Stora Enso investor kit
strategy and market environment, and financial performance
Disclaimer

It should be noted that Stora Enso and its business are exposed to various risks and uncertainties and certain statements herein which are not historical facts, including, without limitation those regarding expectations for market growth and developments; expectations for growth and profitability; and statements preceded by “believes”, “expects”, “anticipates”, “foresees”, or similar expressions, are forward-looking statements. Since these statements are based on current plans, estimates and projections, they involve risks and uncertainties which may cause actual results to materially differ from those expressed in such forward-looking statements. Such factors include, but are not limited to: (1) operating factors such as continued success of manufacturing activities and the achievement of efficiencies therein, continued success of product development, acceptance of new products or services by the group’s targeted customers, success of the existing and future collaboration arrangements, changes in business strategy or development plans or targets, changes in the degree of protection created by the group’s patents and other intellectual property rights, the availability of capital on acceptable terms; (2) industry conditions, such as strength of product demand, intensity of competition, prevailing and future global market prices for the group’s products and the pricing pressures thereto, price fluctuations in raw materials, financial condition of the customers and the competitors of the group, the potential introduction of competing products and technologies by competitors; and (3) general economic conditions, such as rates of economic growth in the group’s principal geographic markets or fluctuations in exchange and interest rates. All statements are based on management’s best assumptions and beliefs in light of the information currently available to it and Stora Enso assumes no obligation to publicly update or revise any forward-looking statement except to the extent legally required.
Stora Enso in brief

Leading global provider of renewable solutions in packaging, biomaterials, wooden constructions and paper

Stora Enso shares are listed on NASDAQ OMX Helsinki and Stockholm. In addition, the shares are traded in the USA as ADRs

Sales
EUR 10.5 billion in 2018

Operational EBIT
EUR 1 325 million in 2018

Some 26 000 employees in 30 countries
Portfolio aimed at growth

**Stora Enso group 2018**: Sales 10 486 MEUR / Operational EBIT 1 325 MEUR / Operational ROCE 15.5%

- **Consumer Board** – Expansion of relative market share in profitable niches
- **Packaging Solutions** – Selective profitable growth
- **Biomaterials** – Strengthening current business and creating new profitable growth
- **Wood Products** – Accelerating growth
- **Paper** – Strategy for maximum cash generation
The renewable materials growth company

Sales 10.5 BEUR (2018)
1.7 net debt/EBITDA
85% wood from certified forests
100% of our wood is used from sustainable sources
26 000 people in 30 countries

15.5% Operational ROCE (2018) (well above strategic target of 13%)

Our growth businesses = 71% of sales and 83% of operational EBIT...

- **Paper**
  - Market growth: 2016-2030 for virgin board: Europe 1.8%, North America 1.2%, Latin America 3.3%, China 4.7%, Rest of Asia 3.4%, Africa 2.5%
  - Position: #1 in Europe and #4 in the world
- **Wood Products**
  - Market growth: Global sawn softwood 2-3%, European new construction 3%
  - Position: #1 in Europe and #4 in the world in supplying wooden construction material
- **Packaging Solutions**
  - Market growth: High-quality SC Folding 1.5%, High-free 2-3%, all. North Am (Teakline)- 4%, Eastern Europe
  - Position: #6 in the world
- **Biomaterials**
  - Market growth: Market pulp 2.3%; Fastest growth in tissue (3.2%)
  - Position: Widest pulp grades portfolio of #1 in Europe in full

...and these are our targets and progress

<table>
<thead>
<tr>
<th>Group strategic targets</th>
<th>Q3 18</th>
<th>Q3 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend</td>
<td>0.64*</td>
<td>0.50*</td>
</tr>
<tr>
<td>Growth**</td>
<td>To grow faster than the relevant market</td>
<td>3.6% (YoY)</td>
</tr>
<tr>
<td>Net debt to operational EBITDA</td>
<td>≤2.0</td>
<td>1.1</td>
</tr>
<tr>
<td>Fixed costs to sales</td>
<td>≤30%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Debt to equity</td>
<td>≤50%</td>
<td>34%</td>
</tr>
<tr>
<td>Operational ROCE</td>
<td>≥13%</td>
<td>16.7%</td>
</tr>
</tbody>
</table>

...and these are our drivers for accelerating renewable growth

9% of our sales came from NEW products and services (2018)

<table>
<thead>
<tr>
<th>Bio-composites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value added services in packaging</td>
</tr>
<tr>
<td>Next generation liquid &amp; food packaging</td>
</tr>
<tr>
<td>Building Composites and systems</td>
</tr>
<tr>
<td>High-quality Container boards</td>
</tr>
<tr>
<td>Intelligent packaging</td>
</tr>
<tr>
<td>Future-bio-based chemicals</td>
</tr>
<tr>
<td>Bio-barriers</td>
</tr>
</tbody>
</table>

This is our strategy for delivering sustainable profitable growth...

- **Customer Insight**
  - Developing offerings according to customer requirements to create value and growth, with sales excellence.
- **Sustainable profitable growth**
  - Clear roles and responsibilities, standardised and harmonised working methods, operational excellence.
- **Motivated employees**
  - Focusing on inspiring leadership, good communication, performance management and target setting.
- **Structural processes**
  - To distribute 50% of EPS over the cycle. 2015-2018 CAGR 14%.

Cash flow from operations

Sustainable profitable growth

Business and CAPEX driven by ROCE.

Strong balance sheet

Net debt to operational EBITDA target reduced from 2.3x to less than 2x.

Dividend

To distribute 50% of EPS over the cycle. 2015-2018 CAGR 14%.

Strategic growth investments

Costs at a stable depreciation and depletion over the business cycle.

Operational ROCE

Growth**

To grow faster than the relevant market

Dividend

To distribute 50% of net income over the cycle

Net debt to operational EBITDA

≤2.0

Fixed costs to sales

≤30%

Debt to equity

≤50%

Operational ROCE

≥13%

8.3%

16.4%

15.9%

13.5%

12.1%

10.3%

8.2%

5.6%

3.1%

2.6%

2.5%

2.1%

1.6%

1.3%

1.1%

0.41*

0.21*

0.06*

- Also excluding Paper

- Annual dividend: Payment Q1 in 2019 and Q2 in 2018 ** Excluding Paper
Global environmental drivers support our strategy

Montes del Plata, Uruguay (ownership 50%)
Stora Enso’s share 126 000 ha of forest land

Veracel plantations, Brazil (ownership 50%)
Stora Enso’s share 112 000 ha of forest land

Swedish forests
1 388 000 ha of forest land in Sweden

Tornator, Finland (ownership 41%)
Stora Enso’s share 250 000 ha of forest land in Finland,
24 000 ha in Estonia and 5 000 ha in Romania

Guangxi, Southern China (leased)
82 000 ha of forest land

In addition, leased plantations:
- Laos: trial plantation, 3 100 ha; Russia: 369 500 ha

A balanced market in pulp supports our growth

Hardwood and softwood average capacity growth (Mt/year)

2007–2017
+ 1.4 Mt/y (90% ratios)

2018–2022
+ 0.56 Mt/y

Announced capacity growth 2018–2022: 2.8 Mt (0.56 Mt/year)

Hardwood 2.0 Mt

Softwood 0.8 Mt

We have ambitious targets to reduce GHG emissions by 31% by 2030...

- The first forest products company to have externally approved science-based targets to reduce its greenhouse gas (GHG) emissions

- Targets for our operations
  Reducing GHG emissions from operations by 31% per tonne of pulp, paper, and board produced by 2030, compared to a 2010 baseline

- Engagement targets for our suppliers
  70% of our non-fibre suppliers in terms of spend to set GHG reduction targets

...and this is how we are delivering on these targets

Cash cost by country

<table>
<thead>
<tr>
<th>Country/CIF</th>
<th>Cash cost (USD/tonne)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe (CIF)</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>900</td>
</tr>
<tr>
<td></td>
<td>800</td>
</tr>
</tbody>
</table>

A balanced market in pulp supports our growth

Cash cost by country

Cash cost (CIF Ranger USD/tonne)

Best in class

Pulp (softwood and hardwood) delivered cost

Pulp demand 2018–2022: + 1.1 Mt/year (2.5% CAGR)
Deteriorating trading conditions caused by geopolitical uncertainties related to trade wars and a possible hard Brexit are expected to impact Stora Enso negatively.

Demand growth is forecast to slow for Stora Enso’s businesses in general, and the decline in demand for European paper will continue.

Due to the profit protection programme, costs are forecast to remain roughly at the same level in 2019 as in 2018. Stora Enso is still implementing additional profit protection measures to mitigate negative financial impacts of the current situation.

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### Financial highlights Q3/2019

- Sales decreased by 7% to 2 402 MEUR
  - Lower volumes and prices
  - Sales excluding Paper decreased by 5%
- Operational EBIT decreased to 231 (358) MEUR
  - Decrease due to lower prices and volumes partly offset by lower costs achieved through profit protection programme
  - Operational EBIT margin 9.6% (13.8%)
- EPS decreased to 0.09 (0.27) EUR and EPS excl. IAC 0.13 (0.31) EUR
- Strong cash flow from operations at 488 (457) MEUR due to active working capital management. Cash flow after investing activities 347 (319) MEUR
- The net debt to operational EBITDA at 2.2x (1.1x) slightly above the target of 2.0x, due to the restructuring of Bergvik Skog (impact 0.7x) and the adoption of IFRS 16 Leases (impact 0.3x)
- Operational ROCE at 8.7% (16.7%) was below the strategic target of 13%. The adoption of IFRS 16 Leases had a negative 0.4 percentage points and the Bergvik Skog restructuring a negative impact of 1.0 percentage points on ROCE

### Main events

- Stora Enso’s Board of Directors appointed Annica Bresky as the new President and CEO as of 1 December 2019
- Stora Enso will establish a new Forest division and start reporting it separately at the beginning of 2020. The new division will include the Group’s Swedish forest assets and its 41% share of Tornator with the majority of its forest assets located in Finland. It will also include wood supply operations in Finland, Sweden, Russian and the Baltic countries.
- The conversion of Enocell pulp mill from softwood pulp to dissolving pulp was completed during the quarter. The gradual ramp-up starts during the fourth quarter.
- Stora Enso divested its 60% equity stake in the Dawang paper mill in China, to its joint venture partner, Shandong Huatai Paper.
- Stora Enso acquired a 10% equity stake from a minority shareholder in its China Packaging unit, and now owns 100% of the shares.

### Outlook for 2019

- Deteriorating trading conditions caused by geopolitical uncertainties related to trade wars and a possible hard Brexit are expected to impact Stora Enso negatively.
- Demand growth is forecast to slow for Stora Enso’s businesses in general, and the decline in demand for European paper will continue.
- Due to the profit protection programme, costs are forecast to remain roughly at the same level in 2019 as in 2018. Stora Enso is still implementing additional profit protection measures to mitigate negative financial impacts of the current situation.

### Guidance for Q4/2019

- Q4/2019 operational EBIT is expected to be in the range of 100-180 MEUR
- During Q4/2019, there will be annual maintenance shutdown at Fors, Ingerois, Skoghall, Varkaus, Montes del Plata and Skutskär mills. The total maintenance impact is estimated to be at the same level as in Q4/2018 and in Q3/2019.

### Annual maintenance

<table>
<thead>
<tr>
<th>Division</th>
<th>Q4 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>Fors, Ingerois and Skoghall mills</td>
</tr>
<tr>
<td>Packaging solutions</td>
<td>Varkaus Mill</td>
</tr>
<tr>
<td>Biomaterials</td>
<td>Montes del Plata and Skutskär mills</td>
</tr>
<tr>
<td>Paper</td>
<td>Montes del Plata and Skutskär mills</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q4 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fors and Fors mills</td>
</tr>
<tr>
<td>-</td>
</tr>
<tr>
<td>Montes del Plata and Skutskär mills</td>
</tr>
<tr>
<td>-</td>
</tr>
</tbody>
</table>
Our portfolio is further strengthened with integrated forest assets

<table>
<thead>
<tr>
<th>Sales 2018 EUR and % of group’s sales</th>
<th>Market growth</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumer Board</strong></td>
<td>2.6 BEUR 25%</td>
<td>2016–2030 for virgin board: Europe 1.8%, North America 1.2%, Latin America 3.3%, China 4.3%, Rest of Asia 3.4%, Africa 2.5%</td>
</tr>
<tr>
<td><strong>Packaging Solutions</strong></td>
<td>1.3 BEUR 13%</td>
<td>High quality SC fluting 1-3%; Kraftliner 2–3% excl. North Am; Testliner 3–4% Eastern Europe</td>
</tr>
<tr>
<td><strong>Biomaterials</strong></td>
<td>1.6 BEUR 16%</td>
<td>Market pulp 2%; Fastest growth in tissue (4%)</td>
</tr>
<tr>
<td><strong>Wood Products</strong></td>
<td>1.6 BEUR 15%</td>
<td>Global sawn softwood 2–3%, European new construction 3.5%</td>
</tr>
<tr>
<td><strong>Paper</strong></td>
<td>3.1 BEUR 29%</td>
<td>Declining 3–5% annually</td>
</tr>
<tr>
<td><strong>Forest</strong></td>
<td>0.75 BEUR* 7%</td>
<td>Annual growth of 4%, increased harvesting potential by 10–15% in our Swedish forests</td>
</tr>
</tbody>
</table>

* Only external sales
Our road to success in the bioeconomy

- Introducing new products and services
- Addressing attractive end-use segments
- Delivering sustainable profitable growth
- Generating superior ROCE
Our transformation strategy continues…

…delivering sustainable profitable growth

- **Customer insight**
  Developing offerings according to customers’ requirements to create value and growth, with sales excellence.

- **Structured processes**
  Clear roles and responsibilities, standardised and harmonised working methods, operational excellence.

- **Motivated employees**
  Focus on inspiring leadership, good communication, performance management and target setting.

- **Innovation**
  Focus on bio-based materials and chemicals, digitalisation, intelligent packaging and new packaging solutions.

- **Sustainable profitable growth**

- **Strategic growth investments**
  Capex at or below depreciation and depletion* over the business cycle.

- **Cash flow from operations**

- **Dividend**
  To distribute 50% of EPS over the cycle. 2015–2018 CAGR 14%

- **Sustainable profitable growth**
  Business and CAPEX driven by ROCE.

- **Strong balance sheet**
  Net debt to operational EBITDA target reduced from 3x to <2x

*Operational decrease in the value of biological assets
Innovation never happens in isolation

Awarded as Finland’s most startup-friendly company

Screened ~500 digital start-ups - deeper collaboration with 17

DuraSense™

Piloting MFC films

Husqvarna’s most innovative supplier

Lineo™

Sustainable RFID tag technology, ECO™ by Stora Enso

Sulapac - renewable and biodegradable straws

TreeToTextile partnership

TRÄ Group - innovative digital services for wooden buildings
These are our drivers for accelerating renewable growth

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
## Development of strategic targets

### Group strategic targets

<table>
<thead>
<tr>
<th></th>
<th>Q3 18</th>
<th>Q3 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend</td>
<td>0.41*</td>
<td>0.50*</td>
</tr>
<tr>
<td>Growth**</td>
<td>3.6% (YoY)</td>
<td>-5.2% (YoY)</td>
</tr>
<tr>
<td>Net debt to operational EBITDA</td>
<td>&lt;2.0x</td>
<td>1.1 2.2</td>
</tr>
<tr>
<td>Fixed costs to sales</td>
<td>&lt;20%</td>
<td>23.3% 24.2%</td>
</tr>
<tr>
<td>Net debt to equity</td>
<td>&lt;60%</td>
<td>34% 55%</td>
</tr>
<tr>
<td>Operational ROCE</td>
<td>&gt;13%</td>
<td>16.7% 8.7%</td>
</tr>
</tbody>
</table>

### Divisional strategic targets

<table>
<thead>
<tr>
<th></th>
<th>Q3 18</th>
<th>Q3 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>10.3%</td>
<td>13.2%</td>
</tr>
<tr>
<td>Packaging Solutions</td>
<td>30.4%</td>
<td>12.1%</td>
</tr>
<tr>
<td>Biomaterials</td>
<td>20.9%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Wood Products</td>
<td>31.6%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Paper</td>
<td>8.3%</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

*Annual dividend. Payment: Q1 in 2019 and Q2 in 2018 **Excluding Paper
## Capacities by grade

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity 1 000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>3 360</td>
</tr>
<tr>
<td>Containerboards*</td>
<td>1 410</td>
</tr>
<tr>
<td>Corrugated Packaging</td>
<td>1 370 (Mm²)</td>
</tr>
<tr>
<td>Sawn goods</td>
<td>5.8 Mm³</td>
</tr>
<tr>
<td>Short-fibre pulp</td>
<td>1 100</td>
</tr>
<tr>
<td>Long-fibre pulp</td>
<td>450</td>
</tr>
<tr>
<td>Fluff pulp</td>
<td>350</td>
</tr>
<tr>
<td>Dissolving pulp</td>
<td>200</td>
</tr>
<tr>
<td>Unbleached kraft pulp</td>
<td>50</td>
</tr>
<tr>
<td><strong>Net market pulp</strong></td>
<td><strong>2 150</strong></td>
</tr>
<tr>
<td>Grade</td>
<td>Capacity 1 000 t</td>
</tr>
<tr>
<td>Newsprint</td>
<td>1 800</td>
</tr>
<tr>
<td>Uncoated Magazine (SC)</td>
<td>1 050</td>
</tr>
<tr>
<td>Coated Magazine</td>
<td>250</td>
</tr>
<tr>
<td>Total Magazine Paper</td>
<td>1 300</td>
</tr>
<tr>
<td>Coated Fine*</td>
<td>1 100</td>
</tr>
<tr>
<td>Uncoated Fine</td>
<td>1 000</td>
</tr>
<tr>
<td>Total Fine Paper</td>
<td>2 100</td>
</tr>
<tr>
<td><strong>Paper Total</strong></td>
<td><strong>5 200</strong></td>
</tr>
</tbody>
</table>

*Oulu coated fine paper production to continue until end of September 2020. Containerboards capacity to increase by 450 000 t/a after Oulu PM7 conversion. The production of the converted machine to start by end of 2020.
Global position
– capacity and biological asset allocation

Board capacity by country 2019
Paper capacity by country 2019
Chemical Pulp capacity by country 2019
Biological assets by country as at Dec 2018
Total assets by country as at Dec 2018

Finland
49%
Finland
44%
Finland
55%
Finland
18%
Finland
34%

Sweden
27%
Sweden
29%
Sweden
21%
Sweden
68%
Sweden
23%

Poland
5%
Poland
2%
Poland
13%

Brazil
3%
Brazil
3%
Brazil
10%

Uruguay
13%
Uruguay
6%
Uruguay
12%

Germany
16%
Germany
3%

China
10%
China
5%
China
11%

Other countries
11%
Other countries
9%
We are perfectly positioned to benefit from the megatrends

- Global warming
- Growing middle class
- Eco awareness
- Changing lifestyles
- Urbanisation
- Growing population
- Digitalisation

Increasing demand for raw material that is **renewable**, **reusable** and **fossil free**
The renewable materials growth company

Everything that’s made with fossil-based materials today can be made from a tree tomorrow
Our business is a net contributor to prevent global warming
13 Mt CO$_2$ = 325 MEUR per year

Substitution is our key competitive advantage

<table>
<thead>
<tr>
<th>Year</th>
<th>Mt CO$_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td></td>
</tr>
<tr>
<td>Forests</td>
<td>+ 3**</td>
</tr>
<tr>
<td>Value Chain</td>
<td>- 11</td>
</tr>
<tr>
<td>Substitution</td>
<td>+ 21</td>
</tr>
</tbody>
</table>

Total climate benefit + 13*

*of CO$_2$e per year. Source: internal calculations, value chain emissions fully adopted to the GHG protocol including Scopes 1, 2 and 3

*Accounted as an average between 2008-2018.

According to the current estimates. Data year 2018

Our renewable resource is carbon neutral

Substitution of fossil based products

Resource efficient value chain

Climate Benefit

2 December 2019
Stora Enso
Controlling 30% of wood supply and a #1 Nordic position are competitive advantages

#1 Nordic position
Wood procurement by region
(million m³ sub)

Central Europe; 5.7
Baltic countries; 2.5
Finland; 13.5
Sweden; 9.5
Brazil; 1.9
Uruguay; 2.1
China; 0.3

We control ~30% of our wood raw material consumption
(million m³ sub)

Central Europe, China, Uruguay and Brazil are integrated to business divisions.

Sweden; 9.5
Finland; 13.5
Brazil; 1.9
Uruguay; 2.1
China; 0.3

Supply from own sources based on ownership
Long-term supply contracts
Purchased
Sold externally

THE RENEWABLE MATERIALS COMPANY
Wood supply substantially strengthened after Bergvik deal

Total biological asset value in balance sheet ~ 3.6 BEUR

**Swedish forests**
1 388 000 ha of forest land
Fair value: 2.6 BEUR (30 June 2019)

**Tornator**
Stora Enso’s share 250 000 ha in Finland, 24 000 ha in Estonia and 5 000 ha in Romania
Fair value: 595 MEUR (31 Dec 2018)

**Veracel plantations, Brazil**
Stora Enso’s share 112 000 ha of forest land
Fair value: 75 MEUR (31 Dec 2018)

**Montes del Plata, Uruguay**
Stora Enso’s share 126 000 ha of forest land
Fair value: 199 MEUR (31 Dec 2018)

**Guangxi, Southern China (leased)**
82 000 ha of forest land
Fair value: 166 MEUR (31 Dec 2018)

In addition:
- Laos: trial plantation, 3 100 ha (leased land)
- Russia: 369 500 ha (long-term harvesting rights)

In addition land book value totals 543 MEUR in the balance sheet as at 30 June 2019
Direct ownership of Swedish forests improves our optionality in wood supply…

- **Enhances integrated value chain** by increasing harvesting volumes by 10–15%
- **Secures availability** and reasonably priced wood for the Swedish mills
  - Fibre 34% of all costs
  - Covering 70% of wood supply needs of our mills middle Sweden
- **Gives tactical flexibility** in wood supply
- **Delivers additional synergies** in wood supply in the form of reduced administration costs
- Long-term wood supply contract was about to end
- **Increases control** of the asset
  - More efficient and sustainable operations
  - Improved forest growth, harvesting and value
…with attractive valuation

<table>
<thead>
<tr>
<th></th>
<th>Hectares</th>
<th>Price per ha (EUR)</th>
<th>Value (BEUR)***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect ownership*</td>
<td>1 150 000</td>
<td>2 000</td>
<td>2.3</td>
</tr>
<tr>
<td>EUR to SEK translation impact on indirect ownership (June 2019 vs Dec 2018)</td>
<td></td>
<td></td>
<td>-0.1</td>
</tr>
<tr>
<td>Acquired additional forest</td>
<td>250 000</td>
<td>2 400</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total forest holdings in Sweden</strong></td>
<td>1 400 000</td>
<td>2 000</td>
<td>2.8</td>
</tr>
<tr>
<td>Forest value based on Billerud Korsnäs/AMF**</td>
<td>1 400 000</td>
<td>3 700</td>
<td>5.1</td>
</tr>
<tr>
<td>Forest value based on LRF**</td>
<td>1 400 000</td>
<td>5 700</td>
<td>7.9</td>
</tr>
</tbody>
</table>

* As at 31 Dec 2018 indirect ownership of 49.79% Bergvik Skog
** AMF Pensionsförsäkring AB, LRF Konsult
*** Land and biological assets
Forest assets both appreciate and are renewable - reflected in lower funding cost

To direct ownership
From indirect holdings of 1.1 million hectares to direct ownership of 1.4 million hectares.

Net debt impact
Expected to be appr. 1 BEUR once all steps are concluded.

Green bond
Financed with dedicated green bonds (SEK 6 billion) for sustainable forest management. Largest corporate green bond in SEK.

Attractive green bond pricing
- 2.5 years: 3 months Stibor + 0.85%
- 5 years: 3 months Stibor + 1.45%
- 5 years: Fixed 1.875%

Bilateral financing
In Q2/19 issuance of SEK 1 billion (in green bond format) and SEK 1.5 billion bilateral loans.
Increasing transparency through our new Forest division...

• Non-operational fair value changes of biological assets reflect changes made to valuation assumptions and parameters, usually during the annual valuation process
  − Continue to be reported as earlier and excluded from Operational EBIT, but included at Operating result (IFRS).

• Operational fair value changes of biological assets containing all other fair value changes, mainly due to inflation and differences in actual harvesting levels compared to harvesting plan
  − To be reported in Operational EBITDA

• Silviculture cost (i.e. for planting seedlings) of Forest division and plantations in Biomaterials and Consumer board are to be reported in Operational EBIT (below Operational EBITDA)
  − Stora Enso will reclassify Nordic silviculture costs of the Forest division from Operational EBITDA to Operational EBIT
  − Silviculture costs for plantations continue to be reported in Operational EBIT (below Operational EBITDA)
…with over 50 MEUR higher EBITDA annually

### Key figures

<table>
<thead>
<tr>
<th>MEUR</th>
<th>Illustration Forest H1/2019</th>
<th>Illustration Group H1/2019</th>
<th>Group as reported H1/2019</th>
<th>Illustration Forest 2018</th>
<th>Illustration Group 2018</th>
<th>Group as reported 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>1 245</td>
<td>5 242</td>
<td>5 242</td>
<td>2 285</td>
<td>10 486</td>
<td>10 486</td>
</tr>
<tr>
<td>External Sales</td>
<td>433</td>
<td>5 242</td>
<td>5 242</td>
<td>754</td>
<td>10 486</td>
<td>10 486</td>
</tr>
<tr>
<td>Internal Sales</td>
<td>811</td>
<td>-</td>
<td>-</td>
<td>1 530</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Operational EBITDA</td>
<td>60</td>
<td>935</td>
<td>907</td>
<td>127</td>
<td>1 931</td>
<td>1 878</td>
</tr>
<tr>
<td>Operational EBIT</td>
<td>39</td>
<td>629</td>
<td>610</td>
<td>93</td>
<td>1 357</td>
<td>1 325</td>
</tr>
<tr>
<td>Operational EBITDA margin</td>
<td>4.8%</td>
<td>17.8%</td>
<td>17.3%</td>
<td>5.6%</td>
<td>18.4%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Operational EBIT margin</td>
<td>3.2%</td>
<td>12.0%</td>
<td>11.6%</td>
<td>4.1%</td>
<td>12.9%</td>
<td>12.6%</td>
</tr>
<tr>
<td>Operational return on operating capital (ROOC) or Capital employed (ROCE)</td>
<td>2.1%</td>
<td>12.9%</td>
<td>12.5%</td>
<td>3.0%</td>
<td>15.1%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Operating capital / Capital Employed</td>
<td>3 722</td>
<td>10 696</td>
<td>10 696</td>
<td>3 137</td>
<td>9 235</td>
<td>8 824</td>
</tr>
</tbody>
</table>

- Forest division segment reporting will begin 1 January 2020
- Restated historical figures to be published in Q1/2020
Oulu paper mill is converting to packaging board
Reducing our paper capacity by 20%

- 450 000 t/a high-quality virgin-fibre-based kraftliner
- 530 000 t/a unbleached softwood pulp
- Expected to meet Packaging Solutions division’s operational target of 20%
- Oulu Mill’s EBITDA margin expected to improve by 15–20 percentage points
- 350 MEUR investment in 2019–2022
- Production on the converted machine to start by the end of 2020

Source: Pöyry, Risi, ICCA, Stora Enso analysis
Stora Enso Group
2014–Q1-Q3/2019

Note: * Excluding paper and Barcelona Mill.

Sales

Sales of growth businesses

Operational EBIT

Net debt

Q3/19 net debt impacted by restructuring of Bergvik Skog and adoption of IFRS 16
Financial performance - divisions
Sales, EBITDA margins, EBIT margins and ROOC

<table>
<thead>
<tr>
<th>Division</th>
<th>Sales (MEUR)</th>
<th>Operational EBIT Margin</th>
<th>Operational EBITDA Margin</th>
<th>Operational ROOC, 4Q rolling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging Solutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomaterials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td></td>
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</tr>
</tbody>
</table>

- Blue line: Sales
- Green line: Operational EBIT margin
- Yellow line: Operational EBITDA margin
- Blue dash line: Operational ROOC, 4Q rolling

29 December 2019

20 Stora Enso

THE RENEWABLE MATERIALS COMPANY
Our formula for success continues to deliver results

- Sustainable profitable growth 6–8%*
- Strong cash flow generation
- Capex ~3.4 BEUR**
- Dividend ~50% of EPS
- Net debt to operational EBITDA <2.0x
  Debt to equity <60%

* Excluding Paper ** Next five years
Total CAGR potential of 6–8% per year

- Consumer Board: 2–4%/a
- Packaging Solutions: 7–8%/a
- Biomaterials: 3–5%/a
- Wood Products: 6–8%/a
- TOTAL (excluding paper): 6–8%/a
Divisions
Consumer Board

• The ambition of the Consumer Board division is to be the global leader in high-quality virgin fibre cartonboard.

• Aim to be the preferred partner to customers in premium end-use packaging and graphical segments

• A wide board and barrier coating selection suitable for consumer packaging for liquid, food, pharmaceutical and luxury goods

• Serves converters and brand owners globally
Consumer Board – geared towards growth

Sample product categories
- Liquid Packaging: Natura
- Food Service Board: Cupforma, Tamfold
- General Packaging and graphical board: CKB, Trayforma, Performa, Ensocoat, Tambrite
  - Chocolate and confectionary
  - Cosmetics and luxury
  - Pharmaceuticals
  - Food Packaging
  - Drinks, wines and spirits
- Cigarette board: Koppar
- Speciality paper: Lumiflex, LumiLabel

Main competitors include BillerudKorsnäs, Metsä Board, Klabin and International Paper

<table>
<thead>
<tr>
<th>Divisional strategic target</th>
<th>Q3/18</th>
<th>Q3/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>Operational ROOC &amp; ROOC</td>
<td>10.3%</td>
</tr>
</tbody>
</table>
Our target is 25% of sales from new products and services

REPLACING PE-FILMS IN CUPS
POUCHES FOR LOW TO MEDIUM SHELF LIFE
LIDS
REPLACING ALUMINIUM FOIL
POUCHES WITH HIGH BARRIER PROPERTIES

GLOBAL MARKET SIZE
~80 BEUR

BIO-BARRIERS AND FILMS

2019-2021
2021-2023
2023-2025

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Source: SmithersPira, internal analysis

STRAWS
CAPS, CLOSURES & PACKAGING COMPONENTS
RIGID CONTAINERS
TRAYS
CAPS WITH HINGES
TUBES

~25 BEUR

BIOCOMPOSITES

REPLACING ALUMINIUM FOIL
POUCHES WITH HIGH BARRIER PROPERTIES

CUPS
POUCHES FOR LOW TO MEDIUM SHELF LIFE
LIDS
REPLACING ALUMINIUM FOIL
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BIO-BARRIERS AND FILMS

2019-2021
2021-2023
2023-2025

20 December 2019
Stora Enso

Source: SmithersPira, internal analysis

STRAWS
CAPS, CLOSURES & PACKAGING COMPONENTS
RIGID CONTAINERS
TRAYS
CAPS WITH HINGES
TUBES

~25 BEUR

BIOCOMPOSITES
Geographical exposure – Consumer Board

- Production Facilities
  - Sweden
    - Fors Mill
    - Skoghall Mill
  - Finland
    - Imatra Mill
    - Ingerois Mill
  - China
    - Beihai Mill

Worldwide sales network
R&D: Karlstad, Sweden and Imatra, Finland

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity 1 000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>3 360</td>
</tr>
</tbody>
</table>
We continue to grow our premium offering in Beihai

DEMAND AND CAPACITY IN CHINA
VIRGIN FIBER BOARD
(Million tons)

2016  11.9
2018e  11.9
2020f  13.4
2025f  13.4

Demand
Capacity

PRICING OF PREMIUM AND COMMODITY GRADE
VIRGIN FIBER BOARD IN CHINA
(RMB/t)

2016  7.2
2018e  7.8
2020f  8.5
2025f  10.3

Source: Pöyry, RISI
Attractive end-use segments offer significant opportunities

GLOBAL PACKAGING MATERIALS MARKET

ADDRESSABLE MARKET FOR CONSUMER BOARD

~400 BEUR

50%

Industrial and transport packaging

27%

Food & Dairy

8%

Beverages

5%

Healthcare & Cosmetics

10%

Other consumer goods

PAPER BOARD'S SHARE OF TOTAL PACKAGING

SEGMENT GROWTH (p.a. – 2022)

Food & Dairy

+2.3%

Beverages

+2.6%

Healthcare & Cosmetics

+2.8%

Source: SmithersPira, Euromonitor

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Stora Enso
2.6% CAGR until 2030 for virgin fibre board grades

Virgin fibre board grades:
- Coated Unbleached Kraft (CUK)
- Solid Bleached Sulphate (SBS)
- Liquid Packaging Board (LPB)
- Folding Box Board (FBB)
- Food Service Boards (FSB)

Source: Pöyry
We have a strong position with global customers
Top 10 customers account for 53% of sales and 60% of EBITDA

Market share per product vs. competitors

Coated Unbleached Kraft (CUK), Solid Bleached Sulphate (SBS), Liquid Packaging Board (LPB), Folding Box Board (FBB)

Source: Stora Enso, Pöyry
Packaging Solutions

- Packaging Solutions provides fibre-based board materials and corrugated packaging products and services 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.
- Modern light-weight containerboard offering.
- Vertically integrated board production and converting.
- Customer-centric solutions including design, packaging automation and support.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity 1 000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Containerboards</td>
<td>1 410</td>
</tr>
<tr>
<td>Corrugated Packaging</td>
<td>1 370 (Mm²)</td>
</tr>
</tbody>
</table>
Packaging Solutions – geared towards growth

Sample product categories
- Containerboards: AvantFlute Recycled, AvantFlute SC, AvantKraft, AvantLiner Recycled
- Corrugated Packaging: Flexo-printed packaging, Offset printed packaging, Protective packaging

Main competitors for containerboards include Mondi, Prinzhorn, BillerudKorsnäs and SCA and for corrugated packaging Smurfit Kappa and DS Smith

<table>
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<th>Q3/19</th>
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</thead>
<tbody>
<tr>
<td>Packaging Solutions</td>
<td>Operational ROOC &gt; 20%</td>
<td>30.4%</td>
</tr>
</tbody>
</table>
Geographical exposure – Packaging Solutions

Production Facilities

- Sweden
  - Jönköping
  - Skene
  - Vikingstad

- Estonia
  - Tallinn

- Latvia
  - Riga

- Lithuania
  - Kaunas

- Poland
  - Lodz
  - Mosina
  - Ostroleka
  - Tychy

- Finland
  - Heinola
  - Kristinankaupunki
  - Lahti
  - Varkaus

- Russia
  - Arzamas
  - Balabanovo
  - Lukhovitsy

- Sweden
  - Jönköping
  - Skene
  - Vikingstad

- Estonia
  - Tallinn

- Latvia
  - Riga

- Lithuania
  - Kaunas

- Poland
  - Lodz
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  - Ostroleka
  - Tychy

- Finland
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  - Kristinankaupunki
  - Lahti
  - Varkaus

- Russia
  - Arzamas
  - Balabanovo
  - Lukhovitsy

- China
  - Beijing
  - Shanghai
  - Dongguan
We have strong market position and growth in our home packaging markets

**Europe**
- **Nordics**: 0.7 BEUR, 0–1% CAGR, #1 107%*
- **Poland & Baltics**: 1.5 BEUR, 3–5% CAGR, #2 85%*
- **Russia**: 1.7 BEUR, 3% CAGR, #4 62%*

**China**
- **Corrugated & consumer packaging**

**Corrugated packaging**
- **Russia**: 1.7 BEUR, 3% CAGR, #4 62%*
- **Poland & Baltics**: 1.5 BEUR, 3–5% CAGR, #2 85%*
- **Nordics**: 0.7 BEUR, 0–1% CAGR, #1 107%*

**China**
- Using virgin fiber boards from Beihai and Europe

*Relative market share, measured as a share of largest competitor

**Note:** CAGR 2016–2026

Source: Stora Enso analysis

* Relative market share, measured as a share of largest competitor
Strong position and growth in our home box markets

Key box segments:
- Food
- Retail
- Industrial goods
- E-commerce
- Consumer electronics

Key box markets:

<table>
<thead>
<tr>
<th>Region</th>
<th>Value</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nordics (#1)</td>
<td>0.7 BEUR</td>
<td>1–2% CAGR</td>
</tr>
<tr>
<td>Poland &amp; Baltics (#2)</td>
<td>1.9 BEUR</td>
<td>3–5% CAGR</td>
</tr>
<tr>
<td>Russia (#5)</td>
<td>2.4 BEUR</td>
<td>3% CAGR</td>
</tr>
<tr>
<td>China (#3)*</td>
<td>1.8 BEUR</td>
<td>7% CAGR</td>
</tr>
</tbody>
</table>

*Position in rigid box market

2 December 2019
Stora Enso
E-commerce is driving growth in packaging

E-commerce packaging by materials
(Global market value share, 2017)

- Corrugated: 80%
- Flexibles: 15%
- Protective mailers: 1%
- Cushioning: 3%

Corrugated packaging growth in E-commerce

- ~15% CAGR (2017–2021)
- ~33 BEUR market value globally and ~6 BEUR in Europe in 2021
- ~13 BEUR market value added in E-commerce segment globally until 2021

Note: Market values for Global and Europe (Western, Central and Eastern) in 2021. 0.85 USD/EUR average exchange rate used in calculations.
Source: Statista 2018; Smithers Pira – Future of e-commerce packaging to 2022
Containerboard net balance

Testliner. Recycled fluting, 600 000 tonnes
SC Fluting capacity 300 000 tonnes
Kraftliner Capacity 390 000 tonnes

Containerboard
Production
1 300 000 tonnes

Internal consumption
340 000 tonnes
External purchases
230 000 tonnes

Balance
~730 000 tonnes
Corrugated packaging is also growing in Europe

Source: Pöyry, Risi, ICCA, Stora Enso analysis
Biomaterials

- Biomaterials offers a wide variety of pulp grades
- End uses: printing and writing papers, specialty papers, graphic papers, packaging paperboards and tissue
- Fluff pulp primarily used in diapers and hygiene products
- Dissolving pulp for textiles
- 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– geared towards growth

Sample product categories:
- Paper, packaging and tissue production: Supreme by Stora Enso (Softwood), Perform by Stora Enso (Hardwood) and Select by Stora Enso (Hardwood).
- Fluff pulp for hygiene products; diapers, and feminine care products: Care by Stora Enso
- Dissolving pulp for viscose fabrics e.g. textiles, pharmaceuticals, sponges, cellophane: Pure by Stora Enso
- Lignin (adhesive for construction, carbon fibre and energy storage) Lineo™ by Stora Enso
- Xylose
- By-products: tall oil, turpentine

Main competitors include UPM, Metsä Fibre, Södra, Arauco and Suzano

<table>
<thead>
<tr>
<th>Divisional strategic target</th>
<th>Q3/18</th>
<th>Q3/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomaterials</td>
<td>Operational ROOC</td>
<td>20.9%</td>
</tr>
</tbody>
</table>
Biomaterials worldwide

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity (kt/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-fibre pulp</td>
<td>1 100</td>
</tr>
<tr>
<td>Long-fibre pulp</td>
<td>450</td>
</tr>
<tr>
<td>Fluff pulp</td>
<td>350</td>
</tr>
<tr>
<td>Dissolving pulp</td>
<td>200</td>
</tr>
<tr>
<td>Net market pulp</td>
<td>2 100</td>
</tr>
</tbody>
</table>

Montes del Plata
Capacity: 1.4Mt/a

Veracel
Capacity: 1.2Mt/a

Skutskär
Capacity: 540kt/a

Enocell
Capacity: 490kt/a

Sunila
Capacity: 375kt/a

In summary:
- Montes del Plata: 1.4 Mt/a
- Veracel: 1.2 Mt/a
- Skutskär: 0.54 Mt/a
- Enocell: 0.49 Mt/a
- Sunila: 0.375 Mt/a

Total net market pulp capacity: 2.1 Mt/a
Demand for all pulp grades is growing by 2%

- **Textiles, nonwovens**
  107 Mt market, growing 3%/y
  6.8 Mt market pulp (dissolving)

- **Carton board**
  48 Mt market, growing 2.0%/y
  5.3 Mt market pulp

- **Tissue**
  36 Mt market, growing 4%/y
  23 Mt market pulp

- **Hygiene**
  590 billions of converted unit, growing 3.5%/y
  6.2 Mt market pulp (fluff)

- **Paper**
  **Specialty:**
  29 Mt market, growing 2%/y
  9 Mt market pulp

  **Graphic:**
  101 Mt market, declining -1%/y
  17 Mt market pulp

---

**Pulp (hardwood & softwood) demand grows 2% CAGR by 2023**

<table>
<thead>
<tr>
<th>2018</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>59</td>
<td>65</td>
</tr>
<tr>
<td>89</td>
<td>94*</td>
</tr>
</tbody>
</table>

*) without UPM new mill

**Pulp average capacity growth**

2007-2018: + 1.6 Mt/y (90% operating ratios)
2019-2024: + 1.0 Mt/y (confirmed projects, incl. UPM new mill)

Source: Pöyry Consulting Group, Hawkins Wright, Smithers Pira, RISI
Balanced market expected in pulp

Announced capacity growth 2018–2022: 2.8 Mt (0.56 Mt/year)

Softwood 0.8Mt  Hardwood 2.0Mt

Cash cost by country

Cumulative capacity, thousand tonnes/y

Pulp (softwood and hardwood) delivered cost

Source: Hawkins Wright (April 2018)

Pulp demand 2018–2022: + 1.6 Mt/year (2.5% CAGR)

No new major projects announced
Megatrends support the demand for virgin pulp in China

To 2030:

**Urbanisation**
- 58%
- (+200 million people)

**Growing middle class**
- 70%
- 5 trillion
- 9.6 trillion
- (private consumption in USD)

**Changing lifestyles**
- Eco awareness
  - Ban on imported recovered fibre

- 60%
- (safe sanitation services)

- 90%

**Eco awareness**
- 70%
- (+200 million people)

From 14 kg to 21 kg per capita consumption

+10 Mt of hardwood and softwood

Source: World Bank, UN Global Goals, Morgan Stanley Research, RISI, Stora Enso
We continue with our strategic focus areas

Maximise value from eucalyptus pulp
Continue to improve production efficiency
Constantly improve the cost competitiveness of Montes del Plata

Differentiate our Nordic pulp business
Reduce exposure in softwood
Grow in fluff and dissolving pulp
Continue to improve production efficiency
Innovate on pulp applications with current customers

Generate profitable growth from innovation platforms
Build and develop strong business on:
- Improved pulp properties
- Regenerated cellulose and MFC
- Lignin
- Bio-based chemicals
- Extraction and separation technologies
We are differentiating our pulp mix

Maximize value from eucalyptus pulp

Improve competitiveness of our Nordic mills (Fluff and dissolving)

Today

- Softwood: 45%
- Hardwood: 29%
- Fluff/dissolving: 26%

Target 2020

- Softwood: 43%
- Hardwood: 42%
- Fluff/dissolving: 15%
Innovation is key for sustainable profitable growth

**Product platforms**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**Technology platform for extraction & separation**
## Creating value from renewable, reusable and fossil free materials

<table>
<thead>
<tr>
<th>Innovation Platforms</th>
<th>Value proposition</th>
<th>End markets</th>
<th>Time to market</th>
<th>Market Potential: Size / value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved pulp properties</td>
<td>Increased material efficiency and performance</td>
<td>Specialty papers, hygiene fibre-based packaging</td>
<td>Continuous</td>
<td>2.6 Mt / 1.4 BEUR</td>
</tr>
<tr>
<td>Regenerated cellulose</td>
<td>Novel sustainable material from cellulose</td>
<td>Textile, and as film material in packaging</td>
<td>2020–2022</td>
<td>20 Mt / 35 BEUR</td>
</tr>
<tr>
<td>MFC</td>
<td>Increased material efficiency and performance</td>
<td>Specialty papers, coatings, cosmetics, and as film material in packaging</td>
<td>2019–2021</td>
<td>0.7 Mt / 1.6 BEUR</td>
</tr>
<tr>
<td>Lignin</td>
<td>Replace fossil-based materials</td>
<td>Resins and adhesives Carbon fibre Carbons for energy storage</td>
<td>2017–2023</td>
<td>1 Mt / 1.7 BEUR</td>
</tr>
<tr>
<td>Bio-based chemicals</td>
<td>Replace fossil-based materials for plastics</td>
<td>Packaging</td>
<td>2026–2027</td>
<td>2 Mt / 2.5 BEUR</td>
</tr>
</tbody>
</table>

Sources: Hawkins Wright, The Fiber Year 2018, EMBS, Smithers Pira, Transparency market research, Price Hanna consultants, Composites Marktbericht, Plastics Insight, Stora Enso experts
Wood Products

**Products**
- Cross Laminated Timber - CLT
- Laminated Veneer Lumber - LVL
- Construction beams
- Industrial components
- Biocomposites
- Classic sawn
- Classic Planed
- Pellets

**Services**
- Panel systems
- Modular systems
- Building Systems
- Walls, floor, roofs etc.
- Building Components
- Integrated distribution concept

**E-tools**
- MySupply
- E-business
- Pellet webshop
- BIM
- Digital tools
- CLT360
- Calculatis
This building grows back in 17 minutes.

We can cut construction emissions by up to 75% using renewable materials.

Geologen Trummen Strand
Växjö, Sweden

Picture: FOJAB architects
The wood used removed 5,700 tonnes of CO₂ from the atmosphere. And it equals 40 million car kilometres.
Head above Water
London, England

Strong and light without losing flexibility in design

Millimetre precision using latest technology
Wood Products – accelerating growth

Sample product categories:
- Classic sawn
- Classic planed
- CLT (Cross laminated timber)
- LVL (Laminated Veneer Lumber)
- Construction beams
- Window and door components
- Building Solutions
- Building Components
- ThermoWood
- Pellets
- Biocomposites

Main competitors include Binderholz, Holzindustrie Schweighofer, SCA Timber and Metsä Fibre

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<tr>
<td>Wood Products</td>
<td>Operational ROOC &gt; 20%</td>
<td>31.6%</td>
</tr>
</tbody>
</table>

Sales

<table>
<thead>
<tr>
<th>MEUR</th>
<th>Q318</th>
<th>Q319</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>390</td>
<td></td>
</tr>
</tbody>
</table>

Operational EBIT

<table>
<thead>
<tr>
<th>MEUR</th>
<th>Q318</th>
<th>Q319</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>
Our operations well positioned in Europe

- **Number of mills**: 4,038
- **Countries**: 21
- **Gross sales**: EUR 1.6 billion
- **Volume produced**: 5.6 Mm³

**Grade** | **Capacity**
--- | ---
Sawn goods | 5.6 Mm³
Further processing | 2.7 Mm³
CLT | 205 000 m³
LVL | 75 000 m³
Pellets | 495 000 t
Getting the right log is critical for profitability in Wood Products

Customer demand | Sawing pattern | Log pricing | Cutting | Purchasing

Demand flow

Material flow
Buildings of the future will be cheaper and more sustainable

Our solutions offer:

• Up to 70% faster construction time
• Up to 80% fewer truck deliveries on site
• Carbon emissions cut by up to 75% using wood
• Faster, safer and quieter construction
• Healthier indoor climate
• Good thermal resistance and insulating properties
Biocomposites will generate further growth
First time a truly cost-competitive material compared to general purpose plastics

• Revenue creation from totally new production stream

• Development in 2018
  • Production line in Hylte inaugurated
  • Next investments ongoing
  • Competence Centre under progress

• Market introduction ongoing
  • DuraSense™ by Stora Enso brand launched
  • First commercial deliveries with brand owners: ie Orthex and H&M
  • Cooperation with NorDan to develop biocomposite materials for 3D printing ongoing
The target to grow profitable 6–8% p.a. through innovative wood-based solutions

Building Components and Solutions

Competitive Classic Planed

Biocomposites

+300–400 MEUR

+100–150 MEUR

+up to 200 MEUR

We target to increase the new products and services from 4% to 15% of sales by 2024
Paper

- The second largest paper producer in Europe with an established customer base and wide product portfolio for print and office use
- The wide selection covers papers made from virgin wood and recycled fibres
- Customers: publishers, retailers, printing houses, merchants, converters and office suppliers
- End uses: newspapers and supplements, books, magazines, advertising, note books, art books, office
Paper – geared to cash generation

Sample product categories
- Paper selection for print media: Newsprint and book papers, Uncoated mechanical papers (SC), Coated papers (Brands: e.g. Nova, InnoPress)
- Paper selection for office use: transactional needs, office printing, writing and educational needs (Brands: e.g. 4CC, MultiCopy, Zoom)

Main competitors include UPM, Sappi, Norske Skog, Holmen and the Navigator company

<table>
<thead>
<tr>
<th>Divisional strategic target</th>
<th>Q3/18</th>
<th>Q3/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Cash flow after investing activities to sales &gt;7%</td>
<td>8.3%</td>
<td>14.4%</td>
</tr>
</tbody>
</table>
# Paper worldwide

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsprint</td>
<td>1 800 t</td>
</tr>
<tr>
<td>Uncoated Magazine (SC)</td>
<td>1 050 t</td>
</tr>
<tr>
<td>Coated Magazine</td>
<td>250 t</td>
</tr>
<tr>
<td>Total Magazine Paper</td>
<td>1 300 t</td>
</tr>
<tr>
<td>Coated Fine*</td>
<td>1 100 t</td>
</tr>
<tr>
<td>Uncoated Fine</td>
<td>1 000 t</td>
</tr>
<tr>
<td>Total Fine Paper</td>
<td>2 100 t</td>
</tr>
<tr>
<td><strong>Paper Total</strong></td>
<td><strong>5 200 t</strong></td>
</tr>
</tbody>
</table>

*Oulu coated fine paper production to continue until end of September 2020*
Since 2013 we have transformed our Paper business

-17%  -33%  -21%  -82%  +20%
Paper demand in Europe  Our production capacity  Our deliveries  Our accidents  Customer satisfaction

Optimising profitability and cash flow:
• Focus on the right product and customer segments
• Pricing excellence
• Variable and fixed cost control
• High operational efficiency and capacity utilisation
• Focused investments
• Working capital reduction
• Innovation and digitalisation

Change 2013–Q3/2018
*) Percentage points in NPS
Innovations
Innovations – a few snapshots
Focus on innovations

In 2018, Stora Enso’s expenditure on research and development was EUR 149 million, which was equivalent to 1.4% of sales.

56 priority founding patent applications filed and over 324 patents granted worldwide
We are investing more in innovation and R&D

Source: Stora Enso, annual reports 2018

R&D expenditure in 2018
149 MEUR

Peers:
- Borregaard
- IP
- Metsä Board
- Mondi
- SCA
- Smurfit Kappa
- UPM
Innovation projects with high potential impact to transformation

- Bio-barriers, MFC films
- Native and modified MFC
- Intelligent packaging
- Bio-based plastics
- Dissolving pulp to novel cellulose materials

- Liquid and food packaging
- Specialty papers, nonwovens, personal and home care, barrier materials
- Sophisticated applications to brand owners and supply chains
- Chemical intermediates
- Textiles and nonwovens

- Lignin for phenol replacement
- Carbon fibre
- Bio-based carbons for energy storage
- Biocomposites

- Reduction of fossil raw materials in adhesives
- Sports and leisure, wind energy, automotive, aviation
- Anode material for batteries, activated carbon for double layer capacitors
- Replacement of fossil-based plastics in composites
Innovation in packaging
Advancing the renewable packaging industry with innovations

Microfibrillated cellulose (MFC)
Biobarrier coatings
Biocomposites
Intelligent packaging
Design driven innovation
We see many new opportunities to replace fossil-based materials...

### Lignin-based products
- Lineo™ by Stora Enso
- Carbon fibre
- Carbon for energy storage

- Market size 1.2 BEUR
- Growth ~20%/a
- EBITDA 30–50%

### Biocomposites
- DuraSense™ by Stora Enso for wood-based biocomposites
- Less fossil-based materials with higher share of fibre

- Market size 7 BEUR
- Growth ~15%/a
- EBITDA 20–30%

### Liquid packaging MFC
- Source reduction

**MFC films**
- Functional barriers for paper and board packaging

- Market size 1.5 BEUR
- Growth ~5%/a
- EBITDA >20%
...Iceland Foods chooses our Trayforma to replace plastics

• Iceland Foods, the UK’s leading specialist retailer in the frozen food category, launched the first plastic-free pledge for its own brand products for a UK supermarket
  – Target is to be plastic-free by 2023 through an overhaul of their entire product range
• Ready meals packed in paperboard trays
• Trayforma™ by Stora Enso food-safe and suitable for cooking at high temperatures in ovens and microwaves food trays
Micro-fibrillated cellulose improves product properties and can replace fossil-based materials

**Today**

• MFC is used to make more durable, lighter, high-quality packaging products

**Future potential**

• Barrier coating solutions for grease and oxygen barriers
• Biodegradable replacement for aluminium foil
• Carrier for example in cosmetics
• 3D printing
Biocomposites – gradually replacing plastic

• Use in products, such as disposable cutlery, furniture, as well as storage and logistics goods

• Raw material for markets where plastics dominate

• Can reduce the consumption of fossil-based plastic by up to 60%

• Always a better alternative than fossil-based plastic
  – Reduce the carbon footprint of a product up to 80%

DuraSense™ by Stora Enso

Target market
4.5 Mt
1-5 years
Stora Enso, Intelligent Packaging

- Digitalization of packaging and product flows using RFID technology
- Offering provided in three focus areas from tag products to retail and pulp&paper solutions
- Circa 40 people in Europe and Asia

Milestones:
- Started 10 years ago in Stora Enso, last 3-4 active commercialization.
- 2017 - Inauguration of PackPerformance Center in: a dedicated RFID development and testing site in Tampere, Finland
- 2018 – Establishment of Business Unit structure for Intelligent Packaging within Stora Enso group
- 2018 – Launching ECO™ technology
Intelligent packaging
Connecting packages, products and value chains
Scope of Intelligent Packaging

• Complete offering for end-to-end execution
• Value driven approach to digitalisation projects
• Unique capabilities to connect products and embed identifiers
• Post sales support
• Software platform and supporting enterprise software integrations
Business success requires end-to-end solution
From tags and integration to cloud and applications

<table>
<thead>
<tr>
<th>ENTERPRISE APPLICATIONS</th>
<th>Asset Management</th>
<th>Track &amp; Trace</th>
<th>Data Analytics</th>
<th>Integrations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ERP, MES, PDM, CRM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CLOUD PLATFORM</th>
<th>Data Integration</th>
<th>Data Collection</th>
<th>Data Processing</th>
<th>Data Analytics</th>
<th>Open data and management Interfaces</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intelligent Packaging Cloud data platform (Microsoft Azure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>READER INFRASTRUCTURE</th>
<th>RFID Gate</th>
<th>RFID Cabinet</th>
<th>RFID Forklift</th>
<th>RFID Station</th>
<th>RFID Tunnel</th>
<th>RFID Truck Gate</th>
<th>Handhelds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TAG &amp; INTEGRATION</th>
<th>Tags Design &amp; Performance</th>
<th>Tag Manufacturing &amp; Converting</th>
<th>Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bracket, Bobbin, Bumper, Tail, Stripe</td>
<td>Conventional, Sustainable ECO RFID Tech</td>
<td>Hammer solution</td>
</tr>
</tbody>
</table>

- Business case evaluations
- Solution design
- Installation & Maintenance Services
- Application development
Studies show significant benefits for RFID

**Improvement in Key Retail Metrics/KPIs Before and After RFID Adoption**

<table>
<thead>
<tr>
<th>BEFORE RFID</th>
<th>AFTER RFID</th>
<th>IMPROVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory Accuracy</td>
<td>67.4%</td>
<td>84.5%</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>64.6%</td>
<td>71.7%</td>
</tr>
<tr>
<td>Store Out-of-Stocks</td>
<td>16.5%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Shrinkage</td>
<td>17.8%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Profit Margin</td>
<td>8.9%</td>
<td>14.3%</td>
</tr>
<tr>
<td>Average Markdown</td>
<td>14.8%</td>
<td>11.9%</td>
</tr>
</tbody>
</table>

* Improvement is reflected by reduction

Source: EKN—Kurt Salmon RFID in Retail Survey, 2016

**McKinsey Study 2018 on Supply Chain Potential of Intelligent Packaging in Industrial Goods**

- **3-11%**: Tied-in capital reduction
- **4-7%**: Cost decrease in supply chain
- **1-2%**: Improvement in service level and product availability

2 December 2019

Stora Enso
ECO RFID Tag Technology
Unique RFID technology launched in Nov 2018

Key benefits:
- Sustainable
- Reliable
- Performant
- Cost neutral

Available in several tag designs

Traditional RFID structure: 6 layers + release liner
ECO RFID structure: 3 layers + release liner
Digitizing Supply Chains for better visibility

1. Automated inventory management with RFID-gates that auto-register which RFID-tagged items enter the warehouse at inbound and leave the warehouse at outbound.

2. Automated counting and scanning as RFID reader scans contents of box with RFID-tagged items, useful in receiving and picking.

3. Automated cycle count with handheld RFID-reader (or even a drone with an RFID-reader) performs cycle count of items in floor storage.

4. Forklifts with RFID-scanners enable sensing of pick/put-away locations quality controls that correct packages are picked.

5. Stock location management RFID readers on shelves sense which RFID-tagged items are placed on the shelves.

6. Shipping QC with RFID-reader gate verifies that correct RFID-tagged packages are loaded on the truck avoiding incorrect shipments.

7. Dispatch navigation with RFID-readers in the ceiling identify items in the dispatch area and lights guide workers to correct boxes.

8. Smart container with RFID-readers at the door that register which RFID-tagged items enter and leave the container.

9. Packaging validation with RFID-reader in pack stations verifies contents of package being built – verifies pack completion and warns if line items are missing.

10. RFID-reader in trunk of van keeps automated inventory count and tracks RFID-tagged equipment.

11. Anti-tamper protection of goods with sealed tag and/or unique code to identify genuine product.

12. Returns management with RFID tags also on return flow from customers or other warehouses to enable full integration with other use cases.
Retail and RFID
RFID market development example – Macy’s

“Men’s and women’s undergarments, men’s slacks, denim apparel and women’s shoes”

“All lines of businesses at its stores, except for jewelry and cosmetics.”

“All items in every store tagged.”

Source: RFID Journal October 2016

Macy’s Inc. to Begin Item-Level Tagging in 850 Stores
The company plans to RFID-enable its Macy’s and Bloomingdale’s stores by
2012, and will tag garments most often replaced—accounting for about 30
percent of the retailer’s sales.
By Claire Swedberg
Tags: Apparel, Inventory, Warehouse Management, Manufacturing, Retail

Macy’s to RFID-Tag 100 Percent of Items
Speaking at last week’s RFID in Retail and Apparel conference, Bill Concern, the
company’s SVP of logistics and operations, said Macy’s aims to have all items
RFID-tagged at the source by the end of 2017.
By Mark Robert
Tags: 2016, Apparel, Retail, RFID Journal Source, Sooph Chan

30% 2012
60% 2016
100% 2017

“Men’s and women’s undergarments, men’s slacks, denim apparel and women’s shoes”

“All lines of businesses at its stores, except for jewelry and cosmetics.”

“All items in every store tagged.”

Source: RFID Journal October 2016
Item Level Tagging Benefits in retail stores

Example in food category

- Waste reduction **up to 20%**
- Labour cost reduction **up to 50%**
  - Cut labour costs of shelf life management
  - Improve visibility of use-by dates
  - Simplify mark down process
  - Reduce net food waste in store
  - Improve stock rotation
  - Enhance recall management

*based on Avery Dennison pilots and retailer feedback*
Innovative and award-winning design

- Leak-tight renewable and 100% recyclable packaging for fresh fish
- WorldStar packaging award
- Sustainability award by World Packaging Organisation
- Original design replacing traditional pressed pulp packaging for eggs
- Best packaging and label award for Food at ProdExtraPack
Stora Enso named Husqvarna’s most innovative supplier

Long term collaboration between Stora Enso and Husqvarna Group

Motivation for the award:

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 to sustainably achieve its ambitious goals concerning development and innovations in the supply chain.

New packaging for chain saws reduces cost and CO₂ emissions

- 37% capacity fill
- 5 300 pallets/year
- 180 containers/year
- 190 000 kg CO₂/year
Innovation in Biomaterials

- Pulp applications
- Cellulose modification and pulp process by-products
- Developing the extraction technology
- Further development of sugars
From wood to renewable products

Extraction and separation technologies

20–30% lignin

25–35% hemicellulose

35–45% cellulose

Cellulose and hemicellulose

Sugars

Lignin

Lignin, biochemicals, bioplastics, regenerated cellulose, pulp etc
Innovation is key for sustainable profitable growth

Product platforms

1. Improved pulp properties
2. Regenerated cellulose & MFC
3. Lignin
4. Bio-based chemicals

Technology platform for extraction & separation
Platform 1: improving pulp properties for existing products

Fluff pulp
- Hygiene and health, growing by 3.6% per year
- Life expectancy and increased disposable income in developing countries
- Improve fluff pulp properties to increase customer value

Dissolving pulp
- Dissolving pulp to textiles is a 6.1 Mt market, growing 6.8% per year
- The increase of cellulosic fibre in textiles is driven by global brand owners
- Improve quality to be able to differentiate in the value chain

Pulp for specialty papers
- Flexible packaging, labels, security, décor, among others
- 28 Mt market, growing 1.8% per year
- Fibre improvements, special additives, sustainable coatings & barriers, source reduction and other innovation opportunities

Source: Smithers Pira, Hawkins Wright

Stora Enso
Platform 2: Developing new technologies for using wood fibre in textiles, non-woven and specialty papers

Regenerated cellulose

- Participate in the development of new technologies for using wood fibre in textile
- Growing interest from global brand owners increases demand for renewable fibres
- Opportunity to leverage on existing assets to enter this new market

MFC

- MFC has potential to be used in specialty papers and non-woven
- MFC is a versatile material with potential to work as strength enhancer, additive, binder and barrier material
- Stora Enso has a long history in the research of MFC and has a demonstration plant in Imatra, Finland

Source: Stora Enso
Platform 3: Lignin – big opportunities in many markets

**Phenol replacement**
- Phenolic resins is a 2.8 Mt market, growing at 4% CAGR
- It replaces phenol in adhesives for plywood, OSB (oriented strand board), laminates, LVL and other wood construction materials
- The carbon footprint for lignin is roughly 1/10 of the carbon footprint of phenol

**Carbon fibre**
- Light-weight high performance composites
- 70–80 Kt market, growing at 9–12% CAGR
- Low-carbon-footprint carbon fibre is unoccupied market space

**Energy storage**
- Substitution of conventional hard carbon anode materials in energy storage, namely Li-Ion Batteries and Supercapacitors
- Market growing on average by 20% CAGR
- Key applications: portable consumer electronics, power tools, electrical vehicles, stationary applications and back-up systems

Source: Stora Enso, Carbon Composites, IDTechEx, LuxResearch, Markets and Research, Zion Research
Renewable Lineo™ by Stora Enso can replace fossil-based materials

- Wood-based lignin is a renewable, non-toxic, traceable material
- Environment benefit, for example, in carbon fibres, energy storage and mechanical forest industry
- Today as a replacement for oil-based phenolic materials in glues for example in plywood and paper lamination
- Lignin makes up 20-30% of round wood

Market size; 3Mt for Phenol replacement
Platform 4: Bio-based chemicals replacing fossil-based materials

**Bioplastics and intermediates**
- Growing interest in packaging/bottling markets for renewable solutions
- Reduction on carbon footprint and enhanced properties are key target areas
- Market clearly favoring second generation biomass as the raw material source
- It is a very populated market place, thus, strategic alliances will be crucial to win in this industry

**Xylose**
- Key application is the xylitol (sweetener) market (approximately 120 Kt at 4–6% CAGR)
- Compared to C6 sugars it still is a rather undeveloped market, mainly due to lack of pure xylose availability. This is changing with the biorefinery concepts
- Growing interest and developments taking place in the market
- Stora Enso well positioned to be a frontrunner here

Source: PwC, Kline and Industry experts
Innovation in Wood Products

Product innovations

Building Systems

Digitalisation
From a classic sawn producer to a leading provider of innovative wood-based solutions

- Classic sawn
- Cross Laminated Timber (CLT)
- Laminated Veneer Lumber (LVL)

Building Solutions

- Industrial components
- Construction beams
- Pellets

Online services and e-business
Building Systems driving growth

Find the film from Stora Enso’s YouTube page (youtube.com/storaenso), or use a direct link youtube.com/watch?v=3El9hp_T5k
New ways of improving efficiency through digitalisation – Forest categorisation & log value

Buyer takes pictures
Pictures to cloud service

Cloud
Calculation
ProCalc data - Value of logs

Results

- Quality class
- Value for sawmills
→ Pricing proposal for buyer
Digitalisation in Wood Products

1. Market information
   - Forest categorisation based on collected info
   - Optimised raw material specification based on demand
   - Product demand forecast based on market

2. Digital customer interaction
   - Scan each single product
   - Individualisation of each log and digital data transfer to mill
   - Trees cut based on profit optimisation

3. Intelligent products
   - Automate, robotise and mobilise production
   - Simulate production, based on demand and log info
   - Scan each single log

4. Wood Products end-to-end Digitalisation
   - Product demand forecast based on market
   - Market information
   - Intelligent products
   - Digital customer interaction

Stora Enso
Group’s financial performance, dividend policy, ownership and top management
Financial performance - Group
Cost structure 2018
% of costs

- Logistics and commissions: 34%
- Fibre: 11%
- Chemicals and fillers: 12%
- Energy: 10%
- Material: 7%
- Personnel: 7%
- Depreciation: 7%
- Other: 5%

2 December 2019
Stora Enso
Capex raised temporarily above depreciation

Capex estimate for 2019 and 2020 includes the capitalised leasing contracts according to IFRS 16 Leases standard.
Large number of opportunities prioritised through robust capital allocation

- Systematic approach on Group capex (>10MEUR)
  - Investment Working Group headed by CFO reviews all the proposals to ensure quality and prioritisation
  - Alignment with the Stora Enso strategy and financial and sustainability targets
- Selective investments to strategic projects in winning markets and products
- New cash flow modelling tool helps asset prioritisation with 20–30 years perspective

<table>
<thead>
<tr>
<th>Divisional financial targets</th>
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</thead>
<tbody>
<tr>
<td>Consumer Board</td>
</tr>
<tr>
<td>Packaging Solutions</td>
</tr>
<tr>
<td>Biomaterials</td>
</tr>
<tr>
<td>Wood Products</td>
</tr>
<tr>
<td>Paper</td>
</tr>
</tbody>
</table>
Targeted ROOC is driving CAPEX allocation
Capex forecast in 2019

* Operational ROOC target
** Cash flow after investing activities to sales target
Year-on-year net debt/EBITDA

MEUR

Q114 Q314 Q115 Q315 Q116 Q316 Q117 Q317 Q118 Q318 Q119 Q319

Net debt

Net debt to operational EBITDA
Revolving Credit Facility 600 MEUR matures in January 2023 and is fully undrawn
Sustainability in our funding and reporting

**Revolving Credit Facility with a green aspect**

Pricing includes sustainability component based on ability to reduce greenhouse gas emissions.

**Green Bond Framework**

A loan-format to support sustainability-focused fixed income investors and to report environmental impacts.

**Green Bonds**

First green bonds issued in February in 2019 to finance Bergvik Skog forest acquisition.

**Sustainable Finance strategy**

The aim is to influence and develop the financial markets and to secure funding partners with sustainability agenda.

**Climate-related financial disclosure**

CFO support for better disclosure of climate risks and opportunities based on recommendations by the Financial Stability Board’s Task Force on Climate-related Financial Disclosures (TCFD).

**Integrated reporting**

Stora Enso dividend policy

- Strive to pay stable dividends linked to the long-term performance
- Half of the EPS over the cycle
Ownership Distribution
as of 30 September 2019

<table>
<thead>
<tr>
<th>Ownership Category</th>
<th>% of shares</th>
<th>% of votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solidium Oy*</td>
<td>10.7%</td>
<td>27.3%</td>
</tr>
<tr>
<td>FAM AB</td>
<td>10.2%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Social Insurance Institution of Finland (KELA)</td>
<td>3.1%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Finnish institutions (excl. Solidium and KELA)</td>
<td>12.9%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Swedish institutions (excl. FAM)</td>
<td>8.4%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Finnish private shareholders</td>
<td>4.7%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Swedish private shareholders</td>
<td>4.0%</td>
<td>2.5%</td>
</tr>
<tr>
<td>ADR holders</td>
<td>1.8%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Under nominee names (non-Finnish/non-Swedish shareholders)</td>
<td>44.2%</td>
<td>14.8%</td>
</tr>
</tbody>
</table>

* Entirely owned by the Finnish State
## Major Shareholders
### as of 30 September 2019

<table>
<thead>
<tr>
<th></th>
<th>A shares</th>
<th>R shares</th>
<th>% of shares</th>
<th>% of votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Solidium Oy*</td>
<td>62 655 036</td>
<td>21 792 540</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>FAM AB**</td>
<td>63 123 386</td>
<td>17 000 000</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Social Insurance Institution of Finland (KELA)</td>
<td>23 825 086</td>
<td>973 982</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Varma Mutual Pension Insurance Company</td>
<td>8 513 018</td>
<td>1 140 874</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Ilmarinen Mutual Pension Company</td>
<td>3 121 472</td>
<td>19 060 193</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>MB-Bolangen i Vetlanda AB (incl. Stiftelsen Seydlitz Småländ)</td>
<td>4 826 020</td>
<td>1 110 000</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Erik Johan Ljungberg's Education Foundation</td>
<td>1 780 540</td>
<td>2 336 224</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Swedbank Robur Funds</td>
<td>0</td>
<td>15 993 336</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Bergslaget's Healthcare Foundation</td>
<td>626269</td>
<td>1 609 483</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>Elo Mutual Pension Insurance Company</td>
<td>0</td>
<td>7 759 000</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>AFA Insurance</td>
<td>0</td>
<td>7 347 090</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>The State Pension Fund</td>
<td>0</td>
<td>5 813 755</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Nordea Investment Fund</td>
<td>0</td>
<td>5 679 394</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Lannebo Funds</td>
<td>0</td>
<td>5 550 000</td>
<td>1</td>
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<tr>
<td>15</td>
<td>Keva (Local Government Pensions Institution)</td>
<td>0</td>
<td>5 251 101</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>SEB Investment Management</td>
<td>0</td>
<td>4 287 883</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>Unionen (Swedish trade union)</td>
<td>0</td>
<td>3 782 750</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Investment Fund OP Suomi</td>
<td>0</td>
<td>2 962 446</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>Schweizerische Nationalbank</td>
<td>0</td>
<td>2 791 637</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>The Society of Swedish Literature in Finland</td>
<td>0</td>
<td>2 450 000</td>
<td>0</td>
</tr>
<tr>
<td><strong>20 largest total</strong></td>
<td><strong>168 470 827</strong></td>
<td><strong>134 691 688</strong></td>
<td><strong>38</strong></td>
<td><strong>76.4</strong></td>
</tr>
</tbody>
</table>

*Entirely owned by the Finnish State. **As confirmed to Stora Enso.

List has been compiled by the company, based upon shareholder information from Euroclear Finland Oy and Euroclear Sweden AB share registers and a database managed by Citibank, N.A. (as the company's ADR agent bank). This information includes only direct registered holdings, thus certain holdings (which may be substantial) of ordinary shares and ADRs held in nominee or brokerage accounts can not be included. The list is therefore incomplete.
Group Leadership Team

CEO
Annica Bresky

CFO
Seppo Parvi

HR
Malin Bendz

Sourcing
Johanna Hagelberg

Paper
Kati ter Horst

Communication
Ulrika Lilja

Legal
Per Lyrvall

Biomaterials
Markus Mannström

Sustainability
Noel Morrin

Packaging Solutions
Gilles van Nieuwenhuizen

Wood Products
Jari Suominen

119  2 December 2019
Stora Enso
Board of Directors

Jorma Eloranta
since April 2016
Chairman

Hans Stråberg
since April 2009
Vice chairman

Elisabet Fleuriot
since April 2013

Hock Goh
since April 2012

Mikko Helander
since March 2019

Christiane Kuehne
since April 2017

Antti Mäkinen
since March 2018

Richard Nilsson
since April 2014

Göran Sandberg
since April 2017
ESG indices and other external recognition in 2018

- **EURONEXT Venice**: Stora Enso is listed in the EURONEXT Venice World, Europe, and EuroZone 120 indices as one of the 120 most advanced companies in terms of environmental, social, and governance performance.

- **STOXX4Good 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 “Prima” 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 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 Services/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.

- **Ethisel**: In 2016, Forum Ethisel included Stora Enso in the Ethisel 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 Ethisel 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 centered and asset manager-supported global initiative, the TPi assesses companies’ preparedness for transition to a low carbon economy, supporting efforts to address climate change.

- **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 Dagström Industri, Aktuell Hållbarhet, and Lund University School of Economics and Management.
# Sponsored ADR Programme

Stora Enso has established a sponsored Level I ADR programme in the US. The ADRs trade on the premier tier of Over-The-Counter (“OTC”) market in the US. Details are as follows:

<table>
<thead>
<tr>
<th>Ticker Symbol</th>
<th>SEOAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSIP</td>
<td>86210M106</td>
</tr>
<tr>
<td>Ratio</td>
<td>1 ADR : 1 Ordinary Shares</td>
</tr>
<tr>
<td>ADR depositary</td>
<td>Citibank</td>
</tr>
</tbody>
</table>

**Share price information**: www.citi.com/DR or www.otcqx.com

Please contact the Citibank’s dedicated ADR broker desks:

- Scott Pollak (New York)
  - Tel: +1 212 723 5676
  - Email: scott.h.pollak@citi.com

- Mike Woods (London)
  - Tel: +44 20 7500 2030
  - Email: michael.woods@citi.com
Financial results for Q3 2019

Continued focus on cash and costs

CEO Karl-Henrik Sundström
CFO Seppo Parvi

29 October 2019
Continued focus on cash and costs
Profit protection programme target increased to 275 MEUR
Q3 2019 year-on-year

• Sales decreased by 7% to 2 402 (2 585) MEUR
  – Decrease due to lower prices and volumes
  – Sales excluding Paper decreased by 5%

• Operational EBIT decreased to 231 (358) MEUR
  – Decrease due to lower prices and volumes, partly offset by lower costs achieved through
    profit protection programme
  – Operational EBIT margin 9.6% (13.8%)

• EPS decreased to 0.09 (0.27) EUR and EPS excl. IAC 0.13 (0.31) EUR

• Strong cash flow from operations at 488 (457) MEUR due to active working
  capital management. Cash flow after investing activities 347 (319) MEUR

• Net debt to operational EBITDA at 2.2x (1.1x) slightly above the target of 2.0x
  – Restructuring of Bergvik Skog impact 0.7x, IFRS 16 Leases impact 0.3x

• Operational ROCE at 8.7% (16.7%) below the strategic target of 13%
  – IFRS 16 Leases impact negative 0.4 percentage points, Bergvik Skog restructuring impact
    negative 1.0 percentage points
Preparing for the turn of the cycle
Operational EBIT Q3 y-o-y
Profit protection programme: savings target increased to 275 MEUR and extended until 2021

• Programme is proceeding ahead of plan
  – Approximately 100 MEUR cost savings achieved by end of Q3
  – Cumulatively about 200 MEUR of the savings target is expected to be achieved by the end of 2020

• Programme includes announced Paper division plans to make organisational changes to improve competitiveness and ensure efficient customer service after the Oulu Mill conversion

• Stora Enso will consolidate its Finnish spruce timber sawmilling at its integrated mill site in Varkaus
  – As a result of this consolidation, the Kitee sawmill will be shut down
Annica Bresky the new President and CEO as of 1 December 2019

• Annica Bresky
  – Executive MBA, MSc Engineering, Aquatic and Environmental Engineering
  – Currently Head of Stora Enso’s Consumer Board division

“I am very honoured to have this opportunity. I am looking forward to continuing to build the future of Stora Enso together with our competent teams across the company. We are well positioned to grow with our customers and support their business with sustainable and innovative solutions. Together with my Stora Enso colleagues, our customers and our partners all over the world, we will accelerate our efforts as a front runner in combatting global warming,” says Annica Bresky, CEO-designate.
Events during Q3

• New Forest division to be established as of Jan 2020
  − Including Swedish forest assets and 41% share of Tornator
  − Wood supply operations in Finland, Sweden, Russia and Baltic countries
  − 3.2 BEUR out of total 3.6 BEUR of biological assets

• Enocell pulp mill conversion from softwood pulp to dissolving pulp completed
  − Gradual ramp-up starts during Q4

• Divestment of 60% equity stake in Dawang paper mill in China

• Minority stake in China Packaging unit acquired

• Paperboard tube for cosmetics packaging introduced as a new, climate-friendly alternative to plastic tubes
# Improved cash flow

Summary financials Q3 2019

<table>
<thead>
<tr>
<th>MEUR</th>
<th>Q3/19</th>
<th>Q3/18</th>
<th>Change% Q3/19-Q3/18</th>
<th>Q2/19</th>
<th>Change% Q3/19-Q2/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>2 402</td>
<td>2 585</td>
<td>-7.1%</td>
<td>2 608</td>
<td>-7.9%</td>
</tr>
<tr>
<td>Operational EBITDA</td>
<td>376</td>
<td>502</td>
<td>-25.1%</td>
<td>435</td>
<td>-13.6%</td>
</tr>
<tr>
<td>Operational EBITDA margin</td>
<td>15.7%</td>
<td>19.4%</td>
<td>16.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational EBIT</td>
<td>231</td>
<td>358</td>
<td>-35.5%</td>
<td>287</td>
<td>-19.5%</td>
</tr>
<tr>
<td>Operational EBIT margin</td>
<td>9.6%</td>
<td>13.8%</td>
<td>11.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit before tax excl. IAC</td>
<td>152</td>
<td>305</td>
<td>-50.2%</td>
<td>214</td>
<td>-29.0%</td>
</tr>
<tr>
<td>Net profit for the period</td>
<td>59</td>
<td>204</td>
<td>-71.2%</td>
<td>52</td>
<td>12.9%</td>
</tr>
<tr>
<td>EPS excl. IAC, EUR</td>
<td>0.13</td>
<td>0.31</td>
<td>-56.9%</td>
<td>0.22</td>
<td>-40.3%</td>
</tr>
<tr>
<td>EPS (basic), EUR</td>
<td>0.09</td>
<td>0.27</td>
<td>-67.5%</td>
<td>0.08</td>
<td>17.3%</td>
</tr>
<tr>
<td>Operational ROCE</td>
<td>8.7%</td>
<td>16.7%</td>
<td>-47.9%</td>
<td>11.3%</td>
<td>-23.0%</td>
</tr>
<tr>
<td>Cash Flow from Operations</td>
<td>488</td>
<td>457</td>
<td>6.9%</td>
<td>548</td>
<td>-10.9%</td>
</tr>
<tr>
<td>Net debt/last 12 months’ operational EBITDA</td>
<td>2.2*</td>
<td>1.1</td>
<td>2.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Restructuring of Swedish forest holding impact 0.7x and adoption of IFRS 16 Leases impact 0.3x
Consumer Board
Price increases continuing
Q3 y-o-y

• Sales decreased slightly to 640 MEUR
  − Lower board deliveries
  − Higher pulp deliveries and higher board sales prices

• Strong operational EBIT increase of 45% to 73 MEUR
  − Higher sales prices, lower pulp costs and lower fixed costs
  − Lower volumes

• Operational ROOC improved around 3 percentage points to above 13%

• Trials made with Fiskeby Board in Sweden to recycle used paper cups into white-lined chipboard (WLC)
  − Confirmed that used paper cups can be utilised as valuable raw material to produce WLC board
  − Can be done without any investments or changes to the process conditions at Fiskeby Board Mill
  − Earlier trials at Langerbrugge to recycle used paper cups

• Seven European Carton Excellence awards received
Packaging Solutions
Corrugated market benefiting from lower containerboard prices
Q3 y-o-y

- Sales decreased 9% to 299 MEUR
  - Significantly lower RCP containerboard and kraftliner prices
- Operational EBIT decreased 39 MEUR from last year’s all-time high level to 29 MEUR
  - Significantly lower board prices, higher wood costs
  - Lower raw material prices for Corrugated units
- Operational ROOC decreased to 12.1% (30.4%) driven by significantly lower containerboard prices
- Oulu Mill conversion into kraftliner production is proceeding as planned, and construction work has started in all areas. Production is expected to start by the end of 2020.
Biomaterials
Chinese market showing positive signs
Q3 y-o-y

• Sales decreased 20% from last year’s record high Q3 to 331 MEUR
  – Significantly lower pulp prices
  – Positive sales FX

• Operational EBIT decreased 86 MEUR to 39 MEUR from last year’s all-time high level
  – Significantly lower pulp prices and higher wood costs
  – Higher total volume impact

• Operational ROOC decreased to 5.9% (20.9%) in-line with lower profitability
Wood Products
Margin protection continues
Q3 y-o-y

• Sales decreased 5% to 380 MEUR
  – Lower classic sawn prices and slightly lower deliveries

• Operational EBIT decreased 21 MEUR to 27 MEUR from last year’s record high Q3 level
  – Lower sales prices, lower volumes and higher depreciation, impacted by strategic investments
  – Lower wood costs in Central Europe

• Operational ROOC decreased to 15.8% (31.6%) due to lower profitability
Paper
Strong cash generation in challenging market conditions
Q3 y-o-y

- Sales decreased 11% to 690 MEUR
  - Significantly lower paper deliveries
  - Dawang paper mill divestment impact -10 MEUR

- Operational EBIT decreased by 15 MEUR to 50 MEUR
  - Significantly negative total volume impact
  - Good costs management, lower fixed costs due to profit protection programme and lower variable costs, mainly pulp

- Cash flow after investing activities to sales ratio increased to 14.4 (8.3)%
  - Good working capital management

- Dawang Mill divestment reduced annual paper capacity by 140 kt

- Reducing paper capacity by over million tonnes, 20% of Stora Enso paper capacity, with Oulu conversion in 2020
Outlook for 2019

Deteriorating trading conditions caused by geopolitical uncertainties related to trade wars and a possible hard Brexit are expected to impact Stora Enso negatively. Demand growth is forecast to slow for Stora Enso’s businesses in general, and the decline in demand for European paper will continue. Due to the profit protection programme, costs are forecast to remain roughly at the same level in 2019 as in 2018. Stora Enso is still implementing additional profit protection measures to mitigate negative financial impacts of the current situation.
Guidance for Q4 2019

- Operational EBIT is expected to be in the range of 100–180 MEUR

- During Q4, there will be annual maintenance shutdown at the Fors, Ingerois, Skoghall, Varkaus, Montes del Plata and Skutskär mills. The total maintenance impact is estimated to be at the same level as in Q4/2018 and in Q3/2019.

<table>
<thead>
<tr>
<th>Annual maintenance</th>
<th>Q1 2020</th>
<th>Q4 2019</th>
<th>Q4 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>-</td>
<td>Fors, Ingerois and Skoghall mills</td>
<td>Skoghall and Fors mills</td>
</tr>
<tr>
<td>Packaging Solutions</td>
<td>-</td>
<td>Varkaus Mill</td>
<td>-</td>
</tr>
<tr>
<td>Biomaterials</td>
<td>-</td>
<td>Montes del Plata and Skutskär mills</td>
<td>Montes del Plata and Skutskär mills</td>
</tr>
<tr>
<td>Paper</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Preparing for the turn of the cycle
Q3 2019 year-on-year

• Continued deteriorating trading conditions

• Strong cash flow from operations, 488 (457) MEUR
  − Active working capital management

• Profit protection programme extended to 2021 and increased to 275 MEUR from 200 MEUR
  − 100 MEUR positive impact by end of Q3
  − About 200 MEUR of the savings target is expected to be reached by the end of 2020

• Creation of Forest division from January 2020 increasing transparency and focus on value creation
THE RENEWABLE MATERIALS COMPANY