

Central Finland - the show window of sustainable energy technology

Central Finland Energy Agency, Finland

Summary

Central Finland is a typical Finnish region with landscape of forest and lakes. In the region renewable and indigenous energy sources have played a remarkable role since the mid 70s. During the last few decades Central Finland has steadily increased the use of renewable energy sources. Today 45% of the total energy balance is produced with biofuels (35% excl. peat).

This case study is a conclusion of several local and regional projects that have until these days played a role in the region. It is impossible to point out only one single project, but one has to take a wider perspective including all the milestones that have smoothen the road in reaching 100% fossil fuel free region. Today, this goal is written in the regional plan of Central Finland.

End-user area	Target Audience	Technical
New buildings	Citizens	Energy efficiency
Refurbishment of buildings	Households	Heating
Transport and mobility	Property owners	Cooling
Financial instruments	Schools and universities	Appliances
Industry	Decision makers	Lighting
Legal initiatives (municipal regulations, directives, etc)	Local and regional authorities	CHP
Planning issues	Transport companies	District Heating
Sustainable communities	Utilities	Solar energy
User behaviour	ESCOs	Biomass
Education	Architects and engineers	Wind
Other	Financial institutions	Geothermal
	Other	Hydro power
		Other

Context

Natural resources (forest and peat) have been a backbone for the wealth in Central Finland through many decades. Thousands of inhabitants are employed through forestry and energy related industry. Therefore, it is clear that there has been an active development of these sectors. Recent years have also proven that sustainable development could open some totally new doors to survive in rural region like ours.

In the Region of Central Finland the importance of energy sector is essential. The GNP of energy sector in the region is about 14% of the total GNP of the area.

The energy intensive industry has created a natural need for developing and increasing energy supply from local resources. The R&D organisations and local enterprises have had an interest in local, effective energy production and distribution processes.

In addition, the local authorities have taken an active role in developing the regional energy sector in the more self sufficient and sustainable direction. During the past years the use of fossile fuels has, in great deal, been replaced by local energy sources. The goal, in the long term is to increase the use of regional fuels in energy production and thus get closer the energy self sufficiency in the region of Central Finland.

The strategy in Central Finland is to support the local communities and companies in retrofitting their energy production from fossil fuels to locally produced fuels. Public funding has in most cases played a role in building new plants.

In each community in the region a detailed energy planning is part of the strategy. As soon as the technical-economical solution has been found, the investment is done. The regional strategy is updated regularly.

Central Finlands capital, the city of Jyvaskyla, can be found 300 km north from the city of Helsinki. Jyvaskyla is located in the centre of the region. Central Finland represents a typical Finnish landscape with forests, lakes and climate.

Area: 19,386 km²
Inhabitants: 260,130 (1998)
GNP EURO 14,105 per capita
Agriculture+Forestry 8.1%
Primary Energy Consumption 17,500 GWh/a (2000)
Regional energy sources: Wood and wood waste and other wood derived fuel, peat, water power.
Energy self sufficiency in primary energy production 45% (2000).
Average temperature: +2 °C

Objectives

The recent “Regional Plan of Central Finland” sets a long-term objective of being a 100% fossil fuel free region in the long term. Since this case study is a conclusion of several milestones and projects, only long-term objective is presented.

Process

The development of the Fossil Fuel Free region started 1902 as the first wood fired power plant started in Jyvaskyla. Since then, especially in the 1960's, oil was dominating fuel in the region. Since the 1970s a steadily growing share of renewable energy sources has been noted throughout the country. It has been realised that development of a region this big takes time – and long term commitment of the persons, companies, municipalities, decision makers, politicians, inhabitants etc. The most important method used in Central Finland is a political approval of sustainable development. After the acceptance of sustainable development in high level most of the barriers are down and doors are open for practical implementation.

Financial resources and partners

It is impossible to give any exact figure about the costs of the development in the region. Lots of effort has been laid to the number of investments, research and development programmes as well as in projects. Noteworthy is, that the investments are always done based on the economical facts.

The partners have been the Regional Council of Central Finland, the municipalities in Central Finland (in total 30), the University of Jyväskylä and lower degree institutes and schools, R&D centres in the region, the Manufacturing industry and Other relevant organisations and individuals

Results

In Central Finland, thanks to the far seeing energy strategy, we have now a well functioning infrastructure to networking for even better tomorrow. And the work towards even more sustainable direction is continuous. This can be noticed when examining the infrastructure created to the region.

There are R&D organisations, energy consulting companies, manufacturers of energy related products, large energy industry, SMEs and high level education possibilities on all branches of energy technology and production. In fact, everything you need to know of sustainable energy production and use, is available in Central Finland.

Lessons learned and repeatability

You need research to know the potentials,
You need development to create the techniques,
You need marketing to create the need,
You need somebody to trust on the investment
You need to know the past, today and the future,
and you need somebody to run the system.

Try to tie the investments in regional development strategy. When deciding the investment look also the improvements in employment rate, forestry, effect in local economy etc. Do not be afraid of investing in new, promising techniques.

Central Finland wants to be an example in using renewable energy sources in all sectors. Most of the solutions in the sectors of RES and RUE are repeatable in the whole scale. Anyhow, it is important to note that many of the problems are already solved –no matter if it is a question of a large power plant or a small district heating plant. They, and much more could be seen here in Central Finland.

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