



Next-generation bioproduct mill in Äänekoski

METSÄ GROUP | Sales EUR 4.7 billion | Personnel 9,300

METSÄLIITTO COOPERATIVE | Group's parent company | Owned by 104,000 Finnish forest owners



METSÄ FOREST

Wood supply and forest services

Sales:
EUR 1.5 billion

Personnel:
900



METSÄ FIBRE

Pulp and Sawn Timber

Sales:
EUR 1.6 billion

Personnel:
1,250



METSÄ WOOD

Wood products

Sales:
EUR 0.5 billion

Personnel:
1,500

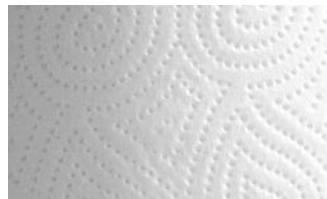


METSÄ BOARD

Paperboard

Sales:
EUR 1.7 billion

Personnel:
2,500



METSÄ TISSUE

Tissue and cooking papers

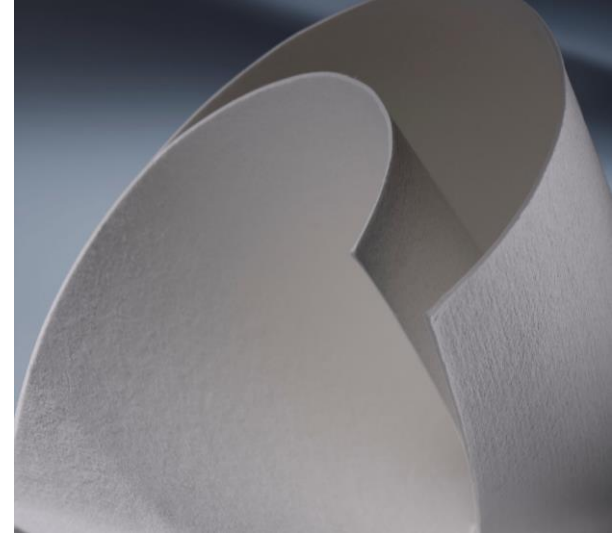
Sales:
EUR 1.0 billion

Personnel:
2,750

Renewable energy 22.3 TWh

Metsä Fibre

- A leading producer of bioproducts and bioenergy
- We produce high-quality northern bleached softwood and birch pulp, and spruce and pine sawn timber
- Metsä Fibre has four profitable pulp mills and seven sawmills
- Our products have growing global markets



Forest industry's **largest investment** in Europe

- In 2015–2017, Metsä Group implemented a bioproduct mill project in Äänekoski. The project was completed on schedule and within its budget of EUR 1.2 billion.
- The project has a high domestic content, more than 70%
- The employment effect of the construction period was more than 6,000 person-years, more than half of which were completed in Äänekoski
- Main equipment suppliers: Valmet and Andritz



The world's first next-generation bioproduct mill

- Annual pulp production 1.3 million tonnes
- Use of wood 6.5 million m³ annually
- The mill will not use fossil fuels
- 150 employees
- 2,500 jobs in the whole value chain in Finland, with 1,500 new jobs
- Main markets for pulp: Europe and Asia
 - Sales will increase especially in China
- Started up in August 2017, will reach its nominal production capacity within a year



The **most modern** pulp mill as a core

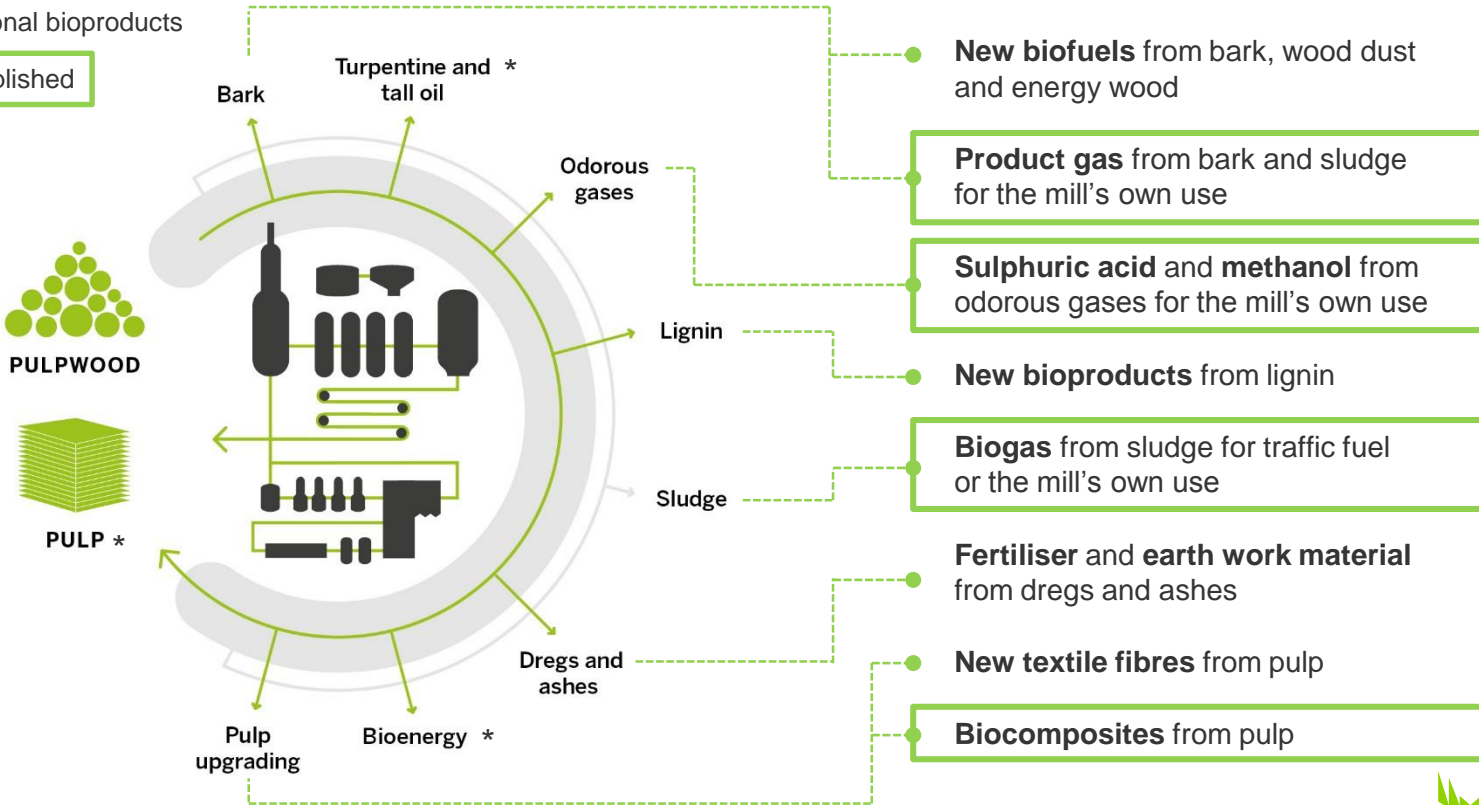
- High-quality pulps to be used as raw materials for paper, tissue paper and paperboard
- Annual pulp production 1.3 million tonnes
 - **Botnia Nordic Pine** AKI softwood pulp
 - **Botnia Nordic Birch** AKI birch pulp
- Other bioproducts of the mill include
 - Tall oil and turpentine
 - Product gas and sulphuric acid for the mill's own use
 - Biogas
 - Electricity production 1,800 GWh/a
 - Bark from the bioproduct mill 1,200 GWh/a
- We actively and systematically explore new product paths, such as lignin products and textile fibres



Bioproduct concept: all side streams 100% utilised

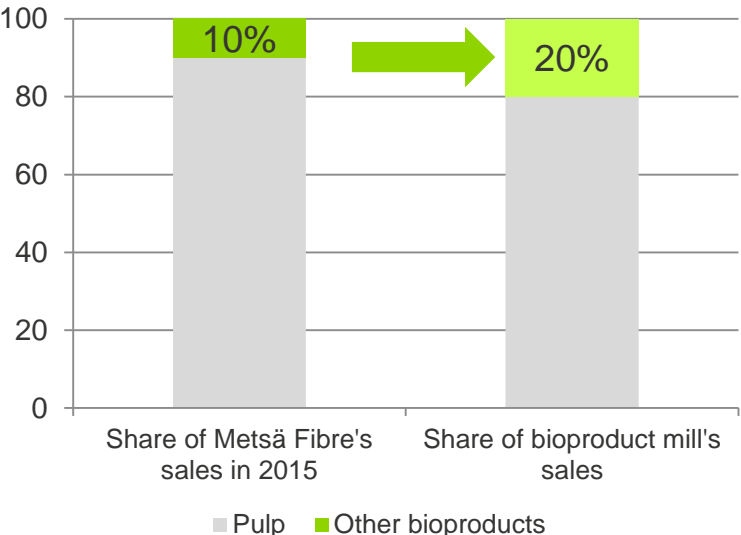
* Traditional bioproducts

Accomplished

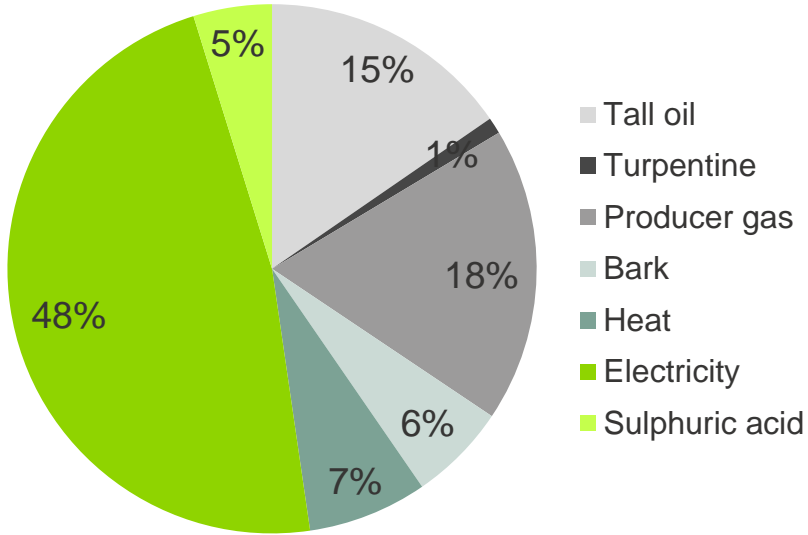


The share of other bioproducts will **increase**

Other bioproducts' share of sales, %



Share of various bioproducts during the mill's first phase



Fluent, efficient **logistics** in key role

The whole supply chain from the forest to the mill and from the mill to customers must function reliably and cost-efficiently

Wood transportation

From forests to the mill

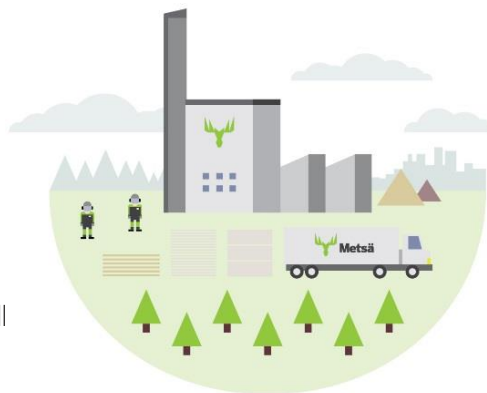


Wood raw material will be transported by trucks and trains from the forest to the mill

- 240 trucks and
- 70 railroad cars by day

Prerequisite: undisturbed wood supply

Bioproduct mill



Product transports

From the mill to the port and markets



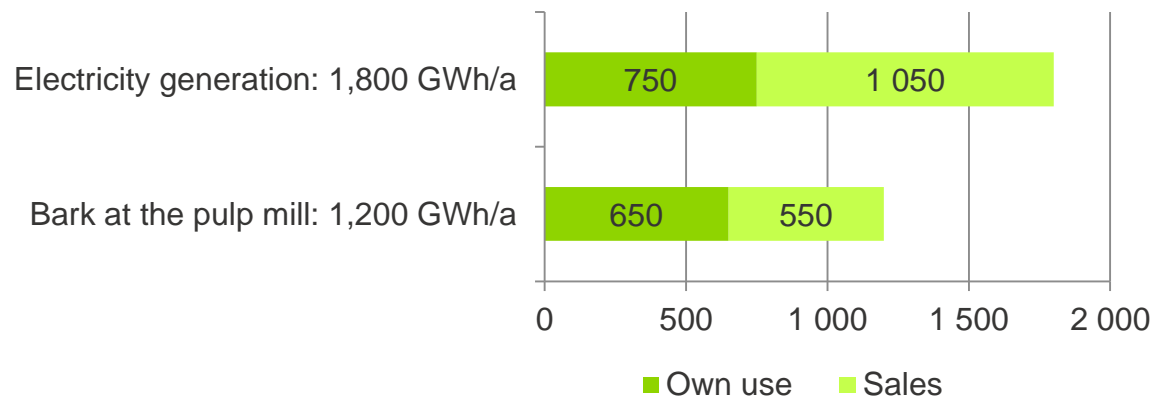
Pulp will be transported to the Vuosaari export harbour by train

- 44 railroad cars by day
- Products will not be stored at the mill, the harbour will serve as an export product warehouse

Prerequisite: reliable port operations

High energy efficiency; 240% electricity self-sufficiency

- High energy efficiency as a prerequisite for planning
- The bioproduct mill's electricity self-sufficiency is considerably high at 240%
- The mill will generate 2.5% of all electricity in Finland
- Around half of the bark from production will be gasified into renewable fuel for the mill's own use. The rest will be sold as biofuel.



First-rate **environmental efficiency**

- The bioproduct mill leads the way globally in energy, material and environmental efficiency and its equipment represents the best available technology.
- Its emissions will not affect the recreational or other use of the natural water system.
- The noise generated by the mill and the mill site will not exceed the guideline values.
- Odorous gases will be processed into sulphuric acid, which the bioproduct mill needs in the manufacture of such products as tall oil.



What kind of **knowledge and skills** do we need?



Bioproduct mill's **operating model**

- The employees are strongly involved in the development of a new production operating model based on self-directed work
- The idea arose from feedback: the employees wanted more opportunities to affect their work
- Efficient use is made of the employees' expertise and cooperation
- Self-directed teams, shared leadership
 - No shift supervisors
 - Employees are divided into teams
- Low organisational structure
- Good personal influencing opportunities
- Customer-oriented operations
- Good work motivation
- We operate efficiently and flexibly
- Sufficient time is ensured for supervisory work

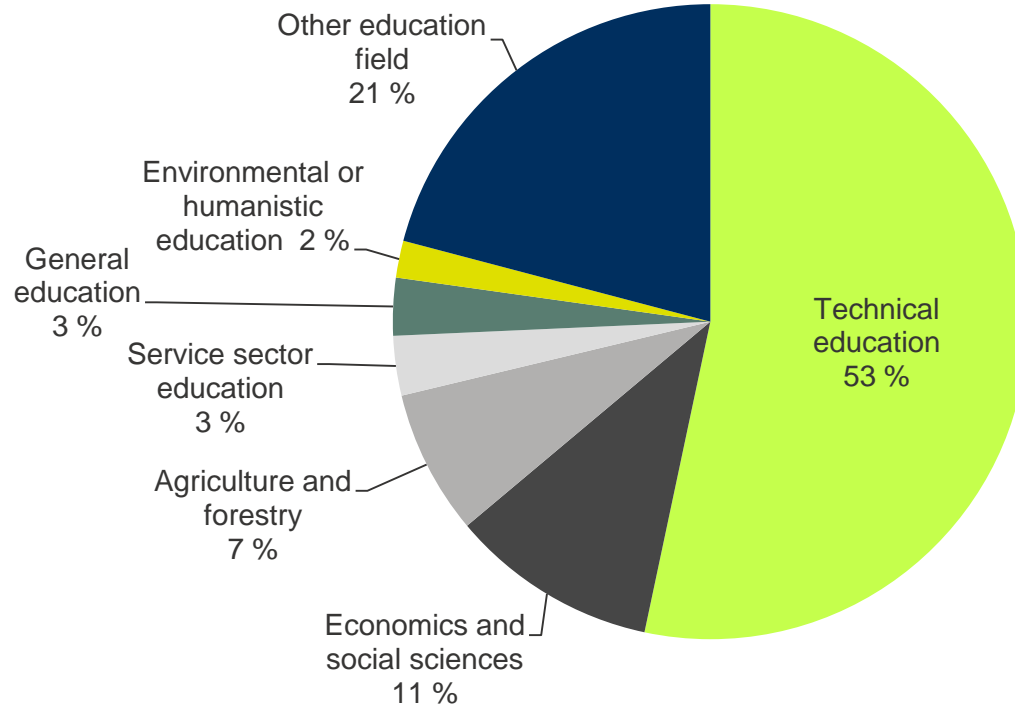


What kind of **knowledge and skills** do we need?

- Mathematics and natural and technical sciences have a key role
- Employee autonomy and multiple skills are important nowadays
- Key competences in the bioproduct mill alongside the process competence:
 - Safety and environmental know-how
 - Energy, material and environmental efficiency of processes
 - Customer knowledge and product development
 - Cooperation, communication and problem-solving skills
 - Ability and motivation to develop own skills



More than half of the forest industry employees have **technical education**



Careers in Metsä Group



9.300

EMPLOYEES

We employ a large number of professionals in various fields.



30

COUNTRIES OF OPERATION

We are a Finnish forest industry company that operates in international markets.



263

AVAILABLE JOBS IN 2016

We offer interesting career opportunities for experts in various fields.



850

SUMMER EMPLOYEES

Every year, hundreds of young people take their first steps in working life with us.



4.7

EUR BILLION

Our value is responsible profitability.

Metsä Group employs **9,300** professionals from various fields and offers different kind of career opportunities

Marketing

Economics

Business development

Communications

Process

Logistics

Management

Technical support

Sustainability

Corporate Affairs

Purchase

Product Development

Legal Affairs

Project management

HR

ICT

Customer Services

Maintenance

Administration

Find your career in Metsä

- Metsä Group is responsible employer.
- High-quality products manufactured from sustainable raw material and diverse duties make our work meaningful.
- We offer a wide range of career paths and employ professionals in various fields.
- At Metsä Forest, the emphasis is on expertise in wood trade and forest management. Metsä Wood, Metsä Fibre, Metsä Board and Metsä Tissue employ professionals in chemical and mechanical industrial production, maintenance and wood processing technology.

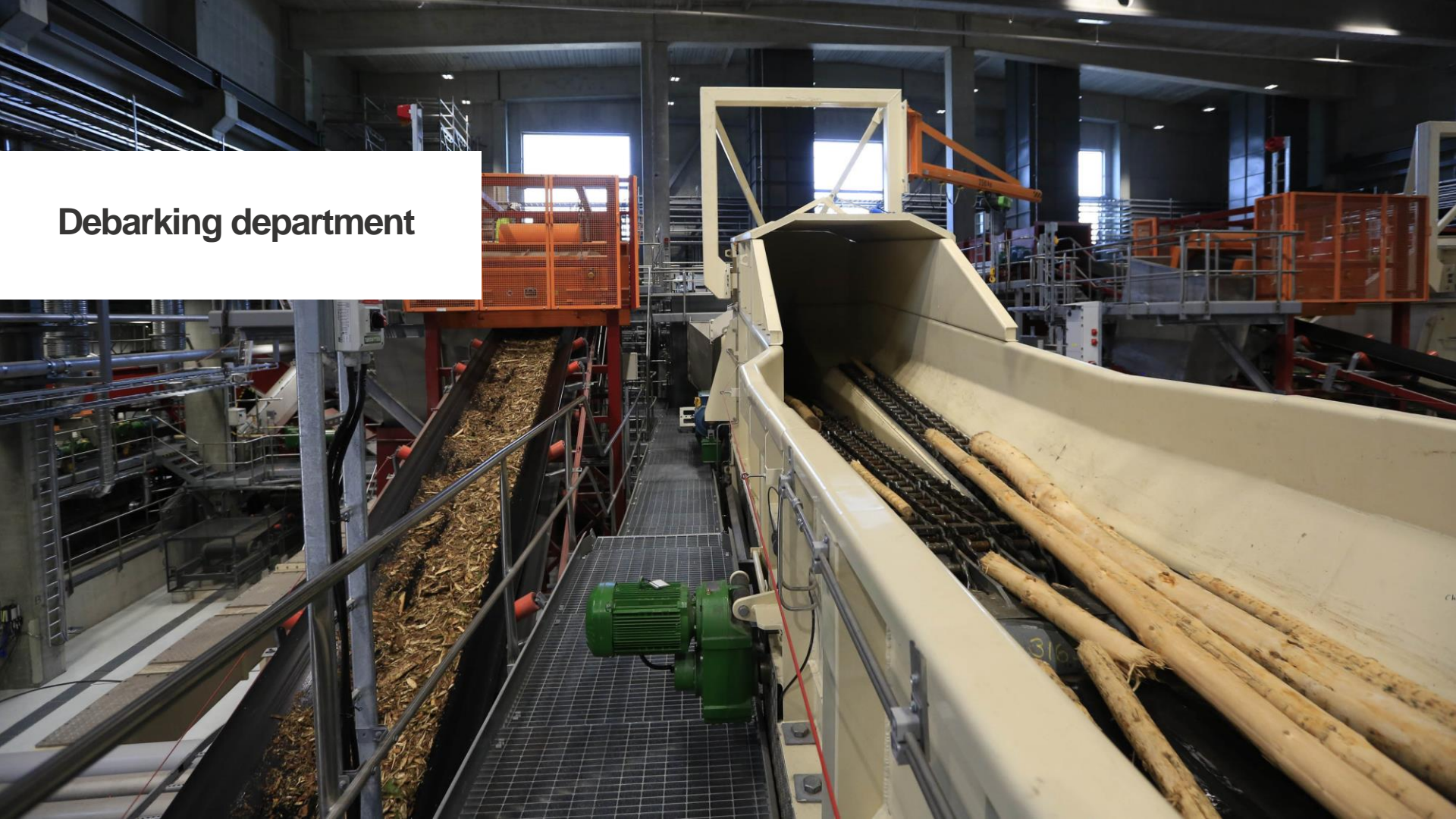




Wood processing



Debarking department



Chip piles



Pulp mill





Metsä

Power plant

Automated pulp distribution centre



The image shows a vast industrial interior, likely a pulp distribution center, characterized by a dense, multi-level metal framework of beams and supports. The structure is illuminated by overhead lights, creating a grid-like pattern of light and shadow. In the center, a tall, orange crane or conveyor system extends vertically. The overall atmosphere is industrial and technical.

**Automated pulp
distribution centre**



Train loading



Wastewater treatment plant

**The world's first
next-generation
bioproduct mill**

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Make the most of Metsä

