100 COMMUNITIES

BEZIRK HARTBERG *(Austria)*

According to the European Commission's White Paper on Renewable Energy, the share of renewable energy sources in Europe is to be doubled by 2010, from 6% to 12%. Thanks to committed policies in the Austrian province of Styria, the share of renewables in the Hartberg district already figures 26%. The project for a regional energy action plan for the Hartberg district shall lay the foundation for increasing this share significantly.

THE DISTRICT

The Hartberg district (*Bezirk Hartberg*) is one of 17 administrative units in the Austrian province of Styria (*Steiermark*). It is located in eastern Styria, and adjoins the Austrian provinces of Lower Austria (*Niederrösterreich*) and Burgenland. It comprises 50 municipalities with just under 68,000 inhabitants. It is rural in character. The town of Hartberg is the seat of the district authority. Through the district's landscape and nature conservation areas and its thermal spas, tourism is gaining economic importance in the district.

Climatic data:

Degree days 20/12:	3,560
Annual solar irradiation:	1,147 kWh/(m²a)

CONTEXT

The energy policy foundations for the district of Hartberg are the 1995 energy action plan of Styria and the Styrian environmental protection programme (Landesumweltschutzprogramm – LUST). The goals of the energy action plan are: to reduce the specific energy levels needed for space heating and water heating, to expand the share of renewable energy sources in energy supply for consumption in the province, to reduce specific energy consumption in commerce and industry and to reduce specific energy consumption in the transport sector. Within the Styrian environmental protection programme, the catalogue of measures on "Energy and climate" comprises a 13% reduction in CO_2 emissions in accordance with the Kyoto commitment, the pursuit of the goals of the Climate Alliance of European Cities, and the maximum reduction of energy consumption.

Local and regional administrations play an important role in energy policy, particularly in implementing measures seeking to increase the proportion of renewables, as they know their populations and administer public buildings (schools, leisure facilities, administrative buildings). Publicly-owned regional energy suppliers (*Stadtwerke*), in particular, can influence energy production and energy usage. To increase the use of renewables through regional and local energy action plans is therefore a promising strategy.

EXPERIENCE OF HARTBERG

Initial situation

The regional energy action plan for the Hartberg district was elaborated under the following key conditions:

- Regional institutions were involved as project partners or contractors (Lokale Energie Agentur Feldbach local energy agency, Ökoplan Umweltdienstleistungen GmbH Hartberg environmental services company, Stadtwerke Hartberg publicly-owned utility, Technisches Büro Spitzer Vorau technical consultancy).
- The municipalities, being the key link between conceptual development and the implementation of the measures elaborated, were involved closely in the energy action plan (also through the co-financing of the work).

This approach ensured that the data needed for the regional energy action plan were available and that the jointly elaborated measures will indeed be implemented in the future.

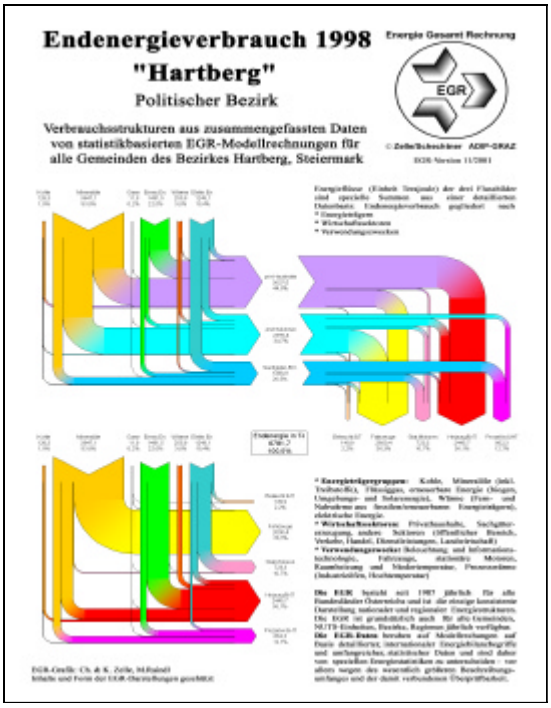
Activities

Project activities were conducted in 4 phases:

1. Stocktaking analysis

The stocktaking analysis served to identify the initial situation in the municipalities and in the district, and provided answers to the following questions: How much energy was used for what? Which energy sources were deployed for what? Who used these energy sources? This resulted in energy flowcharts and tables showing annual energy and emissions quantities. In addition, general statistical data were compiled, such as climatic data, population, housing data, company lists, agricultural data. One important item of information was what municipalities have already implemented in the energy sector and especially in the area of renewables, or what they have planned for the future. Furthermore, the energy consumption data of the buildings/sites administered by the municipalities were surveyed. This information was compiled in a published data survey (*Datenspiegel*) which was then handed over to the municipalities. For the district level, the information from the municipalities was aggregated and evaluated.

The proportion of renewables figures about 26% (after mineral oil at 54%). The technologies deployed are: solar installations for water heating and part-solar space heating, photovoltaic installations, wood-fired heating systems for split billets, wood chips and pellets, mini-hydropower systems, heat pumps, biomass-fired local/district heat supply systems and micro-networks, biogas facilities with combined heat and power (CHP) production, and local/district heat supply using geothermal sources. Biodiesel is used in vehicles. These applications are promoted by grant support (mostly investment grants) provided by the municipalities, the province government of Styria and the Austrian federal government. Private households are the largest consumption sector, at almost 45%. Energy is used primarily for mobility (38%) and for space heating and low-temperature applications (36%).



2. Renewable energy technology survey for the Hartberg district

A list of criteria was developed by which to evaluate technologies for the use of renewable energy sources in the Hartberg district. In eastern Styria, a solar collector do-it-yourself scheme was launched some two decades ago. The technologies for utilizing solar energy – particularly for water heating and space heating – are now mature and have been tested for many years. For photovoltaic systems, special support programmes are provided by local energy suppliers. The use of wood for energy production in various forms (billets, chips, pellets, waste timber from wood-processing companies) is also very well tested in the shape of wood-fired heating systems in individual buildings, as well as centralized heat supply systems using biomass-fired local/district heat networks. In a number of pilot facilities, power generation from biomass is being further developed for broad-based application (e.g. using Stirling engines). Biomass can also be used in combination with solar energy for the air-conditioning of buildings (heating and cooling, e.g. using desiccant systems). Wind power could be harnessed by erecting wind turbines on mountain ridges and in mountain passes. First wind measurements are already under way. The further use of geothermal sources is determined by the prospects for expanding balneological use in thermal springs.

3. Definition of areas with a high share of renewable energy sources

Representative areas of the district were selected which already now have a high proportion of renewable energy use: the Ökopark Hartberg estate, a number of individual municipalities, the “power villages” (*Kraftspendedörfer*), the Naturpark Pöllauer Tal nature park and the area around the Stubenbergsee lake.

Area	**Share of renewable energy sources**
Limbach bei Neudau municipality	46%
Schönegg bei Pöllau municipality	45%
Stambach municipality	44%
Rabenwald municipality	43%
Hartl municipality	41%
Großhart municipality	40%
“Power villages”	29%
Naturpark Pöllauer Tal nature park	33%
Stubenbergsee lake area	36%
Bezirk Hartberg district	**26%**

4. Planning for implementation

For many municipalities carrying out events to raise awareness among the public was an important aspect. The following events were organized and held within the context of the project:

- Information event on biodiesel
- Information events on renewable energy sources
- Energy advice days within the municipalities
- Information event on biomass-fired local/district heat in Vorau
- Information event for planers
- Information events on partnerships for renewables

For concrete proposals made by the municipalities, feasibility studies were prepared and implementation plans elaborated, specifically for:

- Biogas facilities with combined heat and power (CHP) production
- Wind turbines with outputs of 600 kW and 1.7 MW
- Biomass-fired local/district heat in the municipalities of Grafendorf, Hartberg-Umgebung, Hartl, Kaibing, Lafnitz, Pöllau, Schönegg bei Pöllau, Vorau

EVALUATION AND OUTLOOK

The proportions of renewable energy supply achievable in the future were calculated by means of scenario computations for the years 2005 and 2015. Assumptions were made for the share of biodiesel in vehicle energy consumption, as well as for the rates of increase of solar energy use and biomass use supplemented by individual units. These findings and the implementation planning were compiled for each municipality in an "energy pointer" (*Energiezeiger*).

The Ökopark Hartberg eco-estate can be supplied 100% through renewables by 2005, and can in addition supply heat to nearby areas. Individual municipalities in the district can reach shares of up to 60% (2005) or 70% (by 2015). The "power villages" have the potential to increase their share to 39% (2005) or 54% (2015). The Naturpark Pöllauer Tal nature park can increase its share to 50% (2005) or 66% (2015). The Stubenbergsee lake area can achieve 42% (2005) or 57% (2015). The potential levels for the entire district figure 40% (2005) or 57% (2015).

It can be expected that most of the projects for which implementation planning has been drawn up will indeed be carried out. The Ökopark Hartberg eco-estate, in particular, will contribute to raising public awareness through its use of advanced technologies and its approach as an "experience park". The process of information exchange and cooperation among municipalities within their regions initiated during the process of drawing up the regional energy action plan will have positive effects upon the increased use of renewables.

A "biogas offensive" project is currently in progress in Styria; one of its goals is to give added impetus to the installation of biogas facilities by means of providing expert advice. In a further project, a "Styrian eco-energy network" is to be established which shall support investors in project implementation by providing technical information and organizational advice.

There are now plans to conduct a review of the measures implemented in the district every three years by surveying the municipalities, in cooperation with the energy office (*Fachstelle für Energie*) of the Styrian provincial government. A particular purpose of these surveys shall also be to identify and remove any barriers and difficulties in implementation that may still remain.

FURTHER INFORMATION

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