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Artikel: The 'Energy 2000' action programme : use efficiently, promote alternatives
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Use efficiently, promote alternatives

'Energy 2000' is a network involving many different public and private energy providers. Some of its aims have already been achieved. An energy-saving label exists to motivate companies to manufacture more efficient machines, there are pilot projects to promote the use of renewable energy sources, and controversial subjects are now being discussed on the basis of facts.

*Othmar Humm**

The Swiss action programme 'Energy 2000' was initiated by the federal government following two important referendums on energy policy in September 1990. The Federal Council was thereby giving a signal that corresponded to the voters' decision to declare a moratorium on the construction of nuclear power plants, to use energy more rationally, and to turn to renewable sources of energy as quickly as possible. The programme had the following clear objectives:

- to stabilise the use of fossil energy and to bring CO_2 emissions back to the 1990 level by the year 2000 – to be followed by further reductions;
- to slow the increase in electricity use in the 1990s and to stabilise it from 2000 on;
- to obtain 0.3% more electricity and 3% more heat from renewable energy sources;
- to obtain 5% more electricity from hydro-electric plants;
- to increase the capacity of existing nuclear power plants by 10%.

Organisational form

'Energy 2000' functions as a network in which many private and public power suppliers play an active role. This organisational structure underlines the fact that energy supply is something in which we should all be involved, but at the same time it entails substantial expenditure on coordination which must be borne by those running the programme and its various branches. The programme has a total of eight branches covering the public sector, residential buildings, manufacturing, trading, services, hospitals, fuel and renewable sources of energy. Private engineering and communications offices are responsible for the branches, while the Federal Office for Energy Supply runs the programme as a whole.

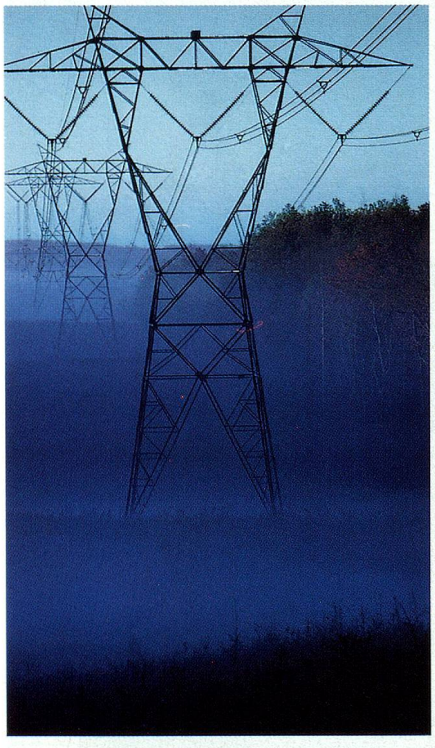
Three ways to fulfil the objectives

Voluntarism, use of market forces, but also a strengthened legal framework were the instruments planned to enable the programme to achieve its ambitious aims. The main feature of the legal framework is the Energy Use Decree which has been in force since 1990 and forms the basis of all today's promotion campaigns. Use of renewable energy sources and recycling of waste heat, as well as pilot and demonstration projects, are being given financial support. The pilot plants are used for testing new technologies, while the demonstration facilities are intended to convince investors that they function and will solve problems in the future. Particular encouragement is being given to the use of wood, as well as to solar and environmental heating.

The aspect of voluntarism takes a variety of forms. 'Energy 2000' is implementing projects jointly with cantonal and municipal authorities, private firms, and transport and environmental protection associations. These include courses in fuel-economy driving and telephone lines for so-called environmental hotels.

With respect to energy consumption in entertainment electronics, office equipment and household machines, the Federal Office for Energy Supply is relying on consumption objectives rather than new regulations. The aim is to work closely with manufacturers to ensure that by the end of 1997 electricity consumption by household machines goes down by an average of 15% compared with 1994, while consumption in the two other categories should fall by as much as 70%. In this way, alone television viewing in Switzerland

Electricity: the E



Today electricity is carried over great distances and is something taken for granted by our civilisation. (Photo: Incolor)

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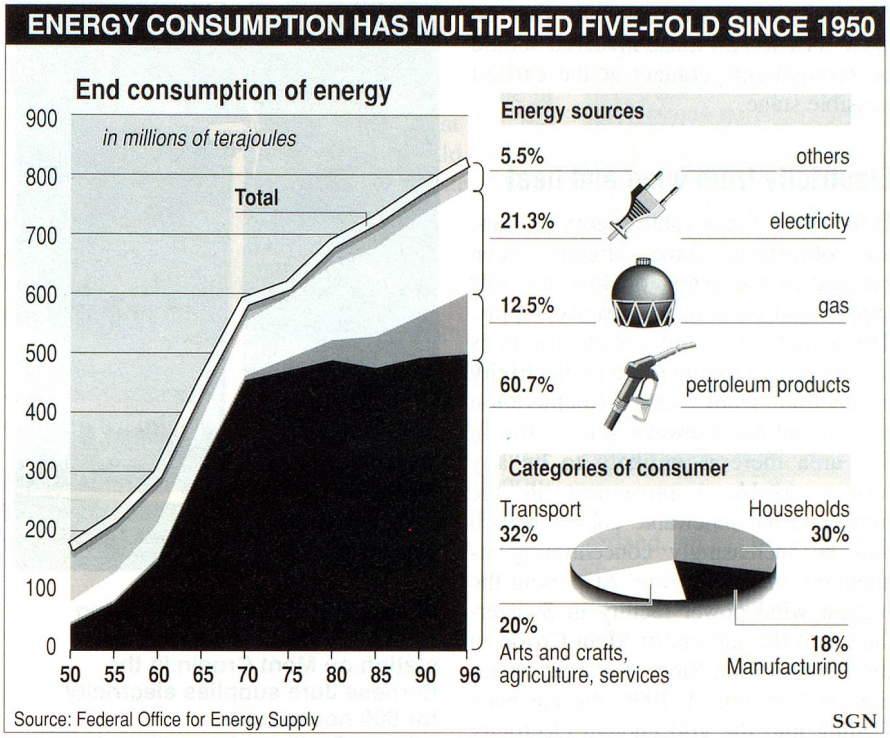
can be made to economise Sfr. 40 million annually in electricity costs.

The introduction of the energy savings label also promotes the use of low-energy equipment. The new stickers now play an important part in advertising and determine which are the most economic machines on the market from the point of view of energy consumption. They are renewed every year, and as with other forms of technological progress the requirements laid on manufacturers will increase steadily. Office equipment on standby carrying the 1997 label consume only one fifth of the electricity which an average machine purchased in 1990 uses.

Controversial subjects are discussed within groups set up for the purpose of solving conflicts. For example, representatives of environmental organisations and of electricity and water suppliers have been brought together for round-table discussions with delegates from the federal government and cantonal authorities in order to discuss a practicable way to bring about the planned expansion of the hydro-electric sector. A detailed assessment of the situation has shown that the 'Energy 2000' objective in this field (a 5% increase in electricity from hydro-electric plants) can be achieved to the tune of 80% by extending and optimising the efficiency of existing plant and equipment. The working group has also elaborated guidelines for new construction projects which are based on con-



Swiss Graphics News

pean market opens

The Federal Council is at present working on a new draft bill for the electricity market. The European Union's Electricity Liberalisation Directive came into force last January 1. Both these documents have as their objective the opening up of the electricity market.

For the European electricity industry, the EU directive represents a fundamental change in market organisation. Big consumers and – provided each member country so decides – distribution companies will in future be able to satisfy their electricity needs from any supplier they like. Grid owners must make their networks available to anyone prepared to pay the price. The European single energy market should be fully functioning by the beginning of 1999.

For several decades a well-organised electricity high-tension market has existed in the form of a trans-European partnership system. By strict application of territorial limits, this has served to optimise production and reduce the need for reserve capacity, thereby increasing security of supply for all the partners. However, there has been no competition for customers at the international level, and very little even at the national level. This will now change. Opening the market should lead to structural adjustements the extent of which cannot yet be accurately forecast.

Swiss electricity supply is completely integrated into the trans-European partnership, and now just as in the past it plays an important role. This means that our electricity industry will inevitably be influenced by the coming European single energy market. For the Swiss electricity grid to allow itself to become isolated would be a big mistake, in terms of distribution technology as well as in economic and ecological terms. Switzerland must open up its electricity market in a way which is Euro-compatible.

Integration of the Swiss electricity industry into the European single energy market should help it to maintain its strong position within the old partnership. At the same time it will prevent big Swiss electricity consumers in the manufacturing and services sectors from being at a disadvantage with respect to competitors elsewhere in Europe having access to the electricity market.

The Federal Office for Energy Supply has drawn up a report on this subject entitled 'Opening the Electricity Market'. This makes the point that the market cannot open up without some initial limitations to cushion shock. The process must take place gradually so that the present high quality of electricity supply is never brought into question. Basic supply must remain subject to a public service obligation, and present energy and environment policy requirements must continue to be observed.

Nor must opening the market have the single objective of helping the big consumers to bring pressure to bear on the price. Improvements in efficiency should be of benefit to all consumers with cost distributed according to the causer, or responsibility, principle. But this does not mean that Swiss small consumers should harbour exaggerated hopes of big price cuts. In comparison with other countries, prices here are around the middle of the range, while at the same time our industry has to bear the highest costs in Europe.

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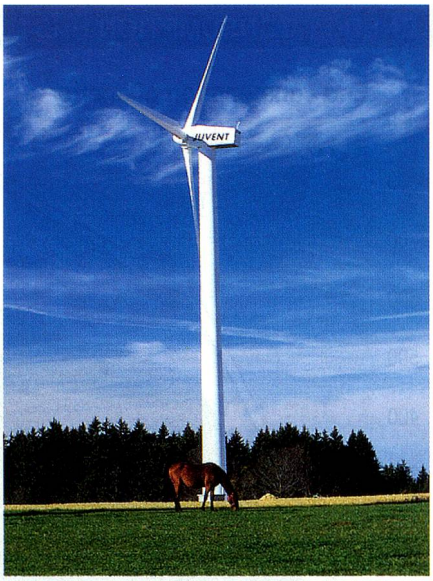
flict solution. It recommends that on each occasion all those involved should be brought into contact at the earliest possible stage.

Electricity from wind and heat

In the field of renewable energy sources, the objectives have already been reached to the extent of 46% for heat supply and 64% for electricity supply. This excellent record for electricity is largely due to the increase in electricity production from waste (incineration plants) and from sewage sludge. But in this area there is unlikely to be any further notable improvement in the future, so the renewable energy branch will be increasingly concentrating its attention on wind power. At present the biggest wind power facility in Switzerland is at the summit of Mont Crosin in the Bernese Jura. Since it started operation on November 1, 1996, this has been feeding into the grid enough electricity for 600 households, and it will shortly be joined by other large-scale wind farms.

Production of electricity from bio-wastes is also well on the way to becoming economic, although larger contributions from wood and solar power are not expected until the fairly distant future.

Much of the additional heat produced from renewable energy sources comes from wood chip combustion systems – the number of these has doubled to 4,600 in the last few years – and heat pump installations which use environmental heat extracted from the air, soil and ground water. Every third new single-family house built in Switzerland now has a heat pump installation. However, inclusion of a central heat pump system in conversion projects often falls foul of the extra cost involved, particularly when electric heating was originally installed and there are no hot water radiators available.



Renewable energy means using wind and heat: the wind power station on Mont Crosin in the Bernese Jura supplies electricity for 600 households. (Photo: Oerlikon Journalisten)

To remedy this situation, engineers working on behalf of 'Energy 2000' have now developed a special heat pump element. This can replace the old decentralised electric heaters but uses only half as much electricity as these because it runs on environmental heat (from the air outside). There will be no lack of opportunity to use this new invention. As many as 230,000 houses in Switzerland are still heated by electricity, and they use more current than is consumed by the entire city of Zurich.

Even though more effort is still needed, the chances are by no means slim that the action programme objectives for renewable energy will be achieved. The investment programme recently approved using Sfr. 560 million from the federal coffers is expected to trigger a volume of orders to the tune of Sfr. 2.4 billion. Individuals who wish to convert buildings they own so as to consume less energy will also draw benefit from this – for example, by improving heat insulation, integrating heat pump systems or installing solar collectors. ■

A pilot project in Canton Appenzell: the new technology of transparent heat insulation turns house walls into suppliers of solar energy. (Photo: Oerlikon Journalisten)