



THE FINNISH FOREST-BASED BIOECONOMY: EMERGING BUSINESS MODELS, PRODUCTS AND INFRASTRUCTURES

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IMPLEMENTATION OF THE BIOECONOMY IN FINLAND



FINNISH BIOECONOMY STRATEGY: NEW GROWTH AND JOBS FROM THE BIOECONOMY

- The vision: Finnish well-being and competitiveness will be based on sustainable bioeconomy solutions.
- The objective of the Finnish Bioeconomy Strategy:
 - To generate new economic growth and new jobs from an increase in the bioeconomy business and from high added value products and services while securing the operating conditions for the nature's ecosystems.
- The objective of the Bioeconomy Strategy is to push Finnish bioeconomy output up to EUR 100 billion euros by 2025 and to create 100,000 new jobs.





BIOECONOMY IS ONE OF THE KEY PROJECTS OF THE STRATEGIC GOVERNMENT PROGRAMME

The action plan for the implementation of the key projects and reforms defined in the Strategic Government Programme involves a large number of operational changes designed to reform Finnish society and underpin the efforts to create favourable conditions for economic growth.

1. Employment and competitiveness
2. Skills and education
3. Wellbeing and health
- 4. The bioeconomy and clean solutions**
5. Digitalisation, experimentation and deregulation
6. Reforms





HOW DOES FOREST INDUSTRY ENSURE THE GROWTH OF BIOECONOMY?

1. Forest-related laws must support bioeconomy
2. Putting into action measures to improve supply of wood and forest ownership structures
 - E.g. taxation, active utilization of forest resource data, digital trading platforms for roundwood, jointly owned forests, etc.
3. Endorsing sound and even-handed support policies
4. Sustaining and developing a well-functioning infrastructure
5. Ensuring the availability of skilled labour
6. Paying special attention to ecological sustainability when demand for wood increases
 - Forest certification
 - Nature management of commercial forests
 - Voluntary conservation (METSO programme)
 - Forest Industries Forest Environment Program 2016–2020
7. EU policies must strengthen the bioeconomy – otherwise non-renewable raw materials take over and suppress forest-based industries





FOREST INDUSTRY IN FINLAND

FINLAND'S TOP EXPORT PRODUCTS

1.

Paper and paperboard
6,8 bill. EUR



4.

Wood pulp
1,8 bill. EUR



5.

Softwood sawnwood
1,7 bill. EUR



2. Diesel fuel
3,7 bill. EUR



3. Stainless steel
2,3 bill. EUR



Photo Valmet Automotive

5. Motor vehicles for
personal transport 1,1 bill.
EUR

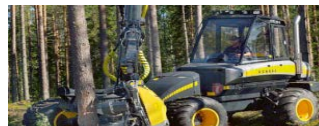


Photo ABB

7. Electric generators and
motors
1,1 bill. EUR



8. Special machinery
1,1 bill. EUR



9. Earth movers and excavators and
other similar machinery
1,0 bill. EUR



Photo Plasmeca

10. Medical instruments
1,0 bill. EUR

FOREST INDUSTRY - DIRECT AND INDIRECT EFFECTS TO SOCIETY

- The forest industry employs directly 41,000 people in Finland and abroad approx. 50,000 people
- Significant indirect effects for other sectors
 - Important customer of products and services of other industries and transportation
 - Industrial core for business services (maintenance etc.)
- The forest industry directly and indirectly employs approximately 150,000 Finns
- Substantial indirect effects due to the industry's heavy reliance on domestic production inputs





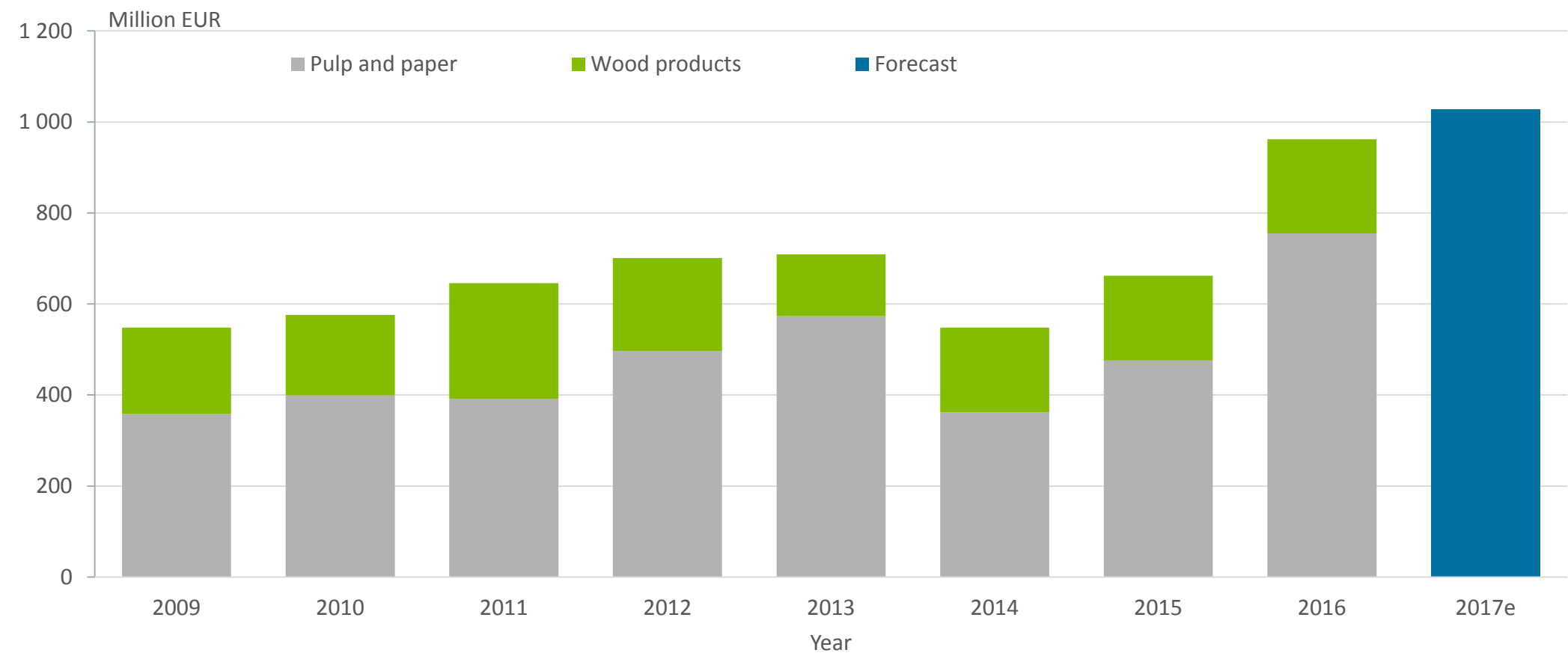
PAPER PRODUCTION IS DECREASING – BOARD AND PULP ARE INCREASING

FOREST INDUSTRY CUMULATIVE PRODUCTION OF LAST QUARTER

		1-2Q 2017	1-2Q 2016	Change-%	2016
Sawnwood	Mill. m ³	6,3	5,8	8,5 %	11,4
Plywood	Mill. m ³	0,6	0,6	7,9 %	1,1
Chemical pulp	Mill. t	3,8	3,7	1,2 %	7,5
Paper	Mill. t	3,3	3,4	-3,2 %	6,8
Paperboard	Mill. t	1,8	1,6	7,5 %	3,3



FOREST INDUSTRY INVESTMENTS IN FINLAND



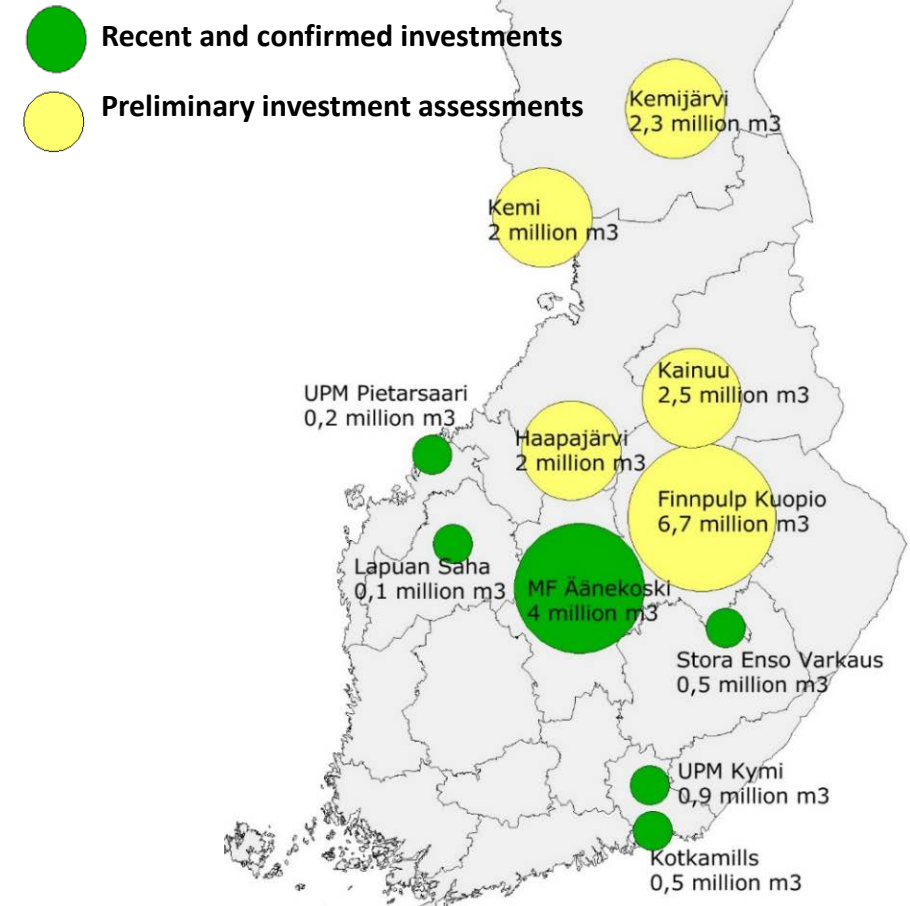
SOURCE: Statistics Finland, forecast Confederation of Finnish Industries, FFIF
9.11.2017

NEW INVESTMENTS AND GROWTH OF BIOECONOMY

Investment projects

Company / MillUP	Million EUR	Investment	Ready
Stora Enso, Varkaus	48	Wooden building elements, LVL	2016
UPM, Kaukas	50	Pulp mill improvements	2016
Kotkamills, Kotka	170	PM Conversion to paperboard	2016
North European Bio Tech Oy (NEB), Kajaani	40	Biorefinery & bioethanol from wood	2016
Metsä Group, Äänekoski	1 200	Biorefinery / Softwood kraft pulp	2017 Q3
Stora Enso, Imatra, Inkeroinen	79	New PE extrusion coating plant and an automated roll warehouse, MFC production	By end 2017
UPM, Kymi	98	Pulp mill improvements	2017 Q3
Metsä Group, Lohja	Part of 50 m€ investments in Finland	LVL production improvements	2017 Q4
Stora Enso, Heinola Fluting Mill	28	Investment improves quality as well as increases production capacity	2018
Stora Enso, Lahti	19	Packaging machinery and infrastructure	2018
UPM, Kaukas	30	Pulp mill improvements	2018
UPM, Raflatac	10	Specialty labels	2018
Stora Enso, Uimaharju	52	Dissolving pulp, SW prod. will discontinue	2019
Stora Enso, Imatra	42	Pulp mill improvements	2019

Additional demand for wood



CURRENT TOPICS: INFRASTRUCTURE, LOGISTICS, WOOD PROCUREMENT AND INNOVATIONS

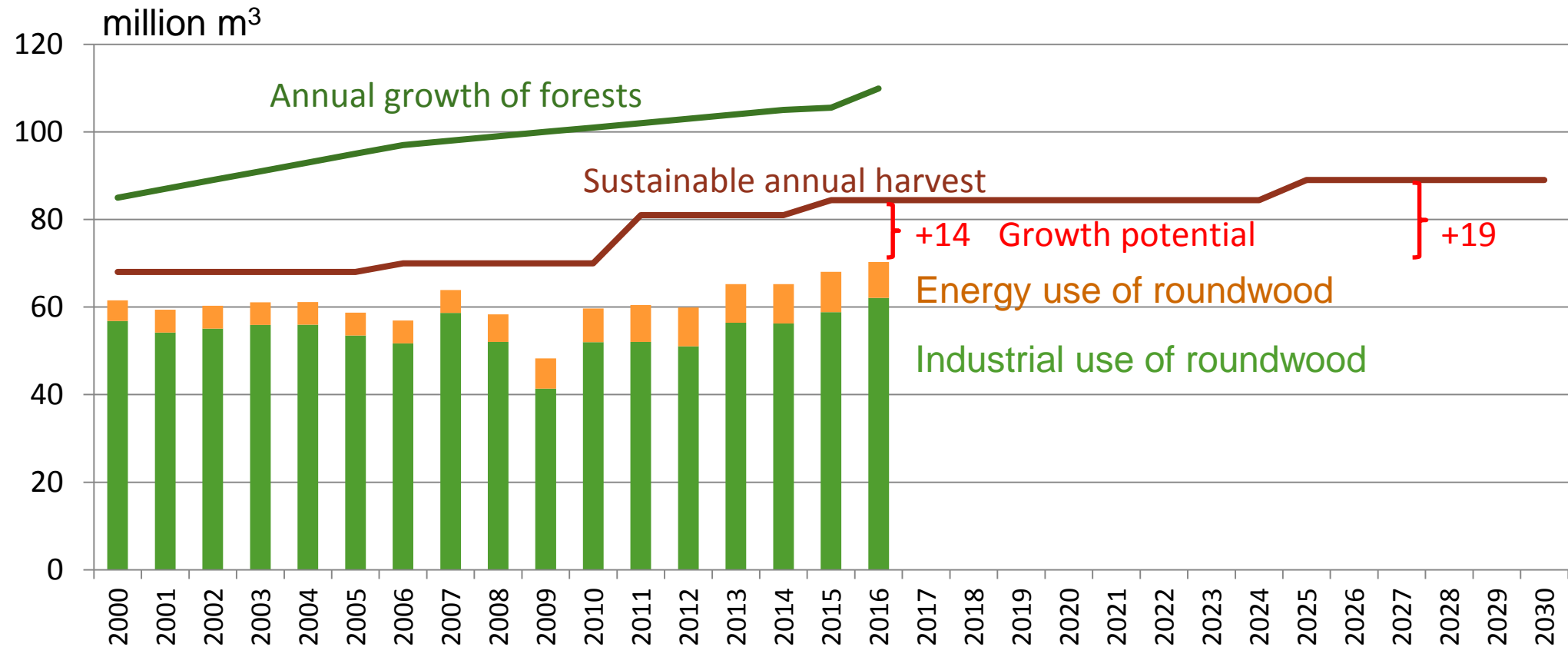
INFRASTRUCTURE AND LOGISTICS ESSENTIAL FOR FOREST INDUSTRY

- Level and allocation of infrastructure funding, to develop especially lower road network
- Road transport competitiveness by increasing maximum loads
- Competition in rail transport, new operators
- National network of round wood terminals
- Cross-border railway development: renewed FIN-RUS railway agreement in December 2016



HCT vehicle combination of 94 tonnes (Source: Orpe kuljetus)

SUSTAINABLE USE OF DOMESTIC WOOD CAN BE INCREASED 14 MILLION M³ ANNUALLY IN THIS DECADE— 19 M³ ANNUALLY FURTHER IN THE FUTURE





BIOECONOMY NEEDS THE CO-OPERATION BETWEEN DIFFERENT SECTORS, DIFFERENT SIZE COMPANIES, UNIVERSITIES, RESEARCH INSTITUTES



THE STORY: THE WHEEL OF FORTUNE

