



KICK START YOUR

BIO-BASED BUSINESS

BUSINESS
OPPORTUNITY
IN FINLAND

With a solid industry cluster that is constantly renewing, world class competence and technology, favorable policies and numerous growth opportunities, Finland offers a unique platform for bio-based production & partnering.

OVER TWO BILLION EUROS WORTH OF POTENTIAL PROJECTS

Finland is currently the epicenter of the global growth for bioeconomy. The renewing industry cluster offers huge growth potential with projects worth over two billion Euros. For centuries, Finland has lived off its forests and this has created a strong competence base – the entire bioeconomy value chain is already in place in Finland.

Globally operating **forest industry companies**, such as UPM, StoraEnso, Metsä Group, SCA and Sappi have major production facilities in Finland. Today, there are 50 pulp and paper mills and over 240 wood product production sites in Finland. Several forerunner **technology companies**, such as Andritz, AMEC Foster Wheeler, Outotec and Valmet are based in Finland. At the same time Finland is home to world leading **forest machinery providers**, such as John Deere, Ponsse and Timberjack.

The major **chemical producers** operating in Finland, such as Arizona Chemicals, CP Kelco, Forchem, Neste Oil, Kemira and STI, focus strongly on bio-based raw

materials and processes. New startups, such as Metgen, Paptic and Spinnova, develop and commercialize technologies based on novel Finnish innovations. Finland is Europe's most heavily forested country with 86% of its land area under forest. 90% of the Finnish forests are PEFC-certified. Annual growth is 100 Million m³. The growth potential for sustainable harvesting is currently 60%.

Recent major investments made by the leading domestic companies have paved the way for the growth of the industry. Yet, additional competence and resources are needed, particularly in further refinement, product formulation and production of high value added products, such as bio-chemicals and advanced biomaterials. Flexible screens, sound systems, car parts, biodegradable packaging materials, adhesives, paints, cosmetics, medicines, textiles – wood may serve many new markets in the future.

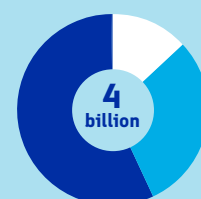
INNOVATE WITH THE GIANTS

Finland is a bioeconomy superpower. The annual turnover of the sector is

60 billion Euros. Industries range from wood processing, chemistry, energy and construction to technology, food and health. The Finnish government is committed to nearly doubling the current turnover by 2025. The government has earmarked funding for bio-industry development, with research, pilot projects and investment support.

About half of Finland's bioeconomy consists of the forest industry. Since Finland is a global pioneer in the co-production of electricity and heat, extensive and energy-efficient use of wood based fuels is possible. Most of Finland's renewable energy is forest based.

FINLAND ATTRACTS BIOECONOMY PROJECTS



● Operating 530 M€
● Under construction 1200 M€
● Planning 2300 M€

Furthermore, about one third of chemical industry companies use bio-based raw materials. This use and biotechnology are increasing.

VTT Technical Research Centre of Finland is one of the largest applied research institutes globally in the field. **The European Forest Institute** has its headquarters in Finland. **CLIC**, an open innovation cluster consisting of 30 companies and 17 institutions,

coordinates cleantech and bioeconomy portfolios to construct extensive solutions which are beyond the resources of individual organisations. All in all, Finland is an unbeatable development platform within the bio-based economy through the interaction of end-users, companies and researchers.

Japanese **Itochu** has invested in Finland by establishing a joint-venture with Metsä Group. Early in 2016 Austrian **Binderholtz**

decided to invest in the Finnish wood processing business. Chinese **Sunshine Kaidi** has announced its intention to invest in a 2nd generation biofuels refinery in Finland. Finland already serves as a base for international bio-products manufacturers, such as **Arizona Chemical, Itochu Corporation, Nippon Paper Group, Respol Resinas, Sappi** and **SCA**.

METSÄ FIBRE BIOPRODUCT CLUSTER

Metsä Fibre is building an extensive bioproduct cluster that creates co-operation opportunities within.



OWNER:	Metsä Fibre Oy www.metsafibre.com
INVESTMENT DECISION:	2015
IN OPERATION:	2017
RAW MATERIAL:	6 500 000 m³/yr. Pine & spruce (70%), birch (30%)
CORE PRODUCTION:	High-quality pulp
OTHER PRODUCTS:	1 300 000 ton/yr for paper, tissue and cartonboard tall oil, turpentine and bioenergy (power, process steam, district heat and solid biofuel)
INVESTMENT COST (estimate):	1100 M€

BIOECONOMY SECTOR IN NUMBERS

Turnover (€)

60_{bn}

Share of employment

13%

Share of exports

26%

Renewable energy target

50%
by 2030

Seeks to increase its output (€) to

100%
by 2025

Expects to create

100,000
new jobs
in the process

By 2030, the world will need

50% more food,
45% more energy
30% more water than now

Renewable fuels used in vehicles

40%
by 2030