

Bioenergy promotion in Styria / Austria

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Where do we start from

Styria as one of nine Austrian federal states, with 1.2 million inhabitants, 50 % of the land is forested, great parts hilly and mountainous, covers 26 % of her energy demand with renewables, 14 % from biomass and 12 % from large hydro power schemes. This is a very high level for an industrialized country, originally resulting from naturally available resources, but more recently it is a result of a consequent energy policy since the early 1980s.

The main areas for bioenergy application are small scale rural type household furnaces, central heating systems for family homes, central heating systems for multi-story apartment houses, district heating systems (1 to 5 MW heating plants mainly for villages), and biodiesel produced by rural co-operatives.

Goals for increasing the share of renewables related to international trends

The first Styrian energy plan dates back to 1984, long before anything of this kind appeared on the international scene. The plans were ambitious and a bundle of measures were set to reach these goals. It turned out to be exactly in the mainstream of later international actions such as the Kyoto Protocol or the White Paper on Renewable Energies of the European Union.

Despite the excellent starting point for Styria the EU target to double the share of renewables from 6 to 12 % represents a challenge for Styrian policy even if we only would like add the additional 6 % to our present share.

A strategy towards biomass

To support the desired development a number of policy actions have been introduced in the State legislature based on certain federal legal provisions

- Legal support: a new law requires all electric power producing companies to account for 4 % of their sales from renewable energy sources, not counting large hydropower schemes. Given the limited contribution from direct solar energy and wind this may only be achieved with electricity production from biomass.
- Other support: strengthen all lines of possible supports like manpower and subsidies for energy agencies, awards, prizes for best solutions, push research and demonstration projects, image campaigns for renewables,

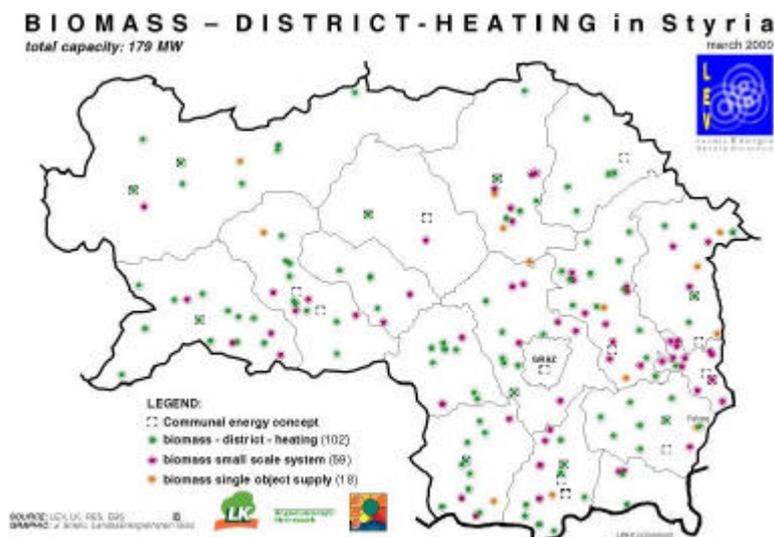
The following “success stories” are examples of successful policy actions in the area of bioenergy application:

District heating systems (1 to 25 MW): Figure 1 shows the map of Styria with the locations of 103 district heat plants. These plants have been constructed in the period since 1980.

How was this possible? Only as a result of a mix of information, technical and organizational support, state aids and - it must be said - crazy people. It meant concerted actions by our state, the chamber of agriculture, organized advisory groups. It meant the establishment of a system of subsidies to agriculture based and industrial projects, investment grants, grants also to the heat consumers. But most of all it meant to give support in the planning phase to optimize the systems (train the planners), to set standards that have to be met, to convince the communities and the people, to gain confidence through honesty and non-profit orientated advice, to win the fight against the heavy competition of systems based on natural gas and oil. It also was necessary to introduce monitoring and controlling

systems to be able to compare the systems and steadily improve them. And to bring the entrepreneurs together regularly to exchange experiences.

This all resulted in top expertise of the technology and many export chances for the firms concerned.



Development of DHS:

1980:	1
1985:	3
1995:	82
2000:	103
total capacity 160 MWth	

Small scale DHS:

2000:	59
total capacity 12 MWth	

Biodiesel from rape seeds and used cooking oil: In 1991 approx. 600 farmers joined forces to produce biodiesel and other products from rapeseed. Two years later they started to process used cooking oil mainly from households and restaurants, among them the entire McDonald's chain. Byproducts are fed to cattle, part of the biodiesel goes back to the farmers. The secret of their success is not only sound technology but also an excellent logistics system, continuous improvement of the process through the scientific and technical assistance of our Technical University and, most important, a controlled, very successful experiment with up to 50 busses of the local public transport system of Graz, the capital of Styria with its quarter of a million inhabitants. It showed that the busses can easily run with biodiesel over long periods of time (more than 5 years) and many thousands of miles. At present the technology is adapted to make use of the glycerine phase not only in a biogas process but to produce electricity.

Further technology options

- biogas co-generation plants (e.g. with municipal liquid waste - sewage sludge)
- develop district heating plants into co-generation systems (gasification, Stirling engines, organic Rankine cycle)
- pellet burning boiler systems

Organizational measures and models

- contracting models for heat and power supply systems
- biofuel market development: wood chips and pellet supply chains ("biofuel exchange")
- promotion programs for bioenergy

Additional public support

- Subsidies for the planning and engineering of district heating plants
- Subsidies for pilot plants and implementation schemes (such as contracting models)
- Financing of regional consulting agents