

CERT-Meeting, 9th-10th April 2002
Recent Energy Technology Developments in IEA Member Countries
Austria

Austrian energy research and energy technology concept:

In the last few years, the targets set by “traditional” energy research have been readjusted to the goal of developing a sustainable energy system. Thus, it was essential to update the Austrian energy research and energy technology concept so that it too takes in these principles of sustainable development, giving ecological, economical and social dimensions an equal weighting.

Apart from fundamental changes in the energy markets (above all the liberalised markets for electricity and natural gas), and an emerging paradigm switch from energy supply to energy services, what made the updating of the energy research and energy technology concept most necessary was the institutional changes surrounding research and technology policy in Austria. Accession to the European Union and the movement towards a European research area have, together with international obligations in the field of climate change, created a whole new context for energy research and technology. These institutional and market changes have led on one side to a shortening of the time horizons for energy research and technological development, and on the other to increased competition between national innovation systems.

With this in view, the task of the energy research and energy technology concept is to establish medium term focus points which cover the areas not sufficiently dealt with by existing instruments, and to work out a clear position for Austria within the European Union. Its aim is to strengthen existing competencies in the energy sphere and to intensify research and technological development according to the main principles of sustainable development.

On the basis of these principles, six focus topics with the following targets have been formulated:

- **Bio-energy and Hydropower**

Achievement and/or maintenance of leadership in the field of bio-energy and hydro power technology

- **Electricity supply systems orientated towards climate protection**

Development of technologies and management systems for electricity grids in the liberalised market which will guarantee high security of supply combined with a high exploitation of renewable energy sources and stronger decentralised production

- **Sustainable buildings**

More efficient energy use in new and renovated buildings with special consideration of CO₂ emissions

- **Industrial processes and concepts**

Optimisation of existing industrial processes and development of new ones with a view to reducing energy demand and increasing the share of renewable energy sources and waste heat recovery

- **Energy efficient mobility**

Optimisation of the transport system with a view to reducing energy consumption and making sure it is increasingly covered by renewable energy sources

- **Long term climate protection technologies in international networks**

Support for participation in international, long term activities in climate-orientated research and technological development.

According to an integral understanding of research and technology policy, these focus topics comprise basic technological research, concrete product development, pilot and demonstration projects and accompanying socio-economic research, information dissemination activities for the results of these projects and measures to support the increased integration of key Austrian competencies and experts in European networks and projects.

Austrian Program on Technologies for Sustainable Development

This innovative research and technology program has been developed by the Austrian Federal Ministry of Transport, Innovation and Technology (BMVIT). It initiates and supports trend-setting research and development projects and the implementation of exemplary pilot projects.

The program pursues clearly defined targets, selects projects by means of tendering procedures and is characterised by networking between individual research projects and by accompanying project management. The Ministry invites tenders in two subprograms and is preparing a third one.

Subprogram “Building of Tomorrow”

The "Building of Tomorrow" makes use of the two most important developments in solar and energy efficient building: the passive house and the low energy solar building method. For the purposes of the "Building of Tomorrow" subprogram, these energy centred innovations are expanded to take in ecological, economical and social concerns.

"Buildings of Tomorrow" are residential and office buildings, and differ from current construction practice in Austria by fulfilling the following criteria:

- higher energy efficiency throughout the whole life-cycle of the building
- greater use of renewable energy sources, especially solar energy
- greater use of sustainable raw materials and efficient use of materials in general
- increased consideration of user needs and services

However, the costs should be comparable with conventional building methods.

Goal of the program

The subprogram's goal is the development and market diffusion of components, prefabricated building parts and building methods which correspond to the above criteria and to the main principles of sustainable development.

Combining all of these demands is very challenging. Conflicts of aims can arise which need somehow to be reconciled. On the other hand, when social, economic and ecological elements can be integrated, the chances of success for the concept are vast.

Structure of the subprogram

The "Building of Tomorrow" subprogram has a planned duration of five years. It includes the following elements:

- technology and component development

- development of innovative building concepts for residential and office buildings
- setting up and evaluating demonstration projects
- market diffusion of the "Buildings of Tomorrow"

Since 1999 projects have been supported with an amount of some 7 MEuro of public funding. This unlocked innovative projects with an overall budget of some 120 MEuro.

Link: www.hausderzukunft.at

Subprogram “Factory of Tomorrow”

This subprogram contains some energy relevant topics like:

- aiming at zero-waste and zero-emission technologies and methods of production
- increased use of renewable sources of energy in the production process and in the enterprise as a whole

Link: www.fabrikderzukunft.at

Subprogram “Energy Systems of Tomorrow”

Currently a new subprogram “Energy Systems of Tomorrow “ is under preparation. It will address 3 focus-topics of the Austrian energy research and energy technology concept

- bioenergy & hydropower
- electricity supply systems orientated towards climate protection
- long term climate protection technologies in international networks

This subprogram will focus on the electricity system and will address the challenge of increasing the share of renewables in the electricity supply system while maintaining a high level of reliability. It will include basic analyses of the Austrian energy system, studies on the interaction of the persons and institutions involved, technology development and demonstration activities in a selected region. In addition the participation of Austrian researchers and companies in international networks and cooperation projects, in particular within the framework of the IEA will be supported.