement is presented in Stora Enso's Sustainability Report.

### Related opportunities

- Ensuring that the communities around our operations thrive economically, socially, and environmentally is crucial for the success and sustainability of Stora Enso.
- Clear business benefits to Stora Enso through a strong focus on social responsibility, as customers, business partners, investors and potential employees become more and more attracted to socially responsible companies.

### Product safety

Some of our products are used to 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.

### Policy principles and mitigation measures

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, all Stora Enso mills have certified ISO quality management systems. Furthermore, contractual liability limitation and insurance protection are used to limit the risk exposure to Stora Enso.

### Related opportunities

- Differentiation and value creation through superior product quality and the highest level of product conformity.

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### Occupational health and safety

Failure to maintain high levels of safety management can result in harm to the Group's employees or 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, impairment of the Group's reputation, or inability to attract and retain skilled employees. Government authorities could additionally enforce the closure of our operations on a temporary basis.

Personnel 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, travel, work and living in countries with security or crime concerns. Focusing on the security of key personnel is also important from a business continuity perspective.

### Policy principles and mitigation measures

Stora Enso measures its performance in health and safety through lag indicators on accidents and near-misses, and lead indicators on safety observations. The target in safety is to achieve zero accidents, but demanding milestones have also been set for accident and incident rates. Stora Enso has adopted a common model for safety management, establishing a set of safety tools that all units must implement in their operations. Implementation of the tools is followed up and reported internally on a quarterly basis, and support is offered to units through training, coaching and the sharing of best-practice. The main responsibility for identifying and managing safety risks remains with the units. At the mill level, safety and health risks are assessed jointly, in co-operation with the occupational health service providers. Global health and safety risks are monitored and assessed by the Group's Occupational Health and Safety unit.

Stora Enso carries out constant monitoring of risks related to the security and safety of the personnel, including health issues, and information available on the Intranet is delivered directly to travelling employees. An external service provider takes care of action in medical or security crises, under guidance from Stora Enso's crisis management team.

### Related opportunities

- Leading health and safety performance strengthens the brand as an employer.
- Improved engagement, efficiency and productivity.

### Physical assets

The physical assets that comprise the installed capacity of the production facilities have inherent risks or the potential for failure, and also involve the potential for off-specification operation that could result in poor product quality, lower output or increased production costs. In addition to the inherent risks of catastrophic failure, the management must also consider the relative importance, e.g. criticality, of each asset on the plant's ability to meet delivery commitments and the business plan. In some instances the risks

are the result of inherent design deficiencies, mode of operation or operating practices. In Stora Enso the significant asset risks lie predominantly in integrated (but also non-integrated) pulp and related energy production.

### Policy principles and mitigation measures

Protecting production assets and business results is a high priority for Stora Enso to achieve the target of avoiding any unplanned production stoppages. This is achieved through structured methods of identifying, measuring and controlling different types of 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. Striking a balance between accepting risks and avoiding, treating or sharing risks is a high priority.

### Related opportunities

- Optimised maintenance and well controlled loss prevention programmes
- Potential for competitive advantage through improved productivity and overall efficiency

### Compliance risks

#### Regulatory changes

The Group's businesses may be affected by political or regulatory developments in any of the countries and jurisdictions in which the Group operates, including changes to fiscal, tax, environmental or other regulatory regimes. Potential impacts include higher costs and capex to meet new environmental requirements, expropriation of assets, imposition of royalties or other taxes targeted at our industry, and requirements for local ownership or beneficiation. In particular, the EU energy and carbon policies may impact upon the availability and price of wood fibre. Additionally, political instability may result in civil unrest, nullification of existing agreements, harvesting permits or land leases. Unpredicted changes in forest certification schemes could limit the availability of certified raw materials.

### Policy principles and mitigation measures

- Active monitoring of regulatory and political developments in the countries where the Group operates
- Participation in policy development mainly through industry associations

### Related opportunities

- Regulatory changes involve market growth potential for sustainable products. Resource efficiency, the circular economy and renewability are increasingly important sources of competitive advantage.

### 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 (e.g. capital markets regulation, company and tax laws, customs regulation and safety regulation) and breaches of group policies such as the Stora Enso Code, Supplier Code of Conduct and Business Practice Policy regarding fraud, anti-trust, corruption, conflict of interests and other misconduct. Stora Enso may face high compliance and remediation costs under environmental laws and regulations. See also Information systems and information security. Potential impacts include prosecution, fines, penalties, and contractual, financial and reputational damage.

### Policy principles and mitigation measures

Stora Enso's Ethics and Compliance Programme, including policy setting, value promotion, training and knowledge sharing and grievance mechanisms are kept continuously up to date and developed. Other compliance mechanisms include Stora Enso Group's internal control system and Internal Audit assurance, the Supplier Code of Conduct in supplier contracts, supplier risk assessments, supplier trainings, supplier audits and black-listing procedures. 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.

### Related opportunities

- Focusing on wider ethical topics rather than mere compliance with regulations will lead to successful business, foster accountability and enhance corporate reputation.

### Forest and land use

Wood is our most important raw material. Adverse changes in growing conditions and natural hazards, caused by climate change, for example, could result in significant financial loss to Stora Enso. Failure to meet stakeholder expectations or to ensure the chain of custody and economically, socially and environmentally sustainable forest and land management practices throughout our wood procurement and plantation operations could also result in significant reputational and financial loss to Stora Enso. Furthermore, global challenges such as population growth, increasing demand for agricultural land, and the widening gap between the supply and demand for wood, all require us to use natural resources even more efficiently.



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### Policy principles and mitigation measures

Our Policy for Wood and Fibre Sourcing, and Land Management, robust traceability systems and our active promotion of forest certification all help to ensure that no wood or fibre from unacceptable sources enters our supply chain. In addition, when sourcing logging residues and other forest biomass for energy use, we follow the specific guidelines developed for the harvesting of forest energy, which include strict environmental considerations.

### Related opportunities

As trees absorb carbon dioxide (CO<sub>2</sub>) from the atmosphere and – together with wood-based products – act as carbon sinks, wood from sustainably managed forests represents a carbon neutral, renewable alternative to many non-renewable materials. If forests and plantations are managed sustainably, new generations of trees will replace those that are logged, sequestering more CO<sub>2</sub> from the atmosphere. Well-managed forests can make entire ecosystems more resilient to negative impacts, and benefit from positive ones.

### Corporate governance in Stora Enso

Stora Enso complies with the Finnish Corporate Governance Code issued by the Securities Market Association (the "Code"). The Code is available at [cgfinland.fi](http://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 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 and is available at [corporategovernanceboard.se](http://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.

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.

### Legal proceedings in Latin America

#### 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 BRL 20 (EUR 5) 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.

In June 2017, Veracel received a tax infringement note referring to year 2012 with a total amount of BRL 224 (EUR 50) million including interest and fines. The dispute is limited to fiscal year 2012 for which the tax authority applied another transfer pricing method due to a different interpretation of a transition rule. Veracel acts in full compliance with Brazilian transfer pricing law and has filed an administrative defense against the tax note in July 2017. In June 2018 Veracel received a positive decision from Federal Revenue Judgement, which has been confirmed by the Administrative Council For Fiscal Resources in January 2019. The total exposure at year end is BRL 241 (EUR 54) million considering interest until 31 December 2018. Stora Enso's share of the exposure is BRL 120 (EUR 27) million. No provisions have been recorded in Veracel's or Stora Enso's accounts for this tax dispute.

### Legal proceedings in Finland

#### Roundwood claim

In December 2009, the Finnish Market Court fined Stora Enso for competition law infringements in the market for roundwood in Finland from 1997 to 2004. Stora Enso did not appeal against the ruling. In March 2011, Metsähallitus of Finland initiated legal proceedings against Stora Enso, UPM and Metsäliitto claiming compensation for damage allegedly suffered due to the competition infringement. In its judgement rendered in June 2016, the Helsinki District Court dismissed Metsähallitus' claim for damages against Stora Enso, UPM and Metsäliitto. Metsähallitus appealed against the District Court's judgment to the Helsinki Court of Appeal, which rendered its judgement in the matter in May 2018. In its judgement, the Court of Appeal dismissed Metsähallitus' appeal and upheld the District Court's judgement. The total amount of Metsähallitus' claim jointly and severally against Stora Enso, UPM and Metsäliitto in the Court of Appeal was approximately EUR 125 million and the secondary claim against Stora Enso was approximately EUR 68 million. Metsähallitus applied for a leave of appeal from the Supreme Court. The Supreme Court decided on 29 January 2019 that the application to appeal is denied. This concludes the case without Stora Enso having any payment obligation towards Metsähallitus. Further the entire round woodclaim case can be now considered closed without any material financial effects on Stora Enso. The quarterly reporting will discontinue.

### Legal proceedings in Sweden

#### Insurance claim

In July and August 2016, six Swedish insurance companies filed lawsuits in the Environmental Court and the District Court of Falun against Stora Enso, due to damage caused by the forest fire in

Västmanland, Sweden, in 2014. The claimed amount is approximately SEK 300 (EUR 30) million. Stora Enso denies liability. So far the Environmental Court and thereafter the Environmental Court of Appeal has found that the Environmental code is not applicable on damage caused by fire.

### Company fine

In January 2018, a Swedish prosecutor filed a lawsuit against Stora Enso and its supplier, due to the forest fire in Västmanland, Sweden in 2014, claiming a company fine of SEK 5 million each. Both Stora Enso and the supplier have disputed the claim.

### 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 voting rights. Each A share and each ten R shares carry one vote at a shareholders' meeting. However, each shareholder has at least one vote.

During 2018, a total of 79 648 A-shares converted into R-shares were recorded in the Finnish Trade Register. On 31 December 2018, Stora Enso had 176 312 672 A shares and 612 307 315 R shares in issue. The company did not hold its own shares. The total number of Stora Enso shares in issue was 788 619 987 and the total number votes at least 237 543 403.

The Board of Directors is not currently authorised to issue, acquire or dispose of shares in the Company.

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### Major shareholders as of 31 December 2018

By voting power	A shares	R shares	% of shares	% of votes
1 Solidium Oy <sup>1</sup>	62 655 036	21 792 540	10.7%	27.3%
2 FAM AB <sup>2</sup>	63 123 386	17 000 000	10.2%	27.3%
3 Social Insurance Institution of Finland	23 825 086	973 982	3.1%	10.1%
4 Varma Mutual Pension Insurance Company	8 513 018	1 140 874	1.2%	3.6%
5 Ilmarinen Mutual Pension Insurance Company	3 352 286	17 778 548	2.7%	2.2%
6 MP-Bolagen i Vetlanda AB, (Werner von Seydlitz dödsbo)	4 818 000	1 390 000	0.8%	2.1%
7 Erik Johan Ljungberg's Education Foundation	1 780 540	2 336 224	0.5%	0.8%
8 Swedbank Robur Funds	0	10 674 443	1.4%	0.4%
9 Bergslaget's Healthcare Foundation	626 269	1 609 483	0.3%	0.3%
10 The State Pension Fund	0	7 200 000	0.9%	0.3%
11 Nordea Investment Funds	0	5 913 015	0.7%	0.2%
12 Keva (Local Government Pension Institution)	0	5 251 101	0.7%	0.2%
13 Elo Mutual Pension Insurance Company	0	4 680 000	0.6%	0.2%
14 Unionen (Swedish trade union)	0	3 477 750	0.4%	0.1%
15 SEB Investment Management	0	3 157 906	0.4%	0.1%
<b>Total</b>	<b>168 693 621</b>	<b>104 375 866</b>	<b>36.1%<sup>3</sup></b>	<b>75.9%<sup>3</sup></b>
Nominee-registered shares	74 382 979	473 956 786	69.5% <sup>3,4</sup>	51.3% <sup>3,4</sup>

<sup>1</sup> Entirely owned by the Finnish State.

<sup>2</sup> As confirmed to Stora Enso.

<sup>3</sup> As some of the shareholdings on the list are nominee registered, the percentage figures do not add up to 100%.

<sup>4</sup> 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 (Cit). 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.

### Share distribution as at 31 December 2018

By size of holding, A share	Shareholders	%	Shares	%
1–100	4 740	49.57%	220 209	0.13%
101–1 000	4 185	43.76%	1 511 244	0.86%
1 001–10 000	605	6.33%	1 396 829	0.79%
10 001–100 000	27	0.28%	513 702	0.29%
100 001–1 000 000	0	0.00%	0	0.00%
1 000 001–	6	0.06%	172 670 688	97.93%
<b>Total</b>	<b>9 563</b>	<b>100.00%</b>	<b>176 312 672</b>	<b>100.00%</b>

By size of holding, R share	Shareholders	%	Shares	%
1–100	10 889	27.61%	624 069	0.10%
101–1 000	21 563	54.67%	9 141 510	1.49%
1 001–10 000	6 367	16.14%	16 998 021	2.78%
10 001–100 000	519	1.32%	14 249 726	2.33%
100 001–1 000 000	79	0.20%	23 597 005	3.85%
1 000 001 –	23	0.06%	547 696 984	89.45%
<b>Total</b>	<b>39 440</b>	<b>100.00%</b>	<b>612 307 315</b>	<b>100.00%</b>

According to Euroclear Finland.

### Ownership distribution as at 31 December 2018

	% of shares	% of votes
Solidium Oy <sup>1</sup>	10.7%	27.3%
FAM AB <sup>2</sup>	10.2%	27.3%
Social Insurance Institution of Finland (KELA)	3.1%	10.1%
Finnish institutions (excl. Solidium and KELA)	11.6%	8.6%
Swedish institutions (excl. FAM)	4.9%	4.6%
Finnish private shareholders	4.2%	2.5%
Swedish private shareholders	3.1%	2.2%
ADR holders	2.0%	0.7%
Under nominee names (non-Finnish/non-Swedish shareholders)	50.2%	16.7%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

<sup>1</sup> Entirely owned by the Finnish State.

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### Outlook and short-term risks

Stora Enso introduces new way of giving annual outlook and quarterly guidance. The Group starts to guide absolute range for quarterly operational EBIT, instead of comparing quarterly sales and operational EBIT to the previous quarter qualitatively.

Stora Enso's year 2019 is expected to be largely in line with 2018, provided that the current trading conditions do not significantly change. Demand growth is expected to continue for Stora Enso's other businesses except for European Paper, for which demand is forecast to continue to decline in 2019. Group's sales are expected to be higher and costs are forecast to increase in 2019 compared to 2018. Stora Enso will implement measures to mitigate these cost increases and the increased uncertainties with the profit protection programme.

Stora Enso publishes the quarterly guidances in its interim reports. Increasing competition, and supply and demand imbalances in the paper, pulp, packaging, wood products and roundwood markets may affect Stora Enso's market share and profitability. Changes in the global economic and political environment, sharp market corrections, increasing volatility in foreign exchange rates and deteriorating economic conditions in the main markets could all affect Stora Enso's profits, cash flows and financial position.

With reference to current geopolitical circumstances, there is an increasing risk of an escalation in protectionist measures to the extent that global trade could materially shrink. This would have major knock-on effects for inflation, business sentiment, consumer sentiment and ultimately global economic growth.

Furthermore, as the global economy is moving into a new phase where the main central banks will begin to reduce or reverse their lenient monetary policy positions, such developments may give rise to significant uncertainty and negatively affect Stora Enso's business conditions.

Other risks and uncertainties include, but are not limited to, general industry conditions, such as changes in the cost or availability of raw materials, energy and transportation costs, unanticipated expenditures related to the cost of compliance with existing and new environmental and other governmental regulations and to actual or potential litigation, material disruption at one of our manufacturing facilities, risks inherent in conducting business through joint ventures, and other factors that can be found in Stora Enso's press releases and disclosures.

Energy sensitivity analysis: the direct effect of a 10% increase in electricity, heat, oil and other fossil fuel market prices would have a negative impact of approximately EUR 12 million on operational EBIT for the next 12 months, after the effect of hedges.

Wood sensitivity analysis: the direct effect of a 10% increase in wood prices would have a negative impact of approximately EUR 203 million on operational EBIT for the next 12 months.

Pulp sensitivity analysis: the direct effect of a 10% increase in pulp market prices would have a positive impact of approximately EUR 130 million on operational EBIT for the next 12 months.

Chemical and filler sensitivity analysis: the direct effect of a 10% increase in chemical and filler prices would have a negative impact

of approximately EUR 62 million on operational EBIT for the next 12 months.

A decrease of energy, wood, pulp or chemical and filler prices would have the opposite impact.

Foreign exchange rates 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 against the euro would be approximately positive EUR 184 million, negative EUR 99 million and positive EUR 38 million annual impact, respectively. Weakening of the currencies would have the opposite impact. These numbers are before the effect of hedges and assuming no changes occur other than a single currency exchange rate movement.

The Group incurs annual unhedged net costs worth approximately EUR 120 million in Brazilian real (BRL) in its operations in Brazil and approximately EUR 110 million in Chinese Renminbi (CNY) in its operations in China. For these flows, a 10% strengthening in the value of a foreign currency would have a EUR 12 million and EUR 11 million negative impact on operational EBIT, respectively.

### Events after the balance sheet date

On 29 January the Supreme Court denied the Finnish Metsähallitus' application to appeal in the roundwood claim case.

On 1 February Stora Enso announced a profit protection programme to strengthen competitiveness. The intention is to achieve annual cost reduction of EUR 120 million as well as reduction of capital expenditure by about EUR 50 million compared to the earlier forecast.

### Proposal for the distribution of dividend

The Board of Directors proposes to the AGM that a dividend of EUR 0.50 per share be distributed for the year 2018.

The dividend would be paid to shareholders who on the record date of the dividend payment, 18 March 2019, 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 dividend be paid on or about 25 March 2019.

### Annual General Meeting

Stora Enso Oyj's Annual General Meeting (AGM) will be held on Thursday 14 March 2019 at 4.00 p.m. Finnish time at Finlandia Hall, Mannerheimintie 13 e, Helsinki, Finland.

### Non-IFRS measures

The Group's key non-IFRS performance metric is operational EBIT, which is used to evaluate the performance of its operating segments and to steer allocation of resources to them. Operational EBIT comprises the operating profit excluding items affecting comparability

(IAC) and fair valuations from the segments and Stora Enso's share of the operating profit of equity accounted investments (EAI), also excluding items affecting comparability and fair valuations.

Items affecting comparability are exceptional transactions that are not related to recurring business operations. The most common IAC are capital gains and losses relating to disposal of fixed assets, impairments or impairment reversals, disposals gains and losses relating to Group companies, environmental provisions, provisions for planned restructurings, other provisions and penalties. Items affecting comparability are normally disclosed individually if they exceed one cent per share.

Fair valuations and non-operational items include equity incentive schemes and related hedges, CO<sub>2</sub> emission rights, valuations of biological assets and the Group's share of income tax and net financial items of EAI.

Cash flow from operations (non-IFRS) is a group specific way to present operative cash flow without hedging result from OCI and starting from operational EBITDA instead of operating profit.

Cash flow after investing activities (non-IFRS) is calculated as follows: cash flow from operations (non-IFRS) excluding cash spent on intangible assets, property, plant and equipment, and biological assets and acquisitions of EAls.

The full list of the non-IFRS measures is presented at the end of this report.

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### Calculation of key figures

<b>Operational return on capital employed, operational ROCE (%)</b>	100 x	$\frac{\text{Annualised operational EBIT}}{\text{Capital employed}^{1,2}}$
<b>Operational return on operating capital, operational ROOC (%)</b>	100 x	$\frac{\text{Annualised operational EBIT}}{\text{Operating capital}^{1,2}}$
<b>Return on equity, ROE (%)</b>	100 x	$\frac{\text{Net profit/loss for the period}}{\text{Total equity}^2}$
<b>Net interest-bearing liabilities</b>		Interest-bearing liabilities – interest-bearing assets
<b>Net debt/equity ratio</b>		$\frac{\text{Net interest-bearing liabilities}}{\text{Equity}^3}$
<b>Earnings per share (EPS)</b>		$\frac{\text{Net profit/loss for the period}^3}{\text{Average number of shares}}$
<b>Payout ratio, excl. IAC, %</b>	100 x	$\frac{\text{Dividend distribution / share}}{\text{EPS excl. IAC}}$
<b>Dividend and distribution yield, %</b>	100 x	$\frac{\text{Dividend distribution / share}}{\text{Closing price of share}}$
<b>Price/earnings ratio (P/E), excl. IAC</b>		$\frac{\text{Closing price of share}}{\text{EPS excl. IAC}}$
<b>Operational EBIT</b>		Operating profit/loss excluding items affecting comparability (IAC) and fair valuations of the segments and Stora Enso's share of operating profit/loss excluding IAC and fair valuations of its equity accounted investments (EAI)
<b>Operational EBITDA</b>		Operating profit/loss excluding operational decrease in the value of biological assets, fixed asset depreciation and impairment, IACs and fair valuations. The definition includes the respective items of subsidiaries, joint arrangements and equity accounted investments.
<b>Net debt/last 12 months' operational EBITDA ratio</b>		$\frac{\text{Net interest-bearing liabilities}}{\text{LTM operational EBITDA}}$
<b>Fixed costs</b>		Maintenance, personnel and other administrative type of costs, excluding IAC and fair valuations
<b>Last 12 months (LTM)</b>		12 months prior to the end of reporting period
<b>TRI</b>		Total recordable incident rate = number of incidents per one million hours worked

<sup>1</sup> Capital employed = Operating capital – Net tax liabilities

<sup>2</sup> Average for the financial period

<sup>3</sup> Attributable to owners of the Parent

### List of non-IFRS measures

Operational EBITDA  
Operational EBITDA margin  
Operational EBIT  
Operational EBIT margin  
Capital expenditure  
Capital employed  
Operational ROCE  
Earnings per share (EPS), excl. IAC  
Operational ROOC  
Net debt/last 12 months' operational EBITDA ratio  
Cash flow from operations  
Cash flow after investing activities



# Consolidated financial statements

## Consolidated income statement

EUR million	Note	Year Ended 31 December	
		2018	2017
<b>Sales</b>	3	<b>10 486</b>	<b>10 045</b>
Other operating income	5	92	147
Changes in inventories of finished goods and work in progress		125	28
Materials and services		-6 157	-5 945
Freight and sales commissions		-932	-968
Personnel expenses	6	-1 330	-1 331
Other operating expenses	5	-526	-551
Share of results of equity accounted investments	13	181	66
Change in net value of biological assets	12	-68	-72
Depreciation, amortisation and impairment charges	10	-479	-515
<b>Operating Profit</b>	3	<b>1 390</b>	<b>904</b>
Financial income	8	27	38
Financial expense	8	-207	-200
<b>Profit before Tax</b>		<b>1 210</b>	<b>742</b>
Income tax	9	-221	-128
<b>Net Profit for the Year</b>		<b>988</b>	<b>614</b>
<b>Attributable to:</b>			
Owners of the Parent	18	1 013	625
Non-controlling Interests	19	-24	-11
<b>Net Profit for the Year</b>		<b>988</b>	<b>614</b>
<b>Earnings per Share</b>			
Basic and diluted earnings per share, EUR	32	1.28	0.79

## Consolidated statement of comprehensive income

EUR million	Note	Year Ended 31 December	
		2018	2017
Net profit for the year		<b>988</b>	<b>614</b>
<b>Other Comprehensive Income (OCI)</b>			
<b>Items that will Not be Reclassified to Profit and Loss</b>			
Equity instruments at fair value through other comprehensive income	14	97	0
Actuarial losses/gains on defined benefit plans	20	-24	61
Income tax relating to items that will not be reclassified	9	5	-10
		<b>78</b>	<b>51</b>
<b>Items that may be Reclassified Subsequently to Profit and Loss</b>			
Share of OCI of equity accounted investments that may be reclassified	27	4	5
Currency translation movements on equity net investments (CTA)	28	-36	-288
Currency translation movements on non-controlling interests	19	0	-3
Net investment hedges	28	-14	40
Cash flow hedges	27	-24	32
Cost of hedging - time value of options	27	-2	0
Non-controlling interests' share of cash flow hedges	19	-2	0
Available-for-sale investments	14	0	39
Income tax relating to items that may be reclassified	9	7	-10
		<b>-68</b>	<b>-185</b>
<b>Total Comprehensive Income</b>		<b>999</b>	<b>480</b>
<b>Attributable to:</b>			
Owners of the Parent		1 025	494
Non-controlling interests	19	-27	-14
<b>Total Comprehensive Income</b>		<b>999</b>	<b>480</b>

The accompanying Notes are an integral part of these Consolidated financial statements.

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## Consolidated statement of financial position

			As at 31 December	
EUR million		Note	2018	2017
Assets				
Goodwill	O	11	243	237
Other intangible assets	O	11	254	229
Property, plant and equipment	O	11	5 234	5 310
		11	5 731	5 776
Biological assets	O	12	457	448
Emission rights	O		26	12
Equity accounted investments	O	13	1 729	1 600
Listed securities	I	14	13	21
Unlisted securities	O	14	422	318
Non-current loan receivables	I	25	54	55
Deferred tax assets	T	9	120	154
Other non-current assets	O	15	48	50
Non-current Assets			8 601	8 434
Inventories	O	16	1 567	1 321
Tax receivables	T	9	9	9
Operative receivables	O	17	1 487	1 319
Interest-bearing receivables	I	25	55	80
Cash and cash equivalents	I		1 130	607
Current Assets			4 248	3 336
Total Assets			12 849	11 770

		As at 31 December	
EUR million	Note	2018	2017
<b>Equity and Liabilities</b>			
Share capital	18	1 342	1 342
Share premium		77	77
Fair value reserve	27	290	210
Cumulative translation adjustment	28	-335	-288
Invested non-restricted equity fund		633	633
Retained earnings		3 694	3 409
Net profit for the year		1 013	625
<b>Equity Attributable to Owners of the Parent</b>		<b>6 714</b>	<b>6 008</b>
Non-controlling Interests	19	18	47
<b>Total Equity</b>		<b>6 732</b>	<b>6 055</b>
Post-employment benefit provisions	O 20	401	377
Other provisions	O 22	101	111
Deferred tax liabilities	T 9	168	166
Non-current debt	I 26	2 265	2 046
Other non-current operative liabilities	O 23	34	52
<b>Non-current Liabilities</b>		<b>2 970</b>	<b>2 752</b>
Current portion of non-current debt	I 26	403	370
Interest-bearing liabilities	I 26	675	596
Bank overdrafts	I 26	1	4
Other provisions	O 22	16	23
Other operative liabilities	O 23	1 960	1 888
Tax liabilities	T 9	92	82
<b>Current Liabilities</b>		<b>3 147</b>	<b>2 963</b>
<b>Total Liabilities</b>		<b>6 117</b>	<b>5 715</b>
<b>Total Equity and Liabilities</b>		<b>12 849</b>	<b>11 770</b>

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.



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## Consolidated cash flow statement

		Year Ended 31 December	
EUR million	Note	2018	2017
<b>Cash Flow from Operating Activities</b>			
Net profit for the year		988	614
Adjustments and reversal of non-cash items:			
Taxes	9	221	128
Depreciation and impairment charges	10	479	515
Change in value of biological assets	12	68	72
Change in fair value of share awards and TRS		2	10
Share of results of equity accounted investments	13	-181	-66
Profits and losses on sale of fixed assets and investments	5	20	7
Net financial items	8	180	162
Other adjustments		-9	-7
Dividends received from equity accounted investments	13	24	20
Interest received		3	3
Interest paid		-116	-143
Other financial items, net		-9	-53
Income taxes paid	9	-152	-97
Change in net working capital, net of businesses acquired or sold		-428	37
<b>Net Cash Provided by Operating Activities</b>		<b>1 092</b>	<b>1 202</b>
<b>Cash Flow from Investing Activities</b>			
Acquisition of subsidiary shares and business operations, net of disposed cash	4	-4	0
Acquisition of shares in equity accounted investments	13	-29	-9
Acquisition of unlisted securities	14	-3	-8
Proceeds from disposal of subsidiary shares and business operations, net of disposed cash	4	42	-4
Proceeds from disposal of shares in equity accounted investments	13	3	5
Proceeds from disposal of unlisted securities	14	1	0
Proceeds from disposal of intangible assets and property, plant and equipment	11	9	45
Income taxes paid on disposal of property		0	-15
Capital expenditure	3, 11	-442	-578
Investment in biological assets	12	-83	-80
Proceeds from/payment of non-current receivables, net		8	-52
<b>Net Cash Used in Investing Activities</b>		<b>-497</b>	<b>-696</b>

		Year Ended 31 December	
EUR million	Note	2018	2017
<b>Cash Flow from Financing Activities</b>			
Proceeds from issue of new long-term debt	26	578	425
Repayment of long-term debt	26	-358	-1 034
Change in short-term borrowings	26	39	76
Dividends paid		-323	-292
Buy-out of interest in subsidiaries from non-controlling interests	19	-2	0
Equity injections from, less dividends to, non-controlling interests	19	-2	-1
Purchase of own shares		-5	-3
<b>Net Cash Used in Financing Activities</b>		<b>-73</b>	<b>-829</b>
Net Change in Cash and Cash Equivalents		<b>521</b>	<b>-323</b>
Translation adjustment		4	-23
Net Cash and cash equivalents at beginning of year		603	949
<b>Net Cash and Cash Equivalents at Year End</b>		<b>1 128</b>	<b>603</b>
<b>Cash and Cash Equivalents at Year End<sup>1</sup></b>		<b>1 130</b>	<b>607</b>
<b>Bank Overdrafts at Year End</b>		<b>-1</b>	<b>-4</b>
<b>Net Cash and Cash Equivalents at Year End</b>		<b>1 128</b>	<b>603</b>

<sup>1</sup> 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.

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## Consolidated cash flow statement

### Supplemental cash flow information

		Year Ended 31 December	
EUR million	Note	2018	2017
<b>Change in Net Working Capital consists of:</b>			
Change in inventories		-267	-25
Change in interest-free receivables:			
Current		-183	-137
Non-current		-1	1
Change in interest-free liabilities:			
Current		36	200
Non-current		-13	-2
<b>Change in Net Working Capital, Net of Businesses Acquired or Sold</b>		<b>-428</b>	<b>37</b>
<b>Cash and Cash Equivalents consist of:</b>			
Cash on hand and at banks		801	592
Cash equivalents		328	15
<b>Cash and Cash Equivalents</b>		<b>1 130</b>	<b>607</b>
<b>Non-Cash Investing Activities</b>			
Total capital expenditure		491	560
Amounts paid		-442	-578
<b>Non-Cash Part of Additions to Intangible Assets and Property, Plant and Equipment</b>		<b>49</b>	<b>-18</b>
<b>Cash Flow on Acquisitions of Subsidiaries and Business Operations</b>			
Purchase consideration on acquisitions, cash part	4	5	0
Cash and cash equivalents in acquired companies, net of bank overdraft	4	-1	0
<b>Net Cash Flow on Acquisition</b>		<b>4</b>	<b>0</b>
<b>Cash Flow on Disposals of Subsidiaries and Business Operations</b>			
Cash part of the consideration	4	44	0
Cash and cash equivalents in divested companies	4	-2	-7
<b>Net Cash Flow from Disposal</b>		<b>42</b>	<b>-7</b>
Non-cash part of the consideration		0	1
<b>Total Consideration, net of Cash and Cash Equivalents in Divested Companies</b>		<b>42</b>	<b>-6</b>
<b>Cash Received Regarding Previous year disposals</b>		<b>0</b>	<b>3</b>

The accompanying Notes are an integral part of these Consolidated financial statements.



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## Statement of changes in equity

EUR million	Share Capital	Share Premium and Reserve Fund	Invested Non-Restricted Equity Fund	Treasury Shares	Fair Valuation Reserve							Retained Earnings	Attributable to Owners of the Parent	Non-controlling Interests	Total
					Step Acquisition Revaluation Surplus	Equity instruments through OCI	Available for Sale Investments	Cash Flow Hedges	OCI of Equity Accounted Investments	CTA and Net Investment Hedges					
Balance at 31 December 2016	1 342	77	633	0	4	0	162	-11	-19	-32	3 650	5 806	62	5 868	
Profit/loss for the year	0	0	0	0	0	0	0	0	0	0	625	625	-11	614	
OCI before tax	0	0	0	0	0	0	39	32	5	-248	61	-111	-3	-114	
Income tax relating to components of OCI	0	0	0	0	0	0	4	-6		-8	-10	-20		-20	
Total Comprehensive Income	0	0	0	0	0	0	43	26	5	-256	676	494	-14	480	
Dividend	0	0	0	0	0	0	0	0	0	0	-292	-292	-1	-293	
Purchase of treasury shares	0	0	0	-3	0	0	0	0	0	0	0	-3		-3	
Share-based payments	0	0	0	3	0	0	0	0	0	0	0	3		3	
Balance at 31 December 2017	1 342	77	633	0	4	0	205	15	-14	-288	4 034	6 008	47	6 055	
Adoption of IFRS 2 and IFRS 9 <sup>1</sup>						205	-205				8	8		8	
Balance at 1 January 2018	1 342	77	633	0	4	205	0	15	-14	-288	4 042	6 016	47	6 063	
Profit/loss for the year	0	0	0	0	0	0	0	0	0	0	1 013	1 013	-24	988	
OCI before tax	0	0	0	0	0	97	0	-26	4	-50	-24	0	-2	-2	
Income tax relating to components of OCI	0	0	0	0	0	1	0	5	0	3	4	13	0	13	
Total Comprehensive Income	0	0	0	0	0	98	0	-22	4	-47	993	1 026	-27	999	
Dividend	0	0	0	0	0	0	0	0	0	0	-323	-323	-2	-326	
Acquisitions and disposals	0	0	0	0	0	0	0	0	0	0	0	0	-2	-2	
NCI buy-out	0	0	0	0	0	0	0	0	0	0	-2	-2	2	0	
Purchase of treasury shares	0	0	0	-5	0	0	0	0	0	0	0	-5	0	-5	
Share-based payments	0	0	0	5	0	0	0	0	0	0	-3	2	0	2	
Balance at 31 December 2018	1 342	77	633	0	4	304	0	-7	-11	-335	4 706	6 714	18	6 732	

<sup>1</sup> See Basis of Preparation relating to new and amended standards applied to annual periods beginning in January 2018.

CTA = Cumulative Translation Adjustment, NCI = Non-controlling Interests, OCI = Other Comprehensive Income, EAI = Equity Accounted Investments

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## Note 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 Kanavaranta 1, 00160 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 divisions: Consumer Board, Packaging Solutions, Biomaterials, Wood Products, Paper and the segment Other. Segment Other includes the Nordic forest equity accounted investments, Stora Enso's shareholding in Pohjolan Voima, operations supplying wood to the Nordic and Baltic mills, plantations not connected to any mill site and group shared services and administration. The Group's main market is Europe, with an expanding presence in Asia and South America.

The Financial Statements were authorised for issue by the Board of Directors on 31 January 2019.

### Basis of preparation

The Consolidated Financial Statements of Stora Enso Oyj have been prepared in accordance with International Financial Reporting Standards (IFRS), as adopted by the European Union, including International Accounting Standards (IAS) and interpretations issued by the IFRS Interpretations Committee (IFRIC). The Consolidated Financial Statements of Stora Enso Oyj 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 this Annual Report 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 2018

The Group has applied the following amendments which are effective from 1 January 2018:

- **IFRS 9 Financial Instruments.** The Group has adopted IFRS 9 Financial Instruments standard effective from 1 January 2018. The standard replaced IAS 39 Financial instruments: Recognition and Measurement. The standard includes revised requirements for recognition and measurement of financial assets and liabilities, impairment and general hedge accounting.

The new impairment model for financial assets requires recognition of loss allowances based on the expected credit

loss model. At the adoption of IFRS 9, the Group has updated its impairment methodology to be in line with IFRS 9. For trade receivables, simplified approach has been implemented and loss allowances are recognised based on expected lifetime credit losses. For receivables measured at amortised cost or fair value through other comprehensive income, general approach has been implemented with the loss allowance being recognised based on 12-month expected credit losses if there has not been a significant increase in credit risk since the initial recognition. As a result of the new impairment methodology, the Group recognised EUR 3 million

negative pre-tax transition adjustment to the opening balance of retained earnings for 2018.

The Group has evaluated its financial assets and liabilities based on the new classification and measurement criteria under IFRS 9. Stora Enso has categorised its financial assets to be measured at amortised cost, at fair value through other comprehensive income and at fair value through Income statement. For financial liabilities, the classification is based on amortised cost and fair value through income statement categories. On the date of initial application, 1 January 2018, the financial assets and liabilities of the Group were as follows:

### Classification changes of financial instruments

	Measurement category		Carrying amount		
	Classification under IAS 39	Classification under IFRS 9	Original	New	Difference
<b>Non-current financial assets</b>					
Listed securities	Available-for-sale financial assets	Fair value through other comprehensive income (FVTOCI)	21	21	0
Unlisted securities	Available-for-sale financial assets	Fair value through Other comprehensive income (FVTOCI) and Fair value through Income Statement (FVTPL)	318	318	0
Non-current loan receivables	Loans and receivables (amortised cost)	Amortised cost	55	55	0
<b>Current financial assets</b>					
Trade and other operative receivables	Loans and receivables (amortised cost)	Amortised cost and Fair value through Other comprehensive income (FVTOCI)	965	962	-3
Interest-bearing receivables	Loans and receivables (amortised cost)	Amortised cost	15	15	0
Derivatives (under hedge accounting)	Fair value through other comprehensive income (FVTOCI)	Fair value through Other comprehensive income (FVTOCI)	49	49	0
Derivatives (not under hedge accounting)	Fair value through Income Statement (FVTPL)	Fair value through Income Statement (FVTPL)	16	16	0
Cash and cash equivalents	Loans and receivables (amortised cost)	Amortised cost	607	607	0
<b>Total financial assets</b>			<b>2 046</b>	<b>2 043</b>	<b>-3</b>
<b>Non-current financial liabilities</b>					
Non-current debt	Amortised cost	Amortised cost	2 046	2 046	0
<b>Current financial liabilities</b>					
Current portion of non-current debt	Amortised cost	Amortised cost	370	370	0
Interest-bearing liabilities	Amortised cost	Amortised cost	560	560	0
Derivatives (under hedge accounting)	Fair value through other comprehensive income (FVTOCI)	Fair value through other comprehensive income (FVTOCI)	32	32	0
Derivatives (not under hedge accounting)	Fair value through Income Statement (FVTPL)	Fair value through Income Statement (FVTPL)	4	4	0
Bank overdrafts	Amortised cost	Amortised cost	4	4	0
Contingent consideration	Fair value through Income Statement (FVTPL)	Fair value through Income Statement (FVTPL)	20	20	0
Trade and other operative payables	Amortised cost	Amortised cost	1 576	1 576	0
<b>Total financial liabilities</b>			<b>4 612</b>	<b>4 612</b>	<b>0</b>



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The Group has elected to classify its equity investments in Pohjolan Voima shares and certain listed shares held by the Group, earlier classified as available-for-sale investments (AFS) under IAS 39, at fair value through other comprehensive income (FVTOCI) under IFRS 9. 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, with only dividend income being recognised in the Income Statement.

Under IFRS 9 the changes in the time value of currency options used as hedges of foreign currency sales will be recognised in other comprehensive income to the extent that they relate to the hedged items, and will be reclassified from equity to profit or loss in the same period or periods during which the expected future cash flows will affect the profit or loss. The change will reduce income statement volatility compared to IAS 39. The outstanding option time value as at the date of adoption amounted to EUR 1 million negative and was recognised as a transition adjustment to the opening balance of retained earnings for 2018.

Figures in the comparison periods have not been restated.

- **IFRS 15 Revenue from Contracts with Customers.** The Group has adopted IFRS 15 standard and related clarifications effective from 1 January 2018. The standard replaced IAS 18 Revenue and IAS 11 Construction Contracts standards and related interpretations. The new standard specifies how and when revenue is recognised. The standard is based on the principle that revenue is recognised when control of a good or service transfers to a customer. The Group has reviewed its performance obligations, main customer contracts for each division and evaluated the impact of IFRS 15 based on the amount and timing of revenue recognition.

In conclusion, the adoption of IFRS 15 has no significant impact on the substance of the principles applied by the Group to the amount and timing of revenue recognition. The revenue recognition principles and delivery terms applied by the Group remain generally unaltered.

The Group has adopted the modified retrospective application of IFRS 15 from 1 January 2018, without adjusting prior reporting periods. The new guidance is applied only to contracts that are not completed at the adoption date. No adjustment to the opening balance of retained earnings has been made as there are no changes in the timing of the revenue recognition. As from 1 January 2018 non-significant amounts of transport and freight sales and silviculture services previously presented under other operating income have been reclassified to the sales line in the consolidated income statement. In 2018 the amount of these items was EUR 56 million. The previous year's figures have not been restated due to immateriality.

- Amendments to IFRS 2 Classification and Measurement of Share-based Payment Transactions effective from 1 January 2018 were adopted prospectively without restatement of comparative periods. Tax laws or regulations may require the Group to withhold an amount for an employee's tax obligation associated with a share-based payment and transfer that amount, normally in cash, to the tax authority on the employee's behalf. To fulfil this obligation, the Group withholds the number of equity instruments equal to the monetary value of the

employee's tax obligation from the total number of equity instruments that otherwise would have been issued to the employee upon vesting of the share-based payment. According to the IFRS 2 amendments, such transactions are to be classified in their entirety as equity-settled share-based payment transactions, even though the tax obligation is paid in cash on behalf of the employee. Resulting from the application of the amendments, the Group recognised EUR 9 million positive transition adjustment to the opening balance of retained earnings for 2018.

- Other amended IFRS standards and interpretations are not relevant to the Group.

### 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 purchase method whereby they are included in the consolidated financial statements from the date the control over the subsidiary is obtained, whereas, conversely, divestments are included up to the date when the control is lost. The principal subsidiaries and joint operations are listed in [Note 30 Principal subsidiaries and joint operations](#).

All intercompany transactions, receivables, liabilities and unrealised profits, as well as intragroup profit distributions, are eliminated. Accounting policies for subsidiaries, joint arrangements and all equity accounted investments are adjusted where necessary to ensure consistency with the policies adopted by Stora Enso. Non-controlling interests are presented as a separate component of equity.

Associated companies over which Stora Enso exercises significant influence are accounted for using the equity method, which involves recognising the Group's share of the equity accounted investment profit or loss for the year less any impaired goodwill in the consolidated income statement. These companies are undertakings 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. The most significant of such companies are listed in [Note 13 Equity accounted investments](#).

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 any remaining goodwill upon acquisition. 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.

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. A joint venture is a joint arrangement 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 relation to its interest in joint operations, as a joint operator, the Group recognises assets, liabilities, revenues and expenses using the line-by-line method.

- Veracel is a jointly (50%/50%) owned company of Stora Enso and Fibria 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 forestry plantations. The mill commenced production in May 2005 and the group's share of the pulp shipments are sent primarily to Stora Enso mills in Europe and China.
- Montes del Plata is a jointly (50%/50%) 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, 700 000 tonnes, is sold entirely as market pulp. The eucalyptus is sourced mostly from the company's own forestry plantations. The mill started in June 2014.

### Revenue recognition

Sales comprise products, raw materials and services less indirect sales tax and discounts, and are adjusted for exchange differences 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 2010, 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.

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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 for it. 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 3](#) Segment information.

### Shipping and handling costs

When Stora Enso is responsible for arranging transport for its sales, such costs are not billed separately but are included in revenue in the value of the goods billed to customers; the shipping costs incurred are shown in materials and services.

### 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 recorded in the appropriate income statement account in the operating profit, and, for financial assets and liabilities, they are entered in the financial items of the consolidated income statement, except when deferred in equity as qualifying net investment hedges. 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 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 area foreign subsidiaries and equity accounted investments. The Income Statements of subsidiaries with functional and presentational currencies other than the euro are translated into the Group reporting currency using the average exchange rates for the year, whereas the statements of financial position of these subsidiaries are translated using the exchange rates at the reporting date. Exchange differences arising from the retranslation of net investments in foreign entities that are non-euro foreign subsidiaries, joint arrangements or equity accounted investments, and of financial instruments that are designated as and are hedges of such investments, are recorded directly in the shareholders' equity in the cumulative translation adjustment (CTA), as shown in the consolidated statement of comprehensive income and [Note 28](#) Cumulative translation adjustments and equity hedging. The cumulative translation differences of divestments and liquidations are combined with their gain or loss on disposal. The CTA is also recycled in the consolidated income statement upon the repayment of share capital, return of investment and any partial disposal of a business unit.

### Future standard changes endorsed by the EU but not yet effective in 2018

• **IFRS 16 Leases.** This standard replaces the current guidance in IAS 17 and related interpretations and is a significant change in accounting by lessees in particular. IFRS 16 requires lessees to recognize a lease liability reflecting future lease payments and a right-of-use (ROU) asset for virtually all lease contracts. In accordance with IFRS 16, 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. Amendment in lease definition have no material effect to the Group.

Stora Enso will adopt IFRS 16 on 1 January 2019, using the modified retrospective approach and therefore the comparative information will not be restated and continues to be reported under IAS 17 and IFRIC 4. Effect of initial application of IFRS 16 is recognised in balance sheet at 1 January 2019. At transition, lease liabilities are measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rates. ROU assets are measured an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments. The Group allocates the consideration in the contract to each lease component and will separate non-lease components if these are identifiable.

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 ROU assets are subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the useful life of the ROU asset or the end of the lease term. In addition, the ROU asset is adjusted for certain remeasurements of the lease liability.

Lease liabilities are initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the Group's incremental borrowing rates. The lease liabilities are measured at amortised cost using the effective interest method. 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 ROU asset.

The Group has elected not to recognise ROU assets and lease liabilities for short-term leases that have a lease term of 12 months or less and leases of low value assets. The Group has also applied the exemption not to recognise contracts which are ending in 2019. The Group has defined low value asset exemption to include leases in which the underlying asset is not material to Stora Enso. The assessment of whether the underlying asset is material and is within the scope or excluded from the recognition requirements of IFRS 16 is based on the concept of materiality in the Conceptual Framework and IAS 1. Leases of low value assets are mainly including 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.

Undiscounted operating lease commitments at the end of 2018 are EUR 731 million. In accordance with the current assessment of the impact of implementing IFRS 16 indicates that a lease liability in the range of EUR 500-550 million will be recognised. It is expected that operating profit (IFRS) / operational EBIT will somewhat increase since the interest component of leasing payments will be presented in financial expenses. Operational EBITDA will also increase, since both depreciation and interest expenses will be presented below EBITDA. Impact on EPS is not expected to be material. Operating cash flow will increase and financing cash flow will decrease since most of the lease payments are shown in financing cash flow, with no additional impact to total cash flow.

In addition certain land use contracts, amounting to EUR 76 million, before IFRS 16 transition accounted as intangible assets will be classified on transition to IFRS 16 as leases. All the liabilities related to the arrangements have already been settled in previous periods and therefore there is no effect on the lease liability or income statement.

- Other amended IFRS standards and interpretations are not relevant to the Group.

### Future standard changes not yet effective and not yet endorsed by the EU in 2018

- Amendments to IAS 28: Long-term Interests in Associates and Joint Ventures. These amendments clarify that an entity should apply IFRS 9 Financial Instruments to long-term interests in an associate or joint venture that form part of the net investment in the associate or joint venture but to which the equity method is not applied. The effective date for these amendments is 1 January 2019. The amendment does not have a significant effect on the Group's financial statement.
- Amendments to IAS 19: Plan Amendment, Curtailment or Settlement. The amendments clarify the accounting when a plan amendment, curtailment or settlement occurs. The amendments require a company to use the updated assumptions from this remeasurement to determine current service cost and net interest for the remainder of the reporting period after the change to the plan. Until now, IAS 19 did not specify how to determine these expenses for the period after the change to the plan. The effective date for these amendments is 1 January 2019. The amendments are not expected to be material for the Group.
- Amendments to IFRS 3 Business combinations. The amendments will help companies determine whether an acquisition made is of a business or a group of assets. The amended definition emphasises that the output of a business is to provide goods and services to customers, whereas the previous definition focused on returns in the form of dividends, lower costs or other economic benefits to investors and others. The effective date for these amendments is 1 January 2019. The amendments are not expected to have material effect for the Group.
- Amendments to References to the Conceptual Framework in IFRS Standards. The revised Conceptual Framework includes: a new chapter on measurement; guidance on reporting financial



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performance; improved definitions and guidance—in particular the definition of a liability; and clarifications in important areas, such as the roles of stewardship, prudence and measurement uncertainty in financial reporting. The effective date for these amendments is 1 January 2020. The amendments are not expected to have material effect for the Group.

- Amendments to IAS 1 and IAS 8: Definition of Material. Amendments will clarify the definition of material and to align the definition used in the Conceptual Framework and the standards themselves. The effective date for these amendments is 1 January 2020. The Group is assessing the impact of these amendments.
- IFRS 17 Insurance Contracts: This standard replaces IFRS 4, which currently permits a wide variety of practices in accounting for insurance contracts. The effective date for these amendments is 1 January 2021. The standard is not relevant for the Group.
- Other published standard changes or interpretations are not expected to have a significant effect on the Group's consolidated financial statements or disclosures.

### Note 2 Critical accounting estimates and judgements

#### Use of estimates

The preparation of consolidated financial statements conforming to IFRS requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, as well as the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of revenues and expenses during the period. The estimates are based on historical experience and various other assumptions that are believed to be reasonable, though actual results and timing could differ from the estimates. Management believes that the accounting policies below represent those matters requiring the exercise of judgement where a different opinion could result in the greatest changes to reported results.

#### Intangible assets and property, plant and equipment

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 lives. Management believes that the assigned values and useful lives, as well as the underlying assumptions, are reasonable, though different assumptions and assigned lives could have a significant impact on the reported amounts.

The carrying amounts of Intangible assets and property, plant and equipment are reviewed at each reporting date or whenever events or changes in circumstances indicate that the carrying amount of an asset may be impaired. The recoverable amount of an asset is estimated as the higher of fair value less the cost of disposal and the value in use, with an impairment charge recognised whenever the carrying amount exceeds the recoverable amount. The value in use is calculated using a discounted cash flow model which is most

sensitive to the discount rate as well as the expected future cash flows. The key assumptions used in the impairment testing, including sensitivity analysis, are explained further in [Note 10](#) Depreciation, amortisation and impairment charges.

#### Goodwill

Goodwill is tested per Cash Generating Unit (CGU) or by group of CGUs at least on an annual basis and any impairment is measured using the discounted cash flow valuation method. This method uses future projections of cash flows from each of the reporting units in a CGU or group of CGUs and includes, among other estimates, projections of future product pricing, production levels, product costs, market supply and demand, projected maintenance capital expenditures and an assumption of the weighted average cost of capital. A pre-tax discount rate used for the net present value calculation of projected cash flows reflects the weighted average cost of capital.

The Group has evaluated the most sensitive estimates which when changed could have a material effect on the fair value of the assets or goodwill and therefore could lead to an impairment. These estimates are expected sales prices of the products, expected operating costs and discount rate. The key assumptions used in the impairment testing, including sensitivity analysis, are explained further in [Note 10](#) Depreciation, amortisation and impairment charges.

#### Control assessment of joint operations and associates

[Note 1](#) Accounting principles describes Veracel and Montes del Plata as joint operations. In both companies Stora Enso's ownership is 50%. The interpretations as joint operations are based on shareholders' agreements which give Stora Enso rights to a share of the returns and make the Group liable indirectly for the liabilities, as our ability to pay for the pulp is used to finance the debts. Joint operations are consolidated with the proportionate line-by-line method.

The forest holding companies Bergvik Skog Ab and Tornator Oyj are equity accounted investments. Stora Enso does not control the companies alone or jointly with other parties and thus retains its significant minority interest as equity accounted investments. Equity accounted investments are accounted for using the equity method. These companies are presented in [Note 13](#) Equity accounted investments.

#### 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 employed. 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 Oy (PVO), represent a significant portion of the group's assets and require significant management judgement, as explained in

more detail in [Notes 14](#) Equity instruments and [24](#) Financial risk management.

#### Income taxes

Tax assets and liabilities are reviewed on a periodic basis and balances are adjusted appropriately. Management considers that adequate provision has been made for future tax consequences based on the current facts, circumstances and tax law. 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.

#### Post-retirement 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 recorded directly in equity, as disclosed in the statement of comprehensive income. See [Note 20](#) Post-employment benefits for detailed information on the assumptions used in the pension liability calculations.

#### Biological assets

The Group has biological assets in equity accounted investment companies, joint operation companies and in subsidiaries. Biological assets, in the form of standing trees, are accounted for under IAS 41, which requires that the assets are measured at fair value less the costs to sell them. Fair value is determined 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, harvest, sales price and costs, and changes in these premises are included in the consolidated income statement, for directly owned interests and for joint operations, on the line for change in Net Value of Biological assets. For those assets shown in the Consolidated statement of financial position of equity accounted investments, changes are included on the line for Share of results of equity accounted investments. It is therefore important that the Group's, joint operation companies' and the equity accounted investments' management makes appropriate estimates of future price levels and trends for sales and costs, and undertakes regular surveys of the forest to establish the volumes of wood available for cutting and their current growth rates. See [Note 12](#) Biological assets for more detailed information.

#### Environmental provisions

The Group has made provisions for known environmental liabilities where legal or constructive obligation exists, based on management's best estimate of the remediation costs. There is some uncertainty regarding the timing and amount of these costs and therefore the final liability could differ significantly from the original estimate.

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### Note 3 Segment information

Stora Enso's reportable segments are formed by five divisions, Consumer Board, Packaging Solutions, Biomaterials, Wood Products, Paper and segment Other.

The activities of the reportable segments are:

#### Consumer Board

The ambition of the Consumer Board division is to be the global leader in high-quality virgin fibre cartonboard. We aim to be the preferred partner of customers and brand owners in premium end-use packaging and graphical segments. Our wide board and barrier coating selection is suitable for consumer packaging for liquid, food, pharmaceutical and luxury goods.

#### Packaging Solutions

The Packaging Solutions division provides fibre-based board materials and corrugated packaging products and services that are designed for a wide array of applications. Our renewable high-end packaging solutions serve leading converters, brand owners and retailers - including those in e-commerce that are looking to optimise performance, drive innovation and improve their sustainability.

#### Biomaterials

The Biomaterials division offers a variety of pulp grades to meet the demands of paper, board, tissue, textile and hygiene product producers. We are maximising the business potential of the by-products extracted in our processes, such as tall oil and turpentine from biomass. Based on our strong innovation approach, all fractions of biomass, like sugars and lignin, hold potential for use in various applications.

#### Wood Products

The Wood Products division is a leading provider of innovative wood-based solutions. The product range covers all areas of construction, including massive wood elements and wood components. It also includes a variety of sawn timber goods and pellets for sustainable heating. The emerging product range of biocomposites addresses the opportunities to replace plastics in consumer goods and creates potential in various demanding exterior applications in a cost-competitive way.

#### Paper

Stora Enso is the second largest paper producer in Europe with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of papers made from recycled and virgin fibre as well as our valuable industry experience, know-how and customer support.

#### Other

The segment Other includes the Nordic forest equity-accounted investments, Stora Enso's shareholding in the energy company Pohjolan Voima, operations supplying wood to the Nordic and Baltic mills, plantations not connected to any mill site, and Group shared services and administration.

#### Sales by segment

	External	Internal	Total	External	Internal	Total
EUR million	2018			2017		
Consumer Board	2 608	14	2 622	2 501	15	2 516
Packaging Solutions	1 318	26	1 344	1 230	25	1 255
Biomaterials	1 233	402	1 635	1 096	387	1 483
Wood Products	1 497	125	1 622	1 573	96	1 669
Paper	3 004	62	3 066	2 857	63	2 920
Other	826	2 599	3 425	788	1 702	2 490
Elimination of internal sales		-3 228	-3 228	0	-2 288	-2 288
<b>Total</b>	<b>10 486</b>	<b>0</b>	<b>10 486</b>	<b>10 045</b>	<b>0</b>	<b>10 045</b>

#### Disaggregation of revenue

EUR million	2018	2017
Product sales	10 346	9 957
Service sales	140	88
<b>Total</b>	<b>10 486</b>	<b>10 045</b>

#### Product and Service sales by segment

EUR million		2018	2017
Consumer board	Product sales	2 611	2 505
	Service sales	11	11
Packaging solutions	Product sales	1 340	1 251
	Service sales	4	4
Biomaterials	Product sales	1 610	1 453
	Service sales	25	30
Wood Products	Product sales	1 619	1 667
	Service sales	3	2
Paper	Product sales	3 043	2 910
	Service sales	23	10
Other	Product sales	2 430	2 240
	Service sales	995	250
Inter-segment sales	Product sales	-2 307	-2 069
	Service sales	-922	-219
<b>Total</b>		<b>10 486</b>	<b>10 045</b>



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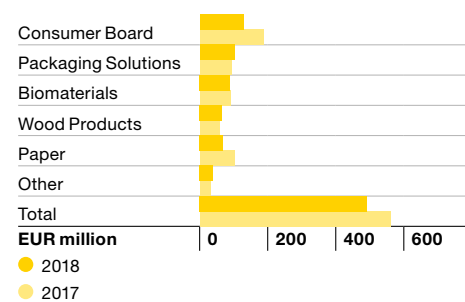
### Segment share of operating profit/loss

EUR million	Year Ended 31 December	
	Operating Profit/Loss	
	2018	2017
Consumer Board	230	253
Packaging Solutions	244	166
Biomaterials	425	254
Wood Products	164	102
Paper	234	106
Other	93	23
<b>Total</b>	<b>1 390</b>	<b>904</b>
Net financial items	-180	-162
<b>Profit before Tax</b>	<b>1 210</b>	<b>742</b>
Income tax expense	-221	-128
<b>Net Profit</b>	<b>988</b>	<b>614</b>

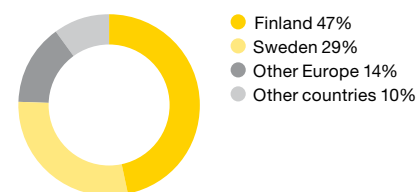
### Intangible asset and property, plant and equipment (PPE), depreciations, impairments and reversals, disposal gains and losses and capital expenditure by segment

EUR million	Year Ended 31 December					
	Intangible Assets and PPE		Depreciations/ Impairments/Reversals/ Disposal gains and losses		Capital Expenditure	
	2018	2017	2018	2017	2018	2017
Consumer Board	1 557	1 611	154	160	128	187
Packaging Solutions	799	783	67	68	102	92
Biomaterials	1 857	1 825	94	109	89	90
Wood Products	454	429	34	35	65	58
Paper	901	951	111	114	68	101
Other	163	177	19	29	39	32
<b>Total</b>	<b>5 731</b>	<b>5 776</b>	<b>479</b>	<b>515</b>	<b>491</b>	<b>560</b>

### Capital expenditure by segment



### Capital expenditure by location



### Goodwill by segment

EUR million	Year Ended 31 December			
	Goodwill		Impairment	
	2018	2017	2018	2017
Consumer Board	0	0	0	0
Packaging Solutions	19	19	0	0
Biomaterials	34	28	0	0
Wood Products	107	107	0	0
Paper	83	83	0	0
Other	0	0	0	0
<b>Total</b>	<b>243</b>	<b>237</b>	<b>0</b>	<b>0</b>

### Average personnel

Segment	Year Ended 31 December	
	2018	2017
Consumer Board	4 156	4 168
Packaging Solutions	7 750	7 901
Biomaterials	1 731	1 768
Wood Products	4 038	4 031
Paper	4 957	5 022
Other	3 435	3 316
<b>Total</b>	<b>26 067</b>	<b>26 206</b>

Location		
Austria	970	939
Baltic States	1 270	1 211
Belgium	525	525
Czech Republic	929	875
Finland	6 596	6 675
France	34	42
Germany	990	1 063
Poland	2 103	2 033
Russia	1 108	1 088
Spain	15	16
Sweden	5 168	5 127
Other Europe	222	216
<b>Total Europe</b>	<b>19 930</b>	<b>19 810</b>
Brazil	431	421
China (incl. Hong Kong)	5 092	5 341
India	0	0
USA	89	96
Uruguay	317	327
Other countries	208	211
<b>Total</b>	<b>26 067</b>	<b>26 206</b>

<b>Year-End Personnel</b>	<b>26 129</b>	<b>25 657</b>
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### External sales by destination and origin

EUR million	Sales by Destination		Sales by Origin		Balance of Trade	
	2018	2017	2018	2017	2018	2017
Austria	295	278	408	375	113	97
Baltic States	258	243	316	273	58	30
Belgium	140	144	259	265	119	121
Czech Republic	149	151	262	257	113	106
Denmark	133	134	21	26	-112	-108
Finland	583	699	3 511	3 634	2 928	2 935
France	506	465	16	14	-490	-451
Germany	1 385	1 282	461	455	-924	-827
Italy	400	343	0	0	-400	-343
Netherlands	282	261	0	0	-282	-261
Poland	552	528	579	492	27	-36
Russia	300	300	222	209	-78	-91
Spain	282	284	0	0	-282	-284
Sweden	1 003	965	3 037	2 733	2 034	1 768
UK	491	456	15	15	-476	-441
Other Europe	903	879	83	91	-820	-788
<b>Total Europe</b>	<b>7 662</b>	<b>7 412</b>	<b>9 190</b>	<b>8 839</b>	<b>1 528</b>	<b>1 427</b>
Australia / New Zealand	192	156	2	18	-190	-138
Brazil	70	62	360	300	290	238
China (incl. Hong Kong)	932	918	498	478	-434	-440
Japan	285	303	0	0	-285	-303
Middle East	261	238	0	0	-261	-238
Uruguay	23	28	424	399	401	371
USA	236	236	12	7	-224	-229
Other countries	825	692	0	4	-825	-688
<b>Total</b>	<b>10 486</b>	<b>10 045</b>	<b>10 486</b>	<b>10 045</b>	<b>0</b>	<b>0</b>

### North America

4%

2018 Sales by destination

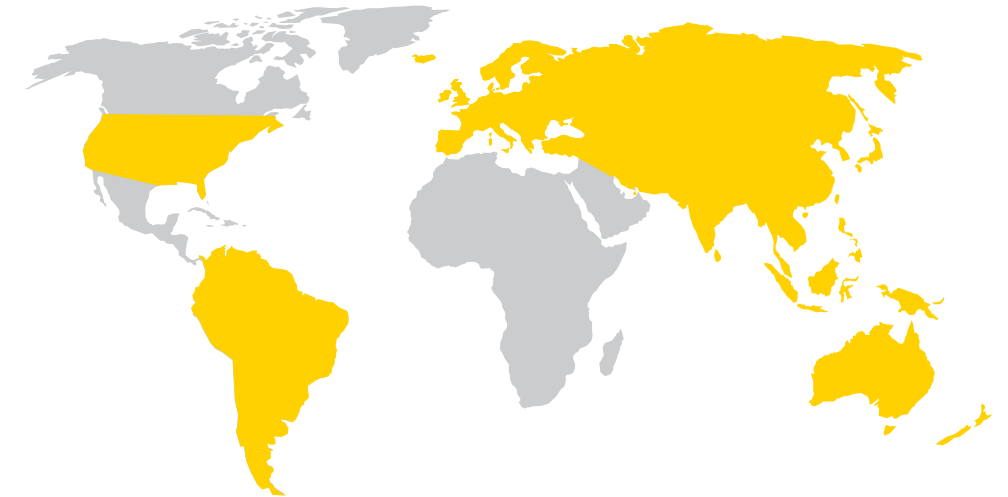
### Europe

73%

2018 Sales by destination

88%

2018 Sales by origin



### South America

2%

2018 Sales by destination

7%

2018 Sales by origin

### Asia Pacific

18%

2018 Sales by destination

5%

2018 Sales by origin



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### Total assets, capital employed and shareholders' equity by location

EUR million	As at 31 December					
	Total Assets		Capital Employed		Shareholders' Equity	
	2018	2017	2018	2017	2018	2017
Austria	169	171	96	99	132	106
Baltic States	121	106	108	87	140	169
Belgium	235	256	143	167	188	188
Czech Republic	148	158	121	132	135	125
Finland	4 347	3 552	2 623	2 279	1 454	1 281
Germany	362	369	15	21	117	63
Poland	585	588	435	455	360	306
Russia	161	174	104	94	104	141
Sweden	2 958	2 743	1 992	1 795	1 913	1 372
Other Europe	111	112	77	64	236	221
<b>Total Europe</b>	<b>9 197</b>	<b>8 229</b>	<b>5 714</b>	<b>5 193</b>	<b>4 779</b>	<b>3 972</b>
Brazil	377	455	353	433	314	391
China (incl. Hong Kong)	1 433	1 326	1 082	1 100	269	400
Uruguay	1 609	1 556	1 543	1 473	1 214	1 106
USA	147	138	115	105	112	118
Other countries	86	66	17	4	26	21
<b>Total</b>	<b>12 849</b>	<b>11 770</b>	<b>8 824</b>	<b>8 308</b>	<b>6 714</b>	<b>6 008</b>

Total capital employed represents operating capital less net tax liabilities

### Reconciliation of operating capital to total asset

EUR million	As at 31 December	
	2018	2017
<b>Operating Capital</b>	<b>8 955</b>	<b>8 393</b>
Operative liabilities	2 512	2 451
Interest-bearing receivables	1 252	763
Tax receivables	129	163
<b>Total Assets</b>	<b>12 849</b>	<b>11 770</b>

Operating capital ("O" items) is designated thus on the Balance Sheet and represents the sum of Intangible Asset and Property, Plant and Equipment, biological assets, emission rights, unlisted shares, other non-current assets, inventories, current operative receivables and liabilities, provisions and other non-current operative liabilities.

### Intangible asset and property, plant and equipment (PPE), capital expenditure and depreciations, impairments and reversals, disposal gains and losses by location

EUR million	Year Ended 31 December					
	Intangible Assets and PPE		Depreciations/ Impairments/Reversals/ Disposal gains and losses		Capital Expenditure	
	2018	2017	2018	2017	2018	2017
Austria	104	107	6	6	5	5
Baltic States	47	42	6	6	11	3
Belgium	183	202	25	25	6	5
Czech Republic	111	115	4	5	2	3
Finland	1 364	1 320	183	178	230	279
Germany	273	296	26	28	9	10
Poland	406	423	28	33	24	20
Russia	64	67	6	8	13	14
Sweden	815	787	88	103	142	150
Other Europe	3	4	2	0	0	1
<b>Total Europe</b>	<b>3 370</b>	<b>3 363</b>	<b>374</b>	<b>392</b>	<b>442</b>	<b>490</b>
Brazil	185	248	20	30	6	13
China (incl. Hong Kong)	790	823	49	49	23	38
Uruguay	1 268	1 227	33	40	19	13
USA	117	113	3	3	1	5
Other countries	1	2	0	1	0	1
<b>Total</b>	<b>5 731</b>	<b>5 776</b>	<b>479</b>	<b>515</b>	<b>491</b>	<b>560</b>

## Note 4 Acquisitions and disposals

### Accounting principles

Acquired companies are accounted for under the purchase method whereby they are included in the Consolidated financial statements from the date the control over the subsidiary is obtained, whereas, conversely, divestments are included up to the date when the control is lost.

### Acquisition of group companies

In December 2018 Stora Enso bought out non-controlling interests in VLAR Papier NV. Stora Enso previously owned 65% of the company and with the purchase, Group's ownership has increased to 100%. The transaction did not have a material impact on the Group.

In October 2018 Stora Enso has increased its ownership up to 100% in the Sweden-based company Cellutech AB. The company specialises in the development of new materials and applications based on cellulose, micro-fibrillated cellulose and other wood-based components. Stora Enso previously owned 22% of the shares. Cellutech is included in Biomaterials division. The transaction did not have a material financial impact on the Group.

Stora Enso has not acquired any companies or business operations in 2017.

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### Disposal of group companies and business operations

EUR million	Year Ended 31 December	
	2018	2017
<b>Net Assets Sold</b>		
Cash and cash equivalents	2	7
Intangible assets and Property, plant and equipment	38	3
Working capital	-2	1
Interest-bearing assets and liabilities	0	-1
Non-controlling interest	-1	0
<b>Net Assets in Divested Companies and Businesses</b>	<b>38</b>	<b>10</b>
<b>Total Disposal Consideration</b>	<b>44</b>	<b>1</b>
CTA release	-27	0
Transaction costs	-1	0
<b>Total Net Gain/loss</b>	<b>-22</b>	<b>-9</b>
<b>Attributable to the owners of the parent</b>	<b>-22</b>	<b>-9</b>
<b>Attributable to the non-controlling interest holders</b>	<b>0</b>	<b>0</b>

In December 2018 Stora Enso divested 100% of the shares of its Swedish subsidiary June Emballage AB to its current management. June Emballage is a manufacturer specialized in small-batch custom-made transport packaging in corrugated board and was part of the Packaging Solutions division. The transaction did not have a material impact on the Group.

On 8 August 2018, Stora Enso disposed the shares in Dongguan E-creative Industrial Co. Ltd to Dongguan An Shen Investment Co. Ltd. Stora Enso previously had 51% ownership of the company. The transaction did not have a material impact on the Group.

On 28 March 2018, Stora Enso signed an agreement to divest of its entire 100% shareholding in the wood supply company in Rio Grande do Sul, Brazil to Copa Florestal III FIP Multiestrategia. The final consideration for the divestment of the shares was EUR 30 million. In 2017 the Group recorded writedowns in fixed assets amounting to EUR 5 million in order to reduce the value of the net assets disposed to the consideration. The disposal was completed in the second quarter of 2018. The transaction resulted in a loss of EUR 28 million, due to cumulative translation adjustment (CTA) released from equity through profit and loss at closing. Rio Grande do Sul was part of the segment Other.

In November 2017, Stora Enso signed an agreement to divest its sheeting centre business in Baienfurt, Germany to Pyroll. The sheeting centre operations started in April 2009 and was 100% owned by Stora Enso. The transaction was completed in beginning of January 2018. The transaction did not have a material impact on the Group.

On 1 November 2017, Stora Enso sold 100% of its shares in the Finnish Puumerkki Oy and the Estonian Puumerkki AS to Mimir Invest AB, a global investment firm. Puumerkki is a specialised wholesaler of wooden building materials. The transaction resulted in a loss of EUR 8 million. The divestment supports Stora Enso's Wood Products division in focusing on its growth strategy and further building on the strength of its premium portfolio of products and services.

On 5 July 2017, Stora Enso signed an agreement to divest the business and assets of its Swedish subsidiary Stora Enso Re-board AB, a producer of rigid paperboard for expositions and displays, to Culas AB. The transaction did not have a material impact on the Group.

On 24 March 2017, Stora Enso disposed of the shares of the real estate company Sunilan Kesäniemi Oy. The transaction did not have a material impact on the Group.

On 2 January 2017, Stora Enso divested its Finnish subsidiary Formeca Oy, a provider of high-quality machines for automated packaging lines, to Amitec Oy, a specialised engineering and machine construction company based in Finland. The transaction did not have a material impact on the Group.

## Note 5 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 it is probable that future economic benefits will flow to the Group, in which case they are capitalised as intangible assets and depreciated over the period of the income streams.

#### 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 are 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.

#### Emission rights and trading

The Group's participation in the European Emissions Trading Scheme, in which it has been allocated allowances to emit a fixed tonnage of carbon dioxide over a fixed period of time, gives rise to an intangible asset for the allowances, a government grant and a liability for the obligation to deliver allowances equal to the emissions that have been made during the compliance period. Emission allowances recorded as intangible assets are recognised when the Group is able to exercise control and are measured at level 1 fair value at the date of initial recognition. If the market value for the emission allowances falls significantly below the carrying amount, and the decrease is considered permanent. At that point an impairment charge is booked for allowances which the Group will not use internally. The liability to deliver allowances is recognised based on actual emissions; this liability will be settled using allowances on hand and measured at the carrying amount of those allowances, with any excess emissions measured at the market value of the allowances at the period end.

In the Consolidated Income Statement, the Group will expense emissions made at the fair value of the rights at their grant date, 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 grant of the rights used at their fair value at the grant date, together with income from the release or sale of surplus rights. The Consolidated Income Statement will thus be neutral in respect of all rights consumed that were within the original grant. Any net effect represents the costs of purchasing additional rights to cover excess emissions, or the sale of unused rights in the case that the realised emissions are below the allowances received free of charge or the impairment of allowances are not required for internal use.

#### Green certificates

Stora Enso is part of the local green energy production system which entitles selected mills in Sweden, Belgium and Poland to receive green certificates based on megawatt hours of green energy produced. Green certificates represent the environmental value of renewable energy generated. The certificates can be traded separately from the energy produced. Several countries use green certificates as a mean to make the support of green electricity generation closer to a market economy instead of more bureaucratic investment support and feed-in tariffs. The certificates are typically received free of charge and they can be traded in the local market to offset part of the production costs. Green certificates are often sold to electricity distributors which have a quota obligation to buy a certain percentage of their electricity from renewable sources. Green certificates are evidencing that the electricity has been produced from sustainable sources.

All certificates received are recognized at grant date market value only in the Balance Sheet. Certificates are posted to prepaid costs and accrued income and a corresponding liability is entered into accrued liabilities and deferred income. As such the fluctuation in market prices does not have impact on the Income statement. The income is recognised only when the certificate is sold.



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### Other Operating Income and expense

EUR million	Year Ended 31 December	
	2018	2017
<b>Other Operating Income</b>		
Emission rights granted and disposal gains	32	13
Sale of Green Certificates	32	18
Capital gains on sale of Intangible Assets and Property, Plant and Equipment	4	4
Dividend and gain on sale of unlisted shares	0	3
Insurance compensation	4	25
Rent and other <sup>1</sup>	14	76
Government grants	6	8
<b>Total</b>	<b>92</b>	<b>147</b>
<b>Other Operating Expenses include</b>		
Rents paid	96	98
Research and development	104	85
Credit losses, net of reversals	8	-7
CTA release	28	0
<b>Materials and Services include</b>		
Emissions rights to be delivered and disposal losses	23	10

<sup>1</sup> As from 1 January 2018, transport and freight sales and silviculture services in Finland previously presented under other operating income are presented in sales. In 2018 total sales of excess freight capacity amounted to EUR 51 (EUR 66) million. The previous periods have not been restated due to immateriality.

The Group has recorded an Other Operating Income of EUR 32 (EUR 13) million related to Emissions. Under Material and Services an expense of EUR 23 (EUR 10) million has been booked related to the cost of CO<sub>2</sub> emissions from production. Actual realised profits amounted to EUR 8 (EUR 3) million on the disposal of surplus rights and EUR 3 (EUR 2) million is the value of excess emission rights held at the year end.

The Group also generates income from its renewable power generation in Belgium, Sweden and Poland. The power is produced from biomass, so the Group is entitled to Green Certificates for onward sale to electricity retailers for fulfilling their renewable power quota obligations. The income from the sale of green certificates amounted to EUR 32 (EUR 18) million.

### Auditor's fees and services

EUR million	Year Ended 31 December	
	2018	2017
Audit fees	4	4
Audit-related	0	0
Tax fees	0	0
Other fees	1	1
<b>Total</b>	<b>5</b>	<b>5</b>

In 2018, PwC was selected as the principal auditor of the group. Aggregate fees for professional services rendered to the Group principal auditor PwC amounted to EUR 5 (EUR 5) 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 the financial statements.

## Note 6 Personnel expenses

### Personnel expenses

EUR million	Year Ended 31 December	
	2018	2017
Wages and salaries	1 000	999
Pensions (see below)	170	166
Share-based remuneration (Note 21)	7	10
Total return swaps	0	-2
Other statutory employer costs	134	136
Other voluntary costs	19	22
<b>Total</b>	<b>1 330</b>	<b>1 331</b>

### Pensions

EUR million	Year Ended 31 December	
	2018	2017
Defined benefit plans	10	13
Defined contribution plans	160	153
<b>Total</b>	<b>170</b>	<b>166</b>

The average number of employees in 2018 amounted to 26 067 compared with 26 206 in 2017. Pension costs are discussed further in Note 20 Post-employment benefits.

In 2018, the expense of the share-based remuneration was EUR 7 (EUR 10) million. The expense of share-based remuneration net of Total Return Swaps (TRS) in 2018 amounted to EUR 7 (EUR 8) million. Income of EUR 0 (EUR 2) million was recorded in respect to TRS.

Share-based remuneration comprising of share awards and related hedges are described in more detail in Note 21 Employee variable compensation and equity incentive schemes.

Remuneration of the Group Leadership Team and Board are described in Note 7 Board and executive remuneration.

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## Note 7 Board and executive remuneration

### Board and committee remuneration

	Year Ended 31 December				
	2018			2017	
EUR thousand (before taxes)	Cash	Value of shares	Total	Total	Committee Memberships
Board Members at 31 December 2018					
Jorma Eloranta, Chairman	130	70	200	194	Remuneration, Nomination <sup>2,3</sup> , Financial and Audit
Hans Stråberg, Vice Chairman	68	41	109	106	Remuneration, Nomination <sup>2,3</sup>
Anne Brunila	54	29	82	80	Sustainability and Ethics
Elisabeth Fleuriot	49	29	78	76	Remuneration
Hock Goh	49	29	78	76	Sustainability and Ethics
Christiane Kuehne	58	29	86	84	Financial and Audit
Antti Mäkinen	58	29	86	0	Financial and Audit
Richard Nilsson	64	29	93	90	Financial and Audit
Göran Sandberg	49	29	78	76	Sustainability and Ethics
Former Board members					
Mikael Mäkinen (until 28 March 2018)	-	-	-	84	
Total Remuneration as Directors <sup>1</sup>	578	313	891	866	

<sup>1</sup> 40% of the Board remuneration in 2018 was paid in Stora Enso R shares purchased from the market and distributed as follows: to Chairman 4 221 R shares, Vice Chairman 2 484 R shares, and members 1 737 R shares each. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.

<sup>2</sup> Shareholders at the Annual General Meeting (AGM) have established a Shareholders' Nomination Board to exist until otherwise decided. The Shareholders' Nomination Board according to its Charter as approved by the AGM comprises of four members: the Chairman and Vice Chairman of the Board of Directors, as well as two members appointed by the two largest shareholders (one each) as of 31 August each year.

<sup>3</sup> Marcus Wallenberg appointed by FAM AB is Chairman of the Nomination Board. Harri Sailas is the member of the Shareholders' Nomination Board appointed by Solidium Oy. Jorma Eloranta and Hans Stråberg were appointed as members of the Shareholders' Nomination Board in their roles as Chairman and Vice Chairman of the Board of Directors.

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 Chairman, Vice Chairman and other members of the Board as well as the remuneration for the Chairman, Vice Chairman and members of the Board and its committees.

### Board share interests at 31 December 2018

	Shares held <sup>1</sup>	
	A	R
<b>Board Members at 31 December 2018</b>		
Jorma Eloranta, Chairman	1 150	18 381
Hans Stråberg, Vice Chairman		37 490
Anne Brunila		20 121
Elisabeth Fleuriot		21 151
Hock Goh		25 904
Christiane Kuehne		5 712
Antti Mäkinen		2 137
Richard Nilsson		18 254
Göran Sandberg		4 212
<b>Total Shares Held</b>	<b>1 150</b>	<b>153 362</b>

<sup>1</sup> Board members' related parties hold no Stora Enso shares.

### The following Board members also served in 2018

	Shares Held when Board Membership Ended	Effective Date of Board Membership Ending
Mikael Mäkinen	31 060	28 March 2018

### Group Leadership Team (GLT) remuneration and share interests

The table below includes the remuneration paid to GLT members during the year, including the shares vested in that 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 remuneration for GLT in 2018 amounted to EUR 12.2 (EUR 11.1) million. The total number of GLT members was twelve (twelve) at year end in 2018.

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 2017, and Long term incentive programmes for the performance years 2015 to 2017 were reviewed and confirmed by the Remuneration Committee in the ordinary February meeting, and approved by the Board of Directors in February.

Note 21 Employee variable compensation and equity incentive schemes includes details of incentive schemes and share opportunity programmes for the management and staff of Stora Enso.



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### Group Leadership Team remuneration

EUR thousand	Year Ended 31 December					
	2018			2017		
	CEO	Others <sup>1</sup>	GLT Total	CEO	Others	GLT Total
<b>Remuneration</b>						
Annual salary	905	3 589	4 494	913	3 583	4 496
Local housing (actual costs)	0	22	22	0	70	70
Other benefits	20	385	405	20	610	630
Termination benefits	0	0	0	0	531	531
Short Term Incentive programme	611	1 089	1 700	532	643	1 175
Long Term Incentive programme <sup>1</sup>	845	2 431	3 276	549	1 403	1 952
	<b>2 381</b>	<b>7 516</b>	<b>9 897</b>	<b>2 014</b>	<b>6 840</b>	<b>8 854</b>
<b>Pension Costs</b>						
Mandatory plans	66	1 296	1 362	69	1 029	1 098
Stora Enso voluntary plans <sup>2</sup>	478	447	925	555	544	1 099
	<b>544</b>	<b>1 743</b>	<b>2 287</b>	<b>624</b>	<b>1 573</b>	<b>2 197</b>
<b>Total Compensation</b>	<b>2 925</b>	<b>9 259</b>	<b>12 184</b>	<b>2 638</b>	<b>8 413</b>	<b>11 051</b>

<sup>1</sup> The 2018 amounts relate to the vesting of programme started in 2015 and ended on 31 December 2017. The 2017 amounts relate to the vesting of programme started in 2014 and ended on 31 December 2016.

<sup>2</sup> The CEO participates in the Swedish Executive Pension Plan where pension accruals are unfunded for all participants, the liability is calculated and insured in accordance with Swedish legislation. The unfunded liability for the CEO amounts to EUR 2 483 thousand.

### Executives other than CEO

#### Short Term Incentive (STI) programmes for management

In 2018, GLT members have STI programmes with up to a maximum of 50% or 60% of their annual fixed salary, payable the year after the performance period. 70% of the STI for 2017 and 2018 was based on financial measures and 30% on Individual Key Targets.

#### Long Term Incentive (LTI) programmes for management

Since 2014 the LTI programmes have had three-year targets and vest in one portion only after three years, and the absolute maximum vesting level is 100% of the number of shares granted. Three quarters (75%) of the opportunity under the 2015-2017 programmes is in Performance Shares, where the shares are vested in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors. One quarter (25%) of the opportunity under the 2015-2017 programmes is in Restricted Shares, for which vesting is only subject to continued employment.

The 2018 LTI programme was changed to Performance shares only for GLT members.

Under the 2018 LTI programme, GLT members (in GLT at year end) can potentially receive a value corresponding to 211 410 shares before taxes, assuming the maximum vesting level during the three-year vesting period (2018-2020) is achieved. Total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover the 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 21. 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 the time of settlement.

During the year, the 2015 programme vested in one portion after three years, dependent on Economic Value Added (EVA) for the Stora Enso Group. The number of shares settled on executives (GLT members at settlement date) from previous Restricted Share programmes and Performance Share programmes amounted to 168 179 with a cash value of EUR 2 451 209 before taxes based on the share price of EUR 14.58 on the 1 March 2018 settlement date.

### Chief Executive Officer – Karl-Henrik Sundström

The CEO has been employed by Stora Enso since 1 August 2012 and assumed the position as CEO on 1 August 2014. 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 benefits include pension provisions. The CEO's pension plan consists of a collectively agreed pension plan in Sweden (ITP2) and a defined contribution (DC) top up pension plan. Contributions to the DC plan in the 20-30 interval Income Base Amounts (IBA; one IBA was 62 500 SEK in 2018) is 23%, contributions above 30 IBA are 35% for the salary the CEO had prior to assuming this position and 39% of the salary increase amount received when assuming the position as CEO. The retirement age is sixty-five years.

#### Short Term Incentive (STI) programme for CEO

In 2018, the CEO is entitled to an STI programme decided by the Board each year giving a maximum of 75% of the annual fixed salary. The STI for 2017 and 2018 was 70% based on financial measures and 30% on Individual Key Targets.

#### Long Term Incentive (LTI) programmes for CEO

The CEO participates in 2016, 2017 and 2018 share based LTI programmes. The programmes have three year targets and vest in only one portion after three years. Three quarters (75%) of the opportunity in the 2016-2017 programmes is in Performance Shares, where shares will vest in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors. One quarter (25%) of the opportunity is in Restricted Shares, for which vesting is only subject to continued employment. In the 2018 programme, the CEO was granted all (100%) of the opportunity in Performance Shares.

The CEO has the potential to receive a value corresponding to a maximum of 65 762 shares before taxes under the 2018 LTI programme. The grant value of EUR 958 481 is based on the share price at the grant date and assuming maximum vesting level during the three-year vesting period is achieved. During the year, the 2015 programme vested in one portion after three years, dependent on Economic Value Added (EVA) for the Stora Enso Group. The actual gross number of shares settled amounted to 59 522 with a cash value of EUR 867 533 before taxes based on the share price EUR 14.58 on the 1 March 2018 settlement date. Total number of shares actually transferred was lower because a portion of shares corresponding to the tax obligation was withheld to cover the income tax.

### Group Leadership Team share interests

Executives in Office at the Year End	R Shares Held <sup>1</sup>	Performance Share Opportunity 2018-2020 <sup>2</sup>	Restricted Share Opportunity 2018-2020 <sup>2</sup>
Johanna Hagelberg	11 258	45 339	9 899
Kati ter Horst	30 318	71 660	15 763
Malin Bendz	17 422	33 686	6 289
Ulrika Lilja	21 534	39 681	8 693
Annica Bresky	0	49 401	8 397
Per Lyrvall <sup>3</sup>	53 245	57 330	12 601
Markus Mannström	32 350	40 803	7 057
Noel Morrin	26 588	48 665	11 095
Gilles van Nieuwenhuyzen	11 308	77 367	17 145
Seppo Parvi	25 585	57 429	12 497
Karl-Henrik Sundström <sup>4</sup>	143 505	185 912	40 050
Jari Suominen	31 553	54 349	11 995
<b>Total, Serving Officers<sup>5</sup></b>	<b>404 666</b>	<b>761 622</b>	<b>161 481</b>

<sup>1</sup> None of the GLT members holds A shares.

<sup>2</sup> Potential shares to GLT members listed here are gross of taxes

<sup>3</sup> Spouse holds 1 257 of the shares

<sup>4</sup> 41 700 of the shares are held by a related party (Alma Patria AB).

<sup>5</sup> 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.

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## Note 8 Net financial items



### Accounting principles

Net financial items comprise of 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	Year Ended 31 December	
	2018	2017
<b>Net Financial Expense in the Income Statement</b>		
Financial income	27	38
Financial expense	-207	-200
<b>Total</b>	<b>-180</b>	<b>-162</b>
<b>Represented by</b>		
Interest expense		
Interest expense from borrowings measured at amortised cost	-126	-140
Net interest from interest rate derivatives measured at fair value through OCI	-6	-2
Interest expense on finance leases	-1	-1
Interest income on loans and receivables measured at amortised cost	4	3
Net interest on net defined benefit liabilities	-6	-6
Foreign exchange gains and losses		
Currency derivatives	22	24
Borrowings and deposits	-55	10
Other financial income	1	1
Other financial expense		
Bond buybacks	0	-29
Financial fees	-10	-22
Fair valuation losses	-3	0
<b>Total</b>	<b>-180</b>	<b>-162</b>

Gains and losses on derivative financial instruments are shown in [Note 27 Derivatives](#).

In 2018, the net interest expense on borrowings decreased due to lower average gross debt level and fee amortisations. There were no capitalised borrowing costs in 2018 (EUR nil). Costs on long-term debt issues capitalised as part of non-current debt amounted to EUR 14 (EUR 17) million in the Statement of financial position. During the year EUR 5 (EUR 7) 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 2017 the Group recorded a net expense of EUR 29 million due to repurchases of bond notes with the impact recorded under other financial expense. In addition, the Group recorded a net expense of EUR 10 million under financial fees related to an early loan repayment in 2017. The transactions are explained in more detail in [Note 26 Debt](#).

The amount reported under financial fees in the table above mainly relates to net financial fees for unused committed credit facilities, guarantees and rating agencies.

## Note 9 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 income taxes.

Deferred income 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 it affects neither accounting profit nor taxable profit. 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	Year Ended 31 December	
	2018	2017
Current Tax	-166	-123
Deferred Tax	-55	-5
<b>Total Tax</b>	<b>-221</b>	<b>-128</b>

### Income tax rate reconciliation

EUR million	Year Ended 31 December	
	2018	2017
Profit before tax	1 210	742
Tax at statutory rates applicable to profits in the country concerned <sup>1</sup>	-247	-147
Non-deductible expenses and tax exempt income <sup>2</sup>	13	6
Valuation of deferred tax assets	-17	-22
Taxes from prior years	-23	-6
Changes in tax rates and tax laws	9	5
Impairment of goodwill	0	0
Profits from equity accounted investments	39	18
Other <sup>3</sup>	3	18
<b>Total Tax</b>	<b>-221</b>	<b>-128</b>
<b>Effective Tax Rate</b>	<b>18.3%</b>	<b>17.3%</b>
<b>Statutory Tax Rate (blended)</b>	<b>20.4%</b>	<b>19.8%</b>

<sup>1</sup> Includes a EUR 21 million impact from countries with tax holidays and tax benefits in 2018 and a EUR 9 million impact from tax holidays and other tax benefits in 2017.

<sup>2</sup> The tax value of non-deductible expenses of EUR 26 million has been netted against tax exempt income of EUR 39 million in 2018, and tax value of non-deductible expenses of EUR 17 million has been netted against tax exempt income of EUR 23 million in 2017.

<sup>3</sup> The 2017 figure includes a EUR 19 million release of deferred tax liabilities in relation to subsidiary dividend distribution as the distribution is not probable within the foreseeable future.

The statutory tax rate is a weighted average of the statutory tax rates prevailing in jurisdictions where Stora Enso operates.



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### Change in deferred taxes in 2018

EUR million	Value at 1 Jan 2018	Income Statement	OCI	Acquisitions/ Disposals	Translation difference	Value at 31 Dec 2018
Fixed assets	-163	-14	0	0	2	-175
Financial instruments	-7	0	6	0	0	-1
Untaxed reserves	-15	-6	0	0	2	-19
Pensions and provisions	46	13	4	0	-1	62
Tax losses and tax credits carried forward	127	-39	0	1	1	90
Other deferred taxes	0	-6	0	0	1	-5
<b>Total</b>	<b>-12</b>	<b>-52</b>	<b>10</b>	<b>1</b>	<b>5</b>	<b>-48</b>
Equity hedges (CTA)		-3	3			
<b>Change in Deferred Tax</b>	<b>-12</b>	<b>-55</b>	<b>13</b>	<b>1</b>	<b>5</b>	<b>-48</b>
Assets <sup>1</sup>	154					120
Liabilities <sup>1</sup>	-166					-168

<sup>1</sup> Deferred tax assets and liabilities have been offset in accordance with IAS 12.

### Change in deferred taxes in 2017

EUR million	Value at 1 Jan 2017	Income Statement	OCI	Acquisitions/ Disposals	Translation difference	Value at 31 Dec 2017
Fixed assets	-176	12	0	0	1	-163
Financial instruments	-5	0	-2	0	0	-7
Untaxed reserves	-30	13	0	0	2	-15
Pensions and provisions	46	10	-10	0	0	46
Tax losses and tax credits carried forward	193	-64	0	0	-2	127
Other deferred taxes	-17	16	0	0	1	0
<b>Total</b>	<b>11</b>	<b>-13</b>	<b>-12</b>	<b>0</b>	<b>2</b>	<b>-12</b>
Equity hedges (CTA)		8	-8	0	0	0
<b>Change in Deferred Tax</b>	<b>11</b>	<b>-5</b>	<b>-20</b>	<b>0</b>	<b>2</b>	<b>-12</b>
Assets <sup>1</sup>	214					154
Liabilities <sup>1</sup>	-203					-166

<sup>1</sup> Deferred tax assets and liabilities have been offset in accordance with IAS 12.

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.

### Tax losses

EUR million	As at 31 December					
	Tax losses carried forward		Recognised tax values		Unrecognised tax values	
	2018	2017	2018	2017	2018	2017
Expiry within five years	703	856	71	118	58	47
Expiry after five years	131	104	5	3	27	22
No expiry	1 030	1 059	13	6	202	234
<b>Total</b>	<b>1 864</b>	<b>2 019</b>	<b>89</b>	<b>127</b>	<b>287</b>	<b>303</b>

Tax losses of EUR 332 (EUR 573) million relate to Finland.

Non-recognised deferred tax assets on deductible temporary differences amounted to EUR 39 (EUR 51) 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 ventures for which deferred tax liabilities have not been recognised amounted to EUR 224 (EUR 214) million.

## Note 10 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 in accordance with IFRS 5. Depreciation or amortisation does not cease when the asset becomes idle. Tangible and intangible assets are depreciated and amortised on a straight-line basis over their useful lives. Useful lives are reviewed periodically. If an asset is disposed of, proceeds exceeding the carrying value of the asset up to its historical cost are netted against depreciation, amortisation and impairment charges. Only disposal proceeds exceeding the historical cost of an asset are presented as other operating income (Note 5). If the asset's book value is higher than the disposal proceeds, the difference is recognised as an impairment in the period when a binding sales contract is signed.

The carrying amounts of intangible assets and property, plant and equipment 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 on property, plant and equipment 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 and property, plant and equipment 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.

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### Depreciation, amortisation and impairment charges

EUR million	Year Ended 31 December	
	2018	2017
<b>Depreciation and Amortisation</b>		
Intangible assets	23	18
Buildings and structures	78	82
Plant and equipment	368	382
Other tangible assets	10	11
<b>Total</b>	<b>479</b>	<b>493</b>
<b>Impairment and Disposal Gains/Losses</b>		
Goodwill	0	0
Intangible assets	0	11
Land	0	5
Buildings and structures	0	0
Plant and equipment	1	7
Other tangible assets	0	4
Gain on sale of fixed assets	-4	-2
Loss on sale of fixed assets	4	3
<b>Total</b>	<b>1</b>	<b>28</b>
<b>Reversal of Impairment</b>		
Intangible assets	0	-3
Buildings and structures	0	0
Plant and equipment	0	-3
<b>Total</b>	<b>0</b>	<b>-6</b>
<b>Depreciation, Amortisation and Impairment Charges</b>	<b>479</b>	<b>515</b>

### Depreciation and amortisation

The total depreciation and amortisation charge amounted to EUR 479 million and was EUR 14 million less than in 2017. A breakdown of depreciation, amortisation and impairment charges by divisions is set out in [Note 3](#) Segment information.

### Disposal gains and losses

There were no material disposal gains or losses relating to fixed assets in 2018 or 2017.

### Impairment testing

The recoverable amount for the cash generating units (CGUs) has been determined based on a value-in-use calculation using cash flow projections from financial budgets approved by the Board of Directors and management. The pre-tax discount rates are calculated for each cash generating unit taking into account 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 and property, plant and equipment.

Impairments were calculated using a value-in-use method for each CGU based on the following main assumptions:

- Sales price estimates in accordance with internal and external specialist analysis
- Cash flows and discount rates were prepared in real terms
- Current cost structure to remain unchanged

- For goodwill testing a four-year future period was used after which the perpetuity value was based on zero growth rates, whereas for intangible assets, property, plant and equipment testing the period was the remaining expected economic life of the assets.

### Other intangible assets and property, plant and equipment impairment

The total impairment charges on other intangible assets and property, plant and equipment in 2018 amounted to EUR 1 (EUR 27) million and resulted mainly from impairment testing.

Newsprint Europe and Wood Free Uncoated CGU's in Paper division were tested for fixed asset impairment reversal in 2018 and the testing did not result in reversal of previous impairments. These CGU's in Paper division were not tested for fixed asset impairment or impairment reversal in 2017.

### Goodwill impairment testing

In 2018 or 2017 the Goodwill testing did not result in any impairments.



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### Groups of cash generating units containing goodwill

EUR million	2018					2017				
	Goodwill at Year End	Intangible Assets and Property, Plant and Equipment at Year End	Recoverable Amount at Year End	Impairment Charge	Pre-tax Discount Rate	Goodwill at Year End	Intangible Assets and Property, Plant and Equipment at Year End	Recoverable Amount at Year End	Impairment Charge	Pre-tax Discount Rate
Packaging Solutions - Europe	19	721	2 726	0	8.2%	19	712	2 117	0	8.8%
Biomaterials - Innovation and Nordic Operations	34	369	2 927	0	6.2%	28	348	1 916	0	6.1%
Wood Products - Central Europe	107	155	1 155	0	5.7%	107	159	937	0	5.4%
Paper - Newsprint and Book Paper	43	238	492	0	5.7%	43	245	528	0	5.4%
Paper - Uncoated Magazine Paper	40	242	477	0	5.7%	40	263	492	0	5.4%
<b>Total</b>	<b>243</b>	<b>1 725</b>	<b>7 777</b>	<b>0</b>		<b>237</b>	<b>1 727</b>	<b>5 990</b>	<b>0</b>	

### Segment impairments and impairment reversals, disposal gains and losses

EUR million	Year Ended 31 December	
	2018	2017
Consumer Board	1	0
Packaging Solutions	-1	3
Biomaterials	1	1
Wood Products	0	0
Paper	2	7
Other	-1	11
<b>Total (impairment/disposal loss +) / (reversal/disposal gain -)</b>	<b>1</b>	<b>22</b>

The calculation of value-in-use is highly sensitive to discount rates, sales prices and costs. The Sensitivity Analysis table below summarises what effect a 1% change in the discount rate, 1% decrease in sales prices and 1% increase in costs would have had on the recoverable amounts of the groups of CGUs carrying the most of the group's total goodwill.

### Goodwill testing sensitivity analysis, impact on recoverable amount

EUR million	Wood Products - Central Europe	Paper - Newsprint and Book	Paper - Uncoated Magazine Paper
1% increase in the discount rate	-216	-61	-77
1% annual decrease in the sales price	-150	-129	-91
1% annual increase in the costs	-134	-122	-84

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## Note 11 Intangible assets and property, plant and equipment



### Accounting principles

#### Computer software development costs

The cost of development or acquisition of new software clearly associated with an identifiable and unique product that will be controlled by the group and has probable benefit exceeding its cost beyond one year and is recognised as an intangible asset and will be amortised over the expected useful life of the software between 3 to 10 years. Website costs are expensed as incurred.

#### 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 for the purpose of impairment testing. In compliance with IFRS 3, the cost of an acquisition is equal to the sum of the consideration transferred, the value of the non-controlling interest in the acquisition, and the fair value of the previously held interest in the acquired subsidiary. 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. Gains and losses on the disposal of a group entity include any goodwill relating to the entity sold.

Goodwill arising from the acquisition of an equity accounted investment or joint arrangement is included in the carrying amount of the investment and is assessed for impairment as part of that investment. Any excess of the group's share of the net fair value over the cost of the acquisition, after reassessment, is recognised immediately in the income statement.

#### 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.

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. The 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 fair value determination of customer contracts and related relationships is derived from expected retention rates and cash flow over the customers' remaining estimated lifetime. The 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, 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 Consolidated statement of financial position value 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 these assets are capitalised as part of the cost during the construction period 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
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	10–35
Roads, fields, bridges	15–20

Ordinary maintenance and repair charges are written as expensed as 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.



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### Intangible assets

EUR million	Year Ended 31 December				
	Computer Software	Other Intangible Assets	Assets in Progress	Goodwill	Total
<b>Acquisition Cost</b>					
At 1 January 2017	228	175	0	1 193	1 596
Translation difference	-2	-9	0	-3	-14
Reclassifications	21	6	0	0	27
Additions	7	13	39	0	59
Disposals <sup>1</sup>	-5	-9	0	0	-14
<b>At 31 December 2017</b>	<b>249</b>	<b>176</b>	<b>39</b>	<b>1 190</b>	<b>1 654</b>
Translation difference	-1	0	0	-1	-2
Reclassifications	26	-1	-28	0	-3
Additions <sup>2</sup>	13	21	16	5	55
Disposals <sup>1</sup>	-62	-19	0	0	-81
<b>At 31 December 2018</b>	<b>225</b>	<b>177</b>	<b>27</b>	<b>1 194</b>	<b>1 623</b>
<b>Accumulated Amortisation and Impairment</b>					
At 1 January 2017	200	23	0	955	1 178
Translation difference	-4	0	0	-2	-6
Disposals <sup>1</sup>	-5	-5	0	0	-10
Amortisation	10	8	0	0	18
Impairment	8	0	0	0	8
<b>At 31 December 2017</b>	<b>209</b>	<b>26</b>	<b>0</b>	<b>953</b>	<b>1 188</b>
Translation difference	-1	-1	0	-2	-4
Disposals <sup>1</sup>	-62	-19	0	0	-81
Amortisation	12	11	0	0	23
<b>At 31 December 2018</b>	<b>158</b>	<b>17</b>	<b>0</b>	<b>951</b>	<b>1 126</b>
<b>Net Book Value at 31 December 2018</b>	<b>67</b>	<b>160</b>	<b>27</b>	<b>243</b>	<b>497</b>
<b>Net Book Value at 31 December 2017</b>	<b>40</b>	<b>150</b>	<b>39</b>	<b>237</b>	<b>466</b>

<sup>1</sup> Company disposals are included in Disposals line. Company disposals are discussed in more detail in Note 4 Acquisitions and disposals.

<sup>2</sup> Company acquisitions are included in Additions line. Company acquisitions are discussed in more detail in Note 4 Acquisitions and disposals.

### Property, plant and equipment

EUR million	Year Ended 31 December					
	Land and Water	Buildings and Structures	Plant and Equipment	Other Tangible Assets	Assets in Progress	Total
<b>Acquisition Cost</b>						
At 1 January 2017	395	3 542	13 836	442	314	18 529
Translation difference	-33	-175	-421	-7	-30	-666
Reclassifications	0	5	97	1	-130	-27
Reclassifications to biological assets	0	0	-1	0	0	-1
Additions	1	20	190	3	287	501
Disposals <sup>1</sup>	-2	-43	-355	-11	0	-411
<b>At 31 December 2017</b>	<b>361</b>	<b>3 349</b>	<b>13 346</b>	<b>428</b>	<b>441</b>	<b>17 925</b>
Translation difference	-1	-29	-201	-8	-1	-240
Reclassifications	0	43	207	2	-249	3
Reclassifications to biological assets	0	-1	-2	0	0	-3
Additions	0	19	171	2	249	441
Disposals <sup>1</sup>	-31	-46	-108	-4	0	-189
<b>At 31 December 2018</b>	<b>329</b>	<b>3 335</b>	<b>13 413</b>	<b>420</b>	<b>440</b>	<b>17 937</b>
<b>Accumulated Depreciation and Impairment</b>						
At 1 January 2017	6	2 096	10 445	366	5	12 918
Translation difference	-1	-96	-293	-7	0	-397
Disposals <sup>1</sup>	0	-42	-342	-10	0	-394
Depreciation	0	82	382	11	0	475
Impairment	5	0	4	0	4	13
<b>At 31 December 2017</b>	<b>10</b>	<b>2 040</b>	<b>10 196</b>	<b>360</b>	<b>9</b>	<b>12 615</b>
Translation difference	-1	-32	-177	-6	0	-216
Disposals <sup>1</sup>	-5	-41	-103	-4	0	-153
Depreciation	0	77	368	11	0	456
Impairments and reversals	0	0	1	0	0	1
<b>At 31 December 2018</b>	<b>4</b>	<b>2 044</b>	<b>10 285</b>	<b>361</b>	<b>9</b>	<b>12 703</b>
<b>Net Book Value at 31 December 2018</b>	<b>325</b>	<b>1 291</b>	<b>3 128</b>	<b>59</b>	<b>431</b>	<b>5 234</b>
<b>Net Book Value at 31 December 2017</b>	<b>351</b>	<b>1 309</b>	<b>3 150</b>	<b>68</b>	<b>432</b>	<b>5 310</b>

<sup>1</sup> Company disposals are included in Disposals line. Company disposals are discussed in more detail in Note 4 Acquisitions and disposals.

### Intangible assets and property, plant and equipment additions

Total capital expenditure for the year in Stora Enso Oyj and its subsidiaries amounted to EUR 491 (EUR 560) million. Details of ongoing projects and future plans are discussed in more detail in the Report of the Board of Directors.

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## Note 12 Biological assets



### Accounting principles

The biological assets of Stora Enso consist of standing trees to be used as raw material in pulp and mechanical wood production and as bio fuels.

IAS 41 Agriculture standard requires that biological assets are shown in the Consolidated Statement of financial position at fair value. Group forests are thus accounted for at level 3 of fair value less the estimated point-of-sale costs at harvest, there being a presumption that fair values can be measured for these assets.

The valuation of forest assets is based on discounted cash flow models whereby the fair value of the biological assets is calculated using cash flows from continuous operations, that is, based on sustainable forest management plans taking into account growth potential. The yearly harvest from the forecasted tree growth is multiplied by wood prices and the cost of silviculture and harvesting is then deducted. The fair value of the biological assets are measured as the present value of the harvest from one growth cycle based on the productive forestland, taking into consideration environmental restrictions and other reservations. Young standing timber less than two years old (less than three years in Montes del Plata) is considered to be an immature asset and is accounted at cost. At harvesting, biological assets are transferred to inventory.

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 material, which varies according to the location and species of the assets.

Stora Enso also ensures that the Group's share of the valuation of forest holdings in equity accounted investments and joint operations are consistent with Group accounting policies.

The Group has biological assets in its own subsidiaries in China and Laos, as well as in joint operations in Brazil and Uruguay and in equity accounted investments in Finland, Sweden and Brazil.

The value of biological assets disclosed in the group Consolidated statement of financial position from subsidiary companies and from joint operations amounts to EUR 457 (EUR 448) million as shown below. The Group's indirect share of biological assets held by equity accounted investments amounts to EUR 2 871 (EUR 2 906) million.

### Biological assets

EUR million	Year Ended 31 December	
	2018	2017
<b>Subsidiaries and Joint Operations</b>		
<b>Fair Value at 1 January</b>	<b>448</b>	<b>489</b>
Translation differences	-2	-51
Change in fair value <sup>1</sup>	-2	-6
Additions (cost based)	83	80
Harvesting <sup>1</sup>	-60	-57
Other operative changes <sup>1</sup>	-7	-9
Other changes	-7	0
Reclassification from Property, plant and equipment	2	2
<b>Fair Value of biological assets at 31 December</b>	<b>457</b>	<b>448</b>
<b>Equity accounted investments</b>		
Bergvik Skog Ab (49.79%)	2 262	2 326
Tornator Oyj (41%)	595	562
Arauco Florestal Arapoti S.A. (20%)	14	18
<b>Fair value of biological assets of Associated companies at 31 December</b>	<b>2 871</b>	<b>2 906</b>

<sup>1</sup> Items are recorded in profit and loss lines.

### Valuation and standing stock of forest assets in main subsidiaries and joint operations

	As at 31 December 2018				
	Fair value, MEUR	Fair value per hectare, EUR/ha	Productive forest land, ha	Standing stock, million m³ sub	Harvesting, million m³ sub
Guangxi (100%)	166	2 147	77 300	6.4	1.1
Veracel (50%)	75	1 715	43 700	2.9	1.7
Montes del Plata (50%)	199	2 450	81 200	8.1	1.4

#### Subsidiaries and joint operations:

At the end of 2018, the fair value of the biological assets in Guangxi, China amounted to EUR 166 (EUR 168) million. The biological assets included young standing timber with a value of EUR 29 (EUR 33) million. The decrease is driven by lower sales prices, which decreased by 4%. The discount rate of 8.7% (8.6%) used in the discounted cash flows (DCF) is determined using the weighted average cost of capital method. The productive land in Guangxi, China totals 77 thousand hectares with standing stock of 6.4 million m³ solid under bark (sub). The annual harvesting is on average 1.1 million m³ sub.

Veracel Celulose S.A. (Veracel), a 50% joint operation company in Brazil, had biological assets fair valued at EUR 150 (EUR 164) million, of which Stora Enso's share was EUR 75 (EUR 82) million. The decrease is driven by foreign exchange movements, the local value increased by 3%. The biological assets included young standing timber with a value of EUR 33 (EUR 31) million. The discount rate of 8.3% (7.3%) used in the DCF is determined using the weighted average cost of capital method. Stora Enso's share (50%) of the land area is 113 (113) thousand hectares.

Stora Enso's 50% share of the productive land in Veracel, Brazil totals 44 thousand hectares with share of standing stock of 2.9 million m³ sub. The ownership share of annual harvesting is on average 1.7 million m³ sub.

Montes del Plata (MdP), a 50% joint operation company in Uruguay, had biological assets with a fair value of EUR 398 (EUR 354) million, of which Stora Enso's share was EUR 199 (EUR 177) million.



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The biological assets included young standing timber with a value of EUR 55 (EUR 43) million. The discount rate of 8.0% (8.0%) used in the DCF is determined using the weighted average cost of capital method. Stora Enso's share (50%) of the land area is 126 (123) thousand hectares.

Stora Enso's 50% share of the productive land in Montes del Plata, Uruguay totals 81 thousand hectares with share of standing stock of 8.1 million m<sup>3</sup> sub. The ownership share of annual harvesting is on average 1.4 million m<sup>3</sup> sub.

### Sensitivities of significant assumptions of a +/- 10% movement

	Wood market prices	Growth rate
Guangxi	+/-35	+/-19
Veracel	+/-7	+/-7
Montes del Plata	+/-18	+/-18

At 31 December 2018 biological assets by value were located in China 36% (38%), Brazil 16% (20%), Uruguay 44% (39%) and other areas 4% (3%). The land area comes to 325 (363) thousand hectares of which 37% (31%) is leased and 2% (4%) is restricted. The harvested wood amounted to 4 (4) million m<sup>3</sup>. The changes were mainly driven by disposal of Rio Grande do Sul. The MdP and Veracel amounts are taken into account in the ownership share and number of hectares.

Equity accounted investments:

The Group has three equity accounted investments holding biological assets:

- Bergvik Skog AB (Bergvik Skog), a 49.79% (49.28%) owned Swedish associated company, had biological assets with a fair value of EUR 4 543 (EUR 4 719) million, of which Stora Enso's share was EUR 2 262 (EUR 2 326) million. The fair value change of Bergvik is mainly due to foreign exchange movement. Wood sales margin had a slightly increasing effect on the fair value.
- Tornator Oyj (Tornator), a 41% owned Finnish associated company, had biological assets with a fair value of EUR 1 451 (EUR 1 371) million, of which Stora Enso's share was EUR 595 (EUR 562) million. The increase in fair value is mainly due to increased harvesting volume and sales prices. Growing costs had a slight reducing impact on fair value.
- Arauco Florestal Arapoti S.A., the 20% owned Southern Brazilian associated company, had biological assets with a fair value of EUR 73 (EUR 90) million, of which Stora Enso's share was EUR 14 (EUR 18) million.

### Valuation and standing stock of forest assets in main subsidiaries and joint operations

	As at 31 December 2018				
	Fair value, MEUR	Fair value per hectare, EUR/ha	Productive forest land, ha	Standing stock, million m <sup>3</sup> sub	Harvesting, million m <sup>3</sup> sub
Bergvik Skog AB (49.79%)	2 262	2 416	936 000	79.3	3.1
Tornator Oyj (41.00%)	595	2 665	223 198	24.6	1.2

Stora Enso's 49.79% share of the productive forest land in Bergvik, Sweden totals 936 thousand hectares with share of standing stock of 79.3 million m<sup>3</sup> solid under bark (sub). The ownership share of annual harvesting is on average 3.1 million m<sup>3</sup> sub.

Stora Enso's 41% share of the productive forest land in Tornator totals 223 thousand hectares with share of standing stock of 24.6 million m<sup>3</sup> sub. The ownership share of annual harvesting is on average 1.2 million m<sup>3</sup> sub.

For information about the amount of wood delivered to Stora Enso mills and share of wood sourced from plantations, please see Stora Enso's Sustainability report 2018, section Forests, plantations and land use.

## Note 13 Equity accounted investments

### Accounting principles

#### Consolidation principles

Associated companies over which Stora Enso exercises significant influence are accounted for using the equity method, which involves recognising the Group's share of the equity accounted investment profit or loss for the year 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.

The Group's share of results in equity accounted investments is reported in operating profit to reflect the operational nature of these investments, especially those in wood supply. There is no material goodwill in the Statements of financial position for equity accounted investments.

### Principal equity accounted investments

Company	Reportable segment	Domicile and principal place of operations	As at 31 December			
			Proportion of ownership interest/voting rights held %		EUR million	
			2018	2017	2018	2017
Bergvik Skog AB: forest <sup>1</sup>	Other	Sweden	49.79/36.70	49.28/36.70	1 400	1 287
Tornator Oyj: forest	Other	Finland	41	41	288	267
Arauco Florestal Arapoti S.A.: plantation	Other	Brazil	20	20	19	22
					1 707	1 576
Others					23	24
<b>Carrying Value at 31 December</b>					<b>1 729</b>	<b>1 600</b>

<sup>1</sup> The group's shareholding in Bergvik Skog AB is 49.79%, however, the voting rights are limited to 36.7%.

### Group share of equity accounted investments income statements

EUR million	Year Ended 31 December	
	2018	2017
Sales	249	279
Net operating expenses	-119	-210
IAS 41 valuation	90	33
<b>Operating Profit</b>	<b>220</b>	<b>102</b>
Net financial items	-37	-28
<b>Net Profit before Tax</b>	<b>183</b>	<b>74</b>
Income tax	-2	-8
<b>Net Profit for the Year</b>	<b>181</b>	<b>66</b>

All of the above companies are accounted for using the equity method in the Consolidated financial statements.

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The average number of personnel in the equity accounted investments was 1 727 in 2018, compared with 1 698 in 2017.

A summary of the financial information in respect of the Group's material associates, Bergvik Skog AB and Tornator Oyj, is set out below. The Group's share of these associated companies is reported under segment Other and covers the majority of the Group's total share of results of equity accounted investments. The summarised financial information below represents amounts shown in the associate's financial statements prepared in accordance with IFRS.

### Bergvik Skog AB

EUR million	2018	2017
Current assets	152	57
Non-current assets	4 705	4 969
Current liabilities	157	403
Non-current liabilities	971	991
Tax liabilities	955	1 034
Sales	245	243
Net profit for the year	295	111
Other comprehensive income	7	8
Total comprehensive income	302	119
Dividends received from the associate during the financial year	11	7
Net assets of the associate	2 774	2 598
Proportion of the Group's ownership interest in Bergvik Skog AB	49.79%	49.28%
Goodwill	19	7
<b>Carrying amount of the Group's interest in Bergvik Skog AB</b>	<b>1 400</b>	<b>1 287</b>

In November 2018, Stora Enso announced that the shareholders of Bergvik Skog AB have signed a binding agreement regarding restructuring of their ownership in Bergvik Skog. Currently, Bergvik Skog's Swedish forest assets are owned by its subsidiaries Bergvik Väst AB and Bergvik Öst AB, representing approximately 83% and 17% of these assets respectively. With this agreement, Stora Enso will transform its current ownership of 49.8% in Bergvik Skog, to a direct holding of 69.8% of the value of the forest assets in Bergvik Väst. After the transaction, Stora Enso's forest holdings in Sweden will increase to 1.4 million hectares, of which 1.15 million hectares is productive forest land. Stora Enso's 49.8% share of the productive forest land in Bergvik totalled 0.9 million hectares at end of December 2018. The transaction is estimated to increase Stora Enso's balance sheet by approximately EUR 1.0 billion. The restructuring is planned to be completed during the first half of 2019. Bergvik Skog is currently reported as equity accounted investment. As a result of the restructuring, Stora Enso's Swedish forest assets will be placed in a fully owned subsidiary and then consolidated line by line in Stora Enso's results.

Stora Enso's shareholding in the company was valued at EUR 1 400 (EUR 1 287) million at the year-end in 2018. In 2018, the Group's share of Bergvik Skog's net profit was EUR 147 (EUR 55) million, including a forest valuation gain of EUR 80 (gain EUR 26) million.

### Tornator Oyj

EUR million	2018	2017
Current assets	34	32
Non-current assets	1557	1478
Current liabilities	376	121
Non-current liabilities	351	586
Tax liabilities	161	151
Sales	113	102
Net profit for the year	79	78
Other comprehensive income	0	-1
Total comprehensive income	79	77
Dividends received from the associate during the financial year	12	11
Net assets of the associate	702	652
Proportion of the Group's ownership interest in Tornator Oyj	41.00%	41.00%
<b>Carrying amount of the Group's interest in Tornator Oyj</b>	<b>288</b>	<b>267</b>

Stora Enso's Finnish forest holdings were divested into an equity accounted investment, Tornator, in 2002. The Group's current 41% ownership is valued at EUR 288 (EUR 267) million at the year-end for 2018. In 2018, the Group's share of Tornator's net profit was EUR 32 (EUR 32) million, including a forest valuation gain of EUR 13 (gain EUR 8) million.



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### Aggregate information of equity accounted investments that are not individually materia

EUR million	As at 31 December	
	2018	2017
<b>PPE<sup>1</sup>, goodwill and other intangible assets</b>	21	28
Biological assets	14	18
Operative receivables:		
Non-current	0	0
Current	16	16
Inventories	1	1
Cash	8	7
<b>Total Assets</b>	<b>61</b>	<b>70</b>
Operative Liabilities:		
Non-current	2	4
Current	11	12
Debt:		
Non-current	1	1
Current	0	0
Tax liabilities	4	7
<b>Total Liabilities</b>	<b>19</b>	<b>24</b>
Net Equity in the Group Statement of Financial Position	42	46
Represented by		
Capital and Reserves	42	45
OCI	0	1
<b>Equity Accounting Value</b>	<b>42</b>	<b>46</b>
Equity Accounting Value for Bergvik Skog AB	1 400	1 287
Equity Accounting Value for Tornator Oyj	288	267
<b>Total Equity Accounting Value</b>	<b>1 729</b>	<b>1 600</b>

<sup>1</sup> PPE = Property, Plant and Equipment

### Equity accounted investment company balances

EUR million	As at 31 December	
	2018	2017
<b>Receivables from Equity Accounted Investments</b>		
Non-current loan receivables	2	3
Trade receivables	6	3
Current loan receivables	0	0
<b>Liabilities due to Equity Accounted Investments</b>		
Trade payables	39	40

### Equity accounted investment transactions

EUR million	Year Ended 31 December	
	2018	2017
Sales to equity accounted investments	53	53
Purchases from equity accounted investments	219	215

The Group engages in transactions with equity accounted investments 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.

Total loans including interest receivable to equity accounted investments at the year-end 2018 amounted to EUR 2 (EUR 3) million.

## Note 14 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, earlier classified as available-for-sale investments (AFS) under IAS 39, at fair value through other comprehensive income (FVTOCI) under IFRS 9 by applying the irrevocable election for equity instruments under the standard. 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 dividend income is recognised in the Income Statement. In addition, the Group also has certain equity investments in unlisted shares that are classified as fair value through Income statement.

### Summary of values

EUR million	Year Ended 31 December	
	2018	2017
<b>Acquisition cost at 1 January</b>		
Listed shares	4	4
Unlisted shares	126	121
<b>Investments classified as equity instruments (previously available-for-sale)</b>	<b>130</b>	<b>125</b>
OCI in opening balance	209	170
<b>Equity Instruments at 1 January</b>	<b>339</b>	<b>295</b>
Translation difference	-1	-1
Additions	3	8
Change in fair values accounted for as OCI	97	39
Disposals	-1	0
Income Statement - gains and losses	-2	-2
<b>Carrying Amount at 31 December</b>	<b>435</b>	<b>339</b>

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### Unrealised gains and losses on listed and unlisted shares

EUR million	Year Ended 31 December	
	2018	2017
<b>Net unrealised holding gains (OCI)</b>	<b>306</b>	<b>209</b>
Cost	129	130
<b>Fair Value</b>	<b>435</b>	<b>339</b>
Net unrealised holding gains (OCI)	306	209
Deferred tax	-2	-4
<b>Net Unrealised Holding Gains Shown in Equity as OCI</b>	<b>304</b>	<b>205</b>
<b>Change in Net Unrealised Holding Gains Shown in Equity as OCI</b>	<b>98</b>	<b>43</b>

### PVO shares

The Group holds a 15.6% (15.6%) interest in Pohjolan Voima Oy (PVO), a privately-owned group of companies in the energy sector that produces electricity and heat for its shareholders in Finland. Each subsidiary of the PVO group has its own class of shares that entitle the shareholder to the energy produced in proportion to its ownership of that class of share. The shareholders then have an obligation to cover the costs of production, which are generally lower than market prices. The holding is fair valued quarterly using an average of two methods: the discounted cash flow model and trading multiples. The valuation is categorised at level 3 in the fair value hierarchy according to IFRS 13, levels are explained in [Note 25](#) Fair values.

The electricity prices in the model are based on Nordpool prices. Liquid future derivative prices are used for the available years in the model and thereafter increased by an inflation factor. The historical financial statements provide the basis for the cost structure for each of the power assets, which are adjusted by the inflation factor in future years. The discount rate of 4.06% used in the DCF is determined using the weighted average cost of capital method. The trading multiples are derived from a peer group of European companies operating power assets similar to PVO's. A +/- 5% change in the electricity price used in the DCF would change the valuation by EUR +54 million and EUR -41 million, respectively. A +/- 1% absolute change in the discount rate would change the valuation by EUR -34 million and EUR +100 million, respectively.

As an outcome of the arbitration proceedings, a settlement agreement was signed during 2018 between the plant owner Teollisuuden Voima Oyj (TVO) and the plant supplier AREVA-Siemens Consortium concerning the costs and losses caused by the delay of the Olkiluoto 3 project. As a result, the plant supplier agreed to compensate EUR 450 million to the plant owner TVO. The supplier is entitled to receive an incentive payment, in a maximum amount of EUR 150 million, upon timely completion of the Olkiluoto 3 project. In November 2018 TVO announced that the regular electricity production will start in January 2020 based on the updated start-up schedule. The arbitration proceeding outcome has been taken into account in the valuation. Stora Enso's indirect share of the capacity of Olkiluoto 3 is approximately 8.9%, through its PVO B2 shares.

### PVO shareholding at 31 December 2018

EUR million	Share Series	% Holding	Asset Category	Fair Value 2018	Fair Value 2017
PVO-Vesivoima Oy	A	20.6	Hydro	166	155
Teollisuuden Voima Oyj	B	15.7	Nuclear	243	148
Teollisuuden Voima Oyj	B2	14.8	Nuclear under construction	0	0
Other	C,C2,V,M	Various	Various	6	5
<b>Total</b>				<b>415</b>	<b>308</b>

The valuation in 2018 amounted to EUR 415 (EUR 308) million against cost value of EUR 118 (EUR 116) million, with the revaluation of EUR 297 (EUR 192) million being taken to other comprehensive income. The change in PVO's value is mainly caused by increase in electricity market prices. No deferred tax is appropriate as under Finnish tax regulations holdings above 10% are exempt from tax on disposal proceeds.

### Principal equity instruments

EUR million	Holding %	31 December 2018		
		Number of Shares	Acquisition Cost	Fair Value
Packages Ltd, Pakistan - listed shares		5 396 650	4	13
<b>Total Listed Shares</b>			<b>4</b>	<b>13</b>
Pohjolan Voima Oy - unlisted shares	15.6	5 073 972	118	415
Others - unlisted shares			7	7
<b>Total Unlisted Shares</b>			<b>125</b>	<b>422</b>
<b>Total Equity instruments at 31 December 2018</b>			<b>129</b>	<b>435</b>
<b>Total Available-for-sale Investments at 31 December 2017</b>			<b>130</b>	<b>339</b>

The difference of EUR 306 (EUR 209) million between the initial acquisition cost and reporting date fair value of the equity instruments (previously available-for-sale investments) represents the OCI reserve as shown in the Statement of changes in equity.

## Note 15 Other non-current assets

EUR million	As at 31 December	
	2018	2017
Prepaid expenses and accrued income	19	18
Tax credit	16	17
Other non-current operative assets	13	15
<b>Total</b>	<b>48</b>	<b>50</b>

## Note 16 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 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. Such valuation allowances are deducted from the carrying value of the inventories in the consolidated statement of financial position.



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EUR million	As at 31 December	
	2018	2017
Materials and supplies	438	308
Work in progress	98	81
Finished goods	752	649
Spare parts and consumables	298	279
Other inventories	17	15
Advance payments and cutting rights	83	97
Obsolescence allowance - spare parts and consumables	-98	-94
Obsolescence allowance - finished goods	-15	-10
Net realisable value allowance	-5	-4
<b>Total</b>	<b>1 567</b>	<b>1 321</b>

EUR 4 872 (EUR 4 675) million of inventories have been expensed during the year, which are included in materials and supplies line and relate to materials. EUR 16 (EUR 15) million of inventory write-downs have been recognised as an expense. EUR 3 (EUR 18) million have been recognised as a reversal of previous write-downs.

### Note 17 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. 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 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 default is normally estimated to happen when trade receivables are at least 90 days overdue or there is otherwise objective evidence supporting the conclusion that default has occurred. Trade receivables are presented in current assets under Operative receivables in the Consolidated statement of financial position.

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 programs in the next period, are classified as trade receivables fair valued through other comprehensive income in accordance with business model and contractual cash flow characteristics tests under IFRS 9. Please refer to [Note 25](#) Fair values for further details.

#### Current operative receivables

EUR million	As at 31 December	
	2018	2017
Trade receivables - gross carrying amount	1 172	993
Loss allowance	-36	-28
Prepaid expenses and accrued income	96	119
Other receivables	254	235
<b>Total</b>	<b>1 487</b>	<b>1 319</b>

#### Age analysis of trade receivables

EUR million	As at 31 December	
	2018	2017
Not overdue	1 027	844
Less than 30 days overdue	77	61
31 to 60 days overdue	7	41
61 to 90 days overdue	2	1
91 to 180 days overdue	4	2
Over 180 days overdue	55	44
<b>Total</b>	<b>1 172</b>	<b>993</b>

As at 31 December 2018, a gross amount of EUR 145 (EUR 149) 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 2018 lifetime expected credit losses for trade receivables amounted to EUR 36 million. At 31 December 2017 allowances related to overdue trade receivables calculated in accordance with IAS 39 totalled EUR 28 million. The age analysis of the loss allowance recognised is shown in the table below.

#### Age analysis of loss allowance

EUR million	As at 31 December	
	2018	2017
Not overdue and less than 90 days overdue	3	0
More than 90 days overdue	33	28
<b>Total</b>	<b>36</b>	<b>28</b>

#### Reconciliation of loss allowance

EUR million	As at 31 December	
	2018	2017
Opening balance at 1 January	28	51
Adoption of IFRS 9 standard	3	0
Change in loss allowance booked through Income Statement	8	-7
Write-downs	-3	-15
Other	0	-1
<b>Closing Balance at 31 December</b>	<b>36</b>	<b>28</b>

The actual credit losses during 2018 amounted to EUR 3 (EUR 15) million. Loss allowances for trade receivables are estimated on an individual basis based on a forward-looking model where estimated

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probabilities of default for customers are used in the 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 62 (EUR 17) million. Please refer to [Note 24](#) Financial risk management for details of customer credit risk management.

Stora Enso has entered into factoring agreements to sell trade receivables in order to accelerate cash conversion. These agreements resulted in full derecognition of receivables of a nominal value of EUR 240 (EUR 355) million by the end of the year. The continuing involvement of Stora Enso in the sold receivables was estimated as being insignificant.

### Note 18 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 2018 shareholders' equity amounted to EUR 6 714 (EUR 6 008) million, compared to the market capitalisation on Nasdaq Helsinki of EUR 8 123 (EUR 10 422) million. The market values of the shares were EUR 11.05 (EUR 13.20) for A shares and EUR 10.09 (EUR 13.22) for R shares.

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 2018 the company's fully paid-up share capital as entered in the Finnish Trade Register was EUR 1 342 million (EUR 1 342 million). The current accountable par of each issued share is EUR 1.70 (EUR 1.70).

At 31 December 2018, Directors and Group Leadership Team members owned 1 150 (1 150) A shares and 558 028 (458 526) R shares representing 0.02% of the total voting rights of the company. Full details of Director and Executive interests are shown in [Note 7](#) Board and executive remuneration. A full description of company share award programmes is shown in [Note 21](#) Employee variable compensation and equity incentive schemes. However, none of these have any impact on the issued share capital.

### Change in share capital and number of shares

	A shares	R shares	Total
<b>At 1 January 2017</b>	<b>176 507 090</b>	<b>612 112 897</b>	<b>788 619 987</b>
Conversion of A shares to R shares 15 Feb	-20	20	-
Conversion of A shares to R shares 15 May	-750	750	-
Conversion of A shares to R shares 15 Aug	-40 000	40 000	-
Conversion of A shares to R shares 14 Sep	-20 000	20 000	-
Conversion of A shares to R shares 16 Oct	-34 000	34 000	-
Conversion of A shares to R shares 14 Dec	-20 000	20 000	-
<b>At 31 December 2017</b>	<b>176 392 320</b>	<b>612 227 667</b>	<b>788 619 987</b>
Conversion of A shares to R shares 16 Jan	-40 710	40 710	-
Conversion of A shares to R shares 8 Feb	-400	400	-
Conversion of A shares to R shares 16 Apr	-10 418	10 418	-
Conversion of A shares to R shares 15 May	-300	300	-
Conversion of A shares to R shares 15 Jun	-250	250	-
Conversion of A shares to R shares 16 Jul	-13 070	13 070	-
Conversion of A shares to R shares 14 Sep	-125	125	-
Conversion of A shares to R shares 15 Oct	-55	55	-
Conversion of A shares to R shares 14 Dec	-14 320	14 320	-
<b>At 31 December 2018</b>	<b>176 312 672</b>	<b>612 307 315</b>	<b>788 619 987</b>
<b>Number of votes as at 31 December 2018</b>	<b>176 312 672</b>	<b>61 230 731<sup>1</sup></b>	<b>237 543 403</b>
<b>Share Capital at 31 December 2018, EUR million</b>	<b>300</b>	<b>1 042</b>	<b>1 342</b>
<b>Share Capital at 31 December 2017, EUR million</b>	<b>300</b>	<b>1 042</b>	<b>1 342</b>

<sup>1</sup> R share votes are calculated by dividing the number of R shares by 10.  
The issued shares by 4 March 2019 will represent the total shares eligible to vote at the forthcoming Annual General Meeting.

### Note 19 Non-controlling interests



#### Accounting principles

Non-controlling interests are presented 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 equity holders of the parent company are presented in the Consolidated income statement after the profit 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 interests is decided separately for each acquisition.



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### Non-controlling interests

EUR million	Year Ended 31 December	
	2018	2017
At 1 January	47	62
Acquisitions	-2	0
Disposals	-1	0
NCI buy-out	2	0
Share of profit for the period	-24	-11
Share of other comprehensive income	-2	-3
Dividends	-2	-1
<b>At 31 December</b>	<b>18</b>	<b>47</b>

### Principal non-controlling interests

		As at 31 December		
		2018	2018	2017
Company	Principal Place of Business	Proportion of Ownership Interests Held by Non-controlling Interests, %		
			EUR million	
Stora Enso Pulp and Paper Asia AB Group <sup>1</sup>	Sweden and China	See separate table below	11	37
Stora Enso Inpac Packaging Group	China	10.00	8	10
Stora Enso Huatai Paper Co Ltd	China	40.00	-7	-5
Others	-		5	5
			18	47

<sup>1</sup> Consist of non-controlling interests in Guangxi Integrated Project and Operations

### Non-controlling interests in Stora Enso Pulp and Paper Asia AB Group

Company	Principal Place of Business	31 December 2018			31 December 2017		
		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	0.00	5.79	5.79	0.00	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

In 2018 non-controlling interest in Stora Enso decreased by EUR 29 million primarily due to negative result in Stora Enso Pulp and Paper Asia AB Group. Net loss in Stora Enso Pulp and Paper Asia AB Group was EUR 128 (EUR 75) million. Net result decreased by EUR 53 million compared to last year mainly due losses on revaluation of foreign currency debt and increased interest expenses.

Summarised financial information in respect of the subsidiaries that have material non-controlling interests is set out below.

### Stora Enso Pulp and Paper Asia AB Group

EUR million	2018	2017
<b>Assets</b>	<b>1 127</b>	<b>1 155</b>
Shareholders' equity attributable to the owners of the parent	18	131
Non-controlling interests <sup>1</sup>	11	37
<b>Total Equity</b>	<b>29</b>	<b>168</b>
<b>Liabilities</b>	<b>1 097</b>	<b>987</b>
Net loss for the year	-128	-75
Attributable to:		
Owners of the parent	-104	-61
Non-controlling interests	-24	-14
<b>Net Loss for the Year</b>	<b>-128</b>	<b>-75</b>
Net cash outflow from operating activities	-28	-61
Net cash outflow from investing activities	-61	-81
Net cash inflow from financing activities	62	140
<b>Net Cash Outflow/Inflow</b>	<b>-27</b>	<b>-2</b>

<sup>1</sup> No dividends were paid to non-controlling interests in 2018 or 2017.

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## Note 20 Post-employment benefits



### 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 immediately 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 has established a number of pension and other benefit plans for its operations throughout the world, the cost amounted to EUR 170 (EUR 166) million in 2018, as shown in [Note 6 Personnel expenses](#). The majority of the plans are defined contribution schemes and the charge amounted to EUR 160 (EUR 154) million.

In accordance with their respective pension arrangements, Group Leadership Team members may retire at 65 years of age with pensions consistent with local practices in their respective home countries. The retirement age for other management teams in companies in the Stora Enso Group follows local law and practices, though some management team members have older agreements with the right to retire earlier, between 60 and 65 years. The retirement age for other staff either follows national retirement ages or is determined by local labour agreements. In the latter case, there may be certain pre-retirement liabilities accruing to the company to cover the income of the early retirees between the age at which they ceased working and the national retirement age.

Stora Enso's total defined benefit obligations for current and former members of staff amount to EUR 1 115 (EUR 1 139) million, though assets of EUR 714 (EUR 762) million have been put aside in various pension schemes to cover these liabilities. The net funding position of the defined benefit plans is shown in full in the Statement of Financial Position and amounted to EUR 401 million in 2018, an increase of EUR 24 million on the previous year's liability of EUR 377 million. This increase is mainly caused by the actuarial losses which result from the change in financial assumptions regarding present value of the defined benefit obligations. Interest costs are entered under financial costs. The 2018 defined benefit expense in the Income Statement amounts to EUR 16 million and the actuarial losses recorded in other comprehensive income amount to EUR 24 million. The 2017 defined benefit expense in the Income Statement amounted to EUR 19 million and the actuarial gains recorded in other comprehensive income amounted to EUR 61 million.

### Actuarial gains/losses recognised directly in equity

EUR million	Year Ended 31 December	
	Total Operations	
	2018	2017
Actuarial gains/losses	-24	61
Deferred tax thereon	4	-10
<b>Total</b>	<b>-20</b>	<b>51</b>

Group policy for funding deficits is intended to satisfy local statutory funding requirements for tax deductible contributions together with adjusting the discount factors used in the actuarial calculations for market rates. However, the emphasis of the Group is to provide defined contribution schemes for its post-employment benefits, thus all aspects of the provision and accounting for defined benefit schemes are evaluated. The net liability in the Group Statement of financial position reflects the actual deficits in the defined benefit plans. Details of the pension arrangements, assets and investment policies in the Group's main operating countries are shown below.

#### Finland

The Group funds its Finnish pension obligations mainly through defined contribution schemes, the charge in the Income Statement being EUR 73 (EUR 72) million. By contrast, the remaining obligations covered by defined benefit schemes resulted in a charge of EUR 1 (EUR 1) million excluding finance costs. Pension cover since 2001 has been organised entirely through local insurance companies. The total defined benefit obligation amounts to EUR 302 (EUR 318) million and the assets to EUR 278 (EUR 294) million, leaving a net liability of EUR 25 (EUR 24) million. As state pensions in Finland provide by far the greatest proportion of pensions, Group liabilities are proportionately much smaller than in comparable countries.

Plan assets in Finland 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 8 (EUR 7) million, of which EUR 7 (EUR 6) million related to defined contribution schemes and EUR 1 (EUR 1) million to defined benefits excluding finance costs. The total defined benefit obligation is EUR 245 (EUR 258) million, nearly all of which is unfunded as total assets come to only EUR 7 (EUR 7) million. The net liability decreased from EUR 251 million to EUR 238 million. The decrease in net liability arose mainly from an increase in the discount rate and changes in experience. 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, most blue-collar workers are covered by defined contribution schemes, the charge in the Income statement being EUR 56 (EUR 56) million, with defined benefit schemes covering mainly white-collar staff.

Total defined benefit obligations amounted to EUR 370 (EUR 352) million and the assets came to EUR 278 (EUR 298) million, leaving a net liability of EUR 92 million at the year end, compared with a net liability of EUR 54 million the year before. This increase in net liability arose from a decrease in the discount



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rate and changes in financial assumptions and experience. Stora Enso has undertaken to pay all local legal pension liabilities for the main ITP scheme to the foundation, thus the remaining liability relates to other small schemes.

The long-term investment return target for the foundation is a 3% real return after tax. Stora Enso's Swedish pension fund conducts an annual asset/liability study to optimise its risk parameters.

### Other countries

Total defined benefit obligations in the remaining countries amounted to EUR 198 (EUR 211) million and the assets to EUR 151 (EUR 163) million. The net liability came to EUR 46 (EUR 48) million. Obligations and assets were material only in the United Kingdom, at EUR 132 (EUR 145) million and EUR 121 (EUR 129) million, respectively, leaving a net liability of EUR 11 (EUR 16) million at the end of 2018. The reduction in net liability arose from changes in actuarial assumptions.

### Group

#### Net defined benefit obligation reconciliation

EUR million	Year Ended 31 December	
	2018	2017
<b>Present Value of Defined Benefit Obligation</b>		
Defined benefit obligation at 1 January	1 139	1 223
Translation difference	-15	-17
Interest on liabilities	21	20
Current service cost	11	13
Past service cost	-2	0
Actuarial gains and losses on defined benefit obligation arising from changes in demographic assumptions	-3	-3
Actuarial gains and losses on defined benefit obligation arising from changes in financial assumptions	27	-10
Actuarial gains and losses on defined benefit obligation arising from experience adjustments	2	-24
Benefit payments	-61	-63
Net disposals/acquisitions	-1	-1
Other	-2	1
<b>Defined benefit obligation at 31 December</b>	<b>1 115</b>	<b>1 139</b>
<b>Fair Value of Plan Asset</b>		
Fair value of plan asset at 1 January	-762	-787
Translation difference	13	13
Expected return on plan assets	-15	-14
Actuarial gain/loss on plan assets	-1	-24
Employer contributions	3	3
Benefit payments	45	47
Other	3	0
<b>Fair value of plan asset at 31 December</b>	<b>-714</b>	<b>-762</b>
<b>Net Defined Benefit Obligation</b>	<b>401</b>	<b>377</b>

### Amounts Recognised on the Statement of Financial Position – Defined Benefit Plans

EUR million	As at 31 December					
	Total Defined Benefit Plans	Defined Benefit Pension Plans	Other Post-Employment Benefits			
	2018	2017	2018	2017	2018	2017
Present value of funded obligations	841	851	841	851	0	0
Present value of unfunded obligations	274	288	249	264	25	24
<b>Defined benefit obligations (DBO)</b>	<b>1 115</b>	<b>1 139</b>	<b>1 090</b>	<b>1 115</b>	<b>25</b>	<b>24</b>
Fair value of plan assets	714	762	714	762	0	0
<b>Net Liability in Defined Benefit Plans</b>	<b>401</b>	<b>377</b>	<b>376</b>	<b>353</b>	<b>25</b>	<b>24</b>

### Amounts Recognised in the Income Statement

EUR million	Year Ended 31 December					
	Total Defined Benefit Plans	Defined Benefit Pension Plans	Other Post-Employment Benefits			
	2018	2017	2018	2017	2018	2017
<b>Operating costs</b>						
Current service cost	11	13	10	12	1	1
Past service cost	-1	0	-1	0	0	0
<b>Finance cost</b>						
Net interest on net defined benefit liability	6	6	6	6	0	0
<b>Cost recognised in Income Statement</b>	<b>16</b>	<b>19</b>	<b>15</b>	<b>18</b>	<b>1</b>	<b>1</b>

### Statement of Actuarial Gains and Losses

EUR million	Year Ended 31 December	
	2018	2017
Gain/loss on pension scheme assets	1	24
Gain/loss arising on pension scheme liabilities	-25	37
<b>Total Gain/loss</b>	<b>-24</b>	<b>61</b>

### Defined Benefit Plans: Country Assumptions Used in Calculating Benefit Obligations

	Year Ended 31 December					
	Finland		Germany		Sweden	
	2018	2017	2018	2017	2018	2017
Discount rate %	1.2	1.4	1.6	1.5	2.3	2.5
Future salary increase %	2.7	2.5	2.5	2.5	2.9	2.7
Future pension increase %	1.8	1.8	1.8	1.8	2.0	1.8
Average current retirement age	64.0	64.0	63.0	63.0	65.0	65.0
Weighted average life expectancy	87.0	87.0	87.0	86.0	89.3	89.3

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### Sensitivity of the Defined Benefit Pension Obligation

	Impact on Defined Benefit Obligation		
	Change in assumption	Increase in assumption	Decrease in assumption
Discount rate	0.50%	Decrease by 6.8%	Increase by 7.6%
Salary growth rate	0.50%	Increase by 1.7%	Decrease by 1.5%
Pension growth rate	0.50%	Increase by 5.7%	Decrease by 5.3%
	Increase by 1 year in assumption		Decrease by 1 year in assumption
	Life expectancy		Increase by 3.6% Decrease by 3.6%

Interest rate 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.

Mortality risk: 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.

### Duration of Pension Plans

Years	Finland	Sweden	Germany	UK
At 31 December 2017	10.0	15.5	12.9	17.2
At 31 December 2018	10.0	16.0	12.6	15.8

### Defined Benefit Plan Summary by Country as at 31 December 2018

EUR million	As at 31 December 2018				
	Finland	Germany	Sweden	Other	Total
Present value of funded obligations	302	20	349	170	841
Present value of unfunded obligations	0	225	21	28	274
Defined benefit obligations (DBO)	302	245	370	198	1 115
Fair value of plan assets	278	7	278	151	714
Net liability in the defined benefit plans	25	238	92	46	401
<b>Net Liability in the Balance Sheet</b>	<b>25</b>	<b>238</b>	<b>92</b>	<b>46</b>	<b>401</b>
<b>Represented by</b>					
Defined benefit pension plans	25	238	92	21	376
Other post-employment benefits				25	25
<b>Net Liability in the Balance Sheet</b>	<b>25</b>	<b>238</b>	<b>92</b>	<b>46</b>	<b>401</b>

### Defined Benefit Plan Summary by Country as at 31 December 2017

EUR million	As at 31 December 2017				
	Finland	Germany	Sweden	Other	Total
Present value of funded obligations	318	18	331	184	851
Present value of unfunded obligations	0	240	21	27	288
Defined benefit obligations (DBO)	318	258	352	211	1 139
Fair value of plan assets	294	7	298	163	762
Net liability in the defined benefit plans	24	251	54	48	377
<b>Net Liability in the Balance Sheet</b>	<b>24</b>	<b>251</b>	<b>54</b>	<b>48</b>	<b>377</b>
<b>Represented by</b>					
Defined benefit pension plans	24	251	54	24	353
Other post-employment benefits	0	0	0	24	24
<b>Net Liability in the Balance Sheet</b>	<b>24</b>	<b>251</b>	<b>54</b>	<b>48</b>	<b>377</b>

### Plan Assets

EUR million	As at 31 December			
	2018		2017	
	Value	%	Value	%
Equity	237	33.2	261	34.2
Government bonds	49	6.8	40	5.3
Corporate bonds	199	27.9	211	27.7
Debt	248	34.7	251	33.0
Property	71	10.0	66	8.6
Cash	39	5.4	38	5.0
Others	119	16.7	146	19.2
<b>Total Pension Fund Assets</b>	<b>714</b>	<b>100.0</b>	<b>762</b>	<b>100.0</b>

Plan assets do not include any real estate or other assets occupied by the group or the Company's own financial instruments. The breakdown of Finnish pension assets EUR 278 (294) million is not disclosed separately as actual asset allocations can only be estimated based on known target values published by the insurance companies concerned.

The two main financial factors affecting group pension liabilities are changes in interest rates and inflation expectations, so the aim of asset investment allocations is to neutralise these effects and maximise returns.

In 2019 contributions of EUR 21 million are expected to be paid.

In 2018 reimbursements of EUR 3 (EUR 3) million were paid.



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## Note 21 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. The share programmes may be hedged using Total Return Swaps (TRS) which are settled with cash payments, allowing the company to receive cash compensation to partially offset any change in the share price between the grant and settlement dates. Group TRS instruments do not qualify for hedge accounting and therefore periodic changes to their fair value are recorded in the Income statement in operative costs alongside the share-based programme costs to which they relate.

As a result of IFRS 2 amendment: Classification and Measurement of Share-based Payment Transactions, effective from 1 January 2018, all share-based payment transactions are classified as equity-settled share awards. Please refer to the Note 1 Accounting principles for further details. 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.

In 2017, prior the above mentioned change, the fair value of employee services received in exchange for share awards were accounted for in a manner that was consistent with the method of settlement. The group withheld an amount from an employee's compensation to satisfy the employee's tax liability incurred as a result of the transaction. This was done by reducing the number of shares issued to the employee. This tax-related amount was accounted for as a cash-settled share-based compensation. The number of shares delivered to the employee was accounted for as an equity-settled transaction. The resulting cash-settled liability related to the expected tax to be paid was remeasured at each reporting date at its fair value using estimates of the number of share awards that were expected to be issued and the latest fair valuations by using the Stora Enso R share year-end closing price, adjusted for the present value of expected dividends, with all changes recognised immediately in the Income Statement.

#### 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 8% to 75%. 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 years 2017 and 2018, the annual incentive programmes were based on financial targets as well as individually set key targets. The financial success metrics in the STI programme are: Operational EBITDA and Operative Working Capital to sales.

#### Long Term Incentive (LTI) programmes

Since 2005, new share based programmes for executives have been launched every year. The 2015 programme that vested in 2018 as well as the current outstanding programmes including the programme that was launched during 2018 have three year targets and vest in one portion after three years.

Three quarters (75%) of the opportunity under the 2015 to 2017 programmes are in Performance Shares, where shares will vest in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors. The financial success metric is 3-year Economic Value Added (EVA) for the Stora Enso Group. One quarter (25%) of the opportunity under the programmes are in Restricted Shares, for which vesting is only subject to continued employment.

This year, the 2018 LTI programme was changed for members of the GLT in the way that all (100%) of the opportunity was granted in Performance Shares. The financial success metrics in the 2018 Performance Share Plan are 3-year Economic Value Added (EVA) and Earnings Per Share (EPS) for the Stora Enso Group. Others than the GLT were granted three quarters (75%) of the opportunity in Performance Shares and one quarter (25%) of the opportunity in Restricted Shares, as in previous years.

Outstanding restricted and performance share opportunities before taxes are shown in the table below. Total number of shares actually transferred will be less than below because a portion of shares corresponding to employees tax obligation will be withheld to cover the income tax.

#### Share awards at 31 December 2018

Number of shares	Estimated Delivery of Outstanding Restricted and Performance Share Awards at Year End			
	2019	2020	2021	Total
2016 programme	967 733			967 733
2017 programme		1 091 559		1 091 559
2018 programme			856 377	856 377
<b>Total</b>	<b>967 733</b>	<b>1 091 559</b>	<b>856 377</b>	<b>2 915 669</b>

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 7 (EUR 10) million, all related to restricted and performance share awards. There were no Total Return Swaps (TRS) in use at the end of 2018.

## Note 22 Other 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 for dismantling, removal or site restoration are measured at management's best estimate. The expenditure required to settle the obligation is added to the carrying amount of the assets at acquisition date and depreciated over the useful life of the asset. Provisions are discounted back to their current net present value if the effect of the time value of money is material.

#### Environmental obligations

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 expensed as incurred. Environmental liabilities 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.

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### Restructuring obligations

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 obligations

Other obligatory provisions are recognised regarding different legal or constructive obligations as guarantees to customers, ongoing lawsuits, claims or similar.

### Other provisions

EUR million	Environmental	Restructuring	Other Obligatory	Total Provisions
<b>Carrying Value at 1 January 2017</b>	<b>100</b>	<b>24</b>	<b>10</b>	<b>134</b>
Translation difference	-2	-3	0	-5
Company disposed				
Charge in Income Statement				
New provisions	8	17	0	25
Increase in existing provisions	14	1	3	18
Reversal of existing provisions	-1	-2	0	-3
Payments	-11	-20	-4	-35
<b>Carrying Value at 31 December 2017</b>	<b>108</b>	<b>17</b>	<b>9</b>	<b>134</b>
Translation difference	-3	0	-1	-3
Charge in Income Statement				
New provisions	3	2	1	6
Increase in existing provisions	1	0	3	4
Reversal of existing provisions	-3	-1	-1	-5
Payments	-7	-10	-2	-19
<b>At 31 December 2018</b>	<b>99</b>	<b>8</b>	<b>10</b>	<b>117</b>
<b>Allocation between Current and Non-current Liabilities</b>				
Current liabilities: Payable within 12 months	7	5	4	16
Non-current liabilities: Payable after 12 months	92	3	6	101
<b>Total at 31 December 2018</b>	<b>99</b>	<b>8</b>	<b>10</b>	<b>117</b>

### Environmental obligation

Provisions for environmental remediation amounted to EUR 99 million at 31 December 2018, which was a net decrease of EUR 9 million compared with 31 December 2017, mainly due to payments and reversal of landfill coverage provision in Stora Enso Pulp AB.

Details of the principal provisions are:

- Following an agreement between Stora Enso and the City of Falun, the Group is obliged to purify runoff from the Kopparberg mine before releasing the water into the environment. The provision at year end amounted to EUR 39 (EUR 43) million.
- The total environmental provision in Finland amounted to EUR 24 (EUR 22) million. The largest provisions relate to the dismantling provision of EUR 13 (EUR 12) million for a closed operation at Oulu Mill and to the cleaning of aerated water basin at closed Kemijärvi Pulp Mill of EUR 5 (EUR 5) million.

- Skoghall Mill site contains ground pollutants that must be removed. The provision for this at year end amounted to EUR 15 (EUR 15) million.
- Hylte Mill and the Hylte Commune have a contract on the restoration and leakage water handling. This provision amounted to EUR 6 (EUR 7) million.
- Stora Enso Pulp AB has been removing mercury from the harbour basin at Skutskär for a number of years in co-operation with local authorities. In addition, the Company is obliged to upgrade an old landfill previously used by the mill to comply with revised environmental regulations. At year end Stora Enso Pulp AB had environmental provisions of EUR 4 (EUR 6) million.
- Baienfurt Mill real estate in Germany was divested during 2010 and there is a remaining environmental obligation related to landfills that were not disposed. This environmental provision amounted to EUR 5 (EUR 5) million.

### Restructuring provisions

The Group has undergone major restructuring in recent years, from divestments to mill closures and administrative cost-saving programmes. New restructuring provisions by divisions are: Consumer Board EUR 1 million and Segment Other EUR 1 million.

The liability at the end of 2018 for restructuring provisions amounted to EUR 8 (EUR 17) million and covered the costs of closing down operations, demolition, clearance and redundancy costs for reducing staff numbers.

The total cash payments made during the year in respect of established restructuring provisions amounted to EUR 10 (EUR 20) million.

In February 2017 Stora Enso announced a plan to permanently shut down paper machine 8 at Kvarnsveden Mill in Sweden with an annual capacity of 100 000 tonnes of uncoated magazine paper due to structural weakening of magazine paper demand in Europe. The increase in provision amounted to EUR 11 million.

### Other obligatory provisions

Other obligatory provisions amounted to EUR 10 million at 31 December 2018, which is an increase of EUR 1 million compared with 31 December 2017.



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## Note 23 Operative liabilities

### Non-current operative liabilities

EUR million	As at 31 December	
	2018	2017
Post-employment benefit provisions	401	377
Other provisions	101	111
Share-based payments	2	11
Other payables	32	41
<b>Total</b>	<b>536</b>	<b>540</b>

### Current operative liabilities

EUR million	As at 31 December	
	2018	2017
Trade payables	1 382	1 337
Payroll and staff-related accruals	245	240
Accrued liabilities and deferred income	217	200
Current portion of provisions	16	23
Advances received	22	19
Other payables	94	92
<b>Total</b>	<b>1 976</b>	<b>1 911</b>

## Note 24 Financial risk management

### Risk management principles and process

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 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. Group's joint operations companies operate under their own financial risk policies, which may not be fully similar to Group's policies.

The major financial market risks are detailed below with the main exposures for the Group being interest rate risk, currency risk, funding risk and commodity price risk, especially for fibre, pulp and energy.

### Interest rate risk

The Group is exposed to interest rate risk that is the risk of fluctuating interest rates affecting interest expense of the Group. Stora Enso is exposed to interest rate risk through loans and financial instruments, but also through leasing and other commercial agreements. 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 longer duration. A duration above the average loan maturity is approved by the Board of Directors.

The total Group's floating rate net interest-bearing liability position, excluding cash and cash equivalents but including floating legs of interest rate swaps, amounts to some EUR 0.6 (EUR 0.7) billion. The average interest reset period for the Group's net interest-bearing liabilities, including all interest rate derivatives but excluding cash and cash equivalents, is some 4.9 (4.2) years.

As of 31 December 2018, one percentage point parallel change up or down in interest rates would impact annual net interest expenses by EUR 4 (EUR 5) million, assuming 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 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 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 20 (EUR 13) million before taxes in cash flow hedge reserve in OCI regarding interest rate and cross-currency swaps under cash flow hedge accounting. Note 27 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 currency risk arising from exchange rate fluctuations against its reporting currency euro. The major 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. The Group standard policy to mitigate the risk is to hedge 45–55% 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 currency options. The Group may also hedge periods between 12 months and 36 months, or change the above mentioned hedging ratio for next 12 months upon discretion of the Group's management.

The principal foreign exchange transaction exposure comprises both the geographical location of Stora Enso production facilities and the sourcing of raw material and sales outside the euro area, mainly denominated in Swedish crowns, US dollars and British pounds.

The table below presents the estimated net operative foreign currency 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. However, in practice mainly external exposures have been hedged through foreign currency hedges. A positive amount of exposure in the table below represents an estimated future inflow or receivable of a foreign currency amount.

### Operative foreign currency exposure

EUR million	As at 31 December 2018						As at 31 December 2017					
	SEK	USD	GBP	BRL	CZK	CNY	SEK	USD	GBP	BRL	CZK	CNY
Estimated annual net cash flow exposure	-990	1 840	380	0	-190	0	-960	1 260	360	0	-180	0
Cash flow hedges next 12 months <sup>1</sup>	630	-930	-190	0	90	0	510	-630	-180	0	60	0
<b>Estimated Annual Net Cash Flow Exposure, Net of Hedges</b>	<b>-360</b>	<b>910</b>	<b>190</b>	<b>0</b>	<b>-100</b>	<b>0</b>	<b>-450</b>	<b>630</b>	<b>180</b>	<b>0</b>	<b>-120</b>	<b>0</b>
<b>Hedging Percentage as at 31 December for Next 12 Months</b>	<b>64%</b>	<b>51%</b>	<b>50%</b>	<b>0%</b>	<b>47%</b>	<b>0%</b>	<b>53%</b>	<b>50%</b>	<b>50%</b>	<b>0%</b>	<b>33%</b>	<b>0%</b>
Weighted-average hedged rate <sup>2</sup>	10.26	1.22	0.91	0.00	25.92	0.00	0	0	0	0	0	0
<b>Translation exposure in Income Statement<sup>3</sup></b>	<b>-160</b>	<b>-180</b>	<b>10</b>	<b>-120</b>	<b>30</b>	<b>-110</b>	<b>-150</b>	<b>-190</b>	<b>10</b>	<b>-120</b>	<b>0</b>	<b>-90</b>
Operative receivables and payables exposure	40	250	33	-24	-24	-13	56	175	27	-17	-28	-8
Currency hedges	93	-209	-60	0	0	0	50	-138	-33	0	0	0
<b>Statement of Financial Position Exposure, Net of Hedges</b>	<b>133</b>	<b>41</b>	<b>-27</b>	<b>-24</b>	<b>-24</b>	<b>-13</b>	<b>106</b>	<b>37</b>	<b>-6</b>	<b>-17</b>	<b>-28</b>	<b>-8</b>
<b>Estimated Annual Operative Exposure, Net of Hedges</b>	<b>-387</b>	<b>771</b>	<b>173</b>	<b>-144</b>	<b>-94</b>	<b>-123</b>	<b>-494</b>	<b>477</b>	<b>184</b>	<b>-137</b>	<b>-148</b>	<b>-98</b>

<sup>1</sup> In SEK there are also additional cash flow hedges for months 13-18 (19% of estimated exposure is hedged for the months) that are not included to the above table.

<sup>2</sup> The weighted-average exchange rate 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 favorable hedged rate from the Group's point-of-view.

<sup>3</sup> Includes unhedged sales, costs and depreciation invoiced or expensed in the domestic currency of non-euro based entities, retranslated using year end exchange rates.

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The following table includes the estimated effect on annual operating profit of a strengthening in EUR versus SEK, USD, GBP, CZK and CNY by 5% and versus BRL by 10%, as reasonably possible changes in rates, measured against year end closing rates. A corresponding decrease in the exchange rates 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 financial position of such subsidiaries, including currency hedges, trade receivables and payable, are translated using the exchange rates at the reporting date.

The calculation includes currency hedges and assumes that no changes other than a single currency exchange rate movement have taken place in the underlying risk exposure. 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, translation exposure in Income statement 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 elsewhere, have not been considered in this calculation.

### Estimated currency effects of strengthening of euro

EUR million	As at 31 December 2018						As at 31 December 2017					
	SEK	USD	GBP	BRL	CZK	CNY	SEK	USD	GBP	BRL	CZK	CNY
Currency change versus EUR	-5%	-5%	-5%	-10%	-5%	-5%	-5%	-5%	-5%	-10%	-5%	-5%
Effect on estimated annual net cash flow and translation exposure	58	-83	-20	12	8	6	56	-54	-19	12	9	5
Effect on hedging reserve before taxes as at year end <sup>1</sup>	-32	47	10	0	-5	0	-26	32	9	0	-3	0
EBIT impact as at year end <sup>2</sup>	-7	-2	1	2	1	1	-5	-2	0	2	1	0
<b>Estimated Annual EBIT Impact<sup>3</sup></b>	<b>19</b>	<b>-38</b>	<b>-9</b>	<b>14</b>	<b>4</b>	<b>7</b>	<b>25</b>	<b>-24</b>	<b>-10</b>	<b>14</b>	<b>7</b>	<b>5</b>

<sup>1</sup> The effect on hedging reserve (other comprehensive income) before taxes at year end is related to the fair value change in derivatives contracts qualifying as cash flow hedges of highly probable forecast cash flows.  
<sup>2</sup> The Operating Profit impact as at year end represents the estimated currency effect related to operative payables and receivables, and the net of hedges.  
<sup>3</sup> The estimated annual Operating Profit impact includes currency effects in respect of operative exposures in the Statement of Financial Position, forecast cash flows and related hedges and translation exposure in Income Statement.

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 loan payables and related interest rate derivatives, net of loan receivables and cash and cash equivalents. The currency derivatives mainly hedge financial exposures in the statement of financial position and from time to time they also hedge forecast cash flows not qualifying under hedge accounting. These forecast cash flows are not included in the below table. 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 strengthening in the EUR versus SEK, USD, CNY and PLN by 5% and versus BRL by 10%, as reasonably possible changes in rates, measured against year-end closing rates. A corresponding decrease in the exchange rates 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.

### Financial foreign currency exposure and estimated currency effects in Income Statement

EUR million	As at 31 December 2018				As at 31 December 2017			
	SEK	USD	CNY	PLN	SEK	USD	CNY	PLN
Net debt excluding hedges	130	-213	602	112	420	-347	472	161
Currency hedges	-187	-47	-283	-4	-530	-28	-86	0
<b>Net Financial Exposure</b>	<b>-57</b>	<b>-260</b>	<b>319</b>	<b>108</b>	<b>-110</b>	<b>-375</b>	<b>386</b>	<b>161</b>
Currency change versus EUR	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
<b>Effect in the Income Statement</b>	<b>3</b>	<b>13</b>	<b>-16</b>	<b>-5</b>	<b>6</b>	<b>19</b>	<b>-19</b>	<b>-8</b>

### Foreign exchange risk - translation risk

Translation risk results from fluctuations in exchange rates affecting the value of Stora Enso's net foreign currency denominated assets and liabilities. Translation risk is reduced by funding assets, whenever economically possible, in the same currency as the asset. 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.

The balance sheets of foreign subsidiaries, equity accounted investments 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 next table shows the translation exposure on equity before and after hedges.

### Translation risk and hedges: 2018

EUR million	As at 31 December 2018							
	Euro area	USD area <sup>2</sup>	Sweden	China	Poland	Brazil	Other	Total
<b>Translation Exposure on Equity</b>	<b>2 246</b>	<b>1 345</b>	<b>1 913</b>	<b>269</b>	<b>360</b>	<b>314</b>	<b>267</b>	<b>6 714</b>
EUR/USD hedges <sup>1</sup>	306	-306	0	0	0	0	0	0
<b>Translation Exposure after Hedges</b>	<b>2 552</b>	<b>1 039</b>	<b>1 913</b>	<b>269</b>	<b>360</b>	<b>314</b>	<b>267</b>	<b>6 714</b>

<sup>1</sup> USD denominated bonds classified as hedges of investments in foreign assets.

<sup>2</sup> Includes the joint operation Montes del Plata in Uruguay, which has USD as its functional currency.

### Translation risk and hedges: 2017

EUR million	As at 31 December 2017							
	Euro area	USD area <sup>2</sup>	Sweden	China	Poland	Brazil	Other	Total
<b>Translation Exposure on Equity</b>	<b>2 011</b>	<b>1 242</b>	<b>1 372</b>	<b>400</b>	<b>306</b>	<b>391</b>	<b>286</b>	<b>6 008</b>
EUR/USD hedges <sup>1</sup>	292	-292	0	0	0	0	0	0
<b>Translation Exposure after Hedges</b>	<b>2 303</b>	<b>950</b>	<b>1 372</b>	<b>400</b>	<b>306</b>	<b>391</b>	<b>286</b>	<b>6 008</b>

<sup>1</sup> USD denominated bonds classified as hedges of investments in foreign assets.

<sup>2</sup> Includes the joint operation Montes del Plata in Uruguay, which has USD as its functional currency.



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The table below shows the effect on consolidated equity of a strengthening in the euro against the US dollar, Swedish crown, Chinese renminbi, Polish zloty and Brazilian real at 31 December. A corresponding decrease in the exchange rates would have an approximately equal opposite impact. The calculation 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. The exposures used in the calculations are the foreign currency denominated equity and the hedging levels at 31 December. The hedging instruments used may be foreign currency forward contracts, currency options and foreign currency denominated borrowings. Full details of actual CTA movements and hedging results are given in [Note 28](#) Cumulative translation adjustment and equity hedging.

### Consolidated equity: currency effects of strengthening of euro before tax

EUR million	As at 31 December 2018			As at 31 December 2017		
	Before Hedges	Hedges	Net Impact	Before Hedges	Hedges	Net Impact
By 5% versus SEK	-96	0	-96	-69	0	-69
By 5% versus USD	-67	15	-52	-62	15	-47
By 5% versus CNY	-13	0	-13	-20	0	-20
By 5% versus PLN	-18	0	-18	-15	0	-15
By 10% versus BRL	-31	0	-31	-39	0	-39
<b>Total Effect from Above</b>	<b>-225</b>	<b>15</b>	<b>-210</b>	<b>-205</b>	<b>15</b>	<b>-190</b>

### Liquidity and refinancing risk

Funding risk arises from the difficulty of obtaining finance for operations at a given point in time. Stora Enso's funding 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 committed credit facilities to cover planned funding needs, the current portion of long-term debt, commercial paper borrowings and other uncommitted short-term loans. At 31 December 2018 unused committed credit facilities were at EUR 600 (EUR 600) million. The EUR 600 million committed credit facility agreement with a syndicate of 13 banks matures in January 2023. The facility is used as a backup for general corporate purposes. In addition, Stora Enso has access to various long-term sources of funding up to EUR 1 000 (EUR 950) million. These mainly relate to available funding sources from Finnish pension funds.

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 Group's contractual undiscounted interest-bearing financial liabilities, to be settled on a net cash basis, classified under principal headings based on the remaining period to contractual maturity at the reporting date. Forward rates were used at the point of estimation for contractual finance charges.

### Contractual maturity repayments of interest-bearing liabilities, settlement net: 2018

EUR million	2019	2020	2021	2022	2023	2024+	Total
Bond loans	220	0	0	0	298	1 005	1 523
Loans from credit institutions	181	213	167	142	399	38	1 140
Financial lease liabilities	0	0	0	0	0	1	1
Other non-current liabilities	0	4	0	0	0	0	4
<b>Non-current Debt including Current Portion</b>	<b>401</b>	<b>217</b>	<b>167</b>	<b>142</b>	<b>697</b>	<b>1 044</b>	<b>2 668</b>
Less fair value adjustments to carrying amounts	-2	0	0	0	1	7	6
Estimated contractual finance charges	121	81	72	64	52	318	708
<b>Contractual Repayments on Non-Current Debt</b>	<b>520</b>	<b>298</b>	<b>239</b>	<b>206</b>	<b>750</b>	<b>1 369</b>	<b>3 382</b>
Short-term borrowings, carrying amounts	566	0	0	0	0	0	566
Gross-settled derivatives - receipts	2 411	71	0	0	0	0	2 482
Gross-settled derivatives - payments	-2 444	-70	0	0	0	0	-2 514
Net-settled derivative liabilities	-22	-13	-11	-10	-7	0	-63
Trade payables	1 383	0	0	0	0	0	1 383
Estimated contractual finance charges	14	0	0	0	0	0	14
Bank overdrafts	1	0	0	0	0	0	1
<b>Total Contractual Repayments at 31 December 2018</b>	<b>2 429</b>	<b>286</b>	<b>228</b>	<b>196</b>	<b>743</b>	<b>1 369</b>	<b>5 251</b>

### Contractual maturity repayments of interest-bearing liabilities, settlement net: 2017

EUR million	2018	2019	2020	2021	2022	2023+	Total
Bond loans	137	221	0	0	0	994	1 352
Loans from credit institutions	202	185	183	122	127	210	1 029
Financial lease liabilities	28	0	0	0	0	1	29
Other non-current liabilities	3	3	0	0	0	0	6
<b>Non-current Debt including Current Portion</b>	<b>370</b>	<b>409</b>	<b>183</b>	<b>122</b>	<b>127</b>	<b>1 205</b>	<b>2 416</b>
Less fair value adjustments to carrying amounts	3	7	4	3	3	8	28
Estimated contractual finance charges	98	82	63	58	51	310	662
<b>Contractual Repayments on Non-Current Debt</b>	<b>471</b>	<b>498</b>	<b>250</b>	<b>183</b>	<b>181</b>	<b>1 523</b>	<b>3 106</b>
Short-term borrowings, carrying amounts	525	0	0	0	0	0	525
Gross-settled derivatives - receipts	-1 982	-81					-2 063
Gross-settled derivatives - payments	1 954	86					2 040
Net-settled derivative liabilities	28	2	1	1	0	0	32
Trade payables	1 337	0	0	0	0	0	1 337
Estimated contractual finance charges	16	0	0	0	0	0	16
Bank overdrafts	4	0	0	0	0	0	4
<b>Total Contractual Repayments at 31 December 2017</b>	<b>2 353</b>	<b>505</b>	<b>251</b>	<b>184</b>	<b>181</b>	<b>1 523</b>	<b>4 997</b>

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### Financial transactions counterparty credit risk

Financial counterparty risk is Stora Enso's exposure on financial contracts arising from a deterioration in counterparties' financial health.

This risk is minimised by:

- entering into transactions only with leading financial institutions and with industrial companies that have a good credit rating;
- investing in liquid cash funds only with financial institutions or companies that have a minimum rating of BBB-, with at least 50% of liquidity investments in funds with a minimum rating of A-, using Standard and Poor's credit rating symbols;
- 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 in 2018, there were no significant concentrations of risk with respect to counterparties of derivative contracts, with the highest counterparty exposure being at EUR 8 (EUR 5) 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 customers. The Group uses various measures to reduce 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 aging information of trade receivables and related loss allowances are given in [Note 17](#) Operative receivables.

### Commodity price risk

#### Outstanding commodity hedges

EUR million	Underlying amount of commodity hedged	As at 31 December 2018	
		Nominal amount hedged	Fair value
Coal hedges	58 500 tonnes	5	-
Electricity hedges	2 088 000 MWh	67	35
Oil hedges	65 700 barrels	15	-2

Group earnings are exposed to commodity and energy price volatility. Financial energy hedges are part of the total energy price risk management in the group, whilst other commodity risks are measured and hedged if economically possible. A 10% movement in energy and raw material prices would result in a EUR 13 (EUR 27) million change in the fair value of energy and raw material hedging contracts. 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 represent only the sensitivity of the financial instruments to market risk and not the Group exposure to raw material and energy price risks as a whole, since the actual purchases are not financial instruments within the scope of the IFRS 7 disclosure requirements. At end of 2018, the maturities of the energy and commodity contracts ranged between 2019 and 2024. In 2017 the maturities ranged between 2018 and 2024.

The bulk of the Group energy price risk has been covered by entering into long-term physical fixed price purchase agreements. The Group also has a 15.6% holding, fair valued at EUR 415 (EUR 308) million, in Pohjolan Voima Oy (PVO), a privately owned group of companies in the energy sector. The value of these shares is dependent on energy market prices and discussed in more detail in [Note 14](#) Equity instruments.

In addition, in an effort to mitigate other commodity price risk exposures in relation to supply of wood, the Group is a significant shareholder in major forest and wood supply companies in Finland and Sweden. Potential increase in prices for fibre in these countries would also increase profits from these group interests, mainly being Bergvik Skog in Sweden and Tornator in Finland.

### Share price risk

The Group has certain investments in publicly traded securities. The market value of these equity investments was EUR 13 (EUR 21) 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. Detailed discussion regarding the publicly traded securities can be found from [Note 14](#) Equity instruments.

### Capital risk management

Stora Enso's debt structure is focused on capital markets, whereas banks are primarily used to provide back-up facilities. 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 reduce the cost of capital. In order to maintain or adjust the capital structure, the Group may, subject to shareholder approval as appropriate, vary the dividend paid to shareholders, buy its own shares on the financial markets, return capital to shareholders, issue new shares or sell assets to reduce debt. Group strives to pay stable dividends linked to the long-term performance with the aim of distributing 50% of the net income over the cycle.

As announced in 2018, the Group set new target levels for Net-debt to-Operational EBITDA and Net-debt-to-Equity ratios. Going forward the Group monitors its capital on the basis of a target net debt-to-equity ratio of 0.60 or less (earlier 0.80 or less), and ensuring that Net-debt-to-Operational EBITDA ratio remains below 2.0 (earlier below 3.0), indicating a solid financial position, and financial flexibility.

### Capital structure

EUR million	As at 31 December	
	2018	2017
Interest-bearing liabilities	3 344	3 016
Interest-bearing assets	1 252	763
<b>Net debt</b>	<b>2 092</b>	<b>2 253</b>
<b>Equity Attributable to Owners of the Parent</b>	<b>6 714</b>	<b>6 008</b>
<b>Operational EBITDA<sup>1</sup></b>	<b>1 878</b>	<b>1 587</b>
<b>Net debt to Equity Ratio</b>	<b>0.31</b>	<b>0.38</b>
<b>Net Debt to Operational EBITDA</b>	<b>1.10</b>	<b>1.42</b>

<sup>1</sup> Operational EBITDA definition is included in the "Non-IFRS 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 Company Ltd. have complied with financial covenants related to debt-to-assets ratio during the reported periods.



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## Note 25 Fair values



### Accounting principles

#### Investments

The Group classifies its investments in debt instruments into three categories, which are amortised cost, fair value through other comprehensive income and fair value through profit and loss. The Group's investments into equity securities, 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.

The classification is made according to IFRS 9 standard, based on the business model and contractual cash flow characteristics of debt instruments. Management determines the classification of its investments at the time of the purchase. 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 in current and non-current assets. 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 in current and non-current assets.

Investments acquired principally for the purpose of generating profits from short-term fluctuations in price are classified as fair value through profit and loss and are therefore fair valued through the Consolidated Income Statement and presented in current and non-current assets.

#### 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 27 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.

#### 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 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. Significant increase in the credit risk will be evaluated based on 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 loan receivables.

#### 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.

See Note 14 Equity instruments for more information on Level 3 fair value measurement of listed and unlisted securities.

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### Carrying amounts of financial assets and liabilities by measurement category: 2018

EUR million	Amortised cost	Fair value through OCI	Fair value through Income Statement	Hedge accounted derivatives	Total carrying amount	Fair Value	Note
<b>Financial assets</b>							
Listed securities	-	13	-	-	13	13	14
Unlisted securities	-	415	8	-	422	422	14
Non-current loan receivables	54	-	-	-	54	54	25
Trade and other operative receivables	1 092	44	-	-	1 136	1 136	17
Interest-bearing receivables	1	-	5	49	55	55	25
Cash and cash equivalents	1 130	-	-	-	1 130	1 130	
<b>Total</b>	<b>2 277</b>	<b>472</b>	<b>13</b>	<b>49</b>	<b>2 811</b>	<b>2 811</b>	

EUR million	Amortised cost	Fair value through Income Statement	Hedge accounted derivatives	Total carrying amount	Fair Value	Note
<b>Financial liabilities</b>						
Non-current debt	2 265	-	-	2 265	2 541	26
Current portion of non-current debt	403	-	-	403	403	26
Interest-bearing liabilities	604	7	63	675	675	26
Trade and other operative payables	1 627	21	-	1 648	1 648	23
Bank overdrafts	1	-	-	1	1	
<b>Total</b>	<b>4 901</b>	<b>28</b>	<b>63</b>	<b>4 992</b>	<b>5 268</b>	

### Carrying amounts of financial assets and liabilities by measurement category: 2017

EUR million	Loans and Receivables	Financial Items at Fair Value through Income Statement	Hedging Derivatives	Available-for-Sale Investments	Carrying Amounts	Fair Value	Note
<b>Financial assets</b>							
Available-for-sale	-	-	-	339	339	339	14
Non-current loan receivables	55	-	-	-	55	55	25
Trade and other operative receivables	965	-	-	-	965	965	17
Interest-bearing receivables	15	16	49	-	80	80	25
Cash and cash equivalents	607	-	-	-	607	607	
<b>Total</b>	<b>1 642</b>	<b>16</b>	<b>49</b>	<b>339</b>	<b>2 046</b>	<b>2 046</b>	

EUR million	Financial Items at Fair Value through Income Statement	Hedging Derivatives	Measured at Amortised cost	Carrying Amounts	Fair Value	Note
<b>Financial liabilities</b>						
Non-current debt	-	-	2 046	2 046	2 357	26
Current portion of non-current debt	-	-	370	370	370	26
Interest-bearing liabilities	4	32	560	596	596	26
Trade and other operative payables	20	-	1 576	1 596	1 596	23
Bank overdrafts	-	-	4	4	4	
<b>Total</b>	<b>24</b>	<b>32</b>	<b>4 556</b>	<b>4 612</b>	<b>4 923</b>	



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In the previous tables, fair value is estimated to be equal to the carrying amount for short-term 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 debt, 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.

In 2014, Stora Enso acquired 100% of the shares of the US-based company Virdia Inc. The transaction included potential pay-outs depending on the completion of specific technical and commercial milestones. The present value of the estimated pay-outs, considered as a level 3 fair value measurement, is estimated based on certain probability criteria and discounted cash flow analysis. At year end, the fair value amounted to EUR 21 (EUR 20) million and is presented in the above table under trade and other operative payables.

### Fair value measurements recognised in the statement of financial position: 2018

EUR million	As at 31 December			
	Level 1	Level 2	Level 3	Total
<b>Listed securities</b>				
Listed securities through OCI	13	-	-	13
<b>Unlisted securities</b>				
Unlisted securities through OCI	-	-	415	415
Unlisted securities through profit and loss	-	-	8	8
<b>Trade and other operative assets</b>				
Operative receivables through OCI	-	44	-	44
<b>Derivative financial assets</b>				
Hedge accounted derivatives	-	49	-	49
Derivatives at fair value through profit and loss	-	5	-	5
<b>Total financial assets</b>	<b>13</b>	<b>98</b>	<b>422</b>	<b>533</b>
<b>Trade and other operative liabilities</b>				
Operative payables through profit and loss	-	-	21	21
<b>Derivative financial liabilities</b>				
Hedge accounted derivatives	-	63	-	63
Derivatives at fair value through profit and loss	-	7	-	7
<b>Total financial liabilities</b>	<b>-</b>	<b>70</b>	<b>21</b>	<b>91</b>

### Fair value measurements recognised in the statement of financial position: 2017

EUR million	As at 31 December			
	Level 1	Level 2	Level 3	Total
<b>Derivative financial assets</b>				
Hedging derivatives	-	49	-	49
Derivatives at fair value through profit and loss	-	16	-	16
<b>Available-for-sale investments</b>				
Listed securities	21	-	-	21
Unlisted shares	-	-	318	318
<b>Trade and other operative assets</b>				
Operative receivables through profit and loss	-	-	-	-
<b>Total financial assets</b>	<b>21</b>	<b>65</b>	<b>318</b>	<b>404</b>
<b>Derivative financial liabilities</b>				
Hedging derivatives	-	32	-	32
Derivatives at fair value through profit and loss	-	4	-	4
<b>Trade and other operative liabilities</b>				
Operative payables through profit and loss	-	-	20	20
<b>Total financial liabilities</b>	<b>-</b>	<b>36</b>	<b>20</b>	<b>56</b>

### Interest-bearing receivables

EUR million	As at 31 December	
	2018	2017
Derivatives	54	65
Loans to equity accounted investments	2	3
Other loan receivables	53	67
<b>Total</b>	<b>110</b>	<b>135</b>
Current assets: Receivable within 12 months	55	80
Non-current assets: Receivable after 12 months	54	55
<b>Total</b>	<b>110</b>	<b>135</b>

Annual interest rates for loan receivables at 31 December 2018 ranged from 0% (0%) to 4% (8%). Current interest-bearing receivables did not include any accrued interest at 31 December 2018. The Group has evaluated that there has not been significant increase in credit risk related to interest-bearing receivables after the initial recognition. Accordingly, they are considered to have low credit risk and loss allowance is recognised based on 12-month expected credit losses.

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### Reconciliation of level 3 fair value measurement of financial assets and liabilities

EUR million	2018	2017
<b>Financial assets</b>		
Opening balance at 1 January	318	253
Gains/losses recognised in income statement	-2	-2
Gains/losses recognised in other comprehensive income	104	60
Additions	3	7
Disposals	-1	0
<b>Closing Balance at 31 December</b>	<b>422</b>	<b>318</b>
<b>Financial liabilities</b>		
Opening balance at 1 January	20	23
Gains/losses recognised in income statement	1	-3
<b>Closing Balance at 31 December</b>	<b>21</b>	<b>20</b>

### Note 26 Debt



#### Accounting principles

##### Debt

Debt is recognised initially at fair value, net of transaction costs incurred. In subsequent periods, it is stated at amortised cost using the effective interest method; any difference between proceeds, net of transaction costs, and redemption value is recognised in the Consolidated income statement over the period of the borrowings. Interest expenses are accrued for and recorded in the Consolidated income statement for each period.

Debt with an original maturity greater than 12 months is classified as non-current debt 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 borrowings for which the original maturity is less than 12 months are presented in current liabilities under interest-bearing liabilities.

##### Finance leases

Leases of property, plant and equipment for which the Group has substantially all the rewards and risks of ownership are classified as finance leases. Finance leases are capitalised at the commencement of the lease at the lower of the fair value of the leased property or the estimated present value of the minimum lease payments. Each lease payment is allocated between the capital liability and finance charges so as to achieve a constant interest rate on the outstanding finance balance. The corresponding rental obligations, and net of finance charges are included in interest-bearing liabilities with the interest element of the finance charge being taken onto the Consolidated income statement over the lease period. Property, plant and equipment acquired under finance leasing contracts are depreciated over the lesser of the useful life of the asset or lease period.

The below table includes a breakdown of the Group's interest-bearing liabilities and the related changes in the balances.

#### Interest-bearing liabilities

EUR million	As at 31 December	
	2018	2017
Bond loans	1 523	1 352
Loans from credit institutions	1 140	1 029
Finance lease liabilities	1	29
Other non-current liabilities	4	6
<b>Non-current Debt including Current Portion</b>	<b>2 668</b>	<b>2 416</b>
Short-term borrowings	566	525
Interest payable	40	35
Derivative financial liabilities (see Note 25)	68	36
Bank overdrafts	1	4
<b>Total Interest-bearing Liabilities</b>	<b>3 344</b>	<b>3 016</b>

EUR million	2018	2017
Carrying Value at 1 January	3 016	3 774
Proceeds of new long-term debt	578	425
Repayment of long-term debt	-358	-1 034
Change in short-term borrowings and interest payable	46	54
Change in derivative financial liabilities	32	-21
Translation differences and other	30	-182
<b>Total Interest-bearing Liabilities</b>	<b>3 344</b>	<b>3 016</b>

During 2018 Stora Enso successfully issued a new EUR 300 million bond under its EMTN (Euro Medium Term Note) programme. The bond matures in March 2028 and pays a fixed coupon of 2.5%. In 2018 Stora Enso also repurchased 2019 fixed rate euro notes with a nominal value of EUR 3 million.

In the third quarter of 2018 Fitch Ratings assigned Stora Enso Oyj an investment grade credit rating of BBB- with stable outlook highlighting Stora Enso's improved cash flow generation and strengthened balance sheet. In the fourth quarter of 2018, Moody's Investors Service also assigned Stora Enso Oyj an investment grade credit rating by upgrading the long-term issuer rating from Ba1 to Baa3 with stable outlook.

During 2018 Stora Enso launched a Green Bond Framework as part of its Sustainable Finance approach. The ambition is to offer a loan-format to support sustainability-focused fixed income investors and to report the direct environmental impacts of some investments and business activities.

Stora Enso's borrowings maturities are ranging from 2019 to the longest borrowing maturing in 2036. Borrowings have either fixed or floating interest rates ranging from 0.9% (0.6%) to 8.6% (8.6%). The majority of Group loans are denominated in euros, US dollars or Chinese renminbis. Detailed maturity analysis of the Group's borrowings are set out in Note 24 Financial risk management.

During 2018 Stora Enso's total repayments of EUR bond notes amounted to a nominal of EUR 159 (EUR and SEK bond notes of EUR 609) million including the previously mentioned repayments. In 2018 net interest-bearing liabilities decreased by EUR 161 (decreased by EUR 473) million to EUR 2 092 (EUR 2 253) million. Net interest-bearing liabilities are equal to total interest-bearing liabilities less total interest-bearing assets. Cash and cash equivalents net of overdrafts increased by 525 (decreased by EUR 346) million to EUR 1 128 (EUR 603) million as at 31 December 2018.

In 2017 Stora Enso successfully issued a new bond under its EMTN (Euro Medium Term Note) programme. The EUR 300 million ten-year bond pays a fixed coupon of 2.5% and matures in June 2027. In June 2017 Stora Enso repurchased in a public tender fixed rate notes with a nominal value of EUR 83 million from the 2018 bond, and of EUR 216 million from the 2019 bond, issued in 2012.



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### Bond loans

Issue/ Maturity Dates	Description of Bond	Interest Rate %	Currency of Bond	Outstanding As at 31 December		Carrying Value As at 31 December		
				Nominal Value Issued	2018	2017	2018	2017
All Liabilities are Held by the Parent Company				Currency million		EUR million		
Fixed Rate								
1993-2019	Series C Senior Notes 2019	8.6	USD	50	50	50	45	44
2006-2036	Global 7.250% Notes 2036	7.25	USD	300	300	300	259	247
2012-2018	Euro Medium Term Note	5	EUR	500	0	112	0	112
2012-2019	Euro Medium Term Note	5.5	EUR	500	175	178	175	178
2016-2023	Euro Medium Term Note	2.125	EUR	300	300	300	298	298
2017-2027	Euro Medium Term Note	2.5	EUR	300	300	300	298	298
2018-2028	Euro Medium Term Note	2.5	EUR	300	300	0	298	0
Total Fixed Rate Bond Loans							1 373	1 177
Floating Rate								
2006-2018	Euro Medium Term Note	Euribor+0.96	EUR	25	0	25	0	25
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
Total Floating Rate Bond Loans							150	175
Total Bond Loans							1 523	1 352

### Finance lease liabilities

At 31 December 2018 Stora Enso had a small number of finance leasing agreements for machinery and buildings for which capital costs of EUR 3 (EUR 14) million were included in property, plant and equipment and buildings; the depreciation and impairment thereon was EUR 2 (EUR 7) million. The aggregate leasing payments for the year amounted to EUR 28 (EUR 28) million, the interest element being EUR 1 (EUR 1) million.

### Finance lease liabilities - payments schedule and present value

EUR million	As at 31 December	
	2018	2017
<b>Minimum Lease Payments</b>		
Less than 1 year	0	29
1-2 years	0	0
2-3 years	0	0
3-4 years	0	0
4-5 years	0	0
Over 5 years	2	1
	<b>2</b>	<b>30</b>
Future finance charges	-1	-1
<b>Present Value of Finance Lease Liabilities</b>	<b>1</b>	<b>29</b>

EUR million	As at 31 December	
	2018	2017
<b>Present Value of Finance Lease Liabilities</b>		
Less than 1 year	0	28
1-2 years	0	0
2-3 years	0	0
3-4 years	0	0
4-5 years	0	0
Over 5 years	1	1
	<b>1</b>	<b>29</b>

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## Note 27 Derivatives

### Accounting principles

#### Derivative financial instruments and hedge accounting

Financial derivatives are initially recognised in the Consolidated Statement of Financial Position at fair value and subsequently measured at their fair value at each reporting date, though the method of recognising the resulting gains or losses is dependent on the nature of the item being hedged. 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.

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 hedge relationship between the hedged item and the hedging instrument as required by IFRS 9. For operational cash flow hedging purposes, foreign currency forwards and options are denominated in the same currency as the highly probable forecast transactions resulting in a hedge designation where critical terms of the hedging instrument and the hedged item will coincide. 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.

#### Cash flow hedges

Changes in the fair value of derivatives designated and qualifying as cash flow hedges, and which are effective, are recognised in cash flow hedges reserve within OCI, the movements of which are disclosed in the Consolidated Statement of Comprehensive Income. In case of currency 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 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 income or expense in the same period in which the hedged item affects the Consolidated Income Statement. 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 and are specified in more detail in Note 27 Derivatives.

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 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 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.

#### Net investment hedges

Hedges of net investments in foreign entities are accounted for similarly to cash flow hedges. 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, any ineffective portion being immediately recognised in the Consolidated Income Statement.

#### Fair value through profit and loss 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. Similarly, any ineffectiveness arising from hedging instruments is immediately recognised in the Consolidated Income Statement. Fair value changes of non-hedge accounted derivatives are recognised in the Consolidated Income Statement under financial income and expense. For total return swaps (TRS), the periodic changes in fair value are recorded in the Income Statement in operative costs alongside the share-based payment programme costs to which they relate.

#### 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:

- Currency forward contract fair values are calculated using forward exchange rates at the reporting date.
- Currency option contract fair values are calculated using year-end 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 analysis.
- Cross-currency swaps fair values are calculated using a discounted cash flow analysis with exchange of notional being also included into the valuation model.

#### Shareholders' equity – other comprehensive income

Outstanding derivatives designated under cash flow hedge accounting are measured at fair value with the fair value movements being recorded in the separate equity category of OCI: Cash Flow Hedges Reserve. Time value of options is excluded from the cash flow hedge designation and recognised separately in a cost of hedging reserve within OCI.

#### 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. In respect to commodity hedges, the Group is also using risk component hedging to hedge highly probable forecast purchases of natural gas. The natural gas price is composed of API2 coal price index component, Dated Brent crude oil price component and local market index component. These purchases create natural gas price exposure that translates as API2 coal and Dated Brent crude oil risk components that can be hedged by using API2 coal and Dated Brent crude

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oil linked swaps. Both of the risk components are separately identifiable and reliably measurable due to the pricing formula being specified in the natural gas purchase agreement.

In 2018, the group entered into a new floating-to-fixed cross-currency swap contract in China with a total nominal value of EUR 200 million. The cross-currency swap has been designated under cash flow hedge accounting to hedge the underlying foreign currency and interest rate risks of Euro denominated floating-rate debt in China. The hedge will mature in 2023.

The unrealised gains and losses related to cash flow hedges are expected to be recycled through the Income Statement within one to three years with the longest hedging contract maturing in 2027 (2027), however the majority are expected to mature in 2019. Cash flow hedging reserve and net investment hedges in equity are presented in more detail in the following table.

### Breakdown of cash flow hedging reserve and net investment hedges in equity

EUR million	At 31 December 2018		At 31 December 2017	
	Unrealised gains and losses in hedging reserve, net of taxes	Unrealised and realised gains and losses in CTA, net of taxes	Unrealised gains and losses in hedging reserve, net of taxes	Unrealised and realised gains and losses in CTA, net of taxes
Foreign exchange risk - operational cash flow hedging	-17	0	18	0
Foreign exchange risk - net investment hedges	0	20	0	31
Commodity price risk - commodity swaps	25	0	1	0
Interest rate risk - interest rate swaps	-5	0	-4	0
Interest rate and foreign exchange risk - cross-currency swaps	-10	0	0	0
Cost of hedging reserve	-2	0	0	0
<b>Total</b>	<b>-9</b>	<b>20</b>	<b>15</b>	<b>32</b>

### Equity accounted investments

Associate companies record hedges and pensions-related amounts directly in equity, and the Group also records its share of these amounts in equity in the "OCI of Equity Accounted Investments" classification.

### OCI equity accounted investments

EUR million	Year Ended 31 December	
	2018	2017
Bergvik Skog AB	-11	-14
<b>Total</b>	<b>-11</b>	<b>-14</b>

### Fair values of derivatives

#### Total foreign exchange gains and losses in the income statement excluding hedges

EUR million	Year Ended 31 December	
	2018	2017
Sales	24	-23
Costs and expenses	-16	1
Borrowings and deposits	-55	10
<b>Total</b>	<b>-46</b>	<b>-12</b>

### Hedge gains and losses in operating profit

EUR million	Year Ended 31 December	
	2018	2017
<b>Cash Flow Hedge Accounted Derivatives</b>		
Currency hedges	-28	9
Commodity hedges	-21	-44
<b>Total</b>	<b>-48</b>	<b>-35</b>
As adjustments to Sales	-76	-39
As adjustments to Materials and services	28	4
<b>Realised from OCI through Income Statement</b>	<b>-48</b>	<b>-35</b>
Currency hedges ineffectiveness	0	-2
<b>Net Losses from Cash Flow Hedges</b>	<b>-48</b>	<b>-37</b>
<b>Non-hedge Accounted Derivatives</b>		
Currency hedges	-16	15
<b>Net Losses/Gains on Non-hedge Accounted Derivatives</b>	<b>-16</b>	<b>15</b>
<b>Net Hedge Losses in Operating Profit</b>	<b>-65</b>	<b>-22</b>

During 2018 there were no cash flow hedge ineffectiveness recorded in operating profit. In 2017 the Group ceased hedge accounting for one of its subsidiaries because the forecasted future transactions were no longer expected to occur. This resulted in a loss of EUR 2 million being booked as operating profit and the loss being presented in the above table as ineffectiveness from cash flow hedges.

### Hedge gains and losses in financial items

EUR million	Year Ended 31 December	
	2018	2017
<b>Cash Flow Hedge Accounted Derivatives</b>		
Currency hedges ineffectiveness	-1	0
Interest rate derivatives ineffectiveness	-3	0
<b>Net Losses from Cash Flow Hedges</b>	<b>-4</b>	<b>0</b>
<b>Non-hedge Accounted Derivatives</b>		
Net gains on currency derivatives	22	24
<b>Net Gains on Non-Hedge Accounted Derivatives</b>	<b>22</b>	<b>24</b>
<b>Net Gains in Financial Items</b>	<b>18</b>	<b>24</b>



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### Nominal and fair values of derivative instruments

EUR million	As at 31 December							
	Nominal values	Positive fair values	Negative fair values	Net fair values	Nominal values	Positive fair values	Negative fair values	Net fair values
	2018				2017			
<b>Currency derivatives</b>								
Forwards: Operational cash flow hedging	1 267	7	-15	-7	803	19	-5	14
Options: Operational cash flow hedging	1 375	6	-24	-18	1 362	15	-9	6
<b>Total cash flow hedge accounted</b>	<b>2 642</b>	<b>13</b>	<b>-38</b>	<b>-25</b>	<b>2 165</b>	<b>34</b>	<b>-14</b>	<b>20</b>
Forwards: Trade and loan receivables hedging	686	4	-6	-2	879	15	-3	12
<b>Total non-hedge accounted</b>	<b>686</b>	<b>4</b>	<b>-6</b>	<b>-2</b>	<b>879</b>	<b>15</b>	<b>-3</b>	<b>12</b>
<b>Total currency derivatives</b>	<b>3 328</b>	<b>17</b>	<b>-44</b>	<b>-27</b>	<b>3 044</b>	<b>49</b>	<b>-17</b>	<b>32</b>
<b>Commodity derivatives</b>								
Pulp swaps: Sales hedging	0	0	0	0	188	1	-13	-12
Electricity swaps: Costs hedging	67	35	0	35	79	11	0	11
Oil swaps: Costs hedging	15	0	-2	-2	8	2	0	2
Coal swaps: Costs hedging	5	0	0	0	0	0	0	0
<b>Total cash flow hedge accounted</b>	<b>87</b>	<b>35</b>	<b>-2</b>	<b>33</b>	<b>275</b>	<b>14</b>	<b>-13</b>	<b>1</b>
Electricity swaps: Closed contracts	2	1	-1	0	7	1	-1	0
<b>Total non-hedge accounted</b>	<b>2</b>	<b>1</b>	<b>-1</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>-1</b>	<b>0</b>
<b>Total commodity derivatives</b>	<b>89</b>	<b>37</b>	<b>-4</b>	<b>33</b>	<b>282</b>	<b>15</b>	<b>-14</b>	<b>1</b>
<b>Interest rate derivatives</b>								
Interest rate swaps: Financial expenses hedging	187	1	-6	-5	192	1	-5	-4
Cross-currency swaps: Financial expenses hedging	200	0	-16	-16	0	0	0	0
<b>Total cash flow hedge accounted</b>	<b>387</b>	<b>1</b>	<b>-23</b>	<b>-22</b>	<b>192</b>	<b>1</b>	<b>-5</b>	<b>-4</b>
<b>Total interest rate derivatives</b>	<b>387</b>	<b>1</b>	<b>-23</b>	<b>-22</b>	<b>192</b>	<b>1</b>	<b>-5</b>	<b>-4</b>
<b>Total cash flow hedge accounted</b>	<b>3 116</b>	<b>49</b>	<b>-63</b>	<b>-14</b>	<b>2 632</b>	<b>49</b>	<b>-32</b>	<b>17</b>
<b>Total non-hedge accounted</b>	<b>688</b>	<b>5</b>	<b>-7</b>	<b>-2</b>	<b>886</b>	<b>16</b>	<b>-4</b>	<b>12</b>
<b>Total derivatives</b>	<b>3 804</b>	<b>54</b>	<b>-70</b>	<b>-16</b>	<b>3 518</b>	<b>65</b>	<b>-36</b>	<b>29</b>

Positive and negative fair values of financial instruments are shown under Interest-bearing Receivables and Liabilities.

The presented fair values in the previous table include accrued interest and option premiums.

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### Changes in fair values of hedged items and hedging instruments

EUR million	Change in value of hedged item to determine hedge effectiveness	Change in value of outstanding hedging instruments	Ineffectiveness
Foreign exchange risk - forward contracts <sup>1</sup>	20	-21	-1
Foreign exchange risk - options	23	-23	0
Foreign exchange risk - net investment hedges	14	-14	0
Commodity price risk - commodity swaps	-32	32	0
Interest rate risk - interest rate swaps	1	-1	0
Interest rate and foreign exchange risk - cross-currency swaps <sup>1</sup>	12	-15	-3

<sup>1</sup> Ineffectiveness booked in Net financial items.

### Financial impact of netting for instruments subject to an enforceable master netting agreement 2018

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	54	-24	0	30
Derivative liabilities	-70	24	0	-46

### Financial impact of netting for instruments subject to an enforceable master netting agreement 2017

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	62	-37	0	25
Derivative liabilities	-37	37	0	0

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 on the occurrence of certain future events.

## Note 28 Cumulative translation adjustment and equity hedging

EUR million	Year Ended 31 December	
	2018	2017
<b>At 1 January</b>		
CTA on net investment in non-euro foreign entities	-319	-31
Hedging thereof	41	1
Net currency losses/gains in equity	-278	-30
Tax on hedging	-10	-2
	<b>-288</b>	<b>-32</b>
CTA Movement for the Year Reported in OCI		
Restatement of opening non-euro denominated equity	-70	-281
Difference in Income Statement translation	1	-5
Internal equity injections and dividends	6	-1
Other	-1	0
CTA release through the Income Statement	27	-1
	<b>-36</b>	<b>-288</b>
Hedging of Net Investment for the Year Reported in OCI		
Hedging result	-14	40
Taxes	3	-8
	<b>-11</b>	<b>32</b>
<b>At 31 December</b>		
CTA on net investment in non-euro foreign entities	-355	-319
Hedging thereof (see below)	27	41
Cumulative net currency losses in equity	-328	-278
Tax on hedging	-7	-10
<b>Net CTA in Equity</b>	<b>-335</b>	<b>-288</b>
Hedging of Net Investment in Foreign Entities		
Hedging	27	41
Tax on hedging	-7	-10
<b>Net Hedging Result in Equity</b>	<b>20</b>	<b>31</b>
Realised gains	45	45
Unrealised gains/losses	-25	-14
<b>Total Gains</b>	<b>20</b>	<b>31</b>

The group is currently hedging only its equity exposure to the US dollar. The main movements in CTA in 2018 were a gain of EUR 61 (loss of EUR 162) million related to the US dollar, a loss of EUR 53 (EUR 38) million related to the Swedish crown, a loss of EUR 16 (EUR 10) million related to the Russian ruble and a loss of EUR 14 (EUR 63) million related to the Brazilian real. The most significant accumulated CTA balances are in Sweden, amounting to a loss of EUR 286 (EUR 234) million, in Brazil, amounting to a loss of EUR 204 (EUR 191) million, in the US dollar area, amounting to a gain of EUR 139 (EUR 79) million and in Russia, amounting to a loss of EUR 71 (EUR 55) million.

The release of cumulative translation adjustments to the Income Statement amounted to a loss of EUR 27 (gain of EUR 1) million in 2018 and was mainly related to the disposal of wood supply company in Rio Grande do Sul in Brazil.

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### Amounts recognized in the statement of financial position - CTA and equity hedging

EUR million	As at 31 December					
	Cumulative Translation Adjustments (CTA)		Equity Hedges		Net CTA in the Statement of Financial Position	
	2018	2017	2018	2017	2018	2017
Brazil	-204	-191	0	0	-204	-191
China	65	69	0	0	65	69
Czech Republic	32	33	-9	-9	23	24
Poland	-28	-19	17	17	-11	-2
Russia	-71	-55	0	0	-71	-55
Sweden	-286	-234	50	50	-236	-184
Uruguay	135	80	-31	-17	105	63
USA	4	-1	0	0	4	-1
Others	-1	-1	0	0	-1	-1
<b>CTA before Tax</b>	<b>-355</b>	<b>-319</b>	<b>27</b>	<b>41</b>	<b>-328</b>	<b>-278</b>
Taxes		0	-7	-10	-7	-10
<b>Net CTA in Equity</b>	<b>-355</b>	<b>-319</b>	<b>20</b>	<b>31</b>	<b>-335</b>	<b>-288</b>

### Amounts recognized in the statement of other comprehensive income - CTA and equity hedging

EUR million	As at 31 December					
	Cumulative Translation Adjustments (CTA)		Equity Hedges		Net CTA in the Statement of Financial Position	
	2018	2017	2018	2017	2018	2017
Brazil	-14	-63	0	0	-14	-63
China	-4	-27	0	0	-4	-27
Czech Republic	-1	7	0	0	-1	7
Poland	-10	15	0	0	-10	15
Russia	-16	-10	0	0	-16	-10
Sweden	-53	-38	0	0	-53	-38
Uruguay	56	-147	-14	40	42	-107
USA	5	-15	0	0	5	-15
Others	0	-10	0	0	0	-10
<b>CTA before Tax</b>	<b>-36</b>	<b>-288</b>	<b>-14</b>	<b>40</b>	<b>-50</b>	<b>-248</b>
Taxes	0	0	3	-8	3	-8
<b>Amounts recognised in OCI</b>	<b>-36</b>	<b>-288</b>	<b>-11</b>	<b>32</b>	<b>-47</b>	<b>-256</b>

### Hedging of net investment in foreign entities

Group policy for translation risk exposure is to minimise this by funding assets whenever possible and economically viable in the same currency, but if matching of the assets and liabilities in the same currency is not possible hedging of the remaining translation risk may take place. The gains and losses net of tax on all financial liabilities and instruments used for hedging purposes are offset in CTA against the respective currency movements arising from the restatement of the net investments at current exchange rates on the reporting date; the net amount of losses included in CTA during the period as shown in the previous table amounted to EUR 11 (gains of EUR 32) million.

### Hedging instruments and unrealised hedge losses

EUR million	As at 31 December					
	Nominal amount (Currency)		Nominal amount (EUR)		Unrealised Losses (EUR)	
	2018	2017	2018	2017	2018	2017
<b>Borrowings</b>						
USD area	350	350	306	292	-25	-14
<b>Total Hedging</b>			<b>306</b>	<b>292</b>	<b>-25</b>	<b>-14</b>

## Note 29 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 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.

#### Operating Leases

Payments made under operating leases are expensed on a straight-line basis over the lease periods. When an operating lease is terminated before the expiry of the lease period, any obligatory payment to the lessor by way of penalty is recognised as an expense in the period in which termination takes place. Lease termination benefits are recognised on a discounted basis.

### Commitments

EUR million	As at 31 December	
	2018	2017
<b>On Own Behalf</b>		
Mortgages	2	2
Operating leases in next 12 months	100	81
Operating leases after next 12 months	631	644
Other commitments	6	6
<b>On Behalf of Equity Accounted Investments</b>		
Guarantees	4	4
<b>On Behalf of Others</b>		
Guarantees	23	26
Other commitments	13	0
<b>Total</b>	<b>779</b>	<b>763</b>
Mortgages	2	2
Guarantees	27	30
Operating leases	731	725
Other commitments	19	6
<b>Total</b>	<b>779</b>	<b>763</b>



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In 2018, the Group's commitments amounted to EUR 779 (EUR 763) million. In addition, the parent company Stora Enso Oyj has guaranteed the liabilities of many of its subsidiaries and joint operations up to EUR 1 962 (EUR 2 073) million as of 31 December 2018.

The Group leases properties, land areas, vessels and other logistic equipment and machinery under various non-cancellable operating leases, some of which contain renewal options. There were no leases deemed onerous at the end of 2018 and 2017. The future cost for contracts exceeding one year and for non-cancellable operating leasing contracts are:

### Repayment schedule of operating lease commitments

EUR million	As at 31 December	
	2018	2017
Less than 1 year	100	81
1–2 years	92	71
2–3 years	78	63
3–4 years	57	54
4–5 years	48	38
Over 5 years	356	418
<b>Total</b>	<b>731</b>	<b>725</b>

The Group has rental commitments for up to 50 years, with the option to terminate them in 2034, on approximately 82 000 (84 000) hectares of land contracted to date in China, as well as being obliged to pay for the standing trees on land it has contracted to rent. Future land rental payments reported under operating leases are estimated at EUR 371 (EUR 486) million for the plantations.

### Capital Commitments

EUR million	As at 31 December	
	2018	2017
<b>Total</b>	<b>111</b>	<b>152</b>

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. Commitments in relation to capital expenditure mainly relate to ongoing projects at Enocell and Imatra Mills in Finland, Skutskär and Gruvön Mills in Sweden and Maxau Mill in Germany.

### 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.

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.

### Legal proceedings in Latin America

#### 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 BRL 20 (EUR 5) 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.

In June 2017, Veracel received a tax infringement note referring to year 2012 with a total amount of BRL 224 (EUR 50) million including interest and fines. The dispute is limited to fiscal year 2012 for which the tax authority applied another transfer pricing method due to a different interpretation of a transition rule. Veracel acts in full compliance with Brazilian transfer pricing law and has filed an administrative defense against the tax note in July 2017. In June 2018 Veracel received a positive decision from Federal Revenue Judgement, which has been confirmed by the Administrative Council For Fiscal Resources in January 2019. The total exposure at year end is BRL 241 (EUR 54) million considering interest until 31 December 2018. Stora Enso's share of the exposure is BRL 120 (EUR 27) million. No provisions have been recorded in Veracel's or Stora Enso's accounts for this tax dispute.

The tax authority has claimed that part of the PIS (social integration programme) and COFINS (contribution for the financing of social security) paid by Veracel on the purchase of raw materials and services since 2006 was not eligible for tax credit. Stora Enso and Veracel consider the claim unjustified and no provisions have been made in Stora Enso's or Veracel's accounts for this matter. The dispute is still pending.

### Legal proceedings in Finland

#### Roundwood claim

In December 2009, the Finnish Market Court fined Stora Enso for competition law infringements in the market for roundwood in Finland from 1997 to 2004. Stora Enso did not appeal against the ruling. In March 2011, Metsähallitus of Finland initiated legal proceedings against Stora Enso, UPM and Metsäliitto claiming compensation for damage allegedly suffered due to the competition infringement. In its judgement rendered in June 2016, the Helsinki District Court dismissed Metsähallitus' claim for damages against Stora Enso, UPM and Metsäliitto. Metsähallitus appealed against the District Court's judgment to the Helsinki Court of Appeal, which rendered its judgement in the matter in May 2018. In its judgement, the Court of Appeal dismissed Metsähallitus' appeal and upheld the District Court's judgement. The total amount of Metsähallitus' claim jointly and severally against Stora Enso, UPM and Metsäliitto in the Court of Appeal was approximately EUR 125 million and the secondary claim against Stora Enso was approximately EUR 68 million. Metsähallitus applied for a leave of appeal from the Supreme Court. The Supreme Court decided on 29 January 2019 that the application to appeal is denied. This concludes the case without Stora Enso having any payment obligation towards Metsähallitus. Further the entire round woodclaim case can be now considered closed without any material financial effects on Stora Enso. The quarterly reporting will discontinue.

### Legal proceedings in Sweden

#### Insurance claim

In July and August 2016, six Swedish insurance companies filed lawsuits in the Environmental Court and the District Court of Falun against Stora Enso, due to damage caused by the forest fire in Västmanland, Sweden, in 2014. The claimed amount is approximately SEK 300 (EUR 30) million. Stora Enso denies liability. So far the Environmental Court and thereafter the Environmental Court of Appeal has found that the Environmental code is not applicable on damage caused by fire.

#### Company fine

In January 2018, a Swedish prosecutor filed a lawsuit against Stora Enso and its supplier, due to the forest fire in Västmanland, Sweden in 2014, claiming a company fine of SEK 5 million each. Both Stora Enso and the supplier have disputed the claim.

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## Note 30 Principal subsidiaries and joint operations

The following is a list of the Company's fifty principal operating subsidiary undertakings ranked by external sales. These companies along with the parent account for 99% (98%) of Group external sales. The principal country in which each subsidiary operates is the country of incorporation. The group's effective interest in the undertakings is 100% except where indicated, and is held in each case by a subsidiary undertaking except for those companies marked with "+" which are held directly by the parent company. Subsidiaries operating outside the euro area are indicated by "◊".

### Subsidiary companies (Ranked by external sales)

		Country	Sales %	Consumer Board	Packaging Solutions	Biomaterials	Wood Products	Paper	Other
<b>Stora Enso Oyj</b>		<b>Finland</b>	<b>15.93</b>	•	•	•		•	•
Stora Enso Paper AB	◊	Sweden	7.52					•	
Stora Enso International Oy	+	Finland	7.17			•			
Stora Enso Oulu Oy		Finland	6.15					•	
Stora Enso Skoghall AB	◊	Sweden	5.99	•					
Stora Enso Veitsiluoto Oy		Finland	4.96					•	
Stora Enso Amsterdam B.V.		Netherlands	4.38			•		•	
Stora Enso Fors AB	◊	Sweden	3.38	•					
Stora Enso Skog AB	◊	Sweden	2.92						•
Stora Enso Poland S.A.	+/◊	Poland	2.87		•				
Stora Enso Wood Products GmbH		Austria	2.75				•		
Stora Enso (Guangxi) Packaging Company Ltd. (80.1%)	◊	China	2.57	•					
Stora Enso Maxau GmbH		Germany	2.56					•	
Stora Enso Langerbrugge NV		Belgium	2.38					•	
Stora Enso Publication Papers Oy Ltd		Finland	2.37					•	
Stora Enso Ingerois Oy	+	Finland	2.00	•					
Stora Enso Wood Products Oy Ltd	+	Finland	1.72				•		
Sydved AB (66.7%)	◊	Sweden	1.71						•
Stora Enso Sachsen GmbH		Germany	1.51					•	•
Stora Enso Timber AB	◊	Sweden	1.29				•		
Stora Enso Eesti AS	+	Estonia	1.27				•		
Stora Enso Narew Sp.z.o.o.	+/◊	Poland	1.20		•				
Stora Enso Australia Pty Ltd	◊	Australia	1.18				•		
OOO Stora Enso Packaging BB	◊	Russia	1.16		•				
Stora Enso Wood Products Zdirec s.r.o.	◊	Czech Republic	0.93				•		
Stora Enso Packaging AB	◊	Sweden	0.89		•				
Stora Enso WP Bad St. Leonhard GmbH		Austria	0.84				•		
Stora Enso Packaging Oy	+	Finland	0.83		•				
Dongguan Stora Enso Inpac Packaging Co. Ltd (90%)	◊	China	0.78		•				
Stora Enso Inpac Packaging Co. Ltd. (90%)	◊	China	0.74		•				
Stora Enso Huatai (Shandong) Paper Co Ltd (60%)	◊	China	0.73					•	

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		Country	Sales %	Consumer Board	Packaging Solutions	Biomaterials	Wood Products	Paper	Other
Stora Enso Timber Deutschland GmbH		Germany	0.62				•		
Stora Enso Wood Products Sp.z.o.o.	◊	Poland	0.52				•		
Stora Enso Bioenergi AB	◊	Sweden	0.52						•
Stora Enso North American Sales, Inc.	+/◊	USA	0.51	•					
Stora Enso Wood Products Planá s.r.o.	◊	Czech Republic	0.49				•		
AS Stora Enso Latvija		Latvia	0.37				•		
Stora Enso Wood Products d.o.o. Koper		Slovenia	0.36				•		
Stora Enso Bois SAS		France	0.33				•		
UAB Stora Enso Lietuva		Lithuania	0.31				•		
Stora Enso AB	+/◊	Sweden	0.31						•
Guangxi Stora Enso Forestry Co Ltd (89.5%)	◊	China	0.26	•					
Stora Enso Timber DIY Products B.V.		Netherlands	0.25				•		
Stora Enso Timber UK Ltd	◊	UK	0.23				•		
Stora Enso Packaging UAB		Lithuania	0.19		•				
Stora Enso Packaging SIA		Latvia	0.16		•				
Stora Enso Paper GmbH		Germany	0.15					•	
Stora Enso (Guangxi)Forestry Company Ltd. (80.1%)	◊	China	0.15	•					
Stora Enso WP HV s.r.o.	◊	Czech Republic	0.13				•		
Stora Enso (HK) Ltd	+/◊	Hong Kong	0.13				•		
VLAR Papier NV		Belgium	0.13					•	

The following is a list of the Company's joint operations. The Company holds a 50% interest in joint operations and they are consolidated into the Group's financial statements. The countries operating outside the euro area are indicated by "◊". Sales of the joint operations occur via subsidiaries.

### Joint operations

		Country	Consumer Board	Packaging Solutions	Biomaterials	Wood Products	Paper	Other
Montes del Plata (50%)	◊	Uruguay			•			
Veracel Celulose SA (50%)	◊	Brazil			•			



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### Note 31 Related party transactions

Balances and transactions between the Group and its subsidiaries and joint operations, which are classified as related parties, have been eliminated on consolidation and are not disclosed in this note.

The Group has classified Solidium Oy as a related party. It is entirely owned by the State of Finland, and owned 10.7% of Stora Enso shares and 27.3% of all votes on December 31, 2018. The group has applied an exemption as stated in IAS 24 paragraph 25 not to disclose transactions and outstanding balances with government-related entities.

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 7](#) Board and executive remuneration.

In the ordinary course of business, the Group engages in transactions on commercial terms with equity accounted investments and other related parties that are not any more favourable than would be available to other third parties – with the exception of Veracel and Pohjolan Voima Oy (PVO). Stora Enso intends to continue with transactions on a similar basis with its equity accounted investments further details of which are shown in [Note 13](#) Equity accounted investments.

The Group's principal subsidiary companies and joint operations are listed in [Note 30](#) Principal subsidiaries and joint operations.

#### Energy

The Group holds a 15.6% interest in Pohjolan Voima Oy (PVO), a privately owned group of companies in the energy sector that produces electricity and heat for its shareholders in Finland. Each subsidiary of the PVO group has its own class of shares that entitle the shareholder to the energy produced in proportion to its ownership of that class of share. Stora Enso is the second-largest shareholder in PVO, being entitled to a capacity share of 469 MWe and Seppo Parvi, as Group representative, has been the Deputy Chairman of PVO's Board of Directors since 2015. Prices paid to PVO for electricity are based on production costs, which are generally lower than market prices and in 2018, amounted to EUR 36 (EUR 34) million.

#### Paper for recycling

The Group owns non-controlling interests in several paper recyclers from which paper for recycling is purchased at market prices.

#### Forest assets and wood procurement

The Group has a 41% interest in Tornator with the remaining 59% being held mainly by Finnish institutional investors. Stora Enso has long-term purchase contracts with the Tornator Group for approximately 2 million cubic metres of wood annually at market prices, and in 2018 purchases of 2 (2) million cubic metres came to EUR 78 (EUR 62) million.

In 2018, the Group has a 49.79% interest in Bergvik Skog with the remaining 50.21% held mainly by institutional investors. The Group has long-term supply contracts with Bergvik Skog under which Bergvik Skog sells some 5 million cubic metres of wood annually to Stora Enso at market prices. In 2018, these purchases of 5 (5) million cubic metres amounted to EUR 108 (EUR 106) million and Group sales to Bergvik Skog amounted to EUR 40 (EUR 39) million, mainly for forest management services.

Stora Enso has a significant land leasing contract with its non-controlling interest partner Guangxi Forestry Group Co. Ltd. in China. The leases paid during 2018 amounted to EUR 17 (EUR 16) million.

#### Stevedoring

The Group owns 34.4% of the shares of Steveco Oy, a Finnish company engaged in loading and unloading vessels. The other shareholders in Steveco are UPM-Kymmene, Finnlines, Ahlström Capital and Myllykoski. The stevedoring services are provided by Steveco at market prices and in 2018 amounted to EUR 24 (EUR 25) million.

### Note 32 Earnings per share and equity per share



#### Accounting principles

Basic earnings per share, attributable to the owners of the parent company, are calculated by dividing the net profit 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 dilutive such as shares from share-based payments.

#### Earnings per share

	Year Ended 31 December	
	2018	2017
Net profit for the period attributable to the owners of the parent, EUR million	1 013	625
Total comprehensive income attributable to the owners of the parent, EUR million	1 025	494
Weighted average number of A and R shares	788 619 987	788 619 987
Weighted average number of share awards	1 262 891	1 403 673
Weighted diluted number of shares	789 882 878	790 023 660
<b>Basic Earnings per Share, EUR</b>	<b>1.28</b>	<b>0.79</b>
<b>Diluted Earnings per Share, EUR</b>	<b>1.28</b>	<b>0.79</b>
<b>Total Recognised Income and Expense per Share, EUR</b>	<b>1.30</b>	<b>0.63</b>

#### Equity per share

	As at 31 December	
	2018	2017
Shareholders' equity, EUR million	6 714	6 008
Market value, EUR million	8 123	10 422
Number of A and R shares	788 619 987	788 619 987
Share awards	1 056 648	1 469 133
Diluted number of shares	789 676 635	790 089 120
<b>Basic Shareholders' Equity per Share, EUR</b>	<b>8.51</b>	<b>7.62</b>
<b>Diluted Shareholders' Equity per Share, EUR</b>	<b>8.50</b>	<b>7.61</b>
<b>Dividend per Share Paid/Declared, EUR</b>	<b>0.50</b>	<b>0.41</b>
<b>Market Value per Share, EUR</b>		
A shares	11.05	13.20
R shares	10.09	13.22

# Extract from the Parent Company Stora Enso Oyj financial statements

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### Accounting principles

The Parent Company Financial Statements are prepared according to Generally Accepted Accounting Principles in Finland (Finnish GAAP). The main differences between the accounting policies of the Group and the Parent Company relate to:

Accounting of amortisation of capitalised goodwill  
The valuation of certain financial assets and financial liabilities  
Accounting of post-employment Defined Benefit Plans  
The presentation and accounting of deferred tax  
Accounting of equity incentive schemes  
Accounting of financial leases.

### Comparability of the information for the financial period

The company has changed its presentation of non-hedge accounted derivatives starting from 1st January 2018. As a result of the change, positive fair values of outstanding non-hedge accounted derivatives are now also presented in the balance sheet in accordance with IFRS 9 standard. The positive fair values of such outstanding derivatives were previously presented as off-balance sheet items and only negative fair values for outstanding derivatives were presented in the balance sheet in accordance with prudence principle. At the end of 2017 the positive fair values of outstanding non-hedge accounted derivatives amounted to EUR 22.8 million and it has been recognised as an ending balance adjustment to parent company's short-term receivables and retained earnings for 2017.

### Parent Company income statement

EUR million	Year Ended 31 December	
	2018	2017
Sales	2 776	2 913
Changes in inventories of finished goods and work in progress	25	-14
Production for own use	1	1
Other operating income	192	188
Materials and services	-1 926	-1 905
Personnel expenses	-224	-255
Depreciation and value adjustments	-159	-130
Other operating expenses	-471	-569
<b>Operating Profit</b>	<b>214</b>	<b>229</b>
Net financial items	1	146
<b>Profit before Appropriations and Taxes</b>	<b>215</b>	<b>375</b>
Appropriations	9	-10
<b>Net Profit for the Period</b>	<b>224</b>	<b>365</b>

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### Parent Company statement of financial position

Assets	As at 31 December	
	2018	2017
<b>EUR million</b>		
<b>Fixed Assets and Non-current Investments</b>		
Intangible assets	90	75
Tangible assets	840	805
Shares in Group companies	6 199	6 139
Receivables from Group companies	1 520	1 486
Investments in Associated companies	39	40
Other investments	230	230
	<b>8 918</b>	<b>8 775</b>
<b>Current Assets</b>		
Inventories	326	247
Short-term receivables	555	570
Deposit Group companies	82	816
Deposit other companies	315	0
Cash and cash equivalents	471	375
	<b>1 749</b>	<b>2 008</b>
<b>Total Assets</b>	<b>10 667</b>	<b>10 784</b>
<b>Equity and Liabilities</b>		
	As at 31 December	
<b>EUR million</b>	<b>2018</b>	<b>2017</b>
Share capital	1 342	1 342
Share premium	3 639	3 639
Fair value reserve	-10	1
Invested non-restricted equity fund	633	633
Retained earnings	627	585
Net profit for the period	223	365
	<b>6 454</b>	<b>6 565</b>
<b>Appropriations</b>	<b>200</b>	<b>209</b>
<b>Provisions</b>	<b>26</b>	<b>26</b>
<b>Non-current Liabilities</b>	<b>1 464</b>	<b>1 378</b>
<b>Current Liabilities</b>	<b>2 523</b>	<b>2 606</b>
<b>Total Equity and Liabilities</b>	<b>10 667</b>	<b>10 784</b>

### Parent Company cash flow statement

EUR million	Year Ended 31 December	
	2018	2017
<b>Cash Provided by Operating Activities</b>		
Net profit for the period	223	365
Appropriations	-9	10
Depreciation and value adjustments	159	130
Unrealised foreign exchange gains and losses	6	52
Other non-cash items	-3	12
Financial income and expenses	-1	-146
Interest received	25	32
Interest paid net of amounts capitalised	-64	-105
Dividends received	76	201
Other financial items paid net	-35	37
Income taxes paid	-1	-1
Change in net working capital	-87	-13
<b>Net Cash Provided by Operating Activities</b>	<b>289</b>	<b>574</b>
<b>Net Cash from Investing Activities</b>		
Capital expenditure	-185	-203
Proceeds from sale of fixed assets	6	3
Purchases of other investments	0	-7
Investment in subsidiary shares	-61	-87
Proceeds from disposal of subsidiary shares	2	61
Proceeds from disposal of shares in other companies	1	2
Proceeds from long-term receivables net	6	-190
<b>Net Cash Provided in Investing Activities</b>	<b>-231</b>	<b>-421</b>
<b>Cash Flow from Financing Activities</b>		
Proceeds from (issue of) long-term liabilities	299	300
Proceeds from (payment of) long-term liabilities	-226	-662
Proceeds from (payment of) short-term borrowings net	-128	-546
Capital repayment / dividend per share paid/declared	-323	-292
<b>Net Cash Used in Financing Activities</b>	<b>-378</b>	<b>-1 200</b>
<b>Net Increase (Decrease) in Cash and Cash Equivalents</b>	<b>-321</b>	<b>-1 046</b>
Translation adjustment	-1	-7
Business transfers 1.5.	0	-16
Cash and cash equivalents at start of year	1 190	2 259
<b>Cash and Cash Equivalents at Year End</b>	<b>868</b>	<b>1 190</b>



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# The Board of Director's Proposal for the distribution of dividend

The Parent Company distributable shareholders' equity on 31 December 2018 amounted to EUR 1 473 289 418.75, including the profit for the period of EUR 223 340 113.24. The Board of Directors proposes to the Annual General Meeting of the Company that the distributable funds be used as follows:

Dividend of EUR 0.50 per share from the distributable shareholders' equity to be distributed on 788 619 987 shares, not to exceed	EUR 394 309 993.50
Remaining in distributable shareholders' equity	EUR 1 078 979 425.25
Distributable shareholders' equity on 31 December 2018, total	EUR 1 473 289 418.75

There have been no material changes in the Parent Company's financial position since 31 December 2018. The liquidity of the Parent Company remains good and the proposed dividend does not risk the solvency of the Company.

Helsinki, 31 January 2019

**Jorma Eloranta**  
Chairman

**Hans Stråberg**  
Vice Chairman

**Anne Brunila**

**Elisabeth Fleuriot**

**Hock Goh**

**Christiane Kuehne**

**Antti Mäkinen**

**Richard Nilsson**

**Göran Sandberg**

**Karl-Henrik Sundström**  
CEO

# Auditor's report

(Translation of the Finnish Original)

To the Annual General Meeting of Stora Enso Oyj

## Report on the Audit of Financial Statements

### Opinion

In our opinion

- the consolidated financial statements give a true and fair view of the group's financial position and financial performance and cash flows in accordance with International Financial Reporting Standards (IFRS) 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 the financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report to the Financial and 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 2018. The financial statements comprise:

- the consolidated statement of financial position, income statement, statement of comprehensive income, statement of changes in equity, cash flows statement and notes, including a summary of significant accounting policies
- the parent company's statement of financial position, income statement, cash flow statement and notes.

### 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.

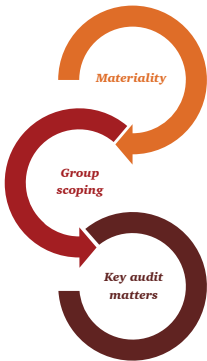
### Independence

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 to the 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 5 to the Financial Statements.

## Our Audit Approach

### Overview



- We have applied an overall group materiality of EUR 52 million.
- We performed audit procedures at 27 reporting components in 11 countries that are considered significant based on our overall risk assessment and materiality.
- Valuation of biological assets
- Provisions and contingent liabilities

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 judgement, 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 52 million
How we determined it	Based on profit before tax
Rationale for the materiality benchmark applied	We chose profit before tax as the benchmark because, in our view, it is the benchmark against which the performance of the group is commonly measured by users, and is a generally accepted benchmark.

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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 in a significant number of legal entities or “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 specific instructions to those auditors which included our risk analysis, materiality and global audit approach. We performed audit procedures at 27 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 targeted audit procedures over significant balances and to analytical procedures performed at group level.

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
<p><b>Valuation of Biological Assets</b></p> <p>Refer to Note 1, Note 2 and Note 12 in the consolidated financial statements for the related disclosures</p> <p>The fair value of group's biological assets owned through subsidiaries, joint operations and associated companies amounts to EUR 3 327 million as of December 31, 2018.</p> <p>The value of biological assets is measured at fair value less costs to sell. The fair value is determined using discounted cash flows 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 requires estimates of growth, harvest, sales price and costs.</p> <p>Due to the level of judgment involved in the valuation of biological assets, complexity of the governance structure as well as the significance of biological assets to the Group's financial position, this is considered to be a key audit matter.</p>	<p>We obtained an understanding of management's biological asset valuation process, evaluated the design and tested the operating effectiveness of internal controls related to directly and indirectly owned biological assets.</p> <p>Our audit procedures over valuation of directly owned biological asset included:</p> <ul style="list-style-type: none"><li>• Evaluation of the methodology adopted by management for the valuation;</li><li>• Testing the mathematical accuracy of the model used for valuation;</li><li>• Assessment of the discount rates applied in the valuation;</li><li>• Assessment of the other key valuation assumptions; and</li><li>• Validation of key inputs and data used in the valuation model including sales price assumptions, growth assumptions and cost assumptions.</li></ul> <p>We involved valuation specialists in the audit work over valuation of directly owned biological assets.</p> <p>Related to indirectly owned biological assets we have communicated with the auditors of the four largest associated companies and joint operations. As part of the communication, among other things, we have evaluated the key audit procedures and audit conclusions performed related to valuation of biological assets.</p>

Key audit matter in the audit of the group	How our audit addressed the key audit matter
<p><b>Provisions and contingent liabilities</b></p> <p>Refer to Note 2, Note 22 and Note 29 in the consolidated financial statements for the related disclosures</p> <p>As of 31 December 2018 the Group had environmental, restructuring and other provisions totaling EUR 117 million.</p> <p>In addition, the Group has disclosed significant open legal cases and other contingent liabilities in Note 29.</p> <p>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 the analysis of a reliable estimate, require management's judgement to ensure appropriate accounting or disclosures.</p> <p>Due to the level of judgement relating to recognition, valuation and presentation of provisions and contingent liabilities, this is considered to be a key audit matter.</p>	<p>We obtained an understanding of management's process to identify new obligations and changes in existing obligations for compliance with group policy and IAS 37 Provisions, Contingent Liabilities and Contingent Assets requirements.</p> <p>We analysed significant changes in material provisions from prior periods and obtained a detailed understanding of these changes and assumptions applied.</p> <p>Our audit procedures related to material provisions recognized included:</p> <ul style="list-style-type: none"><li>• Assessment of the recognition criteria for the liability;</li><li>• Evaluation of the methodology adopted by management for the measurement of the liability;</li><li>• Testing of the mathematical accuracy of the measurement calculation;</li><li>• Assessment of the discount rates applied in the measurement; and</li><li>• Assessment of the other key measurement assumptions and inputs.</li></ul> <p>We obtained legal letters on the main outstanding legal cases.</p> <p>We reviewed minutes of the board meetings including sub committees.</p> <p>We assessed the appropriateness of the presentation of the most significant contingent liabilities in the consolidated financial statements.</p>
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 International Financial Reporting Standards (IFRS) 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



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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.
- 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 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. 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, 13 February 2019

### PricewaterhouseCoopers Oy

Authorised Public Accountants

### Samuli Perälä

Authorised Public Accountant (KHT)

# Stora Enso in capital markets

Stora Enso ensures that all material information that has an impact on Stora Enso's share price is simultaneously available to the general public and financial community in order to ensure the right share price level in relation to the company's history, assets and future prospects. In its engagement with the capital markets, Stora Enso's Investor Relations aims to support the brand with accurate, consistent and credible financial communications.

## 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 each ten R shares carry one vote at a shareholders' meeting. However, each shareholder has at least one vote.

On 31 December 2018, Stora Enso had 176 312 672 A shares and 612 307 315 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 237 543 403.

### 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 symbol is SEOAY and 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.

On 31 December 2018, 87 765 967 of the Company's shares were registered in Euroclear Sweden AB and 16 130 512 of the Company's R shares were registered in ADR form in Citibank, N.A.

### Distribution by book-entry system, 31 December 2018

Number of shares	Total	A shares	R shares
Euroclear Finland Oy	684 723 508	165 274 381	519 449 127
Euroclear Sweden AB <sup>1</sup>	87 765 967	11 038 291	76 727 676
Citi administered ADRs <sup>1</sup>	16 130 512	-	16 130 512
<b>Total</b>	<b>788 619 987</b>	<b>176 312 672</b>	<b>612 307 315</b>

<sup>1</sup> Shares registered in Euroclear Sweden and ADRs are both nominee registered in Euroclear Finland.

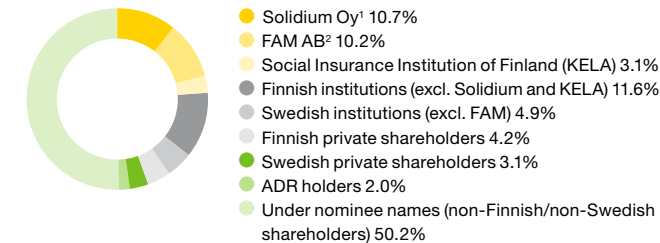
### Ownership distribution, 31 December 2018

	% of shares	% of votes	% of shareholders
Solidium Oy <sup>1</sup>	10.7%	27.3%	0.0%
FAM AB <sup>2</sup>	10.2%	27.3%	0.0%
Social Insurance Institution of Finland (KELA)	3.1%	10.1%	0.0%
Finnish institutions (excl. Solidium and KELA)	11.6%	8.6%	2.9%
Swedish institutions (excl. FAM)	4.9%	4.6%	1.4%
Finnish private shareholders	4.2%	2.5%	46.9%
Swedish private shareholders	3.1%	2.2%	46.6%
ADR holders	2.0%	0.7%	1.3%
Under nominee names (non-Finnish/non-Swedish shareholders)	50.2%	16.7%	0.9%

<sup>1</sup> Entirely owned by the Finnish state.

<sup>2</sup> As confirmed to Stora Enso.

### Ownership distribution, % of shares held



<sup>1</sup> Entirely owned by the Finnish state.

<sup>2</sup> As confirmed to Stora Enso.

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### Share capital

On 31 December 2018, 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 79 648 A shares into R shares were recorded in the Finnish Trade Register during the year 2018.

### Changes in share capital 2010–2018

	No. of A shares issued	No. of R shares issued	Total no. of shares	Share capital (EUR million)
<b>Stora Enso Oyj, 1 Jan 2010</b>	<b>177 152 481</b>	<b>612 386 018</b>	<b>789 538 499</b>	<b>1 342</b>
Conversion of A shares into R shares, Dec 2009–Nov 2010	-300	300	-	-
<b>Stora Enso Oyj, 31 Dec 2010</b>	<b>177 149 784</b>	<b>612 388 715</b>	<b>789 538 499</b>	<b>1 342</b>
Conversion of A shares into R shares, Dec 2010–Nov 2011	-1 012	1 012	-	-
<b>Stora Enso Oyj, 31 Dec 2011</b>	<b>177 148 772</b>	<b>612 389 727</b>	<b>789 538 499</b>	<b>1 342</b>
Conversion of A shares into R shares, Dec 2011–Nov 2012	-1 000	1 000	-	-
<b>Stora Enso Oyj, 31 Dec 2012</b>	<b>177 147 772</b>	<b>612 390 727</b>	<b>789 538 499</b>	<b>1 342</b>
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	-	-
<b>Stora Enso Oyj, 31 Dec 2013</b>	<b>177 096 204</b>	<b>611 523 783</b>	<b>788 619 987</b>	<b>1 342</b>
Conversion of A shares into R shares, Dec 2013–Nov 2014	-40 000	40 000	-	-
<b>Stora Enso Oyj, 31 Dec 2014</b>	<b>177 056 204</b>	<b>611 563 783</b>	<b>788 619 987</b>	<b>1 342</b>
Conversion of A shares into R shares, Dec 2014–Nov 2015	-524 114	524 114	-	-
<b>Stora Enso Oyj, 31 Dec 2015</b>	<b>176 532 090</b>	<b>612 087 897</b>	<b>788 619 987</b>	<b>1 342</b>
Conversion of A shares into R shares, Dec 2015–Nov 2016	-25 000	25 000	-	-
<b>Stora Enso Oyj, 31 Dec 2016</b>	<b>176 507 090</b>	<b>612 112 897</b>	<b>788 619 987</b>	<b>1 342</b>
Conversion of A shares into R shares, Dec 2016–Nov 2017	-114 770	114 770	-	-
<b>Stora Enso Oyj, 31 Dec 2017</b>	<b>176 392 320</b>	<b>612 227 667</b>	<b>788 619 987</b>	<b>1 342</b>
Conversion of A shares into R shares, Dec 2017–Nov 2018	-79 648	79 648	-	-
<b>Stora Enso Oyj, 31 Dec 2018</b>	<b>176 312 672</b>	<b>612 307 315</b>	<b>788 619 987</b>	<b>1 342</b>

For more historical data about the share capital, please visit [storaenso.com/investors/shares](http://storaenso.com/investors/shares).

### Stora Enso's activities in capital markets during 2018

Stora Enso's Investor Relations activities cover equity and fixed-income markets to ensure full and fair valuation of the Company, continual access to funding sources and stable bond pricing. Investors and analysts are met on a regular basis in Europe and North America. In 2018, the IR team conducted several individual and group meetings with equity investors, whilst maintaining regular contact with equity research analysts at investment banks and brokerage firms. There were also meetings with fixed-income analysts and investors. In addition, Stora Enso arranged a webinar for ESG investors and analysts on its sustainability strategy and activities.

The Group arranged site visits to several mills in Finland, demo plant in Raceland, USA and innovation centre in Stockholm. Senior management and IR personnel also gave presentations at equity and fixed-

income investor conferences in Scandinavia, Continental Europe, the United Kingdom and North America. During the year, the Group arranged seven large group presentations for private investor in Sweden.

Stora Enso arranged Capital Markets Day (CMD) on 7 November 2018 in Helsinki with the topic of value creation in the bioeconomy. At the event, the CEO, CFO and all the divisional heads gave their presentations, followed by break-out sessions providing an opportunity for further discussion with the management. In addition, there were several demo stations with subject matter experts showcasing innovations within the divisions, including Consumer Board prototypes, ECO RFID tag, Lineo lignin and virtual forest application. The CMD was followed by a Packaging Solutions site visits at Heinola and Lahti on the following day.

### Shareholdings of other Group-related bodies at 31 December 2018

E.J. Ljungberg's Education Foundation owned 1 780 540 A shares and 2 336 224 R shares, 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 2018 the Company had approximately 94 269 registered shareholders, including about 45 822 Swedish shareholders and about 1 189 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 599 million shares, which is 76% 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 2018

By voting power	A shares	R shares	% of shares	% of votes
1 Solidium Oy <sup>1</sup>	62 655 036	21 792 540	10.7%	27.3%
2 FAM AB <sup>2</sup>	63 123 386	17 000 000	10.2%	27.3%
3 Social Insurance Institution of Finland	23 825 086	973 982	3.1%	10.1%
4 Varma Mutual Pension Insurance Company	8 513 018	1 140 874	1.2%	3.6%
5 Ilmarinen Mutual Pension Insurance Company	3 352 286	17 778 548	2.7%	2.2%
6 MP-Bolagen i Vetlanda AB, (incl. Stiftelsen Seydlitz Småland)	4 818 000	1 390 000	0.8%	2.1%
7 Erik Johan Ljungberg's Education Foundation	1 780 540	2 336 224	0.5%	0.8%
8 Swedbank Robur Funds	-	10 674 443	1.4%	0.4%
9 Bergslaget's Healthcare Foundation	626 269	1 609 483	0.3%	0.3%
10 The State Pension Fund of Finland	-	7 200 000	0.9%	0.3%
11 Nordea Investment Funds	-	5 913 015	0.7%	0.2%
12 Keva (Local Government Pensions Institution)	-	5 251 101	0.7%	0.2%
13 Elo Mutual Pension Insurance Company	-	4 680 000	0.6%	0.2%
14 Unionen (Swedish trade union)	-	3 477 750	0.4%	0.1%
15 SEB Investment Management	-	3 157 906	0.4%	0.1%
<b>Total</b>	<b>168 693 621</b>	<b>104 375 866</b>	<b>34.6%<sup>3</sup></b>	<b>75.2%<sup>3</sup></b>
Nominee-registered shares	74 382 979	473 956 786	69.5% <sup>3,4</sup>	51.3% <sup>3,4</sup>

<sup>1</sup> Entirely owned by the Finnish State.

<sup>2</sup> As confirmed to Stora Enso.

<sup>3</sup> As some of the shareholdings on the list are nominee registered, the percentage figures do not add up to 100%.

<sup>4</sup> 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 (Cit). 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.



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### Share price performance and volumes

#### Helsinki

The Stora Enso R (STERV) share price decreased by 24% during 2018 (30% increase in 2017). Over the same period, the OMX Helsinki Index decreased by 8%, the OMX Helsinki Benchmark Index by 8% and the OMX Helsinki Basic Materials Index by 23%.

#### Stockholm

The Stora Enso R (STE R) share price decreased by 20% during 2018 (32% increase in 2017). Over the same period, the OMX Stockholm 30 Index decreased by 11% and the OMX Stockholm Basic Materials Index decreased by 25%.

#### OTC

Stora Enso ADR (SEOAY) share price decreased by 27% during 2018 (48% increase in 2017). Over the same period, the Standard & Poor's Global Timber and Forestry Index decreased by 20%.

#### Share prices and volumes 2018

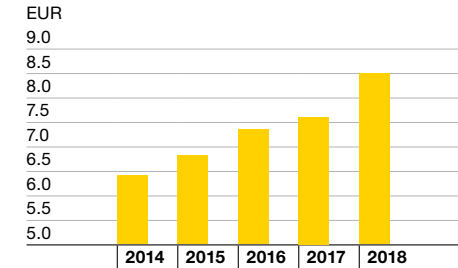
		Helsinki, EUR	Stockholm, SEK	OTC, USD
	A share	18.45	189.00	
High	R share	18.29	187.50	21.37
	A share	10.75	111.00	
Low	R share	9.92	102.00	11.33
	A share	11.05	116.00	
Closing, 31 Dec 2018	R share	10.09	103.40	11.53
	A share	-16%	-11%	
Change from previous year	R share	-24%	-20%	-27%
	A share	3 067 719	2 161 338	
Cumulative trading volume, no. of shares	R share	610 300 395	108 920 176	15 012 991

The volume-weighted average price of R shares over the year was EUR 14.61 in Helsinki (EUR 11.54 in 2017), SEK 145.49 in Stockholm (SEK 109.82 in 2017) and USD 17.46 on the OTC in the USA (USD 13.05 in 2017). The percentage of R shares traded was 60.7% (62.5% in 2017) in alternative trading venues, 32.7% (29.9% in 2017) in Helsinki, 5.8% (7.4% in 2017) in Stockholm and 0.1% (0.2% in 2017) on the OTC in the USA. Total market capitalisation on the OMX Helsinki at year-end was EUR 8.1 billion (EUR 10.4 billion).

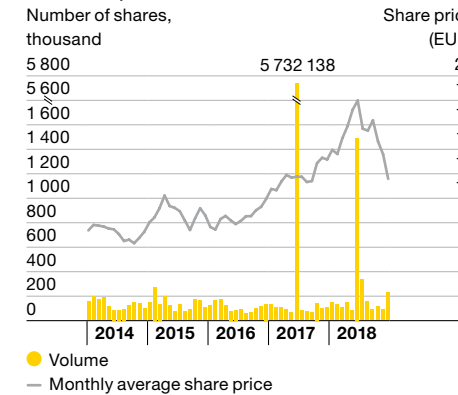
#### Alternative trading venues

Stora Enso shares can be traded outside Nasdaq Helsinki and Nasdaq Stockholm, where the shares are listed. During 2018, the largest alternative trading venues included Cboe APA, Cboe BXE and Cboe CXE. The alternative trading venues' market share of monthly turnover in Stora Enso shares varied between 42% and 68%. Of the alternative trading venues, Cboe APA had the biggest share of the volume with 35% on an annual basis (Cboe BXE had the biggest share of the volume in 2017 with 29%).

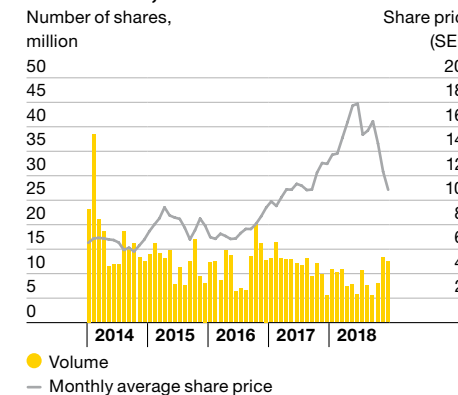
### Equity per share



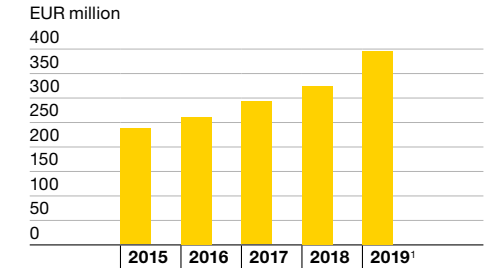
### Helsinki, Stora Enso A



### Stockholm, Stora Enso R

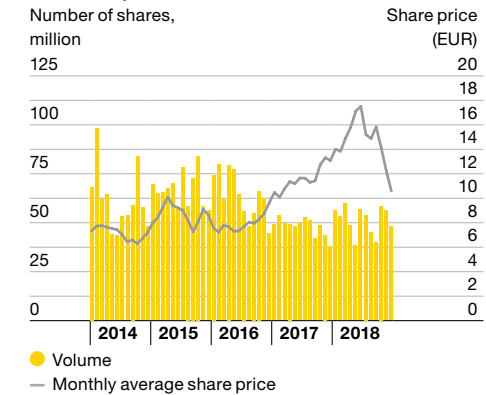


### Distributed dividend

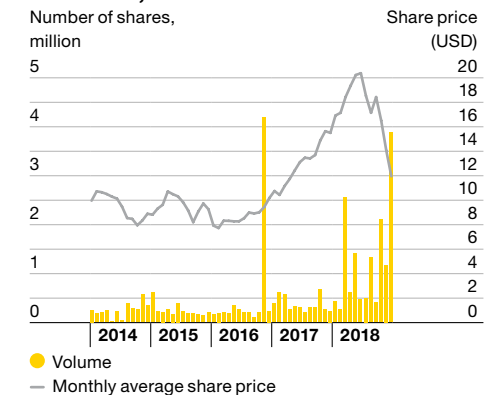


<sup>1</sup> Board of Director's proposal to the AGM for the distribution of dividend.

### Helsinki, Stora Enso R



### New York, Stora Enso ADR



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### Stora Enso is included in at least the following indices

OMX INDICES	STOXX INDICES	FTSE INDICES	MSCI INDICES	SUSTAINABILITY INDICES
OMX Helsinki	STOXX Global 1800	FTSE RAFI All-World 3000	MSCI Finland	CDP's Climate A list
OMX Helsinki 25	STOXX Europe 600	FTSE RAFI Developed 1000	MSCI Nordic countries	FTSE4 Good Index
OMX Helsinki Large Cap	STOXX Europe Mid 200	FTSE RAFI Developed Europe	MSCI Europe	STOXX® Global ESG Leaders Indices
OMX Helsinki Benchmark	STOXX Nordic	FTSE RAFI Europe	MSCI Europe Materials	ECPI EMU Ethical Equity index
OMX Helsinki Basic Materials	EURO STOXX	FTSE RAFI Eurozone	MSCI World	ECPI World ESG Equity Index
OMX Helsinki Basic Resources	EURO STOXX Basic Materials	FTSE Finland 25 Index	MSCI World Mid Cap	OMX GES Sustainability Finland
OMX Helsinki Forestry & Paper	EURO STOXX Basic Resources			Ethibel Sustainability Index (ESI) Excellence Europe and PIONEER Investment Register
OMX Stockholm				Euronext Vigeo World, Europe and Eurozone 120
OMX Stockholm Benchmark				MSCI ESG indices
OMX Stockholm Large Cap				
OMX Stockholm Basic Materials				
OMX Stockholm Basic Resources				
OMX Stockholm Forestry & Paper				
OMX Nordic				
OMX Nordic Large Cap				
Nasdaq OMX Nordic Materials				
VINX 30				
VINX Basic Materials				
VINX Basic Resources				

Read more about sustainability indexes in **Sustainability 2018**.

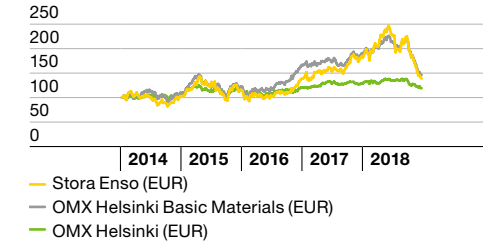
In 2016, Stora Enso shifted its strategy regarding the provision of ESG information to its stakeholders. The emphasis is to keep sustainability information widely available on the Group website to benefit and serve different stakeholders in equal manner. As a consequence, Stora Enso simultaneously reduces the number of sustainability index survey questionnaires in which it participates. The Group is targeting its participation in those questionnaires and enquiries that it has assessed to be the most material. The Company continues with this chosen strategy also in 2019.

### 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

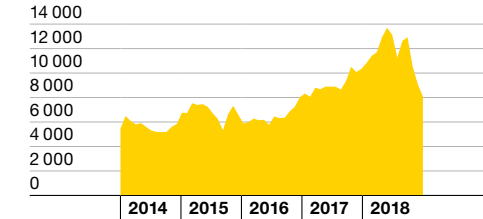
### Stora Enso R Share vs Nasdaq Helsinki indices

1.1.2014 = 100



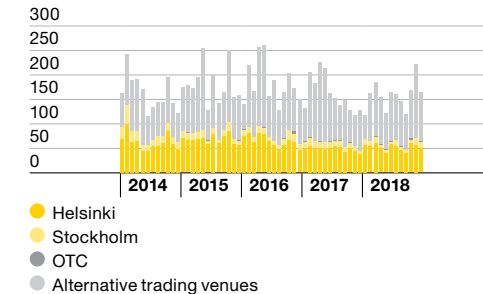
### Market capitalisation on Nasdaq Helsinki

EUR million



### Monthly R shares trading volumes

Number of shares, million



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### Key share data 2009–2018, total operations (for calculations see Calculation of Key figures)

According to Nasdaq Helsinki	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Earnings per share, EUR	1.28	0.79	0.59	1.02	0.13	-0.07	0.61	0.43	0.97	-1.12
– diluted, EUR	1.28	0.79	0.59	1.02	0.13	-0.07	0.61	0.43	0.97	-1.12
– excl. IAC, EUR	1.29	0.89	0.65	1.24	0.40	0.40	0.33	0.63	0.79	0.19
Equity/share, EUR	8.51	7.62	7.36	6.83	6.43	6.61	7.32	7.45	7.87	6.50
Dividend and distribution/share, EUR	0.50	0.41	0.37	0.33	0.30	0.30	0.30	0.30	0.25	0.20
Payout ratio, %	39	52	63	32	231	-429	49	70	26	-18
Dividend and distribution yield, %										
A share	4.5	3.1	3.56	3.9	4.0	4.1	5.3	5.9	3.2	3.4
R share	5.0	3.1	3.62	3.9	4.0	4.1	5.7	6.5	3.3	4.1
Price/earnings ratio (P/E), excl. IAC										
A share	8.6	14.8	16.00	6.8	18.7	18.3	17.3	8.0	10.0	30.8
R share	7.82	14.85	15.71	6.8	18.6	18.3	15.9	7.3	9.7	25.7
Share prices for the period, EUR										
A share										
– closing price	11.05	13.20	10.40	8.40	7.48	7.31	5.70	5.03	7.90	5.85
– average price	16.36	11.93	8.50	8.87	7.29	6.82	6.15	7.73	6.47	5.03
– high	18.45	13.79	10.45	11.01	8.35	7.49	7.15	9.80	7.94	7.55
– low	10.75	10.26	6.56	6.70	5.73	5.42	5.10	4.70	5.30	2.82
R share										
– closing price	10.09	13.22	10.21	8.39	7.44	7.30	5.25	4.63	7.69	4.88
– average price	14.61	11.54	7.88	8.70	7.16	5.79	5.08	6.28	6.03	4.27
– high	18.29	13.75	10.28	10.95	8.38	7.54	5.95	8.99	7.79	6.16
– low	9.92	9.70	6.50	6.58	5.71	4.76	4.14	3.73	4.15	2.65
Market capitalisation at year-end, EUR million										
A share	1 948	2 328	1 836	1 483	1 324	1 295	1 010	891	1 400	1 036
R share	6 175	8 094	6 250	5 135	4 547	4 464	3 212	2 835	4 709	2 989
Total	8 123	10 422	8 085	6 618	5 871	5 756	4 222	3 726	6 109	4 025
Number of shares at the end of period, (thousands)										
A share	176 313	176 392	176 507	176 532	177 056	177 096	177 148	177 149	177 150	177 150
R share	612 307	612 228	612 113	612 088	611 564	611 524	612 391	612 389	612 389	612 388
Total	788 620	788 620	788 620	788 620	788 620	788 620	789 538	789 538	789 538	789 538
Trading volume, (thousands)										
A share	3 068	6 768	1 254	1 641	1 553	1 656	831	1 402	1 887	2 536
% of total number of A shares	1.7	3.8	0.7	0.9	0.9	0.9	0.5	0.8	1.1	1.4
R share	610 300	571 717	765 122	798 507	731 067	828 401	977 746	1 237 898	1 194 245	1 297 668
% of total number of R shares	99.7	93.4	125	130.5	119.5	135.5	159.7	202.1	195.0	211.9
Average number of shares (thousands)										
basic	788 620	788 620	788 620	788 620	788 620	788 620	788 620	788 620	788 619	788 620
diluted	789 883	790 024	789 888	789 809	789 210	788 620	788 620	788 620	788 619	788 620

<sup>1</sup> Board of Directors' proposal to the AGM for distribution of dividend.  
IAC = Items affecting comparability

Read more about incentive programmes in [Note 21](#) and management interests in [Note 7](#).



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## 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's debt structure is focused on the capital markets, whereas banks are utilised primarily to provide back-up facilities. Stora Enso strives to build confidence and a track record with fixed-income investors by being informative and transparent.

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

#### Debt structure as at 31 December 2018

	EUR	USD	CNY
Public issues	EUR 175 million 2019	USD 300 million 2036	
	EUR 300 million 2023		
	EUR 300 million 2027		
	EUR 300 million 2028		
Private placements	EUR 150 million	USD 50 million	
Financial institutions	EUR 361 million	USD 681 million	CNY 2 759 million

#### Debt programmes and credit facilities as at 31 December 2018

	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	
	EUR 600 million sustainability linked revolving credit facility 2023 <sup>1</sup>	
Back-up facility		

<sup>1</sup> Undrawn committed credit facility EUR 600 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<sub>2</sub>.

Stora Enso is integrating 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. We aim to influence and develop the financial markets to ensure that sustainability becomes an integral part of decisions and credit evaluation. For more information, please see Stora Enso's **Sustainability 2018**, section Investors or visit our website [storaenso.com/investors](http://storaenso.com/investors).

### Rating strategy

Stora Enso Group's target is to have at least one public credit rating with the ambition to be 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 2018

Rating agency	Long/short-term rating	Valid from
Fitch Ratings	BBB- (stable)	8 August 2018
Moody's	Baa3 (stable) / P-3	1 November 2018

On 6th of August 2018 Stora Enso signed a new credit rating agreement with Fitch Ratings. Fitch assigned Stora Enso Oyj a rating of BBB- with a stable outlook. At the same time Stora Enso terminated its credit rating agreement with the rating agency S&P Global Ratings (Standard & Poor's) and asked S&P to withdraw their rating. Rating was removed on 28th of August 2018 and it was BBB- with stable outlook.

On 1st of November 2018, Moody's Investors Service upgraded Stora Enso Oyj to Baa3 from Ba1 with stable outlook. After the upgrade an Investment Grade rating has been received from both Moody's and Fitch.

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 26](#).

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# Stora Enso as a taxpayer

Stora Enso's operations generate value through taxes for governments around the world. In 2018, Stora Enso paid again more than EUR 1 billion into public sectors, including EUR 787 million in collected taxes.

Stora Enso aims to be transparent with respect to economic value generation. For this purpose, Stora Enso makes a voluntary commitment to openly provide details of the taxes paid by the group to governments in its main countries of operation. This commitment to our stakeholders is fully in line with Stora Enso's values 'Do what's right' and 'Lead'.

### Stora Enso's tax policy

As a responsible and prudent taxpayer, Stora Enso is committed to ensure that the Group observes all applicable tax laws, rules and regulations in all jurisdictions where it conducts its business activities. Stora Enso follows international transfer pricing guidelines and local legislation. In addition to legal and regulatory requirements, our tax principles comply with our values. Furthermore, we seek to ensure that our tax strategy is aligned with our business and commercial strategy. We only undertake tax planning that is duly aligned to economic activity. This means that all tax decisions are made in response to commercial activity, and tax is only one of many factors that are taken into account when making business decisions.

As with any other business expense, however, we have an obligation to manage our tax costs as part of our financial responsibility to societies and shareholders. We are therefore willing to respond to tax incentives and exemptions granted by governments on reasonable grounds, and we currently have operations in countries that offer favourable tax treatments, where their location is also justified by sound commercial considerations.

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

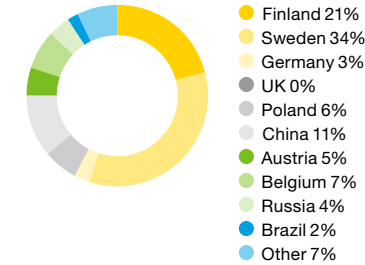
- The joint operation Montes del Plata operates a pulp mill in a Special Economic Zone in Uruguay.
- Stora Enso's two forestry companies in Guangxi, China are entitled to exemption from corporate income tax and value added tax on their sales, and our related industrial company is entitled to reduced tax rates until 2025.
- Stora Enso owned a dormant company in Luxembourg with equity of EUR 2 million. The company was liquidated during 2018.
- Stora Enso conducts business, mainly consisting of sales services, in the United Arab Emirates, Singapore and Hong Kong.
- For logistical and operational reasons, pulp from the Group's joint operations in Brazil and Uruguay is traded via a pulp sourcing and marketing company based in the Netherlands.

Our commitment to tax transparency is also reflected in our relationships with tax authorities and governments. We seek to work positively, proactively and openly with tax authorities on a global basis, aiming to minimise disputes and to build confidence wherever possible.

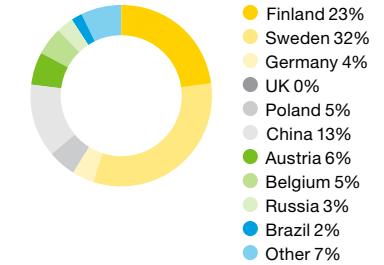
### Stora Enso's tax footprint

In 2018, Stora Enso paid EUR 1 276 million (2017: EUR 1 236 million) in taxes to governments in countries where the group has operations. A total of EUR 489 (439) million was paid directly by the group (taxes borne) while EUR 787 (797) million was collected on behalf of governments (taxes collected).

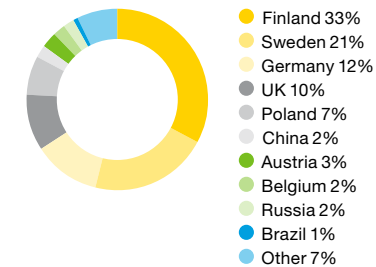
### Total taxes borne 2018



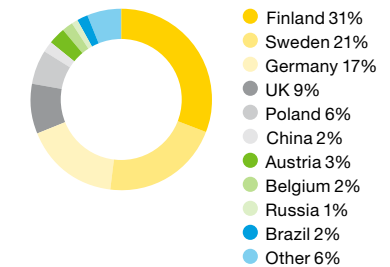
### Total taxes borne 2017



### Total taxes collected 2018



### Total taxes collected 2017



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### Taxes paid in major countries of operation

		Year Ended 31 December							
		Taxes borne							
		Corporate income tax		Employment taxes		Operational taxes		Total	
EUR million	Primary activity	2018	2017	2018	2017	2018	2017	2018	2017
Finland	Production	1	0	90	90	13	13	104	103
Sweden	Production and sales	71	45	89	86	7	7	167	138
Germany	Production and sales	-1	4	12	12	5	4	16	20
UK	Sales	0	0	1	1	0	0	1	1
Poland	Production and sales	17	11	6	5	7	7	30	23
China	Production and sales	8	17	14	11	29	30	51	58
Austria	Production and sales	12	13	13	12	0	0	25	25
Belgium	Production and sales	18	3	10	10	4	7	32	20
Russia	Production and sales	11	7	3	3	5	5	19	15
Brazil	Production	2	3	3	3	3	2	8	8
Other		13	10	19	16	4	2	36	28
<b>Total</b>		<b>152</b>	<b>113</b>	<b>260</b>	<b>249</b>	<b>77</b>	<b>77</b>	<b>489</b>	<b>439</b>

		Year Ended 31 December									
		Taxes collected						Total		Total taxes paid	
		VAT & similar <sup>1</sup>		Payroll taxes		Other taxes		Total			
EUR million	Primary activity	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Finland	Production	35	35	143	144	78	67	256	246	360	349
Sweden	Production and sales	78	77	87	85	0	0	165	162	332	300
Germany	Production and sales	69	110	25	26	0	0	94	136	110	156
UK	Sales	79	71	2	2	0	0	81	73	82	74
Poland	Production and sales	42	37	10	8	0	0	52	45	82	68
China	Production and sales	8	9	11	11	1	0	20	20	71	78
Austria	Production and sales	9	8	16	14	0	0	25	22	50	47
Belgium	Production and sales	6	7	9	8	0	1	15	16	47	36
Russia	Production and sales	11	10	1	2	0	0	12	12	31	27
Brazil	Production	3	3	2	3	6	7	11	13	19	21
Other		34	31	20	18	2	3	56	52	92	80
<b>Total</b>		<b>374</b>	<b>398</b>	<b>326</b>	<b>321</b>	<b>87</b>	<b>78</b>	<b>787</b>	<b>797</b>	<b>1 276</b>	<b>1 236</b>

<sup>1</sup> VAT, goods and services taxes and similar turnover related taxes

Stora Enso only paid minor corporate income tax in Finland in 2018 because of tax losses carried forward from previous years. The tax losses of EUR 332 million (2017: EUR 573 million) carried forward in Finland are the result of several factors including high closure and restructuring costs incurred over the past few years.

All companies within the scope of Stora Enso's tax footprint are consolidated or joint operations, which have been consolidated proportionally with Stora Enso's share amounting to at least 50%. Consolidation includes all companies that have either at least 10 employees or a turnover of EUR 5 million or above.

If a Stora Enso company was in a recovery position regarding VAT or energy taxation in a specific country, tax payments for this company have been reported at NIL.

Taxes borne include all tax and tax-like payments that Stora Enso has paid as own taxes. Tax-like payments include other forms of government revenue raised outside of the tax regime, such as payments for emission rights or social security payments.

Taxes collected include all tax and tax-like payments that Stora Enso has collected on behalf of the government, including e.g. payroll taxes as well as VAT and similar sales-related taxes paid by Stora Enso. The economic burden for such taxes ends up with the buyer or final consumer.

Stora Enso's tax footprint figures also reflect governmental incentives granted in the form of reduced tax rates or tax exemption, by reporting lower tax payments. However, governmental support is often granted in the form of subsidies, particularly in relation to energy consumption or favoured investments, which are not considered in our tax footprint calculations.



# Capacities by mill in 2019

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### Consumer Board

Consumer board	Location	Grade	Capacity 1 000 t
Beihai	CHN	LPB, CKB, FSB, FBB	470
Fors	SWE	FBB	455
Imatra	FIN	SBS, FBB, LPB, Coated spec.	1 280
Ingerois	FIN	FBB	280
Skoghall	SWE	LPB, CUK	875
<b>Total</b>			<b>3 360</b>

### Plastic coating

Beihai	CHN	Plastic coating	80
Skoghall (Forshaga)	SWE	Plastic coating	120
Imatra	FIN	Plastic coating	415
<b>Total</b>			<b>615</b>

### Packaging Solutions

Containerboards	Location	Grade	Capacity 1 000 t
Heinola	FIN	SC fluting	300
Ostrołęka	POL	Testliner, Pfr fluting, sack paper, wrapping paper	723
Varkaus	FIN	Kraftliner, white-top kraftliner	390
<b>Total</b>			<b>1 413</b>

Corrugated packaging	Grade	Capacity million m²
<b>Baltic states</b>	Corrugated packaging	<b>143</b>
Kaunas		
Riga		
Tallinn		
<b>Finland</b>	Corrugated packaging	<b>150</b>
Lahti		
Kristiinankaupunki		
<b>Poland</b>	Corrugated packaging	<b>435</b>
Łódź		
Mosina		
Ostrołęka		
Tychy		
<b>Russia</b>	Corrugated packaging	<b>365</b>
Arzamas		
Balabanovo		
Balabanovo offset		
Lukhovitsy		
<b>Sweden</b>	Corrugated packaging	<b>275</b>
Jönköping		
Skene		
Vikingstad		
<b>Total</b>	Corrugated packaging	<b>1 368</b>

Inpac	Location	Grade	Capacity million pcs	Capacity million m²
Gaobu, Dongguan	CHI	Consumer packaging	390	30
Jiashan, Zhejiang	CHI	Consumer packaging	145	20
Qian'an, Hebei	CHI	Consumer packaging	335	25
Wu Jin, Jiangshu <sup>1</sup>	CHI	Consumer packaging	60	10
<b>Total</b>			<b>930</b>	<b>85</b>

<sup>1</sup> New plant, investment on-going

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## Biomaterials

Mill	Location	Grade	Division	Capacity 1 000 t
Enocell	FIN	Short and long-fibre	Biomaterials	490
Skutskär	SWE	Short, long-fibre and fluff pulp	Biomaterials	540
Sunila	FIN	Long-fibre pulp	Biomaterials	375
Montes del Plata (50% share)	URU	Short-fibre pulp	Biomaterials	730
Veracel (50% share)	BRA	Short-fibre pulp	Biomaterials	575
<b>Total</b>				<b>2 710</b>

## Chemical Pulp

Mill	Location	Grade	Division	Capacity 1 000 t
Heinola	FIN	Neutral Sulphite Semi-Chemical Pulp	Packaging Solutions	285
Kaukopää, Imatra	FIN	Short and long-fibre	Consumer Board	825
Nymölla	SWE	Short and long-fibre	Paper	350
Ostrołęka	POL	Long-fibre	Packaging Solutions	110
Oulu	FIN	Long-fibre	Paper	360
Skoghall	SWE	Long-fibre	Consumer Board	375
Tainionkoski, Imatra	FIN	Short and long-fibre	Consumer Board	195
Varkaus	FIN	Short and long-fibre	Packaging Solutions	310
Veitsiluoto	FIN	Short and long-fibre	Paper	380
<b>Chemical Pulp Total (incl. Biomaterials)</b>				<b>5 900</b>
of which market pulp <sup>1</sup>				2 150

<sup>1</sup> market pulp defined as dried pulp shipped out from the mill to external customers.

## Deinked Pulp (DIP)

Mill	Location	Grade	Division	Capacity 1 000 t
Hylte	SWE	DIP	Paper	290
Langerbrugge	BEL	DIP	Paper	680
Maxau	GER	DIP	Paper	295
Ostrołęka	POL	Recycled fibre based pulp	Packaging Solutions	615
Sachsen	GER	DIP	Paper	430
<b>Total</b>				<b>2 310</b>

## CTMP

Mill	Location	Grade	Division	Capacity 1 000 t
Beiha	CHN	BCTMP	Consumer Board	210
Fors	SWE	CTMP	Consumer Board	185
Kaukopää	FIN	CTMP	Consumer Board	220
Skoghall	SWE	CTMP	Consumer Board	270
<b>Total</b>				<b>675</b>

## Lignin

Mill	Location	Product	Division	Capacity 1 000 t
Sunila	FIN	Lignin	Biomaterials	50
<b>Total Lignin</b>				<b>50</b>

## Xylose

Mill	Location	Product	Division	Capacity 1 000 t
Raceland <sup>1</sup>	USA	Xylose	Biomaterials	10
<b>Total Xylose</b>				<b>10</b>

<sup>1</sup> Starting up

## Wood Products

Mill	Location	Sawing Capacity 1 000 m <sup>3</sup>	Further Processing Capacity 1 000 m <sup>3</sup>	Pellet capacity 1 000 t	CLT capacity 1 000 m <sup>3</sup>	LVL capacity 1 000 m <sup>3</sup>
Ala	SWE	400	50	100	-	-
Alytus	LIT	210	115	-	-	-
Amsterdam	NLD	-	80	-	-	-
Bad St. Leonhard	AUT	360	105	-	80	-
Brand	AUT	440	295	-	-	-
Gruvön	SWE	370	150	100	25	-
Honkalahti	FIN	310	70	-	-	-
Imavere	EST	340	160	100	-	-
Impilahti	RUS	150	10	25	-	-
Kitee	FIN	260	110	25	-	-
Launkalne	LAT	200	20	-	-	-
Murrow	POL	300	210	-	-	-
Nebolchi	RUS	180	45	42	-	-
Näpi	EST	50	180	23	-	-
Pfarrkirchen	GER	-	145	-	-	-
Planá	CZE	390	220	-	-	-
Uimaharju	FIN	240	20	-	-	-
Varkaus	FIN	150	35	-	-	75
Veitsiluoto <sup>1</sup>	FIN	200	-	-	-	-
Ybbs	AUT	700	450	-	100	-
Zdirec	CZE	580	220	80	-	-
<b>Total</b>		<b>5 830</b>	<b>2 690</b>	<b>495</b>	<b>205</b>	<b>75</b>

<sup>1</sup>Veitsiluoto Sawmill belongs to division Paper.

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## Paper

Mill	Location	Grade	Capacity 1 000 t
Anjala	FIN	Impr. news, book, LWC	435
Dawang	CHN	SC	140
Hylte	SWE	News	480
Kvarnsveden	SWE	SC, impr. news	565
Langerbrugge	BEL	SC, news	555
Maxau	GER	SC	530
Nymölla	SWE	WFU	485
Oulu	FIN	WFC	1 080
Sachsen	GER	News, impr. news, directory	310
Veitsiluoto	FIN	LWC, MWC, WFU	790
<b>Total</b>			<b>5 370</b>

### 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
FBF	folding boxboard
LPB	liquid packaging board
LVL	laminated veneer lumber
LWC	light-weight coated paper
MWC	medium-weight coated paper
PfR	paper for recycling
SBS	solid bleached sulphate board
SC	super-calendered paper
WFC	wood free coated paper
WFU	wood free uncoated paper

**The formula:** (Sum of net saleable production of two best consecutive months / Available time of these two consecutive months) x Available time of the year



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# Information for Shareholders

## Annual General Meeting (AGM)

Stora Enso Oyj's AGM will be held at 16.00 (Finnish time) on Thursday 14 March 2019 at Finlandia Hall, Mannerheimintie 13 e, Helsinki, Finland.

Nominee-registered shareholders wishing to attend and vote at the AGM must be temporarily registered in the Company's register of shareholders on the record date, 4 March 2019. Instructions for submitting notice of attendance will be given in the invitation to the AGM, which can be consulted on the Company's website at [storaenso.com/agm](http://storaenso.com/agm).

## AGM and dividend in 2019

4 March	Record date for AGM
14 March	Annual General Meeting (AGM)
15 March	Ex-dividend date
18 March	Record date for dividend
25 March	Dividend payment

## Dividend

The Board of Directors proposes to the AGM that a dividend of EUR 0.50 per share be paid to the shareholders for the fiscal year ending 31 December 2018. 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.

## Publication dates for 2019

1 February	Financial results for 2018
Week 7	Annual Report 2018
25 April	Interim Report for January–March
19 July	Half-year Report for January–June
29 October	Interim Report for January–September

## Distribution of financial information

Stora Enso's **Annual Report 2018** consists of four sections: Strategy, Sustainability, Financials and Governance. You can find the highlights of the year and all reports as downloadable PDF files at [storaenso.com/annualreport2018](http://storaenso.com/annualreport2018).

Summary and Governance are available in English, Finnish and Swedish. Strategy, Sustainability and Financials are available in English. The Official Financial Statements (in Finnish) and English and Swedish translations of the Parent Company Financial Statements, and the list of principal subsidiaries in English can be found on the Company's website.

**Interim Reports** and **Half-year Reports** are published in English, Finnish and Swedish at [storaenso.com/press](http://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](http://citi.com/DR).

## Contact information for Stora Enso ADR holders

Citibank Shareholder Services  
Computershare  
P.O. Box 43077  
Providence, Rhode Island 02940-3077  
Email: [citibank@shareholders-online.com](mailto:citibank@shareholders-online.com)

Toll-free number: (877)-CITI-ADR

Direct dial: (781) 575-4555

## Contacts

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Governance covers Stora Enso's governance policy, practices, and actions as well as our remuneration statement.



THE RENEWABLE MATERIALS COMPANY



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# Corporate Governance in Stora Enso 2018

## Governance

### Corporate Governance in Stora Enso 2018

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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 issued by the Securities Market Association (the "Code"). The Code is available at [cgfinland.fi](http://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 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 and is available at [corporategovernanceboard.se](http://corporategovernanceboard.se).

This Corporate Governance Report is available as a PDF document at [storaenso.com/investors/governance](http://storaenso.com/investors/governance).

#### General governance issues

The Board and the Chief Executive Officer (CEO) are responsible for the management of the Company. 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), and publishes Annual Reports as well as Interim Reports in Finnish, Swedish and English language. Stora Enso Oyj prepares its Financial statements in accordance with the Finnish Accounting Act.

The Company's head office is in Helsinki, Finland. 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 with responsibility for managing the Company are the Board and the CEO. The Group Leadership Team (GLT) supports the CEO in managing the Company.

Day-to-day operational responsibility rests with the GLT members and their operation teams 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

Chairman, Vice Chairman 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 attending shareholders' meetings. Shareholders also have the right to ask questions of the Company's management and Board of Directors at shareholders' meetings. Major decisions are taken by the shareholders at Annual or Extraordinary General Meetings. At a shareholders' meeting, each A share and each ten R shares carry one vote.

The Board of Directors convenes a shareholders' meeting by publishing a notice to the meeting at the Company's website not more than three (3) months before the last day for advance notice of attendance mentioned in the notice to 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 Annual General Meeting is held 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 report of the Board of Directors 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
- decision on the number and the remuneration of the members of the Board and the Auditor
- election of the Chairman, Vice Chairman and other members of the Board and the Auditor
- any other matters notified separately in the notice to 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

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publication of the notice to 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 2018

Stora Enso's AGM was held on 28 March 2018 in Helsinki, Finland. Of all issued and outstanding shares in the Company a total of 57.8% of all shares (58.7% in 2017) and a total of 71.4% of all votes (80.7%) were represented at the meeting, with 78.1% of all A shares (91.6%) and 52.0% of all R shares (49.2%) represented. All Board and GLT members as well as the Company's Auditor were present at the meeting. No Extraordinary General Meetings of Shareholders were convened in 2018.

#### 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 Chairman, Vice Chairman and other members of the Board;
- the remuneration for the Chairman, Vice Chairman and members of the Board;
- the remuneration for the Chairman 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 Chairman of the Board;
- the Vice Chairman of the Board;
- two members appointed annually by the two largest shareholders (one each) as of 31 August.

The Board through its Chairman 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 Chairman shall annually convene the first meeting of the Shareholders' Nomination Board, which shall elect its Chairman amongst its members that annually are appointed by the Company's two largest shareholders.

#### In 2018

The Shareholders' Nomination Board in 2018 comprised four members: Jorma Eloranta (Chairman of the Board), Hans Stråberg (Vice Chairman of the Board) and two other members appointed by the two largest shareholders, namely Harri Sailas (Solidium Oy) and Marcus Wallenberg (FAM AB). Marcus Wallenberg was elected Chairman of the Shareholders' Nomination Board.

The main tasks of the Shareholders' Nomination Board were to prepare the proposals for the AGM 2019 concerning Board members and their remuneration. The Shareholders' Nomination Board during its working period 2018–2019 convened three (3) times. Each member of the Shareholders' Nomination Board attended all the meetings. Jorma Eloranta and Hans Stråberg have not participated in the preparations or the decision-making regarding Board remuneration.

In its proposal for the AGM 2019, the Shareholders' Nomination Board proposes that of the current members of the Board of Directors – Jorma Eloranta, Elisabeth Fleuriot, Hock Goh, Christiane Kuehne, Antti Mäkinen, Richard Nilsson, Göran Sandberg and Hans Stråberg be re-elected members of the Board of Directors until the end of the following AGM and that Mikko Helander be elected new member of the Board of Directors for the same term of office. It is proposed that Jorma Eloranta be elected Chairman of the Board and Hans Stråberg Vice Chairman of the Board. The Shareholders' Nomination Board also proposes that the annual remuneration for the Chairman of the Board of Directors be increased by approximately 9.7 percent, for the Vice Chairman of the Board of Directors by approximately 5.7 percent and for the members of the Board of Directors by approximately 2.7 percent.

For the purpose of carrying out its tasks, the Shareholders' Nomination Board has received the results of the yearly evaluation

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.

#### Board of Directors (Board)

Stora Enso is managed by the Board acting in accordance with the Finnish Companies Act, International Corporate Governance Principles (based on OECD Principles of Corporate Governance of 2015) 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. It is the policy of the Company that 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

of the Board of Directors as well as the assessment of each director's independence of the Company and of significant shareholders. The Board performance evaluation material has also included a report on Board member interviews by the Chairman of the Board of Directors. 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](https://storaenso.com/investors/governance).

#### Composition of the Shareholders' Nomination Board in 2018

Jorma Eloranta <sup>1</sup> , member	Hans Stråberg <sup>1</sup> , member
Chairman of Stora Enso's Board of Directors	Vice Chairman of Stora Enso's Board of Directors
Marcus Wallenberg, Chairman	Harri Sailas, member
Chairman of Stora Enso's Shareholders' Nomination Board. Born 1956. B.Sc. (Foreign Service). Chairman of the Board of Directors of FAM AB.	Member of Stora Enso's Shareholders' Nomination Board. Born 1951. Econ. Chairman of the Board of Directors of Solidium Oy.

<sup>1</sup> Curriculum vitae of Jorma Eloranta and Hans Stråberg, see page 15.

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 yearly in accordance with recommendation 10 of the Finnish Corporate Governance Code of 2015.

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. It is likewise responsible for overseeing the proper supervision of accounting and control of financial matters.

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The Board has defined a working order, the principles of which are published on page 6 of this report and on the Company's website.

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

The Board yearly 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 Remuneration Committee and the Sustainability and Ethics Committee. Each committee's chairman 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 policy into account in its work. The Shareholders' Nomination Board finds that the composition of the Board as proposed to the AGM 2019 reflects diversity and a good variety of skills and experiences among the Board members following the principles set out in the Board Diversity Policy except as regards the aim to ensure a good and balanced gender diversity, which needs to be further strengthened.

The Board has during 2018 been composed of nine 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 with a majority in the field of economics and finance in addition to which three members hold a doctorate degree. 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 on pages 15–16.

The Board members represent a good knowledge of the operational environment of the Company as well as particular experience of amongst others sustainability, financial competence and the business environment relevant to the operations of the

Company. The age of the Board members during 2018 varied from 47 years to 67 years and the Board was composed of three women and six men.

The Shareholders' Nomination Board has in 2018 considered its previous evaluation of competencies that may be further strengthened in the long term Board succession planning. In its proposal for the AGM 2019 the Shareholders' Nomination Board has proposed a Board composition that includes two women and seven men in the age range of 48 years to 68 years and representing a total of five different nationalities. The proposed new Board member Mikko Helander would bring a strong industrial and operative 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 continuously evaluate the long-term competencies that would benefit the Board work as well as ensure that a Diversity of Thought is maintained on the Board. The Shareholders' Nomination Board particularly notes that the aim going forward is to strengthen the gender distribution of the Board with view of ensuring a good and balanced gender distribution in accordance with the Company's Board Diversity Policy.

The Board Diversity Policy is presented at [storaenso.com/investors/governance](https://storaenso.com/investors/governance).

### In 2018

The Board had nine members at the end of 2018, all of them independent of the Company. The Board members are also independent of significant shareholders of the Company with the exception of Richard Nilsson (Investment Manager at FAM AB), Göran Sandberg (Executive director of majority shareholders of FAM AB) and Antti Mäkinen (CEO of Solidium).

The Board members nominated at the AGM in 2018 were Jorma Eloranta (Chairman), Hans Stråberg (Vice Chairman), Anne Brunila, Elisabeth Fleuriot, Hock Goh, Christiane Kuehne, Antti Mäkinen, Richard Nilsson and Göran Sandberg. The Board convened 11 times during the year.

In its meeting after the AGM on 28 March 2018 the Board discussed focus areas for its work. The Board agreed that these areas for the year to come should be (1) acceleration of growth,

(2) improvement of efficiency and productivity and (3) talent management. Various matters have been discussed, reviewed and decided in the Board based on the agenda. Further, the CEO has on a monthly basis reported progress on the same to the Board.

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. The Board performance evaluation has also included Board member interviews performed by the Board Chairman, the result of which has been reported to the Shareholders' Nomination Board. For detailed information about the Board members and their share ownerships, see pages 15–16.



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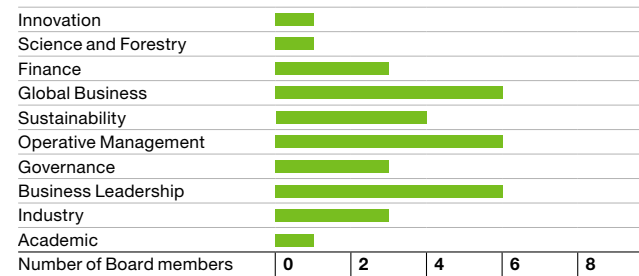
### Board skills matrix

Name	Director since	Principal skills	Independent of		Committee memberships 2018			Other current listed boards
			Company	Owners	FAC	SECo	RemCo	
Jorma Eloranta	2016	Global Business, Business Leadership, Operative Management, Governance	●	●	Member		Chairman	1
Hans Stråberg	2009	Global Business, Business Leadership, Operative Management, Industry	●	●			Member	3
Anne Brunila	2013	Business Leadership, Finance, Sustainability, Industry	●	●		Chairman		2
Elisabeth Fleuriot	2013	Global Business, Operative Management, Business Leadership, Sustainability	●	●			Member	1
Hock Goh	2012	Global Business, Operative Management, Business Leadership, Sustainability	●	●		Member		3
Christiane Kuehne	2017	Global Business, Operative Management, Business Leadership	●	●	Member			
Antti Mäkinen	2018	Finance, Operative Management, Governance	●	●	Member			2
Richard Nilsson	2014	Finance, Industry, Governance, Global Business	●	●	Chairman			
Göran Sandberg	2017	Science and Forestry, Academic, Innovation, Sustainability	●	●		Member		

● yes ● no

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.

### Principal skills

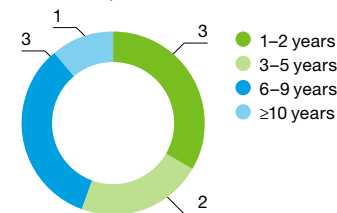


● Principal skills

### Board diversity in figures

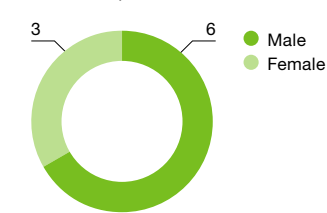
#### Tenure

Number of persons



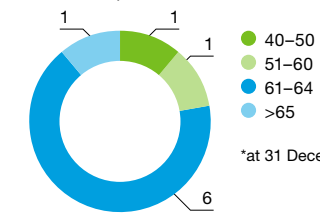
#### Gender

Number of persons



#### Age\*

Number of persons



\*at 31 December 2018

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### 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, be held within 14 days of the date of request;
- agenda and material shall be delivered to Board members one week before the meeting.

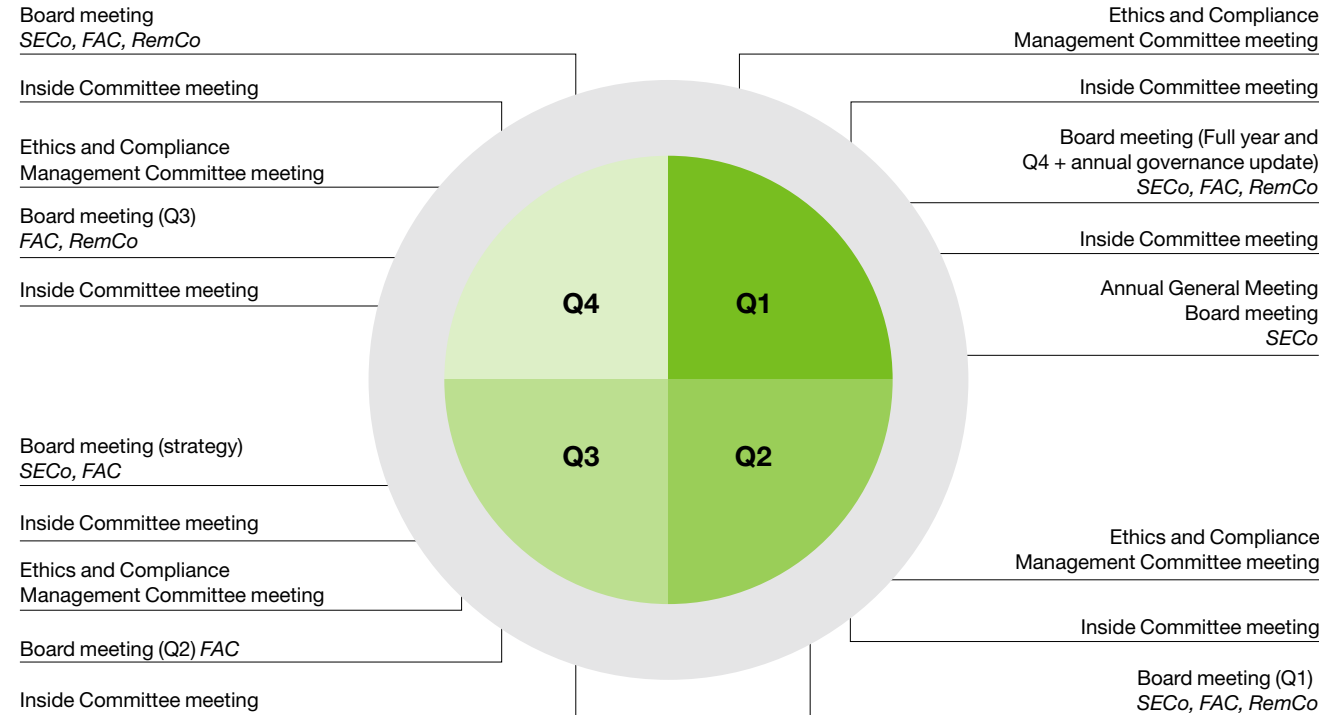
#### Information

- 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 senior officers belonging to the GLT;
  - appointment of Board committees (including chairmen);
- economic and financial matters
  - review of annual budget;
  - approval of loans and guarantees, excluding intra-group loans and guarantees;
  - report of share repurchases, if any;
  - approval of Group Risk Management Policy according to Financial and Audit Committee's proposal;
- investment matters
  - approval of investment policy of the group;
  - approval of major investments;
  - approval of major divestments;
- other matters
  - report of the CEO on the group's operations;
  - reports of the Remuneration Committee, Financial and Audit Committee and Sustainability and Ethics Committee by the chairmen of the respective committees. The recommendations and proposals by the Shareholders' Nomination Board shall be reported to the Board by the Chairman 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



#### Quarterly

- Meetings with auditors
- Divisional Business and Innovation reviews

#### Monthly

- GLT meetings
- Investment Working Group meetings

**SECo** = Sustainability and Ethics Committee

**FAC** = Financial and Audit Committee

**RemCo** = Remuneration Committee

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## 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 needed. Each committee's chairman 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 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, management and reporting of financial risks, the audit process and the annual corporate governance statement. 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 and not affiliated with the Company. At least one Committee member must be a financial expert who has significant knowledge and experience in accounting and accounting principles applicable to the Company, book-keeping or auditing. 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 Chairman

#### In 2018

The Financial and Audit Committee comprised four members in 2018: Richard Nilsson (Chairman), Jorma Eloranta, Christiane Kuehne and Antti Mäkinen.<sup>1</sup> The Committee convened six times.

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. Furthermore, the Committee has increased its focus on IT security and closely monitors related risks. The Committee further reviews relevant compliance related cases that have been reported to Internal Audit and Ethics and Compliance during the year.

#### Remuneration

Chairman EUR 20 600 per annum and member EUR 14 400 per annum as decided by the AGM.

The Financial and Audit Committee Charter is presented at [storaenso.com/investors/governance](https://storaenso.com/investors/governance).

<sup>1</sup> The Committee prior to the AGM on 28 March 2018 comprised the following four members: Richard Nilsson (Chairman), Jorma Eloranta, Christiane Kuehne and Mikael Mäkinen.

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.

### Remuneration Committee

The Board has a Remuneration 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. There is a Remuneration Committee representative present at the AGM to answer questions relating to the 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 and not affiliated with the Company. The Remuneration Committee meets regularly, at least once a year. The Chairman of the Remuneration Committee presents a report on each Remuneration Committee meeting to the Board. The tasks and responsibilities of the Remuneration Committee are defined in its charter, which is approved by the Board. Remuneration Committee members may receive remuneration solely based on their role as directors. The compensation is decided by the shareholders at the AGM.

#### In 2018

The Remuneration Committee comprised three members in 2018. The members were Jorma Eloranta (Chairman), Elisabeth Fleuriot and Hans Stråberg. The Committee convened four times.

During 2018 the main tasks of the Committee were to recommend, evaluate and approve executive nominations and remunerations, and to make recommendations to the Board relating to management remuneration in general, including short and long term incentive programmes. In addition the Committee discussed and evaluated the external reporting on executive remuneration.

#### Remuneration

Chairman EUR 10 300 and member EUR 6 200 per annum as decided by the AGM.

The Remuneration Committee Charter is presented at [storaenso.com/investors/governance](https://storaenso.com/investors/governance).

## 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 Code of Conduct and Business Practice Policy.

The Committee comprises two to four Board members who are nominated annually by the Board. The members are independent of and not affiliated with Stora Enso. At least one Committee member is expected to have sufficient prior knowledge and experience in handling responsibility and ethics matters.

The Committee meets regularly, at least two times a year. The Chairman 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 2018

The Sustainability and Ethics Committee comprised three members in 2018: Anne Brunila (Chairman), Hock Goh and Göran Sandberg. The Committee convened four times.

The Committee in each of its meetings reviews the areas relevant for the Committee's work, including an update on sustainability matters as well as ethics and compliance matters. The Committee further reviews sustainability and ethics and compliance KPI's, sustainability reporting as well as relevant sustainability initiatives and processes carried out during the year. An important part of the Committee's work consists of overseeing reported compliance cases.

#### Remuneration

Chairman EUR 10 300 and member EUR 6 200 per annum as decided by the AGM.

The Sustainability and Ethics Committee Charter is presented at [storaenso.com/investors/governance](https://storaenso.com/investors/governance).



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## 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 2018 the CEO was directly in charge of the following functions, which also reported to him:

- Divisions (Consumer Board, Packaging Solutions, Biomaterials, Wood Products, and Paper)
- CFO (responsible for Accounting, Controlling, Corporate Finance and M&A, Efora, Energy Services, Investment Process, Enterprise Risk Management, Internal Audit, Investor Relations, Tax, Treasury)
- IT
- Human resources
- Legal, General Counsel
- Communications
- Sustainability
- Sourcing and Logistics
- CEO Office (responsible for Wood Supply, Group R&D Innovation and special strategic projects)

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 (GLT)

The GLT is chaired by the CEO. The GLT members are appointed by the CEO and approved by the Board. At the year end 2018, the twelve GLT members were the CEO, the CFO, the heads of the divisions, HR, Legal (who is also General Counsel), Communications, Sustainability, and Sourcing and Logistics.

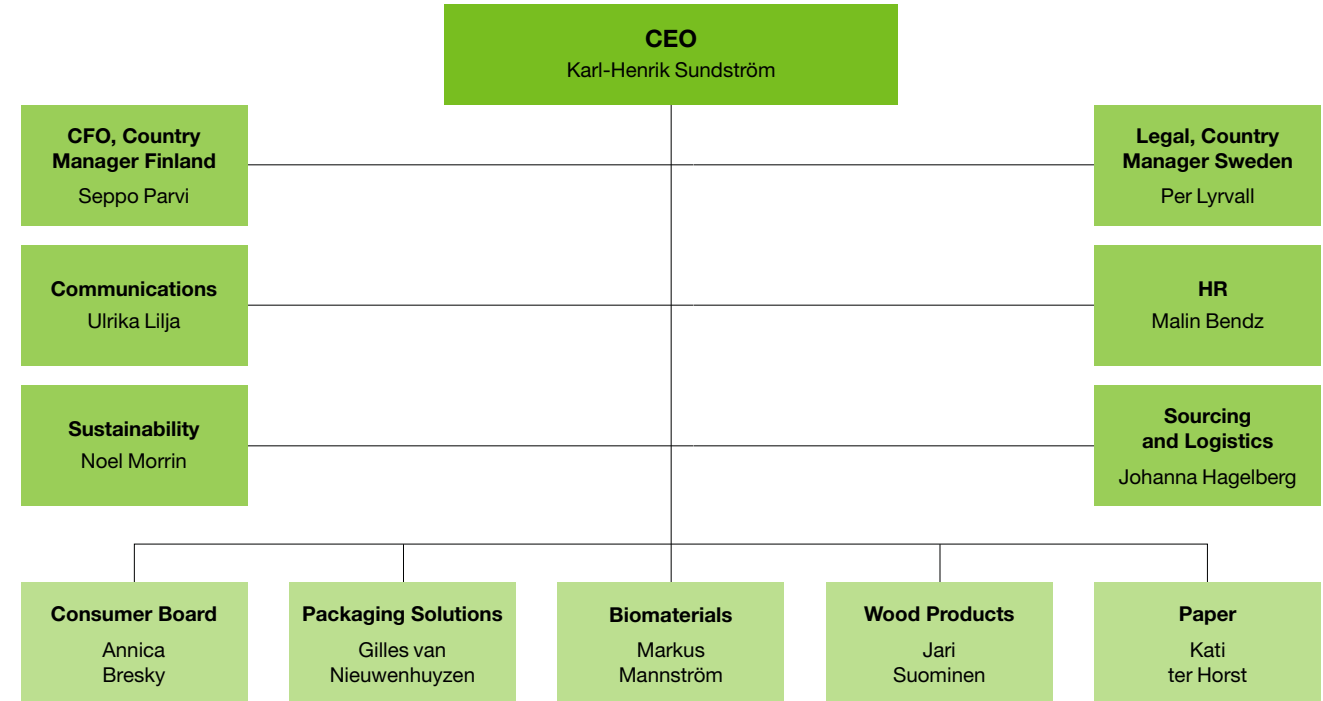
The GLT assists the CEO in supervising the Group and divisional performance against agreed targets, portfolio strategy, ensuring the availability and value-creating allocation of Group funds and capital, and statutory, governance, compliance and listing issues and policies.

The GLT meets regularly every month, and as required.

#### In 2018

The GLT had 12 members at the end of 2018. The GLT convened 12 times during the year. Important items on the agenda in 2018 were safety issues, financial performance, strategy and transformation, sustainability, customer-driven innovation, reviewing the operations of the Group, planning and following up investment and other strategic projects, digitalisation, and preparatory work for Board meetings.

## Group Leadership Team



### 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 quarterly and as needed Business Performance Reviews as well as the GLT meetings.

Strategic investment projects are approved on 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 comprising group and division representatives and headed by the CFO (also the allocation proposals are made by IWG).

Innovation is organised and executed within the divisions to drive market and customer focus. The progress of innovation efforts are evaluated in quarterly Business and Innovation Reviews with the CEO, CFO, Head of Group innovation, the division Head and the division Innovation Head. Innovation funding is supported from group level by both the innovation and the digitalisation fund, where divisions make proposals, which are then reviewed and decided by IWG.

Sustainability work is led by the Executive Vice President (EVP), Sustainability, who reports directly to the CEO and is part of the GLT.

Everyday sustainability topics are managed by Group Sustainability team together with Human Resources, Legal, Wood Supply, and Sourcing and Logistics functions, and divisions. Each of business divisions has its own Head of Sustainability, who reports directly to the Head of the division. Other key functions, such as Wood Supply and Sourcing and Logistics, have sustainability organisations to support their management teams. 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 is steered by Sustainability Council, which includes members from five divisions, Sourcing and Logistics function, and subject matter experts from Group Sustainability team. It is chaired by the EVP, Sustainability. The CEO has the ultimate responsibility for the successful implementation of Stora Enso's sustainability strategy.

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 process for quarterly and other ongoing reporting.

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### 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 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

EUR million	Year Ended 31 December	
	2018	2017
Audit fees	4	4
Audit-related	-	-
Tax fees	-	-
Other fees	1	1
<b>Total</b>	<b>5</b>	<b>5</b>

#### In 2018

The Board in 2018 on the recommendation of the Financial and Audit Committee proposed that PricewaterhouseCooper Oy be elected auditor by the AGM 2018 following a statutory audit tender process conducted in year 2017. The AGM 2018 elected PricewaterhouseCoopers Oy as auditor for a term of office expiring at the end of the AGM 2019.

#### Internal Audit

Stora Enso has a separate internal auditing organisation. The role of Internal Audit is to provide independent, objective assurance and consulting services that add value and improve the Group's operations. Internal Audit helps the group to accomplish its objectives by providing a systematic, disciplined approach to evaluate and improve the effectiveness of internal control, risk management and governance processes.

To ensure the independence of the Internal Audit department, its personnel reports to the Head of Internal Audit, who reports functionally to the Financial and Audit Committee, and administratively to the CFO. The Financial and Audit Committee approves the appointment of the head of Internal Audit following the recommendation by the CEO.

Internal Audit conducts regular audits at mills, subsidiaries and other Company units, implementing a risk based annual audit plan approved by the Financial and Audit Committee, including any special tasks or projects requested by management and the Financial and Audit Committee.

### Ethics and Compliance Management Committee

Stora Enso's Ethics and Compliance Management Committee supervises and monitors legal and regulatory ethics and compliance-related policies, implementation and maintenance of processes and tools regarding the same, and concrete compliance issues and cases in the field of business practices. The Ethics and Compliance Management Committee consists of the General Counsel (chairman), CEO, CFO, Head of HR, Head of Communications, Head of Sustainability and Head of Internal Audit with the Legal Counsel dedicated to compliance matters 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 Company's approach to ethical business practices, environmental values, and human and labour rights. These same values are applied wherever Stora Enso operates. In 2011 the company established its Business Practice Policy to complement the Code, which further sets out Stora Enso's approach to ethical business practices and describes the processes for reporting on violations thereof. The Business Practice Policy was revised in 2016 in order to streamline and simplify policies and guidelines. 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.

Stora Enso uses an index to monitor and evaluate employee perceptions of the work on topics covered by the Stora Enso Code. The index is based on employee responses to related questions in the annual employee survey. In 2018, this index improved to 85 (83 in 2017). The goal is to maintain this positive trend. By the end of 2018, 20 930 Stora Enso employees had received training on the Code.

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 of 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. Results of the T.E.S.T. are covered in Compliance Forums and action plans developed and followed up on accordingly.

Stora Enso's employees are encouraged to report any suspected cases of misconduct or unethical behaviour to their own supervisor, or to Human Resources or Legal functions. Employees may also confidentially report their concerns to the Head of Internal Audit. Stora Enso uses an additional external service through which employees globally, and in certain locations also external stakeholders, 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.

#### Insider administration

The Company complies with 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 legal function and the General Counsel is responsible for the procedures relating to inside administration, including monitoring compliance with applicable regulation, keeping of inside lists and internal training. The Company has established an Inside Committee composed of the CEO, CFO as well as representatives of Communications, 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 the 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, 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 or Assistant 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.

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#### Closed period

Stora Enso 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/investors](http://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 Company securities.

#### 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 Company's approach to ethical business practices and describes the processes for reporting on violations thereof. 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 finance, accounting, investments, purchasing and sales. These responsibilities have been described in Stora Enso's Risk and Control Policy which also outlines the responsibilities of the first and second line of defense. Group Internal Control function, under the CFO's supervision, is responsible for group-wide internal control governance and processes, whereas 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 an annual 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 support functions. The assessment of risks includes 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. A comprehensive description of Stora Enso's risk management can be found at [storaenso.com/investors](http://storaenso.com/investors).

#### Control activities

Stora Enso's control activities are the policies, 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 separation of duties as well as general computer 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 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 and processes owners, including reviews of results which are compared against the set budgets and plans, analytical procedures and key performance indicators. In 2017 Stora Enso has taken into use internal control tool to facilitate and automate internal control processes, control performance, continuous controls monitoring and quarterly internal control reporting to management.

Stora Enso has a separate internal auditing organisation which in addition to the Group Internal Control function monitors independently the design and operating effectiveness of internal controls over financial reporting. The role, responsibilities and organisation of Internal Audit are described under Other Supervisory Bodies and Norms.



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This Remuneration statement describes Stora Enso's main principles of remuneration and the remuneration paid to members of the Board of Directors, Chief Executive Officer (CEO) and other members of the Group Leadership Team (GLT). The first part of this report describes Stora Enso's remuneration decision-making procedure and remuneration policy. The second part describes the implementation in 2018 (Remuneration Report).

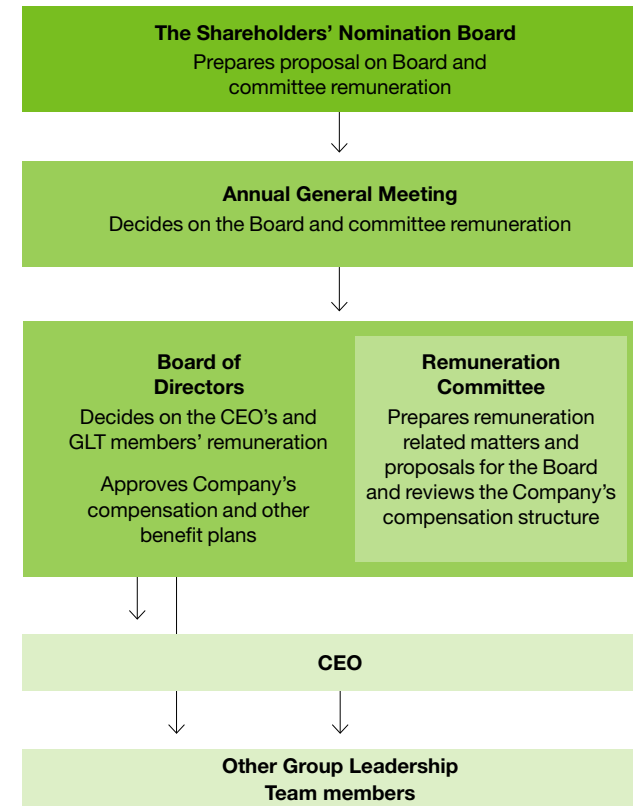
The Remuneration statement has been prepared in accordance with the Finnish Corporate Governance Code (the "Code"). The Code is available at [cgfinland.fi](http://cgfinland.fi). Stora Enso also complies with the Swedish Corporate Governance Code ("Swedish Code"), with the exception of the deviations listed in Appendix 1 of the Corporate Governance 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 and is available at [corporategovernanceboard.se](http://corporategovernanceboard.se).

#### Decision-making procedure

The shareholders at the 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 Chairman, Vice Chairman and members of the Board as well as the remuneration for the Chairman and members of the committees of the Board are prepared by the Company's Shareholders' Nomination Board, which is composed of representatives of the main shareholders of the Company as well as Board member representatives and described in more detail on page 3 of the Corporate Governance Report.

The Board appoints the CEO and approves his/her remuneration as well as the compensation of other GLT members. The Board's Remuneration Committee prepares remuneration related matters and proposals for the Board and is further responsible for ensuring that management compensation policies are aligned with the Company's objectives and shareholder interest.

#### Remuneration decision-making procedure



#### Main principles of remuneration

##### Stora Enso remuneration principles – general overview

Stora Enso aims to provide a level of remuneration that motivates, encourages, attracts and retains employees of the highest calibre. To maximise the effectiveness of the remuneration policy, careful consideration will be given to aligning the remuneration package with shareholder interests and best market practice.

A fundamental element in the remuneration principles is the concept of pay-for-performance, and an important aspect of Stora Enso's approach to remuneration is to look at the total remuneration provided to employees. Stora Enso's total remuneration mix consists of:

- annual fixed salary
- variable pay components as short-term incentives (cash) and longterm incentives (shares when applicable)
- long-term employee benefits (pension, medical and health benefits)
- other benefits (car, housing, etc. when applicable)

Regular external benchmarking is crucial to ensure that compensation levels are competitive with the external marketplace. The marketplace is defined as those peer companies with whom Stora Enso competes for recruiting talents and retention of current employees for similar positions. The market will vary depending on functional area and level of the positions concerned.

Compensation review is an annual process with the aim to ensure that Stora Enso employees are being rewarded in accordance with our Remuneration Policy and local regulations, such as labour laws and collective agreements.

The GLT annually reviews the performance and potential ratings, as well as the succession planning of its top management in order to secure global principles with local applications.

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### Board member remuneration principles

Remuneration of the Board of Directors is decided annually by the shareholders at the AGM. The AGM in 2018 resolved in accordance with the proposal of the Shareholders' Nomination Board that the members of the Board of Directors be paid the following annual remuneration for their term of office expiring at the end of the AGM 2019:

- for the Chairman of the Board of Directors EUR 175 000
- for the Vice Chairman of the Board of Directors EUR 103 000, and
- for other members of the Board of Directors EUR 72 000 each.

The Board members shall use approximately 40% of their annual Board member remuneration to purchase Stora Enso's R shares from the public market and the purchases shall be carried out during the two weeks following the AGM. 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 Chairman of the Financial and Audit Committee EUR 20 600, and
- for the members of the Financial and Audit Committee EUR 14 400 each,
- for the Chairman of the Remuneration Committee EUR 10 300, and
- for the members of the Remuneration Committee EUR 6 200 each,
- for the Chairman of the Sustainability and Ethics Committee EUR 10 300, and
- for the members of the Sustainability and Ethics Committee EUR 6 200 each.

### CEO remuneration principles

The CEO has been employed by Stora Enso since 1 August 2012 and assumed the position as CEO on 1 August 2014. 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 benefits include pension provisions. The CEO's pension plan consists of collectively agreed pension plan in Sweden (ITP2) and a defined contribution (DC) top up pension plan. Contributions to the DC plan in the interval 20–30 Income Base Amounts (IBA; one IBA was 62 500 SEK in 2018) is 23%, contributions above 30 IBA is 35% for the salary the CEO had prior to assuming this position and 39% on the salary increase amount received when assuming the position as CEO. The retirement age is sixty-five years.

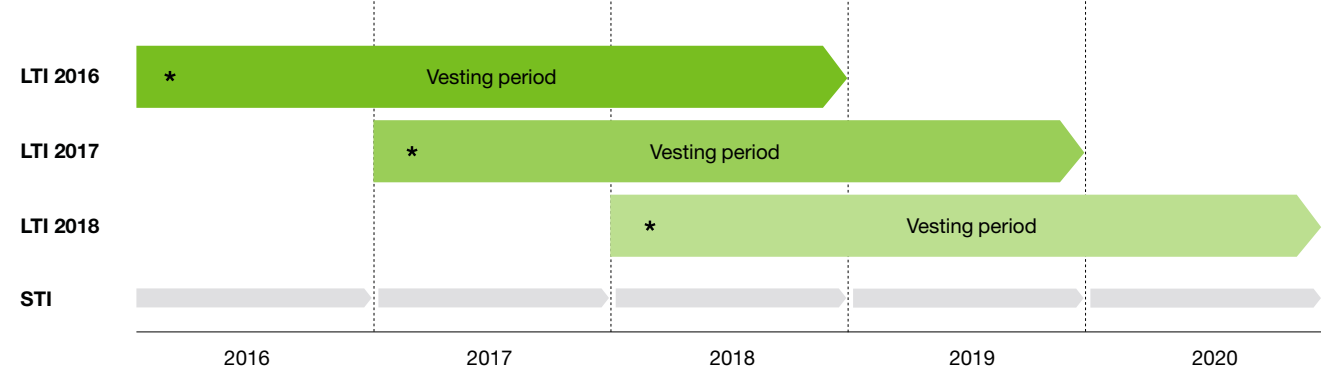
#### Short Term Incentive (STI) programme for CEO

The CEO is entitled to a STI programme decided by the Board each year giving a maximum of 75% of annual fixed salary. The STI for 2017 and 2018 was based 70% on financial measures and 30% on Individual Key Targets.

#### Long Term Incentive (LTI) programmes for CEO

The CEO participates in 2016, 2017 and 2018 share based LTI programmes. The programmes have three year targets and vest in

### Share-based compensation plan



\* Date of grant 1 March

● Yearly STI programme

LTI Long term incentive

STI Short term incentive

#### 2018 CEO remuneration

Annual salary	EUR 905 000 in 2018.
Short-term incentive	The CEO is entitled to a STI programme decided by the Board each year giving a maximum of 75% of annual fixed salary.
Long-term incentive	Outstanding LTI programmes include the yearly programmes of 2016, 2017 and 2018. The CEO has the potential to receive a maximum of 65 762 shares before taxes in the 2018 programmes that will be settled 2021.
Other benefits	Benefits include mobile phone and insurance.
Pension	Retirement age is 65. Pension plan consists of collectively agreed pension plan in Sweden (ITP2) and a defined contribution (DC) top up pension plan.
Termination of assignment	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.

one portion after three years. Three quarters (75%) of the opportunity in the 2016 and 2017 programmes is in Performance Shares, where shares will vest in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors. One quarter (25%) of the opportunity is in Restricted Shares, for which vesting is only subject to continued employment. The opportunity under the 2018 programme is in Performance Shares only.

#### 2018 GLT remuneration, other than CEO

Annual salary	GLT members receive a monthly salary. In total for all GLT members EUR 3 589 000 in 2018.
Short-term incentive	GLT members are eligible for STI with up to a maximum of 50% or 60% of their annual fixed salary, payable the year after the performance period.
Long-term incentive	Outstanding LTI programmes include the yearly programmes of 2016, 2017 and 2018. The GLT members can potentially receive total of maximum 211 410 shares before taxes in the 2018 programmes that will be settled 2021.
Other benefits	Benefits include mobile phones, cars and insurances.
Pension	GLT members may retire at 65 years of age with pensions consistent with local practices in their respective home countries.
Termination of assignment	Contracts of employment provide for notice of six months prior to termination with severance compensation of twelve months' basic salary if the termination is at the Company's request.

#### GLT remuneration principles

GLT members in Stora Enso receive a monthly salary, which in addition to a salary payment includes customary fringe benefits, such as mobile phones and cars. GLT members further have the possibility to receive yearly awards in the Company's short term and long term incentive programmes for management.

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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 notice of six months prior to termination with severance compensation of twelve months basic salary if the termination is at the Company's request.

#### Short Term Incentive (STI) programmes for the GLT other than the CEO

GLT members have STI programmes with up to a maximum 50% or 60% of their annual fixed salary, payable the year after the performance period. 70% of the STI for 2017 and 2018 was based on financial measures and 30% on Individual Key Targets.

The financial performance metrics in the STI programme are EBITDA and Working Capital Ratio. The Individual Targets are based on a balanced scorecard approach within the categories of Customer, People, Sustainability and Special Projects.

#### Long Term Incentive (LTI) programmes for GLT other than the CEO

The LTI programmes have three-year targets and vest in one portion after three years. The absolute maximum vesting level is 100% of the number of shares granted. The opportunity under the 2018 programme is in Performance Shares, where the shares vest in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors.

The financial success metric in the Performance Share programme is 3-year EVA (Economic Value Added) and EPS (Earnings per Share) for the Stora Enso Group.

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### Board remuneration in 2018

In 2018, the Board members of Stora Enso were compensated as set out in the following chart. Based on the decision of the AGM 2018, 40% of the Board remuneration was paid in Stora Enso R shares purchased from the market. In addition, Board members may receive a yearly compensation based on their positions as Chairman or members of Board committees.

### CEO remuneration

The total compensation for the CEO in 2018 amounted to EUR 2 925 000, including annual salary, customary fringe benefits (such as mobile phone) STI and LTI programmes, and pension costs.

The CEO has the potential to receive a value corresponding to a maximum of 65 762 shares before taxes under the 2018 LTI programme. The grant value EUR 958 481 is based on the share price at grant date and assuming the maximum vesting level during the three-year vesting period is achieved. The shares received by the CEO from previous awards amounted to 59 522 shares having a cash value at the 1 March 2018 settlement date of EUR 867 553 based on the share price of EUR 14.58 at that date.

### GLT remuneration excluding CEO

The total compensation for the GLT members excluding CEO in 2018 amounted to EUR 9 259 000 including annual salary, customary fringe benefits (such as mobile phone) STI and LTI programmes, and pension costs. The total number of GLT members was 12 at year end 2018, including also the CEO.

Under the 2018 LTI programme, GLT members (in GLT at year end) can potentially receive a value corresponding to 211 410 shares before taxes, assuming the maximum vesting level during the three-year vesting period (2018–2020) is achieved. Total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover the 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 either as cash-settled or equity settled as described in more detail in Note 21 of the Financials 2018. For the equity settled part, it is possible that the actual cash cost does not agree with the accounting charges as 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 the time of settlement.

During the year, the number of shares settled for executives (GLT members at settlement date) from previous awards amounted to 168 179, having a cash value at the 1 March 2018 settlement date of EUR 2 451 209 before taxes based on the share price at that date.

### Board Remuneration

EUR	Year Ended 31 December	
	2018 <sup>1</sup>	2017
Chairman	175 000	170 000
Vice Chairman	103 000	100 000
Board Member	72 000	70 000

<sup>1</sup> 40% of the Board remuneration in 2018 was paid in Stora Enso R shares purchased from the market and distributed as follows: to Chairman 4 221 R shares, Vice Chairman 2 484 R shares, and members 1 737 R shares each. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.

### Board and Committee remuneration

EUR thousand (before taxes)	Year Ended 31 December				Committee memberships
	2018		2017		
	Cash	Value of Shares	Total	Total	
Board Members at 31 December 2018					
Jorma Eloranta, Chairman	130	70	200	194	Remuneration, Nomination <sup>2,3</sup> , Financial and Audit
Hans Stråberg, Vice Chairman	68	41	109	106	Remuneration, Nomination <sup>2,3</sup>
Anne Brunila	54	29	82	80	Sustainability and Ethics
Elisabeth Fleuriot	49	29	78	76	Remuneration
Hock Goh	49	29	78	76	Sustainability and Ethics
Christiane Kuehne	58	29	86	84	Financial and Audit
Antti Mäkinen	58	29	86	0	Financial and Audit
Richard Nilsson	64	29	93	90	Financial and Audit
Göran Sandberg	49	29	78	76	Sustainability and Ethics
Former Board members					
Mikael Mäkinen (until 28 March 2018)	-	-	-	84	
Total Remuneration as Directors <sup>1</sup>	578	313	891	866	

<sup>1</sup> 40% of the Board remuneration in 2018 was paid in Stora Enso R shares purchased from the market and distributed as follows: to Chairman 4 221 R shares, Vice Chairman 2 484 R shares, and members 1 737 R shares each. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.

<sup>2</sup> Shareholders at the Annual General Meeting (AGM) have established a Shareholders' Nomination Board to exist until otherwise decided. The Shareholders' Nomination Board according to its Charter as approved by the AGM comprises of four members: the Chairman and Vice Chairman of the Board of Directors, as well as two members appointed by the two largest shareholders (one each) as of 31 August each year.

<sup>3</sup> Marcus Wallenberg appointed by FAM AB is Chairman of the Nomination Board. Harri Sailas is the member of the Shareholders' Nomination Board appointed by Solidium Oy. Jorma Eloranta and Hans Stråberg were appointed as members of the Shareholders' Nomination Board in their roles as Chairman and Vice Chairman of the Board of Directors.



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#### The aggregate remuneration paid to the CEO and GLT members in 2018

EUR thousand	Year Ended 31 December					
	2018			2017		
	CEO	Others	GLT Total	CEO	Others	GLT Total
<b>Remuneration</b>						
Annual salary	905	3 589	4 494	913	3 583	4 496
Local housing (actual costs)	-	22	22	-	70	70
Other benefits	20	385	405	20	610	630
Termination benefits	-	-	-	-	531	531
Short Term Incentive programme	611	1 089	1 700	532	643	1 175
Long Term Incentive programme <sup>1</sup>	845	2 431	3 276	549	1 403	1 952
	2 381	7 516	9 897	2 014	6 840	8 854
<b>Pension Costs</b>						
Mandatory plans	66	1 296	1 362	69	1 029	1 098
Stora Enso voluntary plans <sup>2</sup>	478	447	925	555	544	1 099
	544	1 743	2 287	624	1 403	2 197
<b>Total Compensation</b>	<b>2 925</b>	<b>9 259</b>	<b>12 184</b>	<b>2 638</b>	<b>6 840</b>	<b>11 051</b>

<sup>1</sup> The 2018 amounts relate to the vesting of programme started in 2015 and ended on 31 December 2017. The 2017 amounts relate to the vesting of programme started in 2014 and ended on 31 December 2016.

<sup>2</sup> The CEO participates in the Swedish Executive Pension Plan where pension accruals are unfunded for all participants, the liability is calculated and insured in accordance with Swedish legislation. The unfunded liability for the CEO amounts to EUR 2 483 thousand.

#### CEO and GLT share interests

Stora Enso 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. Stora Enso GLT members, including the CEO, held on 31 December 2018 shares in the Company as follows:

Executives in office at the year end	R Shares held <sup>1</sup>	Performance share opportunity 2018–2020 <sup>2</sup>	Restricted share opportunity 2018–2020 <sup>2</sup>
Johanna Hagelberg	11 258	45 339	9 899
Kati ter Horst	30 318	71 660	15 763
Malin Bendz	17 422	33 686	6 289
Ulrika Lilja	21 534	39 681	8 693
Annica Bresky	0	49 401	8 397
Per Lyrvall <sup>3</sup>	53 245	57 330	12 601
Markus Mannström	32 350	40 803	7 057
Noel Morrin	26 588	48 665	11 095
Gilles van Nieuwenhuyzen	11 308	77 367	17 145
Seppo Parvi	25 585	57 429	12 497
Karl-Henrik Sundström <sup>4</sup>	143 505	185 912	40 050
Jari Suominen	31 553	54 349	11 995
<b>Total, Serving Officers</b>	<b>404 666</b>	<b>761 622</b>	<b>161 481</b>

<sup>1</sup> None of the GLT members holds A shares.

<sup>2</sup> Potential shares to GLT members listed here are gross of taxes.

<sup>3</sup> In addition, spouse holds 1 257 shares.

<sup>4</sup> 41 700 of the shares are held by a related party (Alma Patria AB).

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## Members of the Board of Directors



### Jorma Eloranta

Born 1951. M.Sc. (Tech), D. Sc. (Tech) h.c.

#### Position

Chairman of Stora Enso's Board of Directors since April 2017, Vice Chairman April 2016–April 2017. Member of Shareholders' Nomination Board since April 2016. Chairman of the Remuneration Committee since April 2017 and member since April 2016. Member of the Financial and Audit Committee since April 2017.

#### Board memberships

Chairman of the Board of Finnish Fair Foundation. Member of the Board of Cargotec. Vice Chairman of the Supervisory Board in Finnish Naval Foundation. Chair of the Board and CEO of Pienelo Ltd.

#### Principal work experience and other information

President and CEO of Metso 2004–2011, President and CEO of Kvaerner Masa-Yards 2001–2003 and President and CEO of Patria Industries Group 1997–2000. Executive Vice President of Finvest Group and Jaakko Pöyry Group 1996 and President of Finvest 1985–1995.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	199 700
<b>Meeting attendance</b>	11/11
<b>FAC attendance</b>	6/6 ●
<b>RemCo attendance</b>	4/4 ●
<b>SECo attendance</b>	
<b>Shareholding<sup>2</sup></b>	Owens 1 150 A shares and 18 381 R shares in Stora Enso.
<b>Independent member</b>	Yes



### Hans Stråberg

Born 1957. M.Sc. (Eng.).

#### Position

Vice Chairman of Stora Enso's Board of Directors since April 2017 and member since April 2009. Member of Shareholders' Nomination Board since April 2017. Member of the Remuneration Committee since March 2010.

#### Board memberships

Chairman of the Board of Atlas Copco AB, Roxtec AB, CTEK Holding AB, Nikkarit Holding AB and AB SKF. Vice Chairman of the Board of Orchid First Holding AB. Member of the Board of Investor AB, N Holding AB, Mellby Gård AB and Hedson Technologies International AB.

#### Principal work experience and other information

President and CEO of AB Electrolux 2002–2010. Several management positions at Electrolux in Sweden and the USA 1983–2002.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	109 200
<b>Meeting attendance</b>	11/11
<b>FAC attendance</b>	
<b>RemCo attendance</b>	4/4 ●
<b>SECo attendance</b>	
<b>Shareholding<sup>2</sup></b>	Owens 37 490 R shares in Stora Enso.
<b>Independent member</b>	Yes



### Anne Brunila

Born 1957. D.Sc. (Econ.).

#### Position

Member of Stora Enso's Board of Directors since April 2013. Chairman of the Sustainability and Ethics Committee since April 2013.

#### Board memberships

Member of the Board of Kone Plc and Sanoma Plc.

#### Principal work experience and other information

Professor in Hanken School of Economics 2014–2018. Executive Vice President, Corporate Relations and Strategy and Member of the Management Team of Fortum 2009–2012. President and CEO of the Finnish Forest Industries Federation 2006–2009. Director General in the Finnish Ministry of Finance 2003–2005 and several positions in the Bank of Finland 1992–2000 and the European Commission 2000–2002.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	82 300
<b>Meeting attendance</b>	11/11
<b>FAC attendance</b>	
<b>RemCo attendance</b>	
<b>SECo attendance</b>	4/4 ●
<b>Shareholding<sup>2</sup></b>	Owens 20 121 R shares in Stora Enso.
<b>Independent member</b>	Yes



### Elisabeth Fleuriot

Born 1956. M.Sc. (Econ.).

#### Position

Member of Stora Enso's Board of Directors since April 2013. Member of the Remuneration Committee since April 2017.

#### Board memberships

Board member and Chairman of CSR Committee at G4S since July 2018.

#### Principal work experience and other information

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, Sodial Group 1998–2001. Several management positions in Danone Group 1979–1997.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	78 200
<b>Meeting attendance</b>	11/11
<b>FAC attendance</b>	
<b>RemCo attendance</b>	4/4 ●
<b>SECo attendance</b>	
<b>Shareholding<sup>2</sup></b>	Owens 21 151 R shares in Stora Enso.
<b>Independent member</b>	Yes



### Hock Goh

Born 1955. B. Eng (Hons) in Mechanical Engineering.

#### Position

Member of Stora Enso's Board of Directors since April 2012. Member of the Sustainability and Ethics Committee since April 2017.

#### Board memberships

Chairman of the Board of Advent Energy Limited. Member of the Board of AB SKF, Santos Australia and Vesuvius Plc.

#### Principal work experience and other information

Operating Partner of Baird Capital Partners Asia 2005–2012. Several senior management positions in Schlumberger Limited, the leading oilfield services provider, in 1995–2005.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	78 200
<b>Meeting attendance</b>	11/11
<b>FAC attendance</b>	
<b>RemCo attendance</b>	
<b>SECo attendance</b>	3/4 ●
<b>Shareholding<sup>2</sup></b>	Owens 25 904 R shares in Stora Enso.
<b>Independent member</b>	Yes

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#### Christiane Kuehne

Born 1955. LL.M., B.B.A.

##### Position

Member of Stora Enso's Board of Directors since April 2017. Member of the Financial and Audit Committee since April 2017.

##### Board memberships

Member of the Board of James Finlays Ltd, Wetter Foundation, Whitestone 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 Head of Strategic Business Unit Food with strategic responsibility for the food business of Nestlé at global level.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	86 400
<b>Meeting attendance</b>	11/11
<b>FAC attendance</b>	6/6 ●
<b>RemCo attendance</b>	
<b>SECo attendance</b>	
<b>Shareholding<sup>2</sup></b>	Owens 5 712 R shares in Stora Enso.
<b>Independent member</b>	Yes



#### Antti Mäkinen

Born 1961. LL.M.

##### Position

Member of Stora Enso's Board of Directors since March 2018. Member of the Financial and Audit Committee since March 2018.

##### Board memberships

Member of the Board of Rake Oy, Metso Oyj and Sampo Oyj. Chairman or a member of the shareholders' nomination boards of several listed companies.

##### Principal work experience and other information

CEO of Solidium Oy since 2017. 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.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	86 400
<b>Meeting attendance</b>	9/9 <sup>3</sup>
<b>FAC attendance</b>	5/5 <sup>7</sup> ●
<b>RemCo attendance</b>	
<b>SECo attendance</b>	
<b>Shareholding<sup>2</sup></b>	Owens 2 137 R shares in Stora Enso.
<b>Independent member</b>	Yes/no <sup>3</sup>



#### Richard Nilsson

Born 1970. B.Sc. (BA and Econ.).

##### Position

Member of Stora Enso's Board of Directors since April 2014. Chairman of the Financial and Audit Committee since April 2016 and member since April 2015.

##### Board memberships

Member of the Board of Directors of IPCO AB and group companies.

##### Principal work experience and other information

Investment Manager at FAM AB since 2008. Pulp & paper research analyst at SEB Enskilda 2000–2008, Alfred Berg 1995–2000 and Handelsbanken 1994–1995.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	92 600
<b>Meeting attendance</b>	11/11
<b>FAC attendance</b>	6/6 ●
<b>RemCo attendance</b>	
<b>SECo attendance</b>	
<b>Shareholding<sup>2</sup></b>	Owens 18 254 R shares in Stora Enso.
<b>Independent member</b>	Yes/no <sup>4</sup>



#### Göran Sandberg

Born 1955. Ph.D.

##### Position

Member of Stora Enso's Board of Directors since April 2017. Member of the Sustainability and Ethics Committee since April 2017.

##### Board memberships

Member of the Board of the Marcus Wallenberg Foundation for Promoting Scientific Research in the Forest Industry and the Wallenberg Foundations AB.

##### Principal work experience and other information

Professor in Plant Biology and professor at the Swedish University of Agricultural Science and the Umeå University. Executive director of the Knut and Alice Wallenberg Foundation and the Marianne and Marcus Wallenberg Foundation. Member of the Royal Swedish Academy of Science, the Royal Swedish Academy for Agriculture and Forestry Sciences, and the Royal Swedish Academy of Engineering Sciences. His previous positions include Vice chancellor of Umeå University 2005–2010, Chairman of Umeå Plant Science Center 1996–2004, Chairman of SciLifeLab Sweden 2013–2016 as well as Board member of the Human Protein Atlas project and the Wallenberg Wood Science Center.

<b>Total remuneration 2018, EUR<sup>1</sup></b>	78 200
<b>Meeting attendance</b>	11/11
<b>FAC attendance</b>	
<b>RemCo attendance</b>	
<b>SECo attendance</b>	4/4 ●
<b>Shareholding<sup>2</sup></b>	Owens 4 212 R shares in Stora Enso.
<b>Independent member</b>	Yes/no <sup>5</sup>

**FAC** = Financial and Audit Committee  
**RemCo** = Remuneration Committee  
**SECo** = Sustainability and Ethics Committee

● Chairman ● Member

<sup>1</sup> Detailed description of Board Remunerations and Committee Memberships as decided by the AGM in 2018 on page 13.

<sup>2</sup> Shares held by Board members and related parties. Board members' related parties held no Stora Enso shares.

<sup>3</sup> Antti Mäkinen is independent of the company but not of its significant shareholders due to his position as the CEO of Solidium Oy.

<sup>4</sup> Richard Nilsson is independent of the company but not of its significant shareholders due to his employment at FAM AB.

<sup>5</sup> Göran Sandberg is independent of the company but not of its significant shareholders due to his position as executive director of majority shareholders of FAM AB, a significant shareholder of the company.

<sup>6</sup> Meetings attended out of the meetings held after election as Board member.

<sup>7</sup> 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 of 2015. The full recommendation can be found at [cgfinland.fi](http://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.

**Mikael Mäkinen** was Member of Stora Enso's Board of Directors since March 2010 until his resignation on 28 March 2018. He was independent of the Company and the significant shareholders.



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## Members of the Group Leadership Team



### Karl-Henrik Sundström

Born 1960. B.Sc. (Business Studies).

#### Position

Chief Executive Officer (CEO) since 2014. Member of the GLT since 2012. Joined the company in 2012.

#### Board memberships, principal work experience and other information

Executive Vice President, Printing and Living until 2014. CFO of the company 2012–2013. CFO of NXP Semiconductors 2008–2012. Prior to that CFO and several managerial positions in Ericsson. Chairman of the Board of Skogsindustrierna and Confederation of European Paper Industries (CEPI). Member of the Board of Sustainable Energy Angels AB, and Mölnlycke Health Care AB.

#### Shareholding

Owens 101 805 R shares in Stora Enso directly and 41 700 R shares through Alma Patria AB (related party).



### Seppo Parvi

Born 1964. M.Sc. (Econ.)

#### Position

Chief Financial Officer (CFO), Deputy to the CEO. Country Manager Finland and 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 the packaging company Huhtamäki, including responsibilities such as paper manufacturing within Rigid Packaging Europe and General Manager for Turkey. Deputy Chairman of the Board of the Finnish Forest Industries Federation and Pohjolan Voima Oy. Member of the Board of Ilmarinen.

#### Shareholding

Owens 25 585 R shares in Stora Enso.



### Malin Bendz

Born 1976. B.Sc. (Personnel Mgmt & Org. Development), MBA.

#### Position

Executive Vice President, HR. Member of the GLT since 2016. Joined the company in 2000.

#### Board memberships, principal work experience and other information

Several international positions in human resources, business development and purchasing. Member of the Stora Enso Paper division management team (2015–2016), Renewable Packaging management team (2012–2014) and Latin America Division Management team (2004–2008).

#### Shareholding

Owens 17 422 R shares in Stora Enso.



### Annica Bresky

Born 1975. M.Sc. (Engineering), MBA.

#### Position

Executive Vice President, Division Consumer Board. Member of the GLT since 2017. Joined the company in 2017.

#### Board memberships, principal work experience and other information

President and CEO of Iggesund Paperboard AB, part of the Swedish Holmen Group 2013–2017. Mill Director at BillerudKorsnäs AB 2010–2013. Prior to that engineering and superintendent positions at Stora Enso's Kvarnsveden Mill in 2001–2010.

#### Shareholding

Does not own any Stora Enso shares.



### Johanna Hagelberg

Born 1972. M.Sc. (Industrial Eng. & Mgmt) and M.Sc. (Eng. and Mgmt of Manufacturing Systems).

#### Position

Executive Vice President, Sourcing and Logistics. Member of the GLT since 2014. Joined the company in 2013 as SVP Sourcing, Printing and Living.

#### Board memberships, principal work experience and other information

Chief Procurement Officer at Vattenfall AB 2010–2013. Prior to that leading Sourcing positions at NCC, RSA Scandinavia and within the Automotive Industry. Member of the Board of Bufab AB.

#### Shareholding

Owens 11 258 R shares in Stora Enso.

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#### **Kati ter Horst**

Born 1968. MBA (International Business), M.Sc. (Marketing).

#### **Position**

Executive Vice President, Division Paper. Member of the GLT since 2014. Joined the company in 1996.

#### **Board memberships, principal work experience and other information**

Senior Vice President, Paper Sales, Stora Enso Printing and Living until 2014. Has held several managerial positions in the paper business. Member of the Board of Finnish Forest Industries Federation, Outokumpu Oyj and EURO-GRAPH asbl.

#### **Shareholding**

Owens 30 318 R shares in Stora Enso.



#### **Ulrika Lilja**

Born 1975. M.Sc. (BA and Econ.).

#### **Position**

Executive Vice President, Communications. Member of the GLT since 2014. Joined the company in 2014 as Senior Vice President Communications, Stora Enso Printing and Living.

#### **Board memberships, principal work experience and other information**

Director External Communications at SSAB 2010–2013. Prior to that several leading communications positions at OMX Stockholm Stock Exchange and Neonet. Member of the Board of Swedish Association of Communication Professionals.

#### **Shareholding**

Owens 21 534 R shares in Stora Enso.



#### **Per Lyrvall**

Born 1959. LL.M.

#### **Position**

Executive Vice President, Legal, General Counsel, Country Manager Sweden. Member of the GLT since 2012. Joined the company as Legal Counsel in 1994. General Counsel since 2008. Country Manager Sweden since 2013.

#### **Board memberships, principal work experience and other information**

Prior to joining Stora Enso legal positions at Swedish courts, law firms and Assi Domän. Member of the Board of Montes del Plata and Bergvik Skog AB. Deputy Member of the Board of Skogsindustrierna.

#### **Shareholding**

Owens 51 988 R shares in Stora Enso directly and 1 257 R shares through related persons (spouse).



#### **Markus Mannström**

Born 1963. M.Sc. (Paper Tech.).

#### **Position**

Executive Vice President, Division Biomaterials. Member of the GLT since 2015. Joined the company in 2001.

#### **Board memberships, principal work experience and other information**

Chief Technology Officer (CTO) of the company 2015–2017. Member of the Renewable Packaging division management team 2009–2014. Member of the Board of Teollisuuden Voima Oyj, Montes del Plata and Veracel. Deputy Member of the Board of Pohjolan Voima Oy.

#### **Shareholding**

Owens 32 350 R shares in Stora Enso.



#### **Noel Morrin**

Born 1958. B.Sc. Joint Honours, First Class (Chemistry and Biology).

#### **Position**

Executive Vice President, Sustainability. Member of the GLT since 2015. Joined the company in 2015.

#### **Board memberships, principal work experience and other information**

Group SVP for Sustainability & Green Support at Skanska AB 2005–2015. Group Environment Director at RMC plc 1999–2005. Prior to that senior roles at the UK National Environmental Technology Centre, the British NGO Business in the Community and the global chemical company ICI plc.

#### **Shareholding**

Owens 26 588 R shares in Stora Enso.

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Gilles van Nieuwenhuyzen

Born 1959. M.Sc. (Applied Physics), MBA (INSEAD).

Position

Executive Vice President, Division Packaging Solutions. Member of the GLT since 2015. Joined the company in 2015.

Board memberships, principal work experience and other information

President of the Enablers division at DuPont Nutrition & Health (formerly Danisco) 2010–2014. Prior to that senior management positions at among others the Dutch food ingredients group CSM (now Corbion), Rexam (coated films and papers), and DSM (chemicals and polymers).

Shareholding

Owns 11 308 R shares in Stora Enso.



Jari Suominen

Born 1969. M.Sc. (BA).

Position

Executive Vice President, Division Wood Products. Member of the GLT since 2014. Joined the company in 1995.

Board memberships, principal work experience and other information

Senior Vice President, head of Building and Living Business Area until 2014. Has held several managerial positions in paper and wood products businesses. Chairman of Finnish Wood Products Industry Association. Member of the Board of Tornator. Member of the supervisory board of Varma Mutual Pension Insurance Company.

Shareholding

Owns 31 553 R shares in Stora Enso.



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Due to differences between the 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 1.3** 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 Chairman of the Board of Directors opens the meeting and proposes the chairman. The proposed chairman 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.

**Rule 9.1** The board is to establish a remuneration committee, whose main tasks are to monitor and evaluate the application of the guidelines for remuneration that the annual general meeting is legally obliged to establish, as well as the current remuneration structures and levels in the company.

**Rule 10.3** No later than two weeks before the annual general meeting, the board is also to report the results of the evaluation required by bullets two and three of Code rule 9.1 on the company's website.

- In accordance with Finnish law, the remuneration of the CEO and management is the responsibility of the Board of Directors. The guidelines for and information on remuneration are presented in this Corporate Governance Report and the company's webpages.

**Rule 9.6** The shareholders' meeting is to decide on all share and share-price related incentive schemes for the executive management.

- The incentive schemes are established by the Board of Directors. If the programmes include the issuance of new shares or disposal of shares held by the Company then the programme will be subject to shareholder approval. Current programmes of the Company do not include such elements.



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