

## Did you know this about Fortum?

- An average of 46 heavy lorries arrive at Fortum during each day of operations but the number can be as high as one hundred.
- The CO2 emissions of the district heat used by Fortum's customers in Joensuu are below zero! (Stand EN 15603)
- The operations of the bio-oil plant are based on the fast pyrolysis technology and the plant is the first industrial-scale facility of its kind in the world.
- Replacing fossil fuels with bio-oil can help to reduce carbon dioxide emissions in heat generation by more than 70%.
- Fortum purchases waste heat generated by the North Karelia Central Hospital and uses it for district heating in Joensuu. A total of 300 detached houses are heated with the waste heat.
- The central hospital is the first facility to join the district heating network as a heat producer.
- 50,000 tonnes of pyrolysis oil can generate district heat for 10,000 detached houses or 24,000 medium-sized flats.
- The district heating network of Joensuu has a total length of about 200 kilometres.

# liksenvaara-Joensuu

Bioindustrial areas in North Karelia – information cards

Download cards: [www.pohjois-karjala.fi/bioteollisuusalueet](http://www.pohjois-karjala.fi/bioteollisuusalueet)

# liksenvaara-Joensuu

## General description of the area

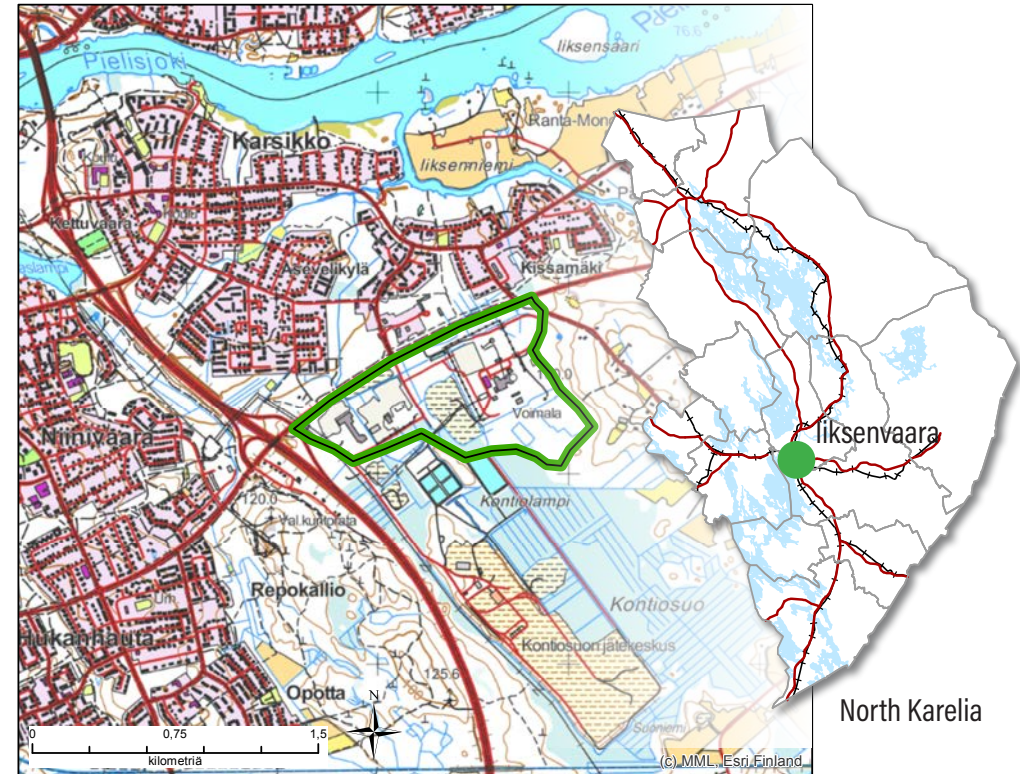
The power plant of Fortum Power and Heat Oy is located near the centre of Joensuu close to the interchange between main roads 6 and 74. The area is marked as an area with workplaces and energy infrastructure in the regional land use plan. In the local detailed plan, the area is marked as an energy infrastructure area.

The area of Fortum Power and Heat Oy houses a power plant, a bioheating plant, a pyrolysis oil production plant, a pyrolysis heating plant, a storage area for the raw material and a tank area. The facilities currently provide employment for about 100 people.

## Current situation and outlook for the future

There has been an energy generation facility in the area for thirty years. In the year 2000, the power plant boiler was converted into a fluidised bed boiler, which halved the plant's sulphur dioxide, nitrogen oxide and carbon dioxide emissions. In 2009, a separate bioheating plant was built adjacent to the power plant to generate district heat.

The purpose of the bioheating plant is to promote the use of renewable energy sources with low carbon dioxide emissions. The new plant reduced carbon dioxide emissions by 25,000 tonnes during one year. A bio-oil production facility integrated into the power plant was commissioned in 2013. In 2014, Fortum put into use a 10 MW heating plant using bio-oil. A flue gas condenser was installed in the power plant in the summer of 2015. The investment was in preparation for tighter emission standards and the aim is also to improve efficiency. As a result, the sulphur dioxide content in flue gases was reduced by between 150 and 200 tonnes and particle content by 20 tonnes. At the same time, carbon dioxide emissions resulting from fossil fuels were reduced by between 10 and 15 kilotonnes during one year.



## Companies located in the area

### Fortum Power and Heat Oy Joensuu

- Raw material:
  - wood 500,000 m<sup>3</sup>/year, of which
    - 300 000 m<sup>3</sup> is used as fuel
    - 200 000 m<sup>3</sup> as raw material for bio-oil
  - other: peat, bio-oil and biogas
- Output:
  - 260 GWh of electricity
  - 630 GWh of heat
  - 50 000 tonnes of bio-oil

### Other operators in the areas adjacent to liksenvaara:

- Puhas Oy, Kontiosuo waste centre
- Lemminkäinen Corporation
- Pielisen Betoni Oy
- Itä-Suomen Murskauskeskus Oy