

# The municipality of Pyhäselkä and sustainable energy resources



Reijola  
heating  
plant



**The Pyhäselkä municipality** owns 5 heating facilities using pellets and one using wood chips. Heats is provided for the schools of Suhmura and Rekivaara, day care centres and schools of Niittylahti and Reijola, and the office building in Hammaslahti. The municipality is unique in the sense that it owns and runs the heating plants itself. Usually, a municipality searches for an entrepreneur to manage the heating plants.

## Reijola heating plant

A good example of the facilities in Pyhäselkä is the newest installation in Reijola. The heating plant provides heat for the Reijola school, a day-care centre and a community centre which is yet under construction.

## New technology in Reijola

There is no combustion air blower in the heating plant. The air flows into the boiler due to the low pressure created by the combustion gas aspirator. The aspirator is controlled by a sensor measuring the temperature of the gas. As a result, the aspirator manages the feeding screw, the grate and ash removal.

Due to the low heat demand from May till the end of August pellets are replaced with light oil, for which there is a boiler of 1 MW.

<b>Online since:</b>	January 2006
<b>Boiler:</b>	skewed mechanical grate Osby PB2 750 kW
<b>Feeding:</b>	rigid screw conveyor
<b>Fuel:</b>	Wood pellet and light oil
<b>Fuel storage:</b>	2x 40m <sup>3</sup>
<b>Efficiency:</b>	90%
<b>Heat production:</b>	400 MWh (first 5 months)
<b>Heating:</b>	20 000 m <sup>3</sup> / 400 m
<b>Controlling:</b>	Automated, GSM alarm
<b>Owner:</b>	Municipality of Pyhäselkä
<b>Investment cost:</b>	335 000 €



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# Hospice Iitarauha

## - Environmentally friendly heat from pellets

Wood per se is a local and environment friendly fuel. However, when using wood-based fuels, it is a challenge to manage the boilers with low outputs. If the utilisation rate is less than 20 percent of the maximum, impurities will be created and efficiency will drop, which leads to losses. Very often, pellet and chip boilers are oversized and the fluctuating heat output is not taken into account.

In Suhmura, the combustion process was optimised by installing two different boilers (250 kW and 120 kW) side by side. These boilers can then be used according to the heat demand. That way, economical and environment friendly energy can be obtained.



Pellets is transported from Ilomantsi with a blower truck when needed.



<b>Online since:</b>	2005 (with pellets)
<b>Burner:</b>	Mechanical grate
<b>Boiler:</b>	Thermia Bio 250 kW and 120 kW, two oil boilers
<b>Fuel:</b>	Pellet and light oil
<b>Fuel storage:</b>	60 m <sup>3</sup>
<b>Efficiency:</b>	90 %
<b>Heating:</b>	12 000 m <sup>3</sup> /180 m
<b>Controlling:</b>	An infrared sensor controls the abundance of pellets
<b>Owner:</b>	Herran Kansa ry
<b>Investment cost:</b>	53 000 €
<b>Maintenance cost:</b>	pellets 90 €/tonne + VAT

## Pyhäselkä and Reijola



The Pyhäselkä municipality is a part of the Joensuu regional union. Altogether there are 7550 inhabitants in the two population centres, Reijola and the parish village of Hammaslahti.

## From oil to pellets

Before 2005 the heat was provided with light oil. Oil is not anymore in use these days but is rather kept as a contingency. Earlier the annual consumption of oil amounted to 93 000 litres. Now the hospice heats its buildings with approximately 12 000 m<sup>3</sup> of pellets.

The pellet plant is mostly self-made. There is a self-made air proof silo for storing the pellets and the boilers have been put together by the caretakers of the hospice. Even though the plant is automated, the burner and the boiler are checked on a daily basis.

The consumption of pellets and the financial benefits from replacing oil with pellets are yet to be discovered in the long run.

