



REGIONAL COUNCIL OF
North Karelia



Towards a Green Economy: **Why, what and how the forest sector can contribute?**

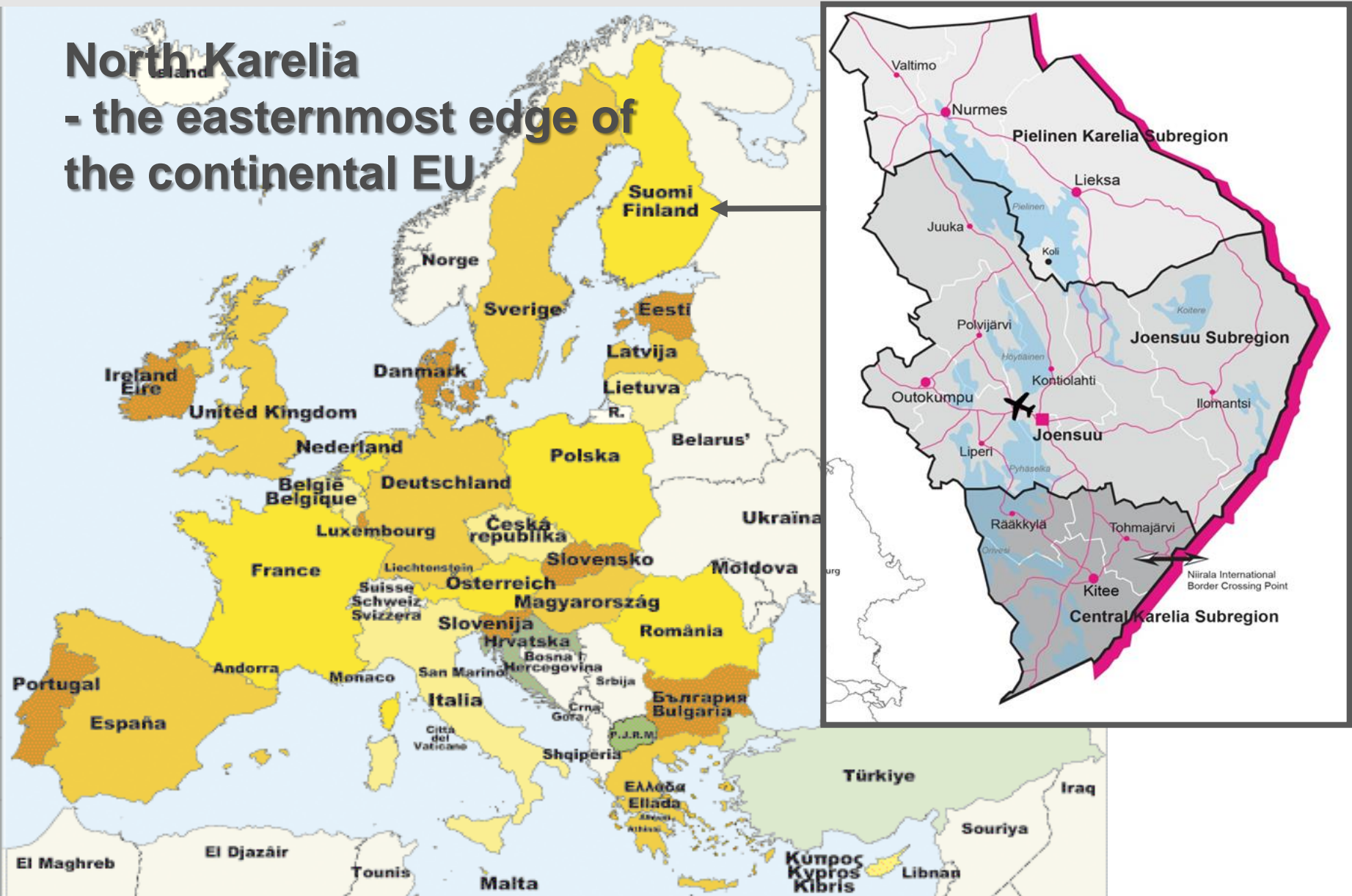
Dr. Pentti Hyttinen

7 December 2015



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North Karelia - the easternmost edge of the continental EU



Europe 2020 strategy



1) Smart growth

improving the EU's performance in education, research & innovation and digital society

2) Sustainable growth

building a competitive low-carbon economy that makes efficient and sustainable use of resources

3) Inclusive growth

raising employment rate – more and better jobs

→ What is our contribution?



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Smart growth: We count on knowledge based development in forest-bioeconomy



European Forest Institute 1993-

Carelian Science Park 1990-

Forestry education at university level 1982-

Finnish Forest Research Institute 1981-

Forestry education at polytechnical level 1978-



Sustainable growth: Climate and Energy Programme of North Karelia



Yesterday's fuel



Locally – Renewably – Efficiently

- Fossil Oil Free Heating in 2020
- Totally Fossil Oil Free Region in 2030



→ It means more woodchips, pellets, pyrolyse oil, solar energy, wind mills and other renewables (+ heating pumps in case electricity is produced by renewables).



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Inclusive growth: Technology driven export industries



 OUTOKUMPU METALLOY



 JOHN DEERE



 MANTSINEN

Forest-bio cluster in North Karelia:

- 500 companies
- 6 000 jobs
- turnover 1,7 billion €
- 600 specialists (R&D, education and public administration)

Large-scale forest industries

- back-bone of the regional economy
- competitiveness?



Enocell Pulp Mill

Strategic path for success

More with less

- productivity
- cost efficiency

Different things, in a different way

- ideas
- innovation



We need new innovation

Products

- to use forests and trees for new purposes & products

Processes

- to develop the existing ways to use forests and trees

Social innovations

- e.g. new models for cooperation networks



CASE ENOCELL:

How to find new markets for the traditional forest industry?

Did you know that most of your clothes are made from wood-based raw materials?

You have probably seen viscose, rayon and modal mentioned on washing labels.

Viscose, rayon and modal are textiles made from wood fibres.

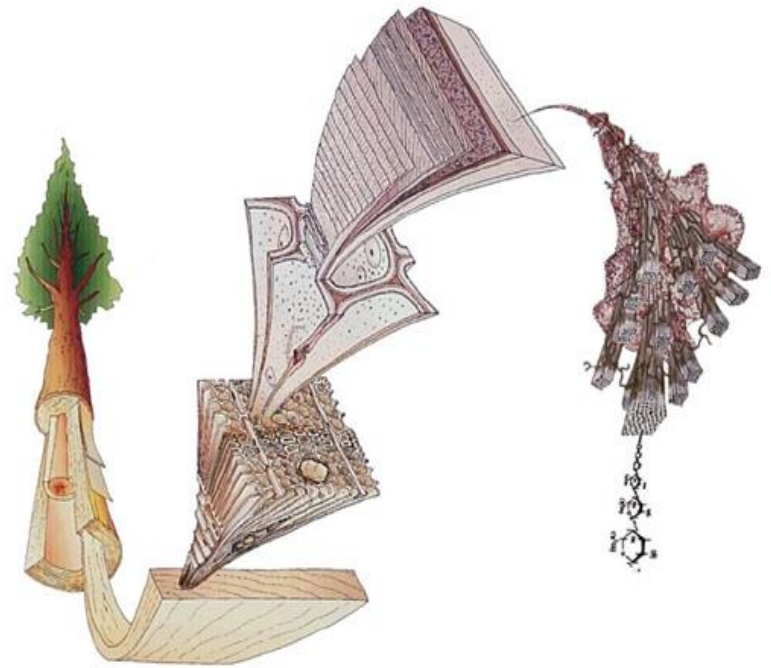


CASE ENOCELL:

Dissolving pulp

The raw material of viscose, rayon and modal.

Can be manufactured from all tree species.



In 2012, Stora Enso Enocell mill started to use birch for producing dissolving pulp.

Annual production capacity is 150 000 tons.

All the production is exported to Asia for textile industries.

Market price is higher compared to the regular pulp (USD800/ton around at the end of 2014).

CASE ENOCELL:

Ecological arguments are for dissolving pulp

Wood fibers are renewable and sustainable.

Cotton crops need very large quantities of water:

- with a water amount needed to produce 1 kg of cotton fibers you can produce over 26 kg of viscose.

Cotton is grown on fields which are also needed for food crops.

- the total area of arable land is continuously declining, whereas food demand continues to increase at a dizzying rate.



We aim at increasing the use of wood for energy



Investing in bio-oil production

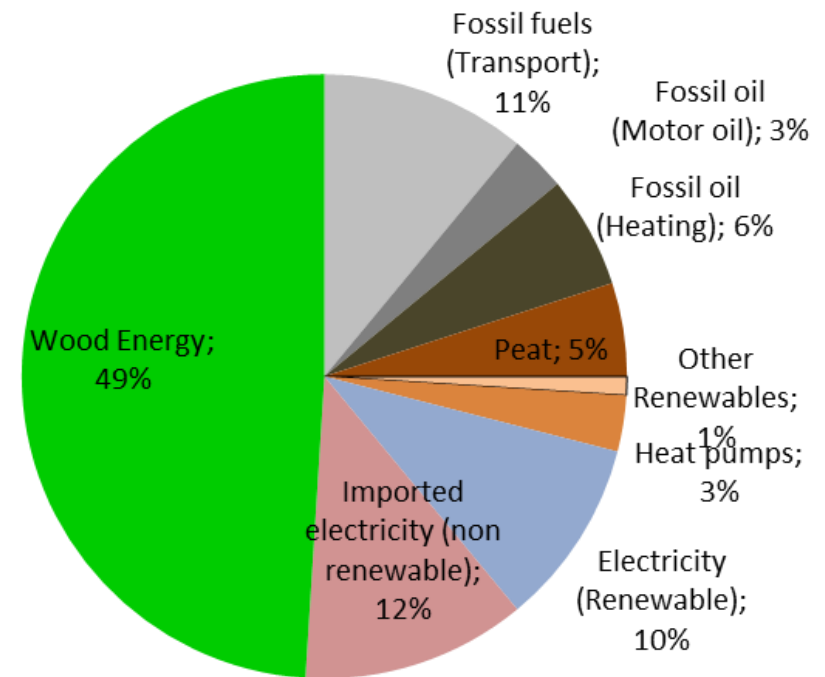
Fortum **pyrolysis oil plant**
in Joensuu: production was
started in November 2013.

A model example of an
investment (30 M€) needed
on the way towards fossil oil
free region!



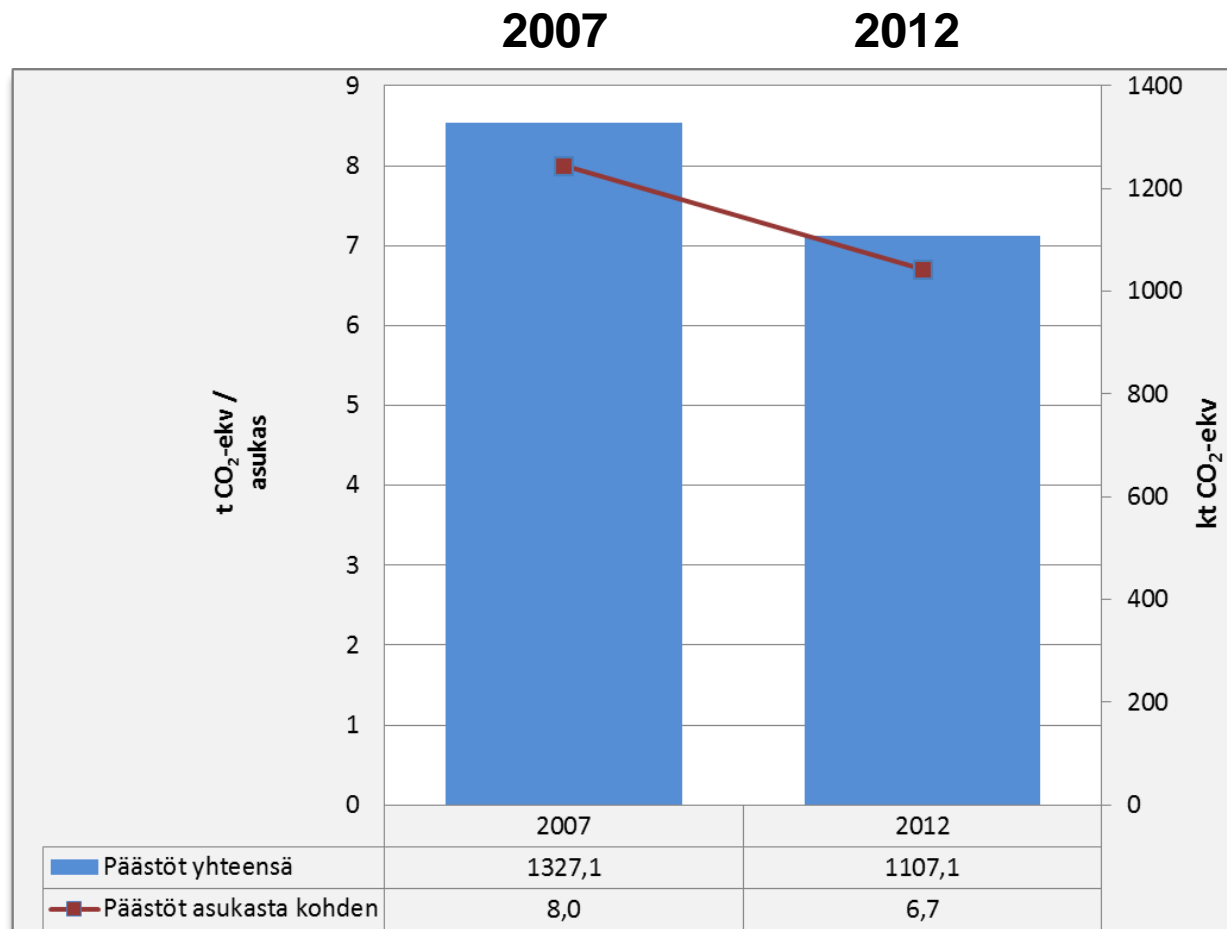
North Karelia is a forerunner in the use of renewables

Renewables cover now 67 %
of all energy consumption,
*compared to about 32 % in Finland,
and about 10 % in the EU.*



Greenhouse gas inventory:

CO₂ emissions decreased 21 % in five years



Getting totally rid of fossil oil means money for the local economy

Total costs for North Karelia:

Oil for heating	65 M€/year
Oil for traffic	215 M€/year

	280 M€/year

→ Savings per capita 1 700 €/year

We aim at increasing the use of wood in construction



Metla Building

Joensuu Arena





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Wealth from Bioeconomy

KOLI
forum



City of Lieksa



FMI



METLA

NESTE OIL



RAISIO



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SITRA



SYKE

TAPIO 



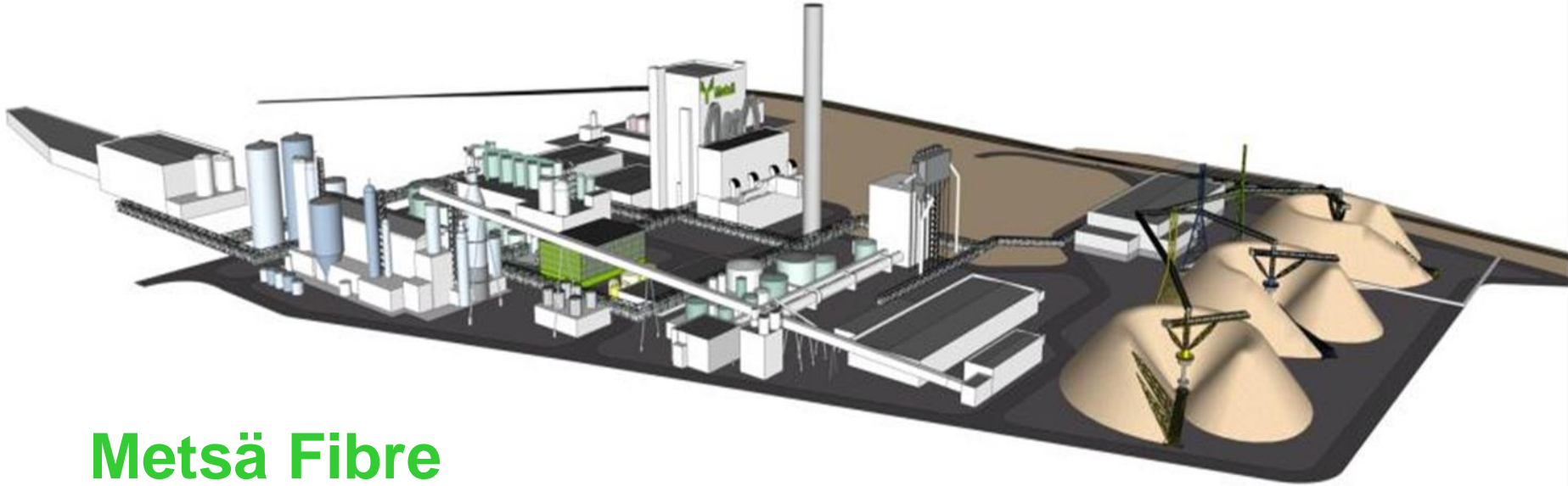
UNIVERSITY OF
EASTERN FINLAND

UNIVERSITY of OULU
OULUN YLIOPISTO



2009, 2011, 2013, 2015, ...

Investments indicate optimism!



Metsä Fibre **Äänekoski** **Bioproduct Mill**

Forest industry's
biggest investment
in Finland

EUR 1.2 billion investment

Annual pulp production 1.3 million tonnes (currently 0.5)

- In addition integrated production of new bioproducts

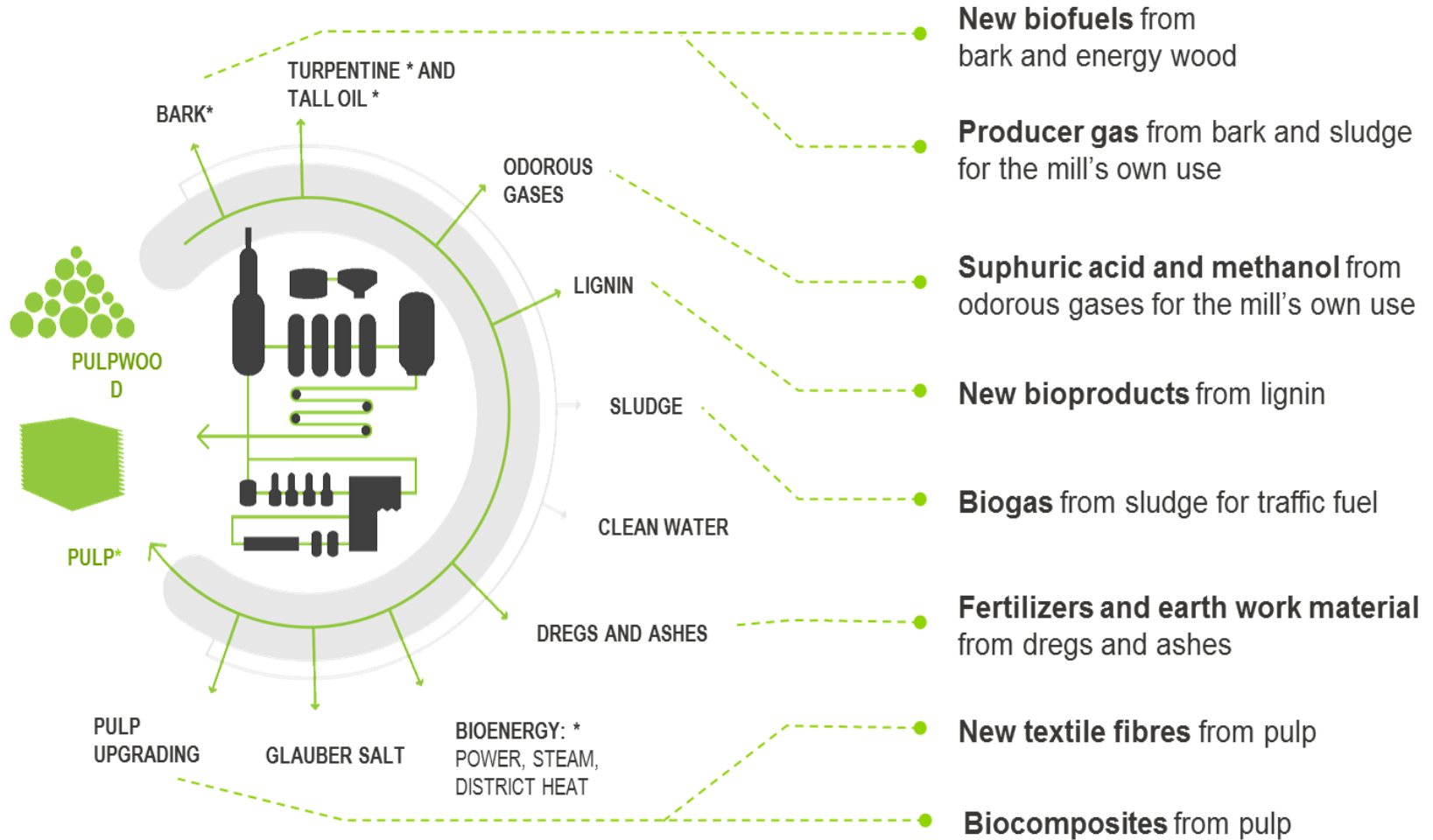
Use of wood 6.5 million m³ annually (currently 2.4)

Main markets for pulp: Europe and Asia

The mill will be ramped up during the third quarter of 2017

Äänekoski Bioproduct Mill

Bioproduct concept: all side streams 100% utilized



Fluent, efficient **logistics** will be in the key role

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

- Illustration - Äänekoski Bioproduct Mill

Wood transportation

From forests to the mill

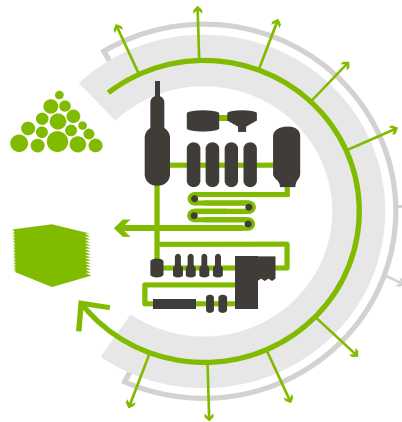


Wood raw material will be transported by trucks and trains from the forest to the mill

- **240 trucks and**
- **70 railroad cars per day**

Prerequisite: **undisturbed wood supply**

Bioproduct mill



Product transports

From the mill to the harbour and markets

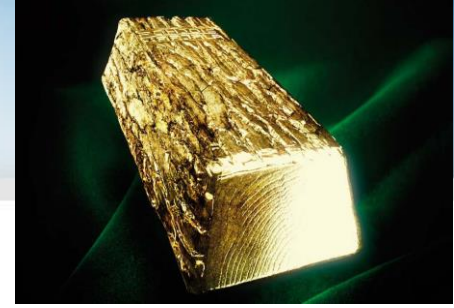


Pulp will be transported to the harbour by train

- **40 railroad cars per day**

The mill does not store products, the harbour acts as export warehouse

Prerequisite: **reliable harbour operations**



Conclusion: The role of the forest sector is essential in aiming at smart, sustainable and inclusive growth towards a Green Economy

- The forest sector has an increasing and diversified value in meeting the objectives stated in the international commitments.
- The forest sector provides **solutions** for the challenges caused by climate change and increasing demand of energy.
- At the same time, the forest sector provides **opportunities** for new entrepreneurship, employment and economic development.



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Thank you for your attention!

