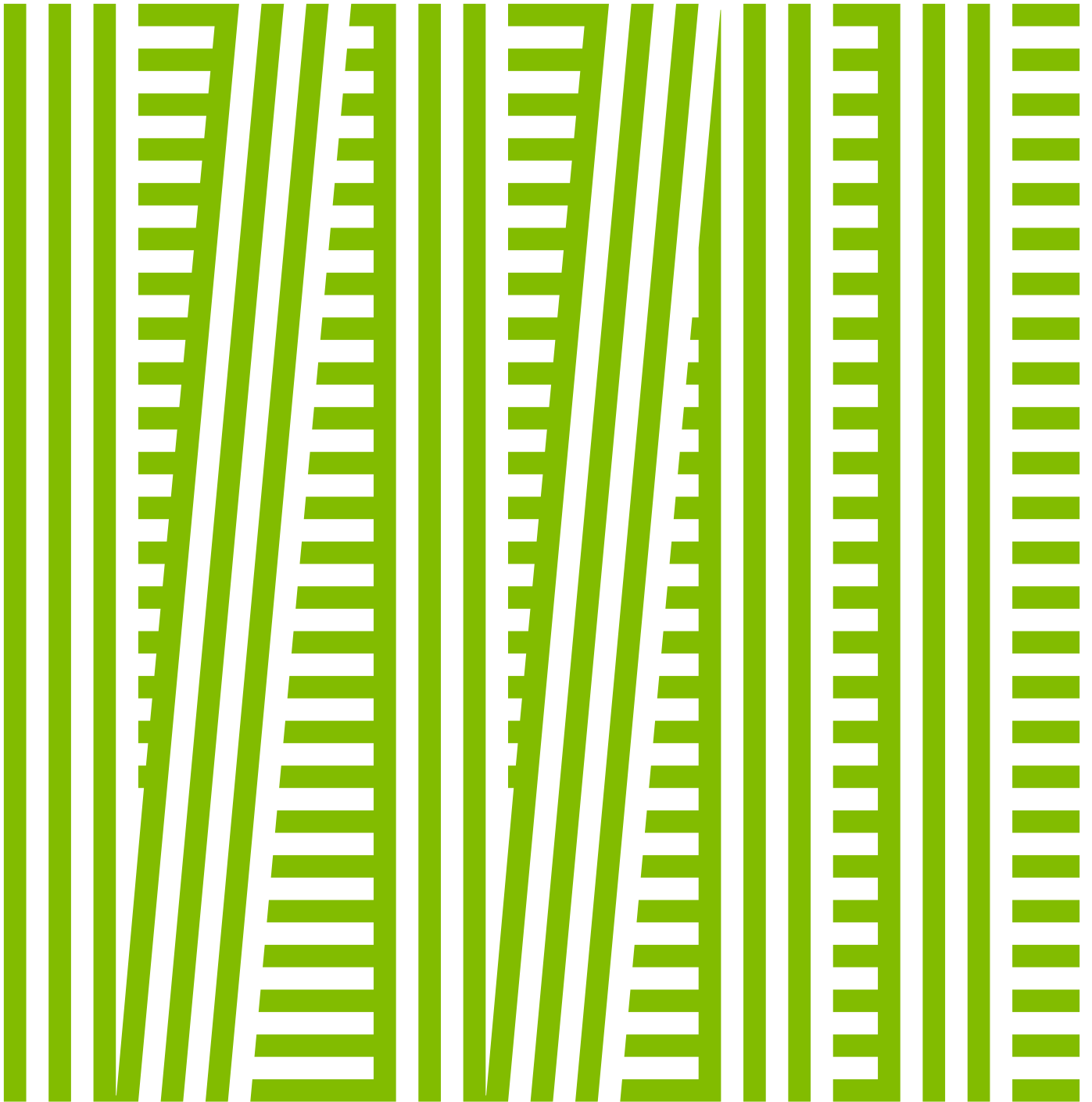


METSÄ FIBRE

ANNUAL REVIEW 2018



METSÄ FIBRE: TOWARDS SUSTAINABLE EXCELLENCE

Metsä Fibre is a leading producer of bioproducts. Our products – pulp, sawn timber, biochemicals and bioenergy – are known for their high quality, which has its roots in the first-rate characteristics of northern wood. Our pulp brand is called Botnia and our sawn timber brand is Nordic Timber. Metsä Fibre is part of Metsä Group.



The cover of this annual review is MetsäBoard Prime FBB Bright folding boxboard. The surface layers of the three-layer paperboard are chemical pulp and the middle layer is high-yield pulp. Metsä Board's high-quality and lightweight paperboards made from fresh fibre are suitable for consumer good packaging and graphical end uses.



FULL CAPACITY AT THE ÄÄNEKOSKI BIOPRODUCT MILL

As planned, the Äänekoski bioproduct mill reached its nominal production capacity of 1.3 million tonnes in August 2018.



Read more
p. 7



COMPETITIVENESS THROUGH INVESTMENTS

In May 2018, Metsä Fibre launched a feasibility study on the renewal of the Kemi pulp mill.



Read more
p. 12

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PULP PRODUCTION

1,000 TONNE

2,973

+20%

2017: 2,487

SAWN TIMBER PRODUCTION

1,000 M³

1,819

-2%

2017: 1,852

SALES

MEUR

2,469

+32%

2017: 1,876

PERSONNEL

31.12.2018

1,210

-6%

2017: 1,284

LTA1 RATE

/MILLION WORKED HOURS

5.9

+13%

2017: 5.2

PUBLISHER

Metsä Fibre Oy

feedback.metsafibre@metsagroup.com

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www.metsafibre.com



Metsä Group
Sustainably from
the forest 2018
brochure



Metsä Group
Annual Review
2018



Metsä Group
Sustainability Report
2018



Metsä Board
Annual Report
2018



Metsä Fibre
Annual Review
2018

METSÄ GROUP

SALES* EUR **5.7** BILLION | PERSONNEL **9,300**
RENEWABLE ENERGY **28.4** TWH

METSÄLIITTO COOPERATIVE

GROUP'S PARENT COMPANY

OWNED BY 103,000 FINNISH FOREST OWNERS

METSÄ FOREST

WOOD SUPPLY AND FOREST SERVICES

Sales **EUR 2.0 billion**
Personnel **840**

Holding
Metsäliitto Cooperative 100%

METSÄ WOOD

WOOD PRODUCTS

Sales **EUR 0.4 billion**
Personnel **1,500**

Holding
Metsäliitto Cooperative 100%

METSÄ FIBRE

PULP AND SAWN TIMBER

Sales **EUR 2.5 billion**
Personnel **1,200**

Holding
Metsäliitto Cooperative 50,1%
Metsä Board 24,9%
Itochu Corporation 25,0 %

METSÄ BOARD**

PAPERBOARD

Sales **EUR 1.9 billion**
Personnel **2,400**

Holding
Metsäliitto Cooperative 41,2%
share of votes 61,9%

METSÄ TISSUE

TISSUE AND GREASEPROOF PAPERS

Sales **EUR 1.0 billion**
Personnel **2,800**

Holding
Metsäliitto Cooperative 100%

* Internal sales eliminated
** Listed on Nasdaq Helsinki

METSÄ SPRING | INNOVATION COMPANY

METSÄ FIBRE

KEY FIGURES

	2018	2017	2016	2015	2014
Sales, EUR million	2,469	1,876	1,351	1,445	1,296
Operating result, EUR million	669	320	230	337	228
Comparable operating result, EUR million	669	320	219	337	208
Return on capital employed, %	40	24	20	42	30
Equity ratio, %	55	48	57	67	66
Net gearing ratio, %	1	35	23	-36	-40
Investments, EUR million	62	436	548	250	26
Pulp production, 1,000 tonne	2,973	2,487	2,317	2,353	2,257
Sawn timber production, 1,000m ³	1,819	1,852	1,795		
Wood consumption, million m ³	19.3	16.7	13	13	12
Personnel, 31 December 2018	1,210	1,284	1,231	857	842
Lost-time accident frequency rate, per million worked hours, incl. all accidents at work leading to absenteeism	5.9	5.2	7.2	7.9	4.9
Share of certified wood, %	92	92	90	87	87
Electricity self-sufficiency rate, pulp mills, %	174	138	142	151	149

PRODUCTION	2018	2017	2016	2015	2014	Capacity	ISO 9001	ISO 14001	ISO 50001	OHSAS 18001	ISO 22000	PEFC™ COC	FSC® COC/CW
Pulp mills, 1,000 tonne													
Joutseno	675	655	619	658	594	690	x	x	x	x	x	x	x
Kemi	593	598	604	585	552	610	x	x	x	x	x	x	x
Rauma	557	568	585	602	607	650	x	x	x	x	x	x	x
Äänekoski ¹⁾	1,148	666	510	507	504	1,300	x	x	x	x	x	x	x
Yhteensä	2,973	2,487	2,317	2,353	2,257	3,250							
Capacity utilisation, %	94	91	93	96	92								
Sawmills, 1,000 m³ 2)													
Eskola ³⁾	29	47	49	53	60		x	x	x	x		x	x
Kyrö	228	232	219	200	219	235	x	x	x	x		x	x
Lappeenranta	243	253	234	216	226	255	x	x	x	x		x	x
Merikarvia	220	223	227	205	205	230	x	x	x	x		x	x
Renko	308	310	322	259	301	330	x	x	x	x		x	x
Vilppula	510	514	481	452	418	520	x	x	x	x		x	x
Metsä Svir (Russia)	281	274	263	251	233	280	x	x	x	x		x	x
Total	1,819	1,852	1,795	1,636	1,662	1,850							

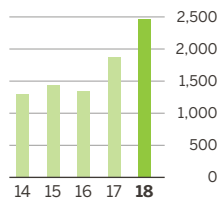
¹⁾ The previous Äänekoski mill production during 1-8/2017, and the new bioproduct mill as of 8/2017. 2017 production figure represents the combined production at Äänekoski in 2017.

²⁾ Metsä Group's Finnish sawmills were integrated into Metsä Fibre on 1 November 2016.

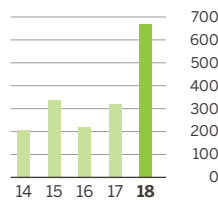
³⁾ Eskola sawmill figures 1-6/2018, the sawmill business in Eskola was sold to Haapajärven Ha-Sa Oy.

YEAR 2018

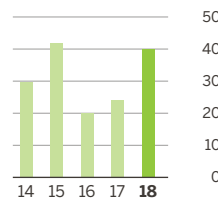
SALES
EUR MILLION



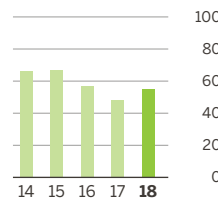
COMPARABLE OPERATING RESULT
EUR MILLION



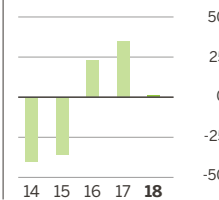
RETURN ON CAPITAL EMPLOYED
%



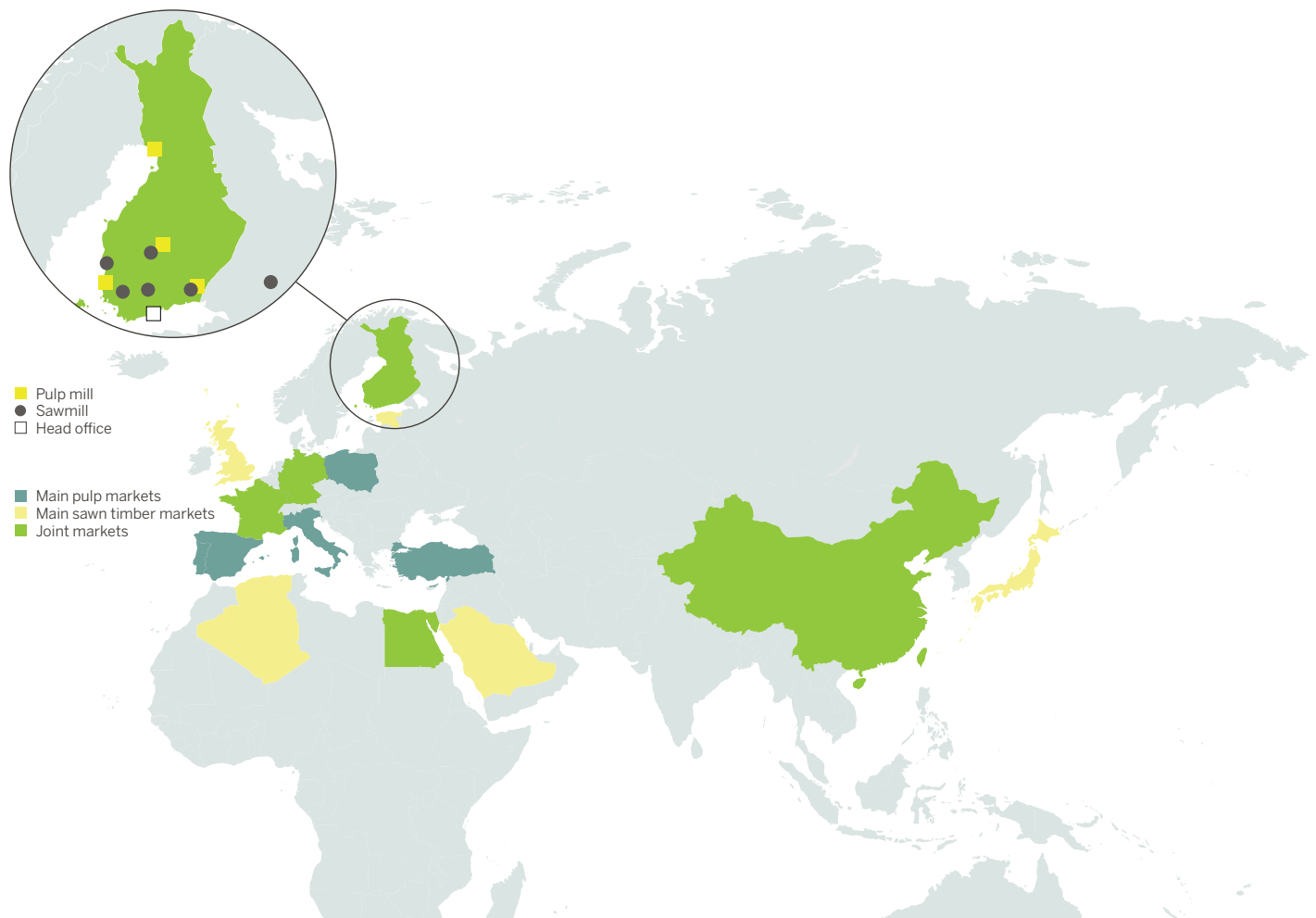
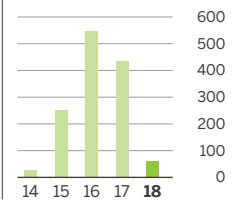
EQUITY RATIO
%



NET GEARING RATIO
%



INVESTMENTS
EUR MILLION



MILLS

JOUTSENO MILL

- Capacity 690,000 t bleached softwood pulp
- 136 employees

RAUMA MILL

- Capacity 650,000 t bleached softwood pulp
- 121 employees

KEMI MILL

- Capacity 610,000 t bleached softwood and hardwood pulp
- 160 employees

ÄÄNEKOSKI MILL

- Capacity 1.3 million t bleached softwood and hardwood pulp
- 181 employees

SAWMILLS

KYRÖ SAWMILL

- Capacity 235,000 m³ sawn timber
- 71 employees

RENKO SAWMILL

- Capacity 330,000 m³ sawn timber
- 57 employees

LAPPEENRANTA SAWMILL

- Capacity 255,000 m³ sawn timber
- 61 employees

VILPPULA SAWMILL

- Capacity 520,000 m³ sawn timber
- 86 employees

MERIKARVIA SAWMILL

- Capacity 230,000 m³ sawn timber
- 75 employees

METSÄ SVIR SAWMILL

- Capacity 280,000 m³ sawn timber
- 114 employees

A YEAR OF STRONG RESULTS



WE CONTINUED TO DEVELOP OUR COMPANY TOWARDS SUSTAINABLE EXCELLENCE

The past year was excellent for Metsä Fibre. Global economic growth contributed to the continued strong demand for our bioproducts and the successful start-up of the new bioproduct mill ensured an increase in our delivery volumes. We became the world's leading supplier of softwood market pulp, and in addition, we continued to be an important supplier of sawn timber. We also significantly increased the production of other bioproducts, such as biochemicals and bioenergy.

We continued the systematic development of our company. We revised our business strategy and defined our long-term operational and financial targets. Operationally, we aim to exceed our customers' expectations, achieve excellent results in all our operations, develop the best personnel, be a forerunner and be courageous in the face of change. Financially, our goal is to be the most profitable producer of bioproducts manufactured from northern wood.

EXCEEDING CUSTOMERS' EXPECTATIONS

Our ambition is to be the preferred supplier of premium bioproducts and services that support the businesses of our customers. Our position in the softwood market grew even stronger, and during the year we increased pulp deliveries by 0.4 million tonnes, to 2.8 million tonnes, thanks to the bioproduct mill's consistent production increase. The growth in deliveries was particularly pronounced for developing markets.

The strong technical condition of our mills and our total production capacity across all four pulp mills ensured the reliability of our deliveries. Our strategic objective is to maintain the modernity of our mills and sawmills and to keep their operating reliability at a high level. Metsä Group's efficient wood management and utilisation of synergies in the sawmill and pulp businesses ensured the availability of full production capacity even during early winter which proved to be challenging in terms of harvesting.

We strengthened and intensified cooperation with our key customers. Our aim is to create true added value for all our customers. In the sawmill business, we optimised our product range and as part of this refocusing we sold the Eskola sawmill business. During the year, we also embarked on a review of the sales strategy for sawn timber. We significantly increased our biochemicals production and strengthened our customer cooperation with the converters.

EXCELLENT PERFORMANCE IN ALL OPERATIONS

The bioproduct mill reached its nominal production capacity as planned in August 2018. It also reached an overall production level of one million tonnes in August. The mill's start-up proceeded according to plan, and we have now entered the phase of continuous production. In the future, we will optimise the bioproduct mill's production process and focus particularly on the further development of our products' quality properties.

We maintained the technical condition of all our mills as planned through investments and major repairs. At the sawmills, we replaced the old log X-ray equipment with newer models to ensure efficient use of the wood raw material.

The production of biochemicals and bioenergy also grew significantly. New, energy-efficient solutions have increased Metsä Fibre's biopower production by a considerable degree, to the point that we now produce roughly 25% of all the biopower produced in Finland. Our overall environmental performance also improved markedly during the year, and our bioproduct mill's operation, without fossil-based fuels, has set a new standard for pulp mills everywhere. Through these activities we have re-enforced our leadership by developing the pulp industry's environmental performance.

DEVELOPING THE BEST PERSONNEL

The realisation of our strategy requires the best skills in the industry. We launched a development programme on leadership and supervisory work, which aims to build an increasingly strong culture for continuous improvement at both leadership and supervisory levels. We increased our personnel's engagement in the company's development projects and in the determination of goals and measures.

We want to ensure that we are sought out by the best professionals in our industry. At the beginning of the year, we launched a new apprenticeship programme to introduce future achievers to a wide range of our company's activities.

We continued our long-term work to improve safety at work. Despite this, our safety record did not improve; the lost time accident

frequency (LTA1) of our own personnel increased to 5.9, and one serious occupational accident took place at the Rauma mill. This demonstrates a need for increased efforts to ensure compliance with operational principles in every work situation. To help encourage the entire industry to engage with the further development of work safety we are sponsoring an industry safety award together with one of our customers.

BEING A FORERUNNER WITH THE COURAGE TO RENEW ITSELF

Our goal is to be a forerunner in the pulp and sawmill industry. This requires courage in the face of change from all of us.

We launched a feasibility study on the renewal of the Kemi pulp mill. The aim is to explore the possibility to build a new bioproduct mill in Kemi and to increase our production capacity significantly. The alternative is to extend the life-cycle of the existing pulp mill by modernising a number of its departments. The feasibility study will be completed by the summer of 2019. The final investment decision will take place in 2020 at the earliest.

We will continue our work to develop new pulp mill and sawmill concepts. This work improves our readiness for new and effective investments that strengthen the bioeconomy.

During the year, we continued to develop the quality of our operations with an internal self-assessment based on EFQM criteria and we also decided to take part in the 2019 EFQM global quality award competition. Our personnel have been widely involved in developing the quality of our operations, which provides us with a solid basis for achieving excellent results.

Metsä Fibre has an increasingly strong foundation. The markets for our bioproducts are growing and we are using them to build a sustainable bioeconomy. Our continuous development is steered by our strong values: reliability, cooperation and renewal, as well as responsible profitability.

I want to thank our customers, personnel and partners for a year of strong development and results.



Ismo Nousiainen
CEO

SUSTAINABLE PROFITABLE GROWTH

Metsä Fibre's response to the global growth in the demand for bioproducts has been very successful. Our investment to increase the production capacity of softwood market pulp at the bioproduct mill was timely and responded to our customers' growing need for pulp. The investment in cutting-edge technology, coupled with skilled personnel, materialised into a competitive advantage that enables Metsä Fibre's success now and in the future.

Metsä Fibre continued on a path of strong and responsible profitability in 2018. Our positive result was due to an increase in sales volumes and an improvement in production efficiency, facilitated by the development investments made in recent years, combined with favourable global economic development.

The average world market prices for short and long-fibre pulp grew strongly during the year. Demand for pulp remained strong, and unforeseen limitations in the use of production capacity reduced supply into the market. Our capacity, which increased due to the Äänekoski bioproduct mill, and our improved delivery reliability consequently helped strengthen our market position.

Demand for sawn timber grew in all our main markets, and average market prices increased.

The synergies exploited in our pulp and sawmill businesses, as well as efficient wood supply, also helped with ensuring the delivery reliability of sawn timber. Despite the challenging weather conditions early in the year, Metsä Fibre's wood management was extremely successful, and the availability of the wood raw material did not limit production.

CONTINUOUS IMPROVEMENT

In August 2018, our Äänekoski bioproduct mill, which started up successfully a year before, reached its nominal production capacity of 1.3 million tonnes, in accordance with plans. The increase in the sales volume of pulp enabled by the mill was 0.4 million tonnes in 2018. The timing of the bioproduct mill's start-up was particularly opportune in terms

of the growth in pulp demand and ensuring improved deliveries to our customers. The state-of-the-art bioproduct mill will improve our production and resource efficiency, as well as our environmental performance, to a considerable degree.

The innovative development work of our partners in the growing business ecosystem around the bioproduct mill has started well. During the year, Metsä Group and the Itochu Corporation agreed to progress with the construction of a demonstration plant that will produce wood-based textile fibre.

In December, Metsä Fibre acquired the ownership of the biogas plant located in Metsä Group's mill site at Äänekoski. The biogas plant was built by EcoEnergy SF and started up in 2017. It produces biogas and biopellets from wood-based sludge generated by Metsä Fibre's bioproduct mill.

We continuously develop the efficiency of our production units across all aspects of production. In spring 2018, we launched a feasibility study on the renewal of the Kemi pulp mill. The alternatives are the construction of an entirely new bioproduct mill with a considerably higher capacity than the existing mill, or the modernisation of the existing mill department by department. The feasibility study will be completed by the summer of 2019, and the final investment decision on the potential new bioproduct mill will be made in 2020, at the earliest.

A MORE FOCUSED SAWMILL BUSINESS

Both the demand and prices for the high-quality sawn timber produced by Metsä Fibre

grew strongly during the year. The production volume of sawn timber decreased slightly, to 1,819,000 cubic metres. We have systematically harmonised the operating models in our sawmill business and optimised our product range. As part of refocusing the product range, we sold the business of the Eskola sawmill to Ha-Sa Oy in June. The Metsä Fibre employees who worked at Eskola have now transferred over to the new owner.

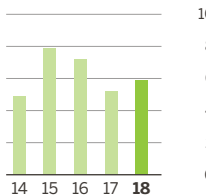
We also initiated a review of our sawn timber sales strategy during the year, aiming to further improve the operating models used in sales, deepen our cooperation with customers and strengthen our position at key customer accounts.

WE INVEST IN FUTURE ACHIEVERS

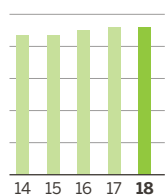
Metsä Fibre's competitiveness relies on its highly skilled and motivated personnel that works towards common goals. We want to ensure that our employees are the best professionals in our industry and we are the most wanted employer. We continuously develop our personnel's competence and take responsibility for the future by training new high performing professionals.

We continued our apprenticeship training with a programme launched at the beginning of the year and are recruiting students for the new class of apprenticeship trainees to begin in 2019. Metsä Group provides future talent with varied opportunities for development as well as responsible and demanding tasks both in Metsä Fibre and in other Metsä Group units.

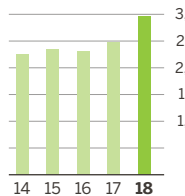
LTA1 RATE
/MILLION WORKED HOURS



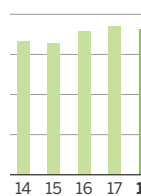
SHARE OF
CERTIFIED WOOD
%



PULP PRODUCTION
1,000 TONNE



SAWN TIMBER
PRODUCTION
1,000 M³



FULL CAPACITY AT THE ÄÄNEKOSKI BIOPRODUCT MILL

As planned, the Äänekoski bioproduct mill reached its nominal production capacity of 1.3 million tonnes in August 2018, making Metsä Fibre the world's largest producer of softwood market pulp.

Thanks to motivated and professional personnel and partners, as well as close customer cooperation, the mill's first year went even better than expected.

"You can sense a very real enthusiasm among people when the results of their intensive work are made reality in production," says **Ilkka Poikolainen**, Vice President of Äänekoski bioproduct mill.

Alongside pulp, the bioproduct mill produces tall oil, turpentine, bioenergy and new bioproducts, such as sulphuric acid and product gas. It uses 6.5 million cubic metres of wood a year.

"We will continue to optimise the mill and improve the product quality. A year from now, we'll be even better at what we do," states Poikolainen.

TOWARDS SUSTAINABLE EXCELLENCE

Metsä Fibre's strategic goal is to be the world's best and most successful bioproduct producer using northern wood raw material. In line with our basic mission, we create sustainable growth from renewable wood raw material.

We are a leading producer of bioproducts such as pulp, renewable energy, biochemicals and sawn timber. Sustainability is an integral part of everything we do, and we are a pioneer in the sustainable bioeconomy. We take care of environmental and cost efficiency as well as the high quality of our products and we aim for lasting excellence through continuous improvement.

EXCEEDING CUSTOMERS' EXPECTATIONS

Our goal is to exceed our customers' expectations in everything we do. To achieve this, we invest in long-term cooperation and an in-depth appreciation of our customers' needs and value chains.

In accordance with our vision, we want our customers to consider us their preferred partner in the supply of premium bioproducts and services that support their business.

We pursue market leadership in the main products produced by our pulp and sawn timber businesses, and our goal is to be the preferred supplier for companies that are spearheading their own industries. Our products are known for their first-rate quality. We ensure this with continuous development of our product quality, by effectively managing deviations and with highly skilled technical customer service. We are a forerunner in pulp and sawn timber markets, and we provide services that create high added value for our customers.

EXCELLENT PERFORMANCE

We aim for excellent performance in all our operations. Success in this requires a focus on what is important as well as clear goals. We engage in systematic and continuous development work to improve our production and cost efficiency, also contributed to by correctly timed maintenance investments and major repairs to our production units.

Clear business processes, continuous measurement of our performance and the utilisation of uniform processes guarantee efficient operations in all our locations, and the effective implementation of best practices. Continuously minimising the environmental impact of our operations is an essential aspect of excellent performance and we consider the principle of sustainability throughout the value chain.

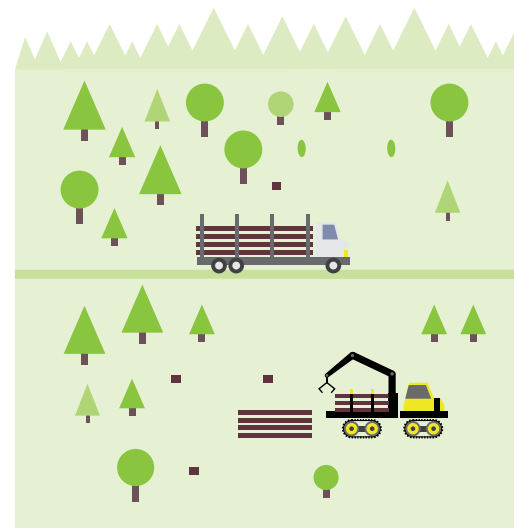
THE BEST PERSONNEL

Achieving lasting excellence requires the best personnel. We are particularly focused on developing outstanding leadership and supervisory work. We will continue to strengthen a profitable and engaging operational culture that supports open dialogue, and we will offer the best talent new responsibilities and challenging tasks to ensure their professional development. We want Metsä Fibre to be the most sought-after workplace, with a strong innovative culture and a winning attitude. Our recruitment process and partnerships must also be of a first-rate quality.

Excellent safety and well-being at work create the foundation for the best personnel. Safety is our first priority, and we aim at zero accidents in all our locations.

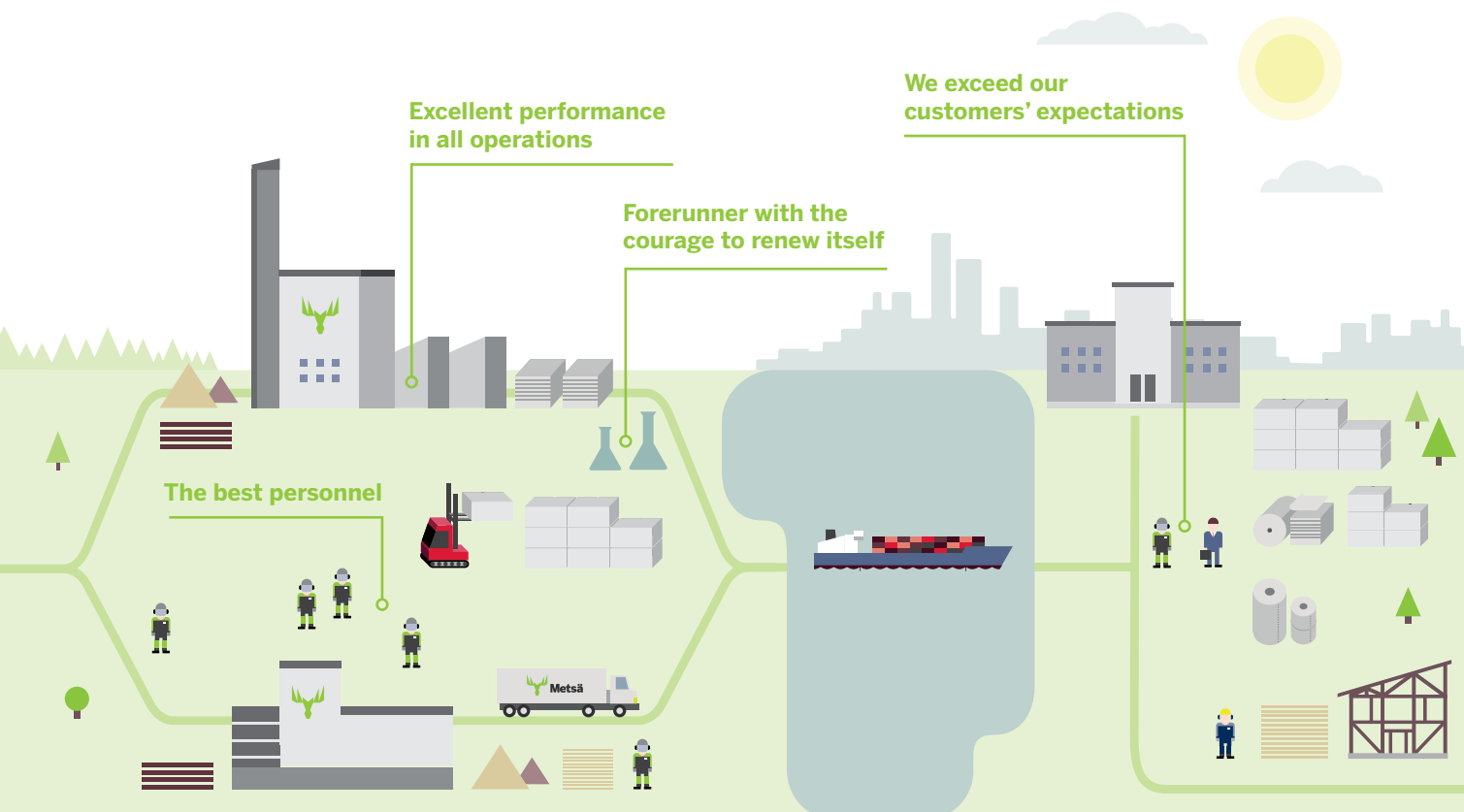
PIONEERING SPIRIT AND THE COURAGE TO RENEW

Being a trailblazer and having courage in the face of change are cornerstones of our strategy. We are active in the development of future pulp and sawmill technologies as well as new bioproducts, in close cooperation with our partners. New bioproducts increase the cost efficiency and growth of our pulp and sawmill businesses and create a sustainable bio and circular economy. The achievement of lasting excellence requires us to be ready for new strategic choices and technologies. Our operations must also live up to the highest standards.



In terms of the renewal of pulp mills, we follow our unique concept of a bioproduct mill, the first of which started up at Äänekoski in 2017. The mill is an excellent example of the implementation of our strategy – it allows us to respond to growing demand in the pulp market and strengthen the sustainable bioeconomy, while at the same time raise our environmental performance to a new level.

We aim high because we are pursuing lasting excellence. Our goals and daily activities are based on our values: cooperation, renewal, reliability and responsible profitability.



VALUES

COOPERATION

We develop our operations in cooperation with our customers and share information and best practices with each other. We operate as one, making use of mutual synergies and relying on common benefits.

RELIABILITY

Our success is based on long-term cooperation with our stakeholders. We appreciate each other's work and competence and strengthen the confidence of our various stakeholders by acting in a consistent and predictable way.

RENEWAL

We are aware of future challenges and have the courage to question old operating methods in an open-minded way. This allows us to provide our customers with better products and services that support their business.

RESPONSIBLE PROFITABILITY

We bear responsibility for the environment, our partners and each other to ensure successful business activities and forestry. Profitability is an absolute prerequisite for the continuous development of operations.

GENUINE ADDED VALUE FOR OUR CUSTOMERS

We are the world's largest producer of softwood market pulp and an important supplier of sawn softwood. Our production capacity is 3.2 million tonnes of softwood market pulp and 1.9 million m³ of sawn softwood a year. Our product portfolio also includes biochemicals and renewable energy. We produce around 25% of Finland's bioenergy and new bioproducts are becoming an increasingly significant part of our business. Our ambition is to be the preferred supplier of premium bioproducts and services that support the businesses of our customers.

Our strategic goal is to exceed our customers' expectations. We aim for an insightful understanding of our customers' business and needs, now and in the future. Our goal is to bring genuine added value to our customers' business. To achieve this, we work in close cooperation with our customers and partners. We ensure the first-rate quality of our products, the efficiency of logistics solutions, the reliability of deliveries and the expertise of our technical customer service – every day.

We operate sustainably, responsibly and innovatively throughout the supply chain. The production and resource efficiency and environmental performance of our state-of-the-art mills consistently meet our customers' expectations.

WE ARE RESPONDING RESPONSIBLY TO THE GROWTH IN PULP DEMAND

In 2018, we supplied our customers with 2.8 million tonnes of high-quality softwood and birch pulp. Our customers use our premium bleached pulp as a raw material in the production of top-of-the-line printing paper, tissue paper, paperboards and specialty products.

Thanks to our bioproduct mill in Äänekoski, which reached its nominal production capacity as planned, our pulp production grew by 0.4 million tonnes from the previous year. The bioproduct mill is the largest wood-processing facility in the Northern Hemisphere. It also runs entirely without fossil-based fuels,

making use of every bit of the wood raw material and its side streams.

Approximately over a third of our pulp deliveries were to the European market, and just under 40% to Asia. The rest, approximately 25%, was sold within Metsä Group for production use by affiliated companies. In 2018, we increased our market share in developing markets and retained our market share in Europe.

As expected, demand for pulp continued to be strong in Asia, and especially in China. The import ban on recycled fibre imposed by China contributed to the growing demand for our products.

In the first half of the year, demand for pulp outstripped supply, but the balance between supply and demand was regained in the second half of the year. The average global market prices for pulp clearly increased during the year, having a positive effect on the profitability of our pulp business.

NEW BIOPRODUCTS ARE A KEY PART OF THE OVERALL CONCEPT

Metsä Fibre is also a notable producer of biochemicals. Demand for the biochemicals we produce, as part of our pulp production process, was very high in 2018. Our customers use our biochemicals for end products with a high degree of processing, such as odorants, adhesives and inks.

The fact that we produce around 25% of Finland's bioelectricity also makes us an important producer of biopower.

Our goal is to further increase new bioproducts' share of our sales. We develop innovations in cooperation with our partners on a continuous basis.

CLOSER CUSTOMER COOPERATION IN SAWMILL OPERATIONS

We process high-quality northern softwood into sawn timber of equally high quality, meeting even the strictest demands of our customers. In 2018, we produced a total of 1.7 million cubic metres of sawn pine and spruce.

Approximately 90% of our spruce-based sawn timber is exported. The same is true for some 85% of our sawn pine. The biggest export destinations are Europe, Asia, the Middle East and Northern Africa. China's importance as an export destination for sawn spruce continued to be strong. Our high-quality sawn timber is used as a material by the wood finishing, woodworking and construction sectors, as well as by the window and door industries.

The demand for, and prices of, rough sawn timber increased across all market areas in 2018. This had a positive impact on the profitability of our sawmill business.

We have systematically developed the product quality and delivery reliability of our sawmill business and harmonised our processes. The focus of this development work is the customer and we utilise feedback to continuously improve our operations. We are intensifying our cooperation with our customers, improving our customer communication and developing the deviation management.

PULP SALES VOLUMES BY MARKET AREAS 2018

%



■ Finland.....	32
■ Europe, excl. Finland.....	21
■ Middle East and North Africa, Turkey.....	9
■ Asia.....	38
■ Speciality papers.....	7

END USE OF BOTNIA NORDIC PULPS 2018

%



■ Board.....	28
■ Tissue paper.....	34
■ Printing paper.....	30
■ Speciality papers.....	7
■ Others.....	2

SAWN TIMBER SALES VOLUMES BY MARKET AREAS 2018

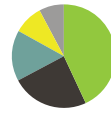
%



■ Finland.....	13
■ Europe, excl. Finland.....	42
■ Middle East and North Africa, Turkey.....	25
■ Asia.....	20
■ Other industries.....	9

END USE OF SAWN TIMBER 2018

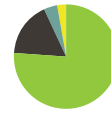
%



■ Distribution.....	43
■ Planing industry.....	24
■ Woodworking industry.....	16
■ Other industries.....	9
■ Internal deliveries.....	8

SHARE OF BIO PRODUCTS 2018

% OF SALES



■ Pulp.....	76
■ Sawn timber.....	17
■ Biochemicals.....	4
■ Bioenergy.....	3
■ Other industries.....	9

WE PUT CUSTOMER FEEDBACK INTO PRACTICE

A consistent and continuous feedback process is an important part of Metsä Fibre's active customer cooperation.

"We want to have an exact idea of what our customers expect from us. Therefore, we encourage continuous feedback, which we take very seriously whenever we receive it," says **Eva Martin**, Vice President, Marketing.

The Radar survey is a key tool for measuring and developing customer satisfaction. "The survey results are studied exhaustively at every level of our organisation. They serve as a basis for our action plan to develop our operations and for integrating the solutions into our annual plan," says Martin.

Our reorganised sales teams are now better able to serve our customers and this is just one example of the practical measures we have implemented based upon customer feedback.



COURAGE FOR CHANGE AND A PASSION FOR LEARNING

Metsä Fibre is a forerunner in the bioeconomy and in wood-based innovation. Our courage to renew and willingness to learn are a guarantee of future success. By investing and innovating together with our partners, we ensure our place at the forefront of development.

We create added value from renewable wood raw material in a production and resource-efficient manner by using 100% of the raw material. We generate sustainable growth and are a forerunner in the bioeconomy. We have an excellent grasp of our operating environment, and we react to any changes within it rapidly.

The transition from a fossil-based economy towards a responsible bioeconomy is increasing the demand for Metsä Fibre's products and know-how on a global scale. We are responding to this development by investing in new technology and improving the production and resource efficiency of our mills. Our production units are the most efficient in the industry.

Metsä Fibre's strengths include a long-standing culture of continuous improvement and robust project skills. Together with our partners, we can carry out major projects in a cost-effective way whilst living up to the highest standards. The Äänekoski new generation bioproduct mill, completed on schedule and according to budget in August 2017,

is an example of this. The mill also reached its nominal production capacity, in line with plans, in the summer of 2018. Our innovative bioproduct mill concept combines efficient use of raw materials, energy efficiency and environmental efficiency.

WE GENERATE NEW SKILLS

The courage to renew and develop innovations will provide us with a long-term competitive edge. We are continually developing new added value products and applications from the side streams of pulp and sawmill production. These new bioproducts strengthen both our business and the growth of the bio and circular economy.

We generate new skills in cooperation with our partner network. Together with the Itochu Corporation, Metsä Group is building a demonstration plant next to the Äänekoski bioproduct mill, which will produce textile fibre from the pulp we make. We are also examining methods for separating lignin during the pulp production process and the commercial end uses for lignin.

TOWARDS SUSTAINABLE EXCELLENCE

Being good enough now will not be enough in a year's time. Therefore, Metsä Fibre has clear goals which ensure that operations are continuously developed and improved. We want to create sustainable success and embody the hallmarks of excellence. We measure our success systematically through internal and external assessments, and we focus on our special targets for development based on the feedback we receive. In 2019, we will be participating in an international quality award competition (EFQM), which will function as an important marker on our path towards lasting excellence.

Innovations represent a trailblazing position. We gather new ideas and innovations that we assess and continue to develop from all levels of our organisation in our Innovation Forum platform. Together with our partners, we want to challenge each other to search for and test new solutions. This is why the Innovation Forum has also been opened to our partners this year.

COMPETITIVENESS THROUGH INVESTMENT

In May 2018, Metsä Fibre launched a feasibility study on the renewal of the Kemi pulp mill. The study is led by **Timo Merikallio**, who was also responsible for the design and construction of the Äänekoski bioproduct mill.

"We're particularly interested in the availability of the wood raw material as well as the possibilities to develop Kemi's industrial infrastructure and logistics," says Merikallio.

The feasibility study focuses on two alternatives. "In the first scenario, we'd replace the existing pulp mill with a new bioproduct mill, which would be clearly larger than the current mill in terms of its production capacity, wood consumption and employment impact," says Merikallio. The other alternative entails prolonging the life-cycle of the existing mill by modernising several departments. In this scenario, the production capacity and wood consumption would remain roughly unchanged.



SAWMILLS EQUIPPED WITH NEXT-GENERATION LOG X-RAY TOOLS

Metsä Fibre is continuously developing the resource and production efficiency of its sawmill business. In 2018, we invested in next-generation X-ray equipment at all our pine sawmills. At the same time, we also replaced the sawmills' 3D measuring instruments.

"Thanks to cutting-edge equipment that communicates with other hardware, we are in an increasingly better position to meet customers' needs and get even more out of the high-quality wood raw material," says **Jani Riissanen**, SVP, Sawmill Business.

The investment's impact is already visible with considerably higher yields in quality and raw material.

"Due to the positive results, the investments into X-ray equipment will expand to our spruce sawmills in 2019," says Riissanen.



TOWARDS HAVING THE BEST PERSONNEL

The realisation of Metsä Fibre's strategy requires the best skills in the industry. Excellent leadership and supervisory work, systematic competence development and a winning attitude are counted among our success factors. We do not compromise on safety at work, because safety is the most important aspect of our professional skills.

In 2018, we launched an organisation-wide development programme on leadership and supervisory work. The development programme helps us to build a culture in which leadership and supervisory work is continuously assessed and developed.

Metsä Fibre gives everyone a chance to develop their own skills and to participate in the development of the entire company's operations. Systematic skills development and participation in varied projects are motivating factors. Every Metsä Fibre employee also has a personal competence development plan.

We emphasise the importance of having a first rate recruitment process and want to ensure that we are sought out by the best professionals in our industry. In 2018, we recruited 71 new people for Metsä Fibre.

Our annual workplace survey allows us to measure our personnel's readiness for strategy

implementation. The results serve as a basis for the determination of development targets aimed at improving the functionality of our workplace community and the personnel's readiness to implement our strategy even better.

SAFETY IS A PROFESSIONAL SKILL

At Metsä Fibre, everyone is entitled to a safe workplace. Our goal is to ensure that every Metsä Fibre employee, and every employee of our partners, goes home healthy, each day.

The key to this is high-standard anticipatory safety work, risk identification and intervention in unsafe working. We also emphasise the importance of personal risk assessments.

Our work to improve safety continuously is uncompromising. We also require our suppliers and partners to demonstrate strong skills in safety at work. In 2018, we held a shared safety day with all our partners.

We revised our safety induction and launched a coaching programme for the advancement of safety for our entire personnel. This is a good way to share the best practices in safety at work at Metsä Fibre, for example in the context of annual maintenance shutdowns.

RAISING SAFETY TO A COMPLETELY NEW LEVEL

In 2018, we had one very serious occupational accident at our Rauma mill. This is a clear sign that we must increase our efforts in safety at work.

Metsä Fibre's ambitious goal is to raise safety at work to a new level. We are aiming for an accident frequency (TRI) of less than three by 2025, whereas in 2018, it was 17.1. In 2018, our lost time accident frequency (LTA1) was 5.9.



SAFETY IS EVERYONE'S BUSINESS

Metsä Fibre and Ahlström-Munksjö have joined forces to sponsor an international safety award. The award will be given by RISI PPI, a leading information services provider in the pulp and paper industry. The Safety Leadership Award will be presented for the first time in March 2019.

"The award aims to improve safety throughout the supply chain, recognise pulp and paper mills for systematic safety management and anticipatory safety work, and to encourage them in the continuous improvement of safe work," says **Camilla Wikström**, SVP, Production Pulp Business.

The cooperation between the two businesses is also visible in shared safety audits, carried out parallel to each other at the mills of both parties. "The cooperation aims to find new ideas for improving safety in the industry and recognises that continuous development and the sharing of best practices in safety matters is extremely important," states Wikström.



OUR 2030 SUSTAINABILITY OBJECTIVES

Sustainability is part of everything we do. The foundation of our sustainability work consists of four themes covering all our operations. With the strong commitment to our new strategic sustainability 2030 objectives we are building a path to a low-carbon society. Our sustainability work supports reaching the global Sustainable Development Goals (SDGs) set by the United Nations.



Read more from Metsä Group's Sustainability Report 2018



WE BRING THE FOREST TO YOU

- Increasing the amount of carbon stored in forests and products
- Safeguarding biodiversity

WE CREATE WELL-BEING

- Responsible corporate culture
- Accident-free work environment

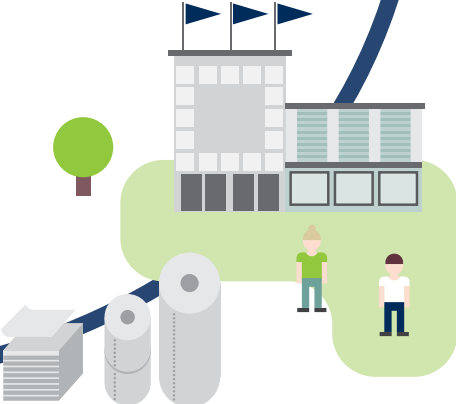
**SUPPORTING THE
UN SUSTAINABLE
DEVELOPMENT
GOALS (SDG)**

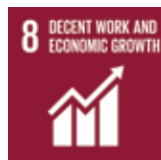


WE WORK FOR A BETTER CLIMATE AND ENVIRONMENT

- Fossil free mills
- Resource efficient production

WE OFFER SUSTAINABLE CHOICES

- Fossil free raw materials
 - Sustainable supply chain
- 



A FORERUNNER IN THE DEVELOPMENT OF ENVIRONMENTAL PERFORMANCE

The bioproduct mill concept we have developed reduces the environmental impact of a pulp mill by a considerable degree. We also aim to minimise the environmental impact of our operations with increasingly anticipatory environmental work in our daily routines. We take care of the high usability of our mills and the reliability of measurements, and we intervene in exceptional situations before they transform into an exceptional burden. Our good environmental performance creates added value and a competitive edge for our customers as well.

During the year, we have reduced our COD burden and waste water volume by more than 10%.

THE BIOPRODUCT MILL'S ENVIRONMENTAL EFFICIENCY

Metsä Fibre is a pioneer in the development of environmental performance in its industry. Decisions made during the Äänekoski bioproduct mill's design phase on the use of fossil-free fuels, the production of product gas and its use as fuel for the lime kiln, the production of sulphuric acid, odorous gases and the efficient use of process water demonstrate our courage to renew and serve as the forest industry's forerunner in the development of environmental performance. The results of these decisions are now visible in the mill's key performance indicators. Although the production volumes of the new bioproduct mill are nearly triple those of the old mill, its sulphur and particle emissions are clearly lower. Thanks to the fuel solutions, pulp production does not cause any fossil-based carbon dioxide emissions at all. The burden on the waterways has also been considerably reduced using the best technology available.

Once the mill reached its nominal production, the odorous gas emissions related to the start-up phase reduced significantly and were successfully controlled in May during the first annual maintenance shutdown in the mill's life-cycle. During the start-up phase early in the year, the permit limit for solids entering

the waterways was slightly exceeded on two occasions. To ensure the functionality of the waste water treatment plant, we focused particularly on the management of the tertiary phase. This work now enables us to better manage our burden on the waterways.

ANTICIPATORY ENVIRONMENTAL WORK

In 2018, we promoted anticipatory environmental work by drawing up comprehensive environmental risk mapping in accordance with Metsä Group's model for our sawmills and the bioproduct mill. In 2018, the entries made in the HSE systems, employed by both our sawmills and pulp mills, included a total of 478 environmental observations and 33 improvement suggestions regarding our preparedness for environmental risks.

In line with the company's uniform operating models for environmental management, we also defined internal indicators for the environmental management of our sawmills. This work included targets for anticipatory environmental work and the adoption of common monthly environmental performance reporting to support management.

Specific measures related to improving the environmental performance at our sawmills were carried out. For example, at Svir the treatment of storm water was improved by, among other things, enhancing sand filtering to reduce the amount of colloidal solids in the waste water.

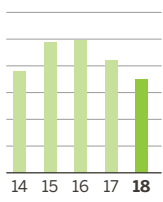
LEARNING FROM DEVIATIONS

Permit limits were exceeded seven times during the year. The daily permit limit set for reduced sulphur compounds was temporarily exceeded at the Kemi and Rauma mills. At Kemi, the breach occurred during the start-up of the annual maintenance shutdown, and at Rauma, the breach was caused by a contamination of the lime sludge cycle. The deviations were investigated and the corrective measures defined. In addition, measures were carried out at Rauma to ensure the usability of the flue gas analyser.

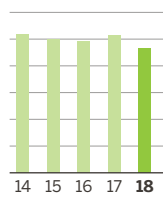
Our Joutseno mill experienced challenges in the management of the particle emissions from the lime kiln, due to which we launched an investigation aiming to get the emissions under control. The enhancement measures aimed at improving the management of particle emissions from Kemi's recovery boiler continued according to plan with the replacement of another of the recovery boiler's electrostatic precipitators. At Rauma, the COD load carried to the sea from the forest industry's shared waste water treatment plant exceeded the permit limit in October.

We have learnt from these deviations and have defined the necessary development measures. We are fully committed to taking advantage of best practice and making timely investments. This allows us to ensure our operations meet environmental permit conditions and that our objectives are in accordance with the principles of continuous improvement.

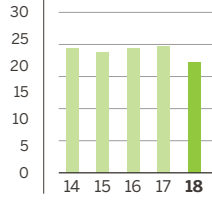
FOSSIL CO₂ EMISSIONS
1,000 TONNES



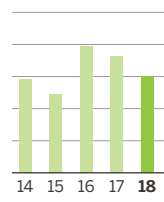
EFFLUENT FLOW
M³/PULP TONNE



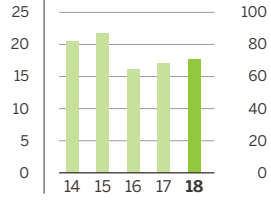
CHEMICAL OXYGEN DEMAND IN EFFLUENT (COD)
KG/PULP TONNE



LANDFILL WASTE
KG/PULP TONNE, WET



WASTE REUSE RATE
%



METSÄ FIBRE ENVIRONMENTAL BALANCE

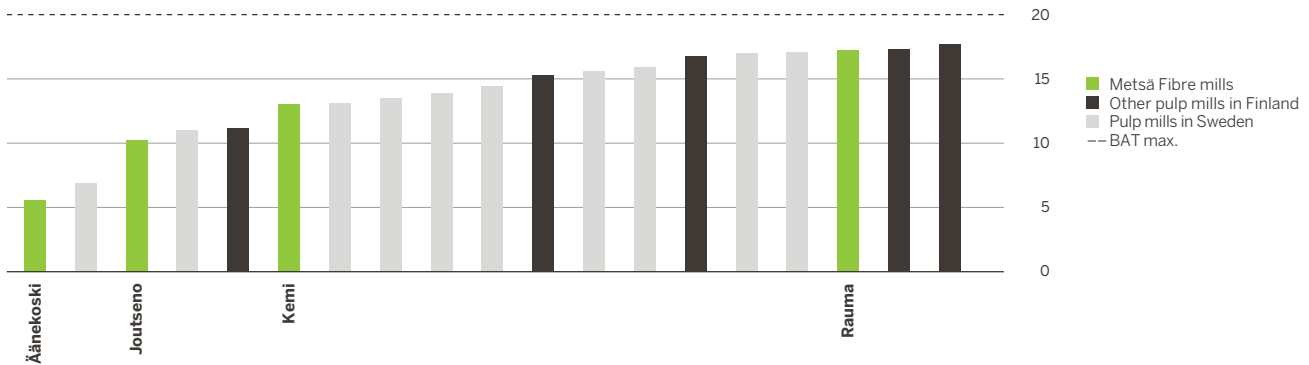
	Joutseno	Kemi	Rauma	Äänekoski	Total 2018	Total 2017	Eskola*	Kyrö	Lappeenranta	Merikarvia	Renko	Vilppula	Metsä Svir (Russia)	Total 2018	Total 2017
Production															
Pulp, t	674,583	593,415	556,645	1,148,338	2,972,981	2,487,420	-	-	-	-	-	-	-	-	1,852,171
Sawn timber, m ³	-	-	-	-	-	-	28,551	227,728	243,419	220,490	307,503	509,648	281,312	1,818,651	-
Puunkulutus															
Total wood consumption, 1,000 m ³	3,793	2,943	3,159	5,833	15,728	12,627	73	491	523	472	645	1,069	533	3,807	3,853
Certified wood, %	90	97	85	94	92	92	98	98	98	99	96	97	56	92	89
EFFLUENTS															
Waste water															
Process water volume, 1,000 m ³	18,346	16,325	15,928	21,608	72,207	65,298	-	-	0.71	13	4.8	4.5	188	211	321
Total suspended solids, t	314	687	263	557	1,821	1,503	-	-	-	-	-	-	4.3	4.3	7
Chemical oxygen demand (COD), t	6,860	7,690	9,593	6,472	30,616	29,293	-	-	-	-	-	-	10	10	16
Biological oxygen demand (BOD), t	127	142	110	105	483	518	-	-	-	-	-	-	7.0	7.1	8.1
Phosphorus P, t	8.3	6.8	4.9	7.3	27	23	-	-	-	-	-	-	0.018	0.019	0.034
Nitrogen N, t	120	150	54	102	426	380	-	-	-	-	-	-	0.7	0.7	1.2
AOX, t	107	57	65	112	341	297	-	-	-	-	-	-	-	-	-
Air emissions															
Sulphur dioxide (as SO ₂), t	159	42	34	5	240	547	-	3.0	9.3	0.04	0.10	25	0.19	38	23
TRS (as S), t	6	28	9	6	48	33	-	-	-	-	-	-	-	-	-
NO _x (as NO ₂), t	1,047	1,072	821	1,098	4,038	3,955	-	20	26	22	28	93	40	229	245
CO ₂ from fossil sources, 1,000 t	24	62	84	0	169	205	-	0.49	-	0.53	1.11	4.3	-	6.4	4.9
CO ₂ from biomass, 1,000 t	1,448	1,185	1,152	2,925	6,711	5,381	-	23	26	26	31	77	27	210	201
Particles, t	201	204	82	22	510	702	-	20	12	17	9.0	12	3.2	73	163
Waste															
Landfill waste, t	21	11,336	11,567	15,868	38,792	45,286	-	-	-	-	19.7	37	-	57	119
Hazardous waste, t	74	65	38	84	261	638	-	40	-	-	5	14	0.65	59	66
Energy															
Wood based fuel use, GWh	3,984	3,260	3,168	8,046	18,458	14,379	-	63	72	71	84	212	75	577	553
Fossil fuel use, GWh	121	205	294	-	620	363	-	1.9	-	2.2	4.2	16	0.23	25	18
Purchased electricity, GWh	-310	-184	-138	-678	-1,311	-564	0.62	16	17	16	8.4	17	14	89	86
Purchased heat, GWh	-49	-470	-181	-107	-807	-809	-	-	-0.073	-10	-	-64	-	-74	-66

* Eskola sawmill 1-6/2018

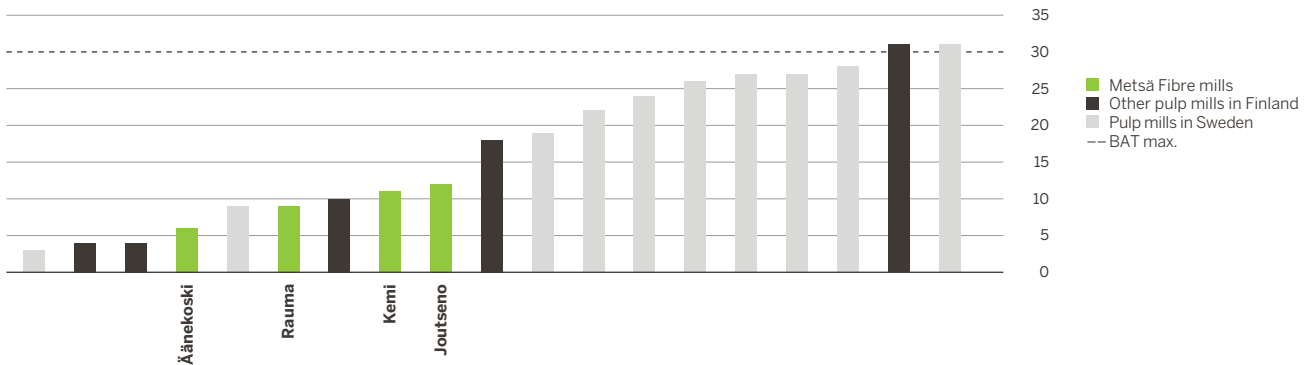
SPECIFIC EMISSIONS FROM PULP MILLS IN THE NORDIC COUNTRIES

Specific emissions from Metsä Fibre's and other Finnish and Swedish mills producing bleached sulphate pulp are compared below. Metsä Fibre's figures are from 2018. The other figures are from 2017 and based on the statistics of the Finnish Forest Industries Federation and the Swedish Forest Industries Federation.

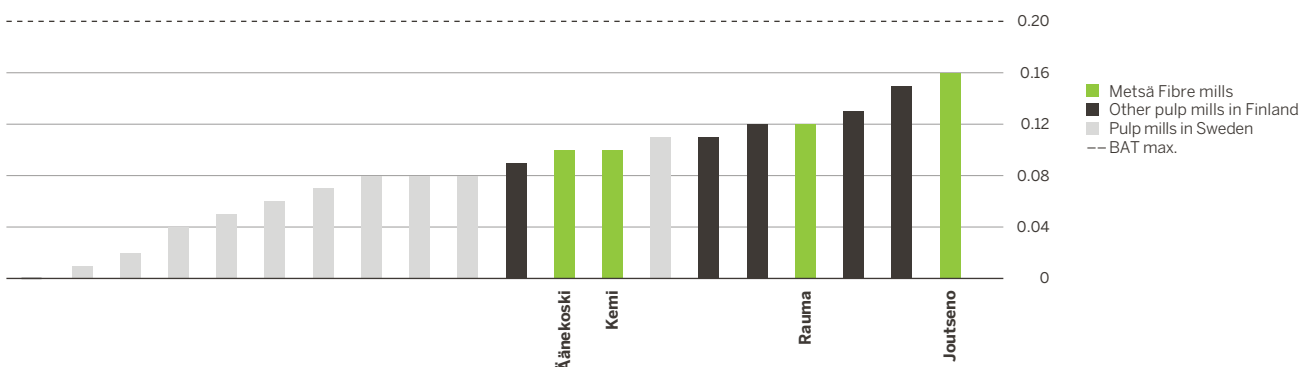
CHEMICAL OXYGEN DEMAND (COD_{CR}) KG/PULP TONNE



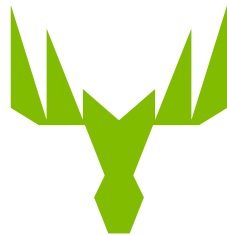
PHOSPHORUS (P) G/PULP TONNE



CHLORINE AND OTHER HALOGENS BOUND TO ORGANIC MATERIAL IN EFFLUENT (AOX) KG/PULP TONNE



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