

The regional energy plan of Upper Austria: 12 % CO₂ reduction in 4 years

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1 - TOPIC AREA: POLICY

Europe's regions are closest to the final energy consumer and therefore most able to co-ordinate strategies to meet specific policy demands and objectives. That is why they have a crucial role to play in reducing CO₂, especially by promoting energy efficiency and renewable energy sources. For such a strategy to be successful, regional energy action plans must define concrete goals, clear-cut measures and a firm time-table for implementation.

An example for a successful regional strategy is the Energy Plan of the region of Upper Austria (Oberösterreich). Upper Austria, one of the nine Austrian Länder, has 1,400,000 inhabitants and a surface of 11,980 km². It is situated in the north of Austria, borders Germany and the Czech Republic and is a highly industrialised area (e.g. metal and chemical industry).

In Austria, the scope of such energy plan is larger than in most other EU countries due to the federal structure of the republic.

In 1993, the Upper Austrian Energy Plan defined concrete goals to reduce fossil fuel consumption by increasing both energy efficiency and the use of renewable energy. The under-lying motivation for setting-up such an energy plan were on the one hand environmental concerns, especially about climate change, and on the other hand the economic opportunities such an energy plan could offer in terms of employment and innovation .

The following goals were set for the year 2000 (based on the data of 1991):

- _ Decrease the use of energy for heating rooms and warm water by 20 %
- _ Increase the share of renewable energy sources to 33 % (from 25 %)
- _ Double the percentage of biomass and solar energy
- _ Reduce the specific industrial use of energy by 20 %
- _ Decrease energy consumption for transport by 10 %

Based on these goals an energy action plan was developed and implemented following a time table. It was especially important that a carefully thought-out integrated approach consisting of a mix of measures was developed and implemented, including legal, regulatory and financial measures, institution building and activities in the information, communication and training sector.

After more than five years it is already clear that most of the above-mentioned objectives will be reached. The original objective of 30 % renewables (from 25 % in 1991) was already reached in 1996 and was therefore increased to 33 %. Energy consumption in new dwellings was decreased by a third, specific energy consumption in industry by 2 % annually.

Since the beginning of the implementation of the regional energy plan a CO₂ reduction of 11.7 % has been achieved (base year 1991, 1992-1996).

The O.Ö. Energiesparverband is involved in most activities foreseen in this energy action plan which are described below.

The O.Ö. Energiesparverband is the regional energy agency founded in 1991 by the regional government to promote energy efficiency, renewable energy sources and innovative energy technologies. The association has 31 members representing the regional administration (Land Oberösterreich), the energy industry, consultancies, professional associations and firms involved in energy technology. The agency provides services to private households, trade and industry (especially SMEs), local, regional and national authorities, the European Commission, professional associations and public administrative bodies.

Some of these measures to implement the regional energy plan are:

- Information and public Awareness
- Energy advice and auditing
- Energy labelling for buildings/housing programmes
- Grants and loans for renewable energy installations
- Third party financing programme
- Research and demonstration programme
- Legal and regulatory measures
- Local energy plans

2 - INFORMATION AND PUBLIC AWARENESS

Notwithstanding the considerable market penetration of energy efficiency and renewable energy sources in Austria there is still a lack of awareness and know-how. In order to overcome this barrier and to reach as many people as possible a large number of information and awareness activities are implemented.

Some examples for this are:

- The Energy Hotline can be called at a very cheap rate from all over Austria, it is a first contact point for all questions regarding energy efficiency and renewable energy sources. More than 9000 enquiries are answered every year.
- The "Energiesparmesse" is a trade fair on energy efficiency, held annually at the beginning of march in Wels in Upper Austria. In 1998, this fair attracted more than 225,000 visitors and about 1,500 exhibitors showed products, technologies and services in the energy efficiency and renewable energy sectors.
- Informal talks or presentations are another way to propagate energy efficiency and renewable energy sources. O.Ö. Energiesparverband organises about 100 of these talks every year and they are held in banks, in city halls or even in local pubs. This is an activity that is very close to the end consumer. In 1998, for example, a series of talks was held in co-operation with a large bank which attracted an audience of more than 3,000.
- O.Ö. Energiesparverband also produces information material dealing with energy efficiency and renewable energy sources, e.g. an Energiespar-Comic that was distributed to the 1 Mio. Austrian schoolchildren between 7 and 12, videos (like one on solar energy), an interactive CD-ROM for private households, a children's card game called "Energy Quartet", an exhibition of interactive electronic games etc. In 1998, three new general publications were produced in the field of housing (called "my dream house"), which showed that low energy houses can conform with any taste represent many different styles of housing and not necessarily cost more.
- The internet has become a very important information tool for both the general public and companies interested in the energy field. O.Ö. Energiesparverband's homepage <http://www.or.at/esv/> has more than 5,000 visitors every week from all over the world. An "ask an expert service" is at the disposal of the general public as well as companies.
- Media campaigns are another way to reach a wide public and raise public awareness on energy efficiency and renewable energy sources. That is why frequently information campaigns are run on radio and television, informing about successful energy projects. The most recent campaign, called "ENERGIE GENIE 1999", is presently (January - March 1999) being implemented in co-operation with the Austrian

Broadcasting Company (ORF) and the largest national newspaper (Kronen-Zeitung). In the framework of the campaign an "energy genius" will be elected both in the fields of private households and commercial/industrial energy consumers. Prizes of a total of more than 20,000 _ will be awarded. The campaign is promoted by daily TV and radio spots, mailings to all households, articles in the newspaper and more than 500 large-scale placards all over the regions.

3 - ENERGY ADVICE AND AUDITING

The energy advice services offered by O.Ö. Energiesparverband are directed towards private households, trade and industry or other energy consumers that are on the point of making a decision about an investment, e.g. installation of a new heating system in an office building, insulation for a new home or the energy supply of a whole city.

To assure that the best possible decisions are made - and the best means renewable energies and energy efficiency at acceptable costs - O.Ö. Energiesparverband provides a service of free energy advice to private households, SMEs and public institutions.

In 1998, more than 10,000 energy audits for private households were conducted: Many of these were families who planned to build a new home and the consultant advised them which heating system to choose or what kind of insulation to use and at the same time informing and motivating them about the technical feasibility and the concrete costs to install solar collectors or a modern wood boiler.

For the following sectors of commerce and industry energy plans were developed and are now being implemented together with the Chamber of Commerce:

- saw mills
- hairdressers
- supermarkets
- joineries
- nurseries and garden suppliers
- restaurants and hotels
- food industry
- bricks and ceramic industry
- butchers
- offices
- metal-working industry
- plastic industry
- bakeries

In the framework of these energy plans an energy efficiency guideline for each sector was developed and implemented throughout the sector by an extensive auditing programme.

4 ENERGY LABELLING FOR BUILDINGS/ENERGY EFFICIENCY HOUSING PROGRAMMES

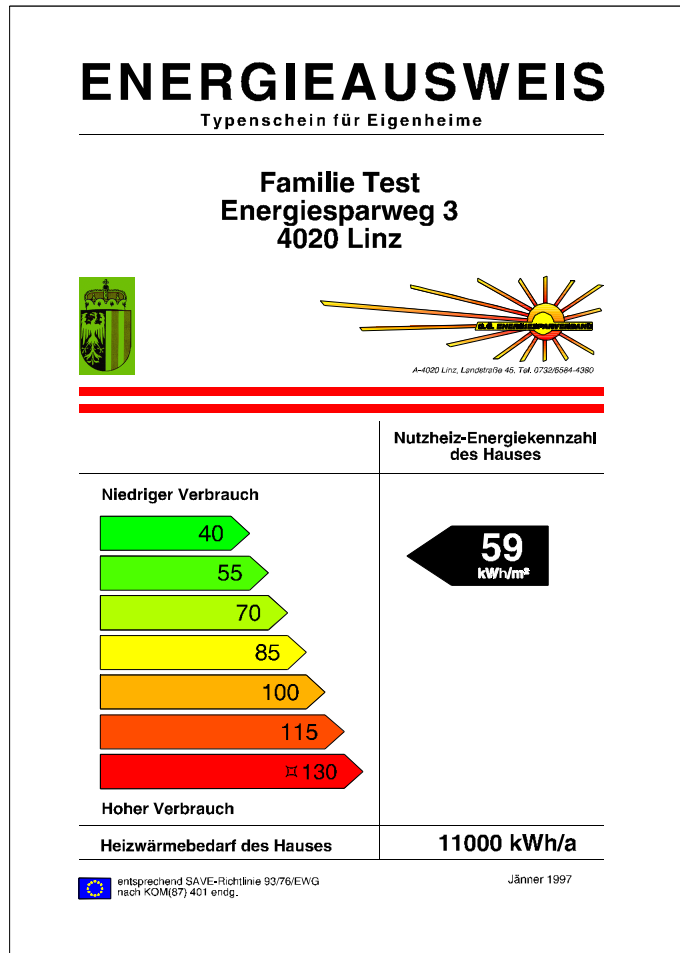
In Austria, public support is provided for the construction of new housing and for retrofitting older dwellings, usually in the form of soft loans (called "Wohnbauförderung"). The amount of this soft loan varies from region to region, in the region of Upper Austria it is between 40,000 and 70,000 _.

In 1993, the government of Upper Austria decided to introduce an "energy efficiency criteria" into the housing programme for new single/double family houses.

The criteria to be met are:

- _ an overall energy index for the whole building (at the moment: 65 kWh/m_ "useful heating factor", this factor was already decreased twice: January 1993-July 1995: 75 kWh/m_, August 1995 - December 1996: 70 kWh/m_). This energy index is reached mainly by additional insulation and smart windows.

- participation in an obligatory, individual energy advice session; each future home owner spends one hour with a trained energy advisor discussing his/her individual house and the possibilities to save energy in addition to the a.m. requirements
- for every house owner an "Energieausweis" (energy label) is issued. The energy label for buildings is using the same lay-out than that for household appliances.



If the criteria are met, the house owner receives an additional loan of about 3,500 €. In 1996, the regional government spent about 13 M€ on this increased loan which will be paid back over the next 25 years with very low interest rates.

The programme had the following results between 1993 and 1998:

Number of single/double houses:	18,000 houses (about 3,500/year)
Influenced building space:	3,150,000 m ²
Energy savings:	100 million kWh/year
CO ₂ reduction:	19 million kg /year
Additional investment in energy efficiency:	65 M€ (1993-1998)

The whole programme combines the approach of financial support with a strong information aspect. Evaluations of the programme show that a large percentage of the home owners find the whole programme, and also the "Energieausweis" very useful.

In 1998, due to its success the scheme was extended to retrofitting of private buildings and the same procedure (65 kWh, obligatory advice, energy label) is applied.

Parallel programmes for energy efficiency criteria and building labels connected to financial support exist for multi-family housing. In 1997, for example, more than 450 apartments were built in conformity with rather stringent energy requirements.

5 - GRANTS AND LOANS FOR RENEWABLE ENERGY INSTALLATIONS

Both the national and the regional governments, and even some municipalities, are offering grants or loans with low interest rates for renewable energy installations. For instance, for a 10 square metre installation of solar thermal collectors a direct support payment of 1,500 _ is made by the regional administration, for the installation of a modern wood-chip furnace for a single-family house a grant of 1,500 _ is given. For biomass-based district heating networks the investment costs for the plant are supported by 50 %.

One barrier for generating electricity from renewable energy sources is that often low rates are paid if this electricity is fed into the grid. In Upper Austria, an agreement was reached between the utilities and the regional government for more favourable tariffs.

Another programme, started in 1997, supports the exchange of old boilers to new and more efficient installations with a premium. If for instance an old coal boiler is exchanged for a new biomass pellets boiler a subsidy of 870 _ is given (in addition to the support payment described above).

6 - THIRD PARTY FINANCING PROGRAMME (TPF)

Innovative financing mechanisms can contribute significantly to the market penetration of energy efficiency and renewable energy sources. Due to existing structures so far, new approaches such as TPF have not played an important role in Austria.

In order to develop a "TPF Market" the government of Upper Austria started a special fund for TPF in public buildings, because especially many municipalities suffer from the lack of investment capital.

The TPF fund, which is managed by O.Ö. Energiesparverband and two banks, supports the interest ESCOs have to pay for the loan they take out for financing the relevant energy efficiency investment. In addition to making the investment cheaper this support payment gives a signal to local decision makers that this could be an interesting option for their municipality, too.

7 - RESEARCH AND DEMONSTRATION PROGRAMME

Innovative products and services are also another element in a policy to reduce CO₂. In addition to that, companies developing and selling such products create employment and contribute to economic growth.

In order to complement the large European programmes in this field (such as the former JOULE-THERMIE programme) a R & D programme was set up on regional level giving an incentive to focus research efforts in this field. In 1997 and 1998 more than 20 energy R & D projects were supported (e.g. a testing application for new solar collector, an innovative energy control system for private households, an application for micro-hydro stations, a new wood pellets heating system etc.)

Also in the framework of this programme more than 35 students thesis papers were awarded a small prize for the relevance to the realisation of the energy goals in the region.

8 - LEGAL AND REGULATORY MEASURES

In the last years, a number of legal and regulatory measures were taken in order to remove existing administrative barriers and to provide a better framework for investments in energy efficiency and renewable energy sources:

- Among them were constant improvements of the building legislation (in parallel to the building programmes described above) making the legal requirement for domestic buildings and heating systems stricter.
- Another measure in this field was that permit procedures for solar collectors were simplified. For installations smaller than 20 m² no building permit is necessary anymore.
- In the framework of the new national legislation on the internal electricity market a regional law is presently being prepared which will foresee that additional 3 % of the electricity will have to be produced by renewable energy sources (except hydro) until 2005. The electricity distribution companies are responsible for the actual implementation of this target. In addition to that network operators are required to accept feed-in electricity produced by RES plants smaller than 5 MW and pay an increased tariff for this electricity. This will be financed by adding a small surcharge on the electricity price. This new law is expected to give a strong boost to technical and market development.
- In rural areas gas and biomass are direct competitors in the district heating market. In order to avoid double investment in parallel grids, a voluntary agreement was made by the regional gas company and the Chamber of Agriculture, representing the biomass sector. In this agreement the area was divided into "gas municipalities" and "biomass municipalities". In order to get the agreement of the farmers, gas companies that want to build a new pipeline are paying into a fund which was installed to support new biomass projects.

9 - LOCAL ENERGY PLANS

In the implementation of renewable energy and energy efficiency technologies co-operation with local authorities and of course with end consumers is most important. Energy plans on the municipal and district level are a tool to define, realise and co-ordinate measures in all parts of the regions. Since 1993 energy plans for 71 municipalities were developed with the financial support of the federal government giving particular consideration to renewable energy sources.

The planning procedure itself is of particular importance: Right from the beginning all interested citizens and representatives of public administration and the business community are motivated to take an active part in working out the energy plan from the very beginning. This increases the acceptance of these measures and thereby facilitates the implementation.

10 - RESULTS

These strategies have already led to a significant growth of energy efficiency and renewable installations. For examples, Upper Austria has:

- 400,000 m² of thermal solar collectors
- 7,000 modern wood-chip boilers
- 130 local biomass district heating networks
- 370 pellets heating systems
- 270 grid-connected PV installations
- 50 biogas and sewage gas plants
- 7 wind installations
- 4 geothermal plants
- 33,000 heat pumps
- 45 PJ from hydro power plants

Through the building programmes described above energy consumption in all new domestic buildings was reduced by a third.

All these results show clearly that a strong political commitment supported by extensive measures can indeed make an change in the energy system and actually reduce CO₂ emissions.

Despite the success already achieved in Upper Austria, the remaining energy efficiency potential and the 70 % of primary energy from fossil fuels present an enormous challenge for energy policies in the next decades.