

## Domestic energy from nature

Pohjanmaan Biolämpö Ltd. began its business as a small sawmill in 1995. Heat energy needed for the mill and, on the other hand, different side streams of the sawmill, gave a positive impact to develop the company's energy production. As a result, they started supplying solid biomass fuels to other heat stations nearby. The first own heat plant was built in 2005.

While heat energy business kept growing, the company decided to give up the sawmill production and focus merely on biomass fuel procurement and sales, and management of a couple of small heat stations. As a natural continuation to the company's growth, a new much larger heat plant was established in the town of Alavus in 2014.

Nowadays Pohjanmaan Biolämpö operates three heat stations and provides solid biomass fuels for twelve other plants in Ostrobothnia. The main customers include greenhouse farmers in Närpiö county and municipal buildings and small industries in Alavus.

The nominal output of the heat plants, owned by the customers, accounts for 24 MW in total, for which the company provides wood fuels equivalent to 100,000 MWh, and some sod peat. Wood fuels consist of forest chips and recycled wood. Before the recent energy crisis some imported wood pellets were also supplied.

Fuel procurement is organized through skilled sub-contractors, encompassing a network of about forty local operators. Most forest fuels are supplied by a local forest management association that makes supply contracts with local forest owners and organizes wood harvesting and logistics. Pohjanmaan Biolämpö also owns a fuel terminal at the Alavus heat plant. There it is more efficient to store and process wood fuels, control quality and manage fuel deliveries especially during high seasons.

All heat plants operate unmanned and are highly automated. Fuzzy logic is used to control the operations and combustion of the boiler. In case of disturbance, fuzzy logic uses original settings and sends a message to the controlling computer and to a mobile phone of the operator. Combustion is controlled by an oxygen sensor. Wood chips are conveyed to the grate with blade dischargers and augers. The grate consists of movable pieces that effectively prevent ash from gathering in one place and make the flow of wood fuel smooth in the combustion chamber. Ash is conveyed with another conveyor and mixed with water in order to avoid dust in the boiler room.



Photo: Pohjanmaan Biolämpö Ltd.

### KEY WORDS

Wood chips, wood heat, heat entrepreneurship, solar power

### COUNTRY

Finland

### AUTHOR

Jyrki Raitila (VTT)  
[jyrki.raitila@vtt.fi](mailto:jyrki.raitila@vtt.fi)

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## ADDITIONAL INFORMATION

Pohjanmaan Biolämpö had solar panels installed on the front and south side of the Alavus heat plant in 2021. The nominal output of the solar energy system is 78 kW<sub>e</sub>. After gaining one year experience from the panels, the company has estimated that they can produce around 40% of power needed at the plant themselves. The total investment cost to the solar PV system were approximately 55,000 euros.

**Coordinator:** Johanna Routa (Luke) [johanna.routa@luke.fi](mailto:johanna.routa@luke.fi)

**Dissemination:** [itabia@mclink.it](mailto:itabia@mclink.it)

[www.branchesproject.eu](http://www.branchesproject.eu)



*Photo: Pohjanmaan Biolämpö Ltd.*

## ABOUT BRANCHES

**BRANCHES** is a H2020 “Coordination Support Action” project, that brings together 12 partners from 5 different countries. The overall objective of **BRANCHES** is to foster knowledge transfer and innovation in rural areas (agriculture and forestry), enhancing the viability and competitiveness of biomass supply chains and promoting innovative technologies, rural bioeconomy solutions and sustainable agricultural and forest management.

## THE PARTNERSHIP



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