

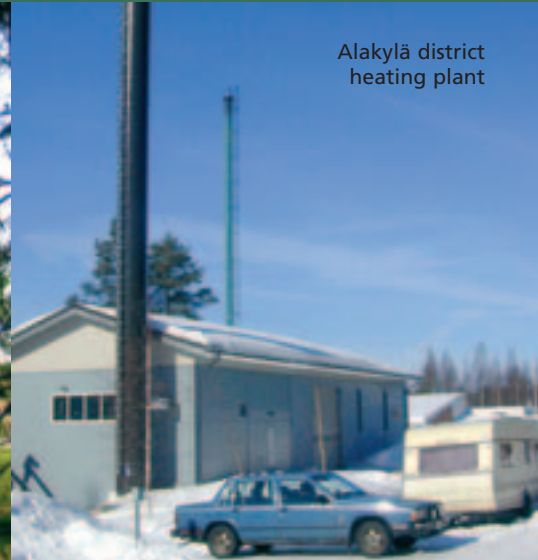
Eno district heating scheme

A success story of developing small and medium scale woodfuel supply chains

Yläkylä district heating plant



Alakylä district heating plant

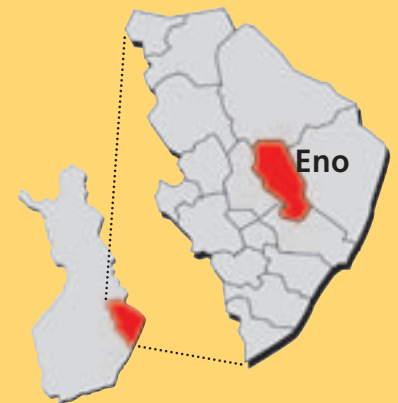


In 1997, the municipal council of Eno, included a paragraph about energywood utilisation in its natural resource strategy. That decision has since been put into practice and has led to the establishment of three heating plants based on wood chips and the Eno Energy Cooperative. As a result carbon dioxide emissions were reduced by 3.2 million kilos annually.

Benefits:

- Heat produced using wood energy (33e/MWh) is remarkably cheaper for consumers compared to oil (51e/MWh, January 2006)
- Wood energy heating centers replace over 1 million liters of light oil
- About 700 000 euros (January 2006) were saved by the local economy
- The switching to local energy sources has created jobs for over 20 persons, totally 7–10 person-workyear.
- A local energy source brings safety and independence in times of a possible energy crisis.

Municipality of Eno



Eno is located in the heart of North Karelia, in the province of Eastern Finland, situated 35 kilometers from Joensuu.

Eno has 7.000 inhabitants and its area covers 1 088.63 km², of which 939.33 km² is land and 3 000 km² forests.

Although Eno is a small municipality, two population centers – the actual village of Eno and Uimaharju which are 16 kilometers from each other, can be found. The parish village is the centre for administrative services of the municipality and the state. Uimaharju, on the other hand, is the centre of industrial jobs, since a pulp mill is located in the village.



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Heat production in the three heating centers in 2006 totals about 11 000 MWh:

Yläkylä	Alakylä	Uimaharju
Online since: 2000	Online since: 2004	Online since: 2002
Burner: Mechanical grate	Burner: Mechanical grate	Burner: Mechanical grate
Boiler: Grate 0,8 MW, (Laka)	Boiler: Grate 1,2 + 0,8 MW, (Laka)	Boiler: Grate 1+1 MW, (Laka)
Feeding: Stoker dischargers and drag chain conveyors	Feeding: Stoker dischargers and drag chain conveyors	Feeding: Stoker dischargers and drag chain conveyors
Fuel: Forest chips and bark from industrial processes	Fuel: Forest chips and bark from industrial processes	Fuel: Forest chips and bark from industrial processes
Fuel storage: 100 loose-m ³	Fuel storage: 300 loose-m ³	Fuel storage: 300 loose-m ³
Efficiency: nk = 0,75	Efficiency: nk = 0,75	Efficiency: nk = 0,73
Heating: 41 000 m ³ /860 m	Heating: 77 000 m ³ /2 020 m	Heating: 84 000 m ³ /2 580 m
Controlling: Automated, GSM alarm and network connection for adjustment	Controlling: Automated, GSM alarm and network connections for adjustment	Controlling: Automated, GSM alarm and network connection for adjustment
Owner: Municipality of Eno	Owner: Eno Energy Cooperative	Owner: Eno Energy Cooperative
Operator: Eno Energy Cooperative	Operator: Eno Energy Cooperative	Operator: Eno Energy Cooperative
Investment cost	Investment cost	Investment cost
<ul style="list-style-type: none"> • Centre: 374 000 € • Network: 205 000 € • Totally, net: 422 000 € 	<ul style="list-style-type: none"> • Centre: 635 000 € • Network: 288 000 € • Totally, net: 710 000 € 	<ul style="list-style-type: none"> • Centre: 292 500 € • Network: 286 000 € • Totally, net: 530 000 €

Forest owners

60% of the woody materials originate from members of the Cooperative. Most carry out the harvesting operations themselves



Ash

The ash is returned to the forest by members of the cooperative



Annual use of raw material

Yläkylä: 2 500 loose-m³
Alakylä: 7 500 loose-m³
Uimaharju: 9 300 loose-m³

Eno Energy Cooperative

- Initiated in 1999
- 42 private members (mostly forest owners)
- Annual turnover 450 000
- Owner and operator of Alakylä and Uimaharju heating centres
- Operator of Yläkylä heating centre
- Heat is sold according to 15 year agreements
- Heat is also sold to private customers



Backup reserve

- Uimaharju pulp mill
- mostly bark
- ~ 3 000 loose-m³/a

Forest resources

- 70% of small size trees from young forest thinnings (~ 100 ha)
- 10% logging residues
- Total 19 000 loose-m³/a

Local entrepreneur

- Chipping & Transporting
- 1 mobile roadside chipper
 - 1 chip truck
 - Road transport < 20 km



The project is being part-financed by the European Union



European Regional Development Fund

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