

# Bioeconomy Development Strategy for Oulu Region in 2015–2020

Towards a sustainable economy







## Bioeconomy Development Strategy of Oulu Region in 2015–2020: Towards a sustainable economy

## The goal of developing the bioeconomy in Oulu Region is to promote well-being in the region and produce added value to customers in the global market.

Cutting-edge technologies and novelty products will speed Oulu Region on its way to becoming a true pioneer of bioeconomy. Traceability and the quality characteristics of northern products support the marketing of bio-based products produced in the region. The northern location, the well-functioning bioeconomy and the high competence levels of Oulu Region form a unique combination from a global perspective.

Bioeconomic growth can only be achieved through investment and with the help of a healthy and committed SME sector in all value chains. Increasing awareness of the opportunities available in the region will also make Oulu Region more attractive to international investors. Biorefineries that are tailored to the local raw material base will also speed up development.

Diversification in the production of large wooden structures will further strengthen the value chain of mechanical wood processing. Products suitable for large-scale concept construction are a particular target for development.

Speciality products that taste great and have excellent health properties are currently in high demand in the natural products market. Growth in this field can be achieved by ensuring that raw materials are reliably available (e.g. industrial

Photo: Kaleva/Risto Rasila

products market.

berry cultivation) and by developing industrial berry cultivation and processing in the region.

Oulu Region has plentiful resources of peat, which is also price-competitive. Peat processing will be developed towards more high-grade products through chemical refining, for example. Renewable methods of using peat, the after-use of peat extraction areas, and water protection in the peat industry will be developed.

The region's strong ICT expertise can give a major boost to bioeconomic productivity if the application opportunities available at each stage of the processing chain are fully exploited. It is entirely possible to increase efficiency by dozens of percentage points this way, because application opportunities exist at each stage of the processing chain and in primary production, raw material logistics and production process control. Other types of technical expertise found in the region will also increase production efficiency.

Moving towards closed nutrient and material cycles is a prerequisite for achieving growth in many bioeconomic sectors because open cycles are an environmental hazard. Controlling the nutrient load of water systems is of key importance in aquaculture, peat production, agriculture and forestry. Recycling the ash, sludge and other side streams resulting from bioeconomic refining processes can be beneficial for both production and the environment.



from the north. Photo: Council of Oulu Region

## **Major Economic Impact**

If progress is made on all strategic objectives, the annual turnover of the region's bioeconomy will increase by  $\notin$  2 billion and 4,000 new jobs will be created by 2030. The economic effects will benefit growth centres and rural areas.

The greatest quantitative growth is expected to occur in the value chain of wood processing, for example in the field of wood structure products. However, innovative products that make it to the international market will enjoy the fastest growth, irrespective of value chains.

Across-the-board development of the bioeconomy will also have substantial effects on the environment, most of which will be positive. Reducing greenhouse gas emissions and the nutrient load of water systems, and controlling the changes to the scenery and living environments are some of the most important environmental objectives of bioeconomy development.

*Key activities in the development of the bioeconomy in Oulu Region in 2015–2020* 

Activities prioritised by the steering committee are indicated in bold.

**Theme:** Increasing awareness of the general operating conditions of the bioeconomy, the bioeconomy vision and business opportunities.

**Theme:** General operating conditions of the bioeconomy, biorefinery concepts tailored to the local raw material base.

**Theme:** Reforming the value chain of wood processing. Project ideas: side streams of the chemical forest industry, side streams of the sawmill industry, wood construction (large structures), new wood acquisition models, new wood production models

#### Theme: Bioenergy products.

Project ideas: **developing the network of bioenergy actors**, decentralised small energy system concepts – service concepts, **economical CHP**, profitability of biogas production projects, targeted pellet value chain analysis and development of a business model; developing the terminals, dehumidification, quality control and storage of biomass for energy production

**Theme:** Developing the value chain of food processing. Project ideas: taking advantage of traceability in the marketing of the region's food and natural products, increasing value-added potato processing, developing the fishing industry, aquaculture and fish processing, profitable farms Sub-theme: Business from berries

The implementation of the bioeconomy development strategy is coordinated by the Council of Oulu Region. The strategy will be expanded on later during the project. Natural Resources Institute Finland, the University of Oulu, universities of applied sciences and other expert bodies will play a central part in the execution of key activities. Several financial channels, both in Finland and in the EU, can be used in the execution of key activities. Other programmes associated with the bioeconomy, such as those relating to the use of natural resources, will support the development work. Bioeconomy development is strongly linked to the region's climate and energy strategies and to achieving the objectives of these strategies, for example. Bioeconomy research is of crucial importance to the development of know-how in the long run.



The value chain of wood processing is the most important component of the bioeconomy in Oulu Region, and it also has the greatest potential. Photos: a wooden design lampshade, wood chips

and bark, wood-plastic composite (University of Oulu, Laboratory of Material Technology). Forest photo: Risto Mulari, other photos: Council of Oulu Region.

## *Theme:* Bioeconomy innovations and new products.

Project ideas: production of bio-based speciality chemicals from local natural resources, **integrating ICT expertise in the bioeconomy value chains**, C1-chemistry expertise, high added-value product technologies (based on local expertise and raw material base)

Sub-theme: New methods for using peat

## *Theme:* Recycling of materials and nutrients.

Cover photos:

- Rapeseed is an oleaginous plant. Photo: Taimi Mahosenaho
  - Sawn timber at the Port of Oulu. Photo: Kaleva/Maiju Torvinen
  - Arizona Chemical is a pine oil refinery operating in Oulu. Photo: Kaleva/Pekka Peura

• Antti Heinonen feeding milk carton blanks into a packaging machine at the Valio dairy in Oulu. Photo: Kaleva/Jukka Leinonen



MORE INFORMATION (in Finnish) The complete Bioeconomy Development Strategy for Oulu Region in 2015–2020 is available at: www.pohjois-pohjanmaa.fi/B77

Pohjoisen biotalous: näkökulmia ja mahdollisuuksia Pohjois-Suomessa (Northern bioeconomy: perspectives and opportunities in Northern Finland), research report 2/2014, University of Oulu, Faculty of Technology, Industrial Engineering and Management, is available at: http://jultika.oulu.fi/Record/isbn978-952-62-0593-9



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