Kuhmo
- perfect example of local bioenergy production

The town of Kuhmo is a perfect example of cooperation between local businesses to produce bioenergy. The least valuable part of a tree, the bark, is used as fuel in local plants. More valuable raw materials are processed into high-quality fuel: briquettes and pellets. Pure wood ash, the by-product left over from energy production, is used as a nutrient in local peatland forests. The heating of our buildings is based on efficient use of district heating and on having active heating production businesses.

In 1980, Kuhmon Lämpö Oy was founded. The company, which is owned by the town of Kuhmo and a sawmilling company Kuhmo Oy, produces heat energy for Kuhmo town centre buildings. The volume of the heated space is 750,000 m$^3$. Currently, the company operates three boilers (1E, 12, 10 MW) which use local wood processing industry by-products, bark and sawdust, as fuel. The amount of fuel used is 170 GWh/a. The biggest 18 MW boiler (CHP-unit) can also be used to produce electricity at 5 MW.

In 2005, the heating company Veljekset Pääkkönen Ay was founded. The company produces heat for Kalevala rehabilitation centre and Kanerva care home. Previously, the oil consumption of Kalevala rehabilitation centre was 1200 GWh/a, and they decided to invest in a 500 kW woodchip heating unit. Kanerva care home produces its energy using a 300 kW pellet heating unit.
In 2006, Kuhmo initiated recycling of pure wood ash. Ever since, ash has been recycled and used as a nutrient for local peatland forests. Annually, Kuhmon Lämpö Oy produces 800 tonnes of wood ash which is stabilised and dispersed with a dispersal unit attached to a forest forwarder. The ash is used to replace virgin raw materials.

In 2008, M-Pelletti Oy invested in a pellet production line with the capacity of 10,000 tonnes per year. The company makes their pellets out of cutter dust from the nearby wood processing company AA-Puu.

In 2009, Kuhmon Lämpö Oy invested in a 10 MW boiler which is equipped with a recovery system for combustion gas energy. At the same time, Kuhmo Oy invested in a drying kiln and a briquette production line. The energy produced by the new boiler replaced the oil used for district heating in the summer months, for example. In addition, the unit dries wet sawdust which is then used to make high-quality briquettes.

Benefits:
- Improves energy self-sufficiency
- Strengthens regional economy
- Virgin raw materials are not used to fertilise forests
- Highly processed local raw materials
- Logistical benefits
- Close cooperation between companies

Kuhmo Lämpö Oy
Heat energy production and lost heat recovery
- 10 MW boiler operated with wet bark and sawdust
- 3.2 MW of combustion gases recovered
- Investment EUR 5.4 million

Kuhmo Oy
Sawdust drying and briquetting:
- Material sawdust
- Drying unit: belt dryer
- Reduces moisture from 57 % to 10 %
- Production 30,000 t/yr
- 3 briquetting presses
- Investment EUR 5.3 million

Recycling ash to the forest
- Pure wood ash
- Accumulation 800 t/yr
- Dispersal area 120 ha/yr
- Self-stabilisation
- Dispersal from a container on a forestry machine trailer

M-Pelletti Oy
- Capacity 10,000 t/yr of wood pellets
- Raw material: cutter dust
- Investment EUR 800,000
- Sold by weight and in bags of 500 kg.

Veljekset Pääkkönen Ay
- Kalevala rehabilitation centre
  - 500 kW woodchip boiler
  - 1300 Wh/yr (1700 m³ bulk volume) of woodchips
  - Acquisition of woodchips with own equipment
  - Replaces 120,000 litres of light fuel oil annually
- Kanerva care home
  - 360 kW
  - 1,000 Wh/yr (200 t/yr) of wood pellets
  - Replaces 100,000 litres of light fuel oil annually

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Sustainable Energy Solutions

Leverage from the EU