EUROPEAN HEAT PUMP NEWS

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EHPA NEWS

Market confidence in focus at annual meeting in Paris

Rayner Mayer, EHPA Chairman, reports:

At the third annual meeting of the EHPA in Paris, Hans Nilsson discussed the history of transforming markets for new products and processes. Whilst heat pumps themselves are not new products, what is new is their efficiency in concentrating low-grade heat and their excellent reliability and maintainability.

So the procedures for transforming markets apply just as much to heat pump systems as any other new product. Information, education, training and product labelling are key aspects that are being considered by the EHPA. Our website (www.ehpa.com) and newsletter are two components of the information process at a European level, with similar information being provided at a national level.

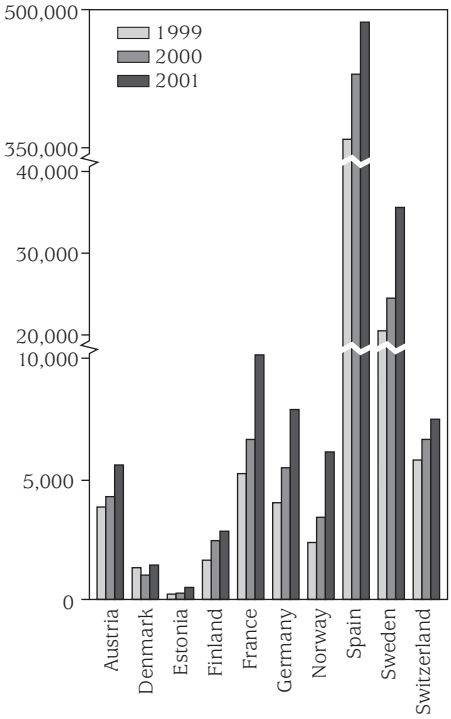
Following the work of Michel Guittard, a new initiative has been launched by Brigitte Bach to develop common methods of training installers. An application has been submitted to this year's SAVE call for funding.

The EU has yet to label conventional heating systems and EU labelling of heat pump systems will have to wait. However, there is no reason in principle why the DACH labelling system could not be voluntarily applied in other countries (see News section of www.ehpa.org). Labelling is of greatest importance in countries where grants and subsidies are available for purchasing this sort of equipment, as customers will have confidence in the quality of the product they are purchasing.

Rayner Mayer
Chairman EHPA

Buoyant European heat pump market

The European heat pump industry can look back on very satisfactory results in 2001. The graphs show remarkable increases in the number of heat pumps sold. The growth in Norway and Sweden in particular has been spectacular. The markets there were 1.8 and 1.5 times larger respectively than in 2000. However, there is an upturn in all countries, as shown by the graphs below. Data from the Netherlands are not complete, but a 30 % market increase is expected.



Source of the data:

Austria:	Bundesverband Wärmepumpe Österreich/ G. Faninger, IFF Universität Klagenfurt
Denmark:	Danish Heat Pump Association/H.C. Aagaard
Estonia:	ESPEL
Finland:	SULPU
France:	EDF
Germany:	BWP. Excluding heat pump water heaters
Norway:	NOVAP
Spain:	ENEBC
Sweden:	SVEP
Switzerland:	FWS

Gerdi Breembroek
European Heat Pump News

GENERAL

Estonian Heat Pump Association – good start.

The Estonian Heat Pump Association ESPEL recently joined EHPA. This article introduces ESPEL and the Estonian heat pump market.

The Estonian Heat Pump Association (ESPEL) was established on 23 October 2001 by four companies, Movek Grupp, Kliimaseade, Soojuspump and PG Ehitusthat, which are the biggest heat pump suppliers and installers in Estonia. A representative of the latter, Jüri Miks, was appointed executive director. ESPEL is growing slowly, with several new members joining and a number of prospective members showing interest.

The aims of the Association include stimulating the use of renewable energy and environmental friendly technology, and shaping the local market according to EU principles.

As an association of companies ESPEL's aim is to represent the interests of its members. ESPEL plans to cooperate with every company, organisation and state institution that elevates "environmental principles" to a leading role within its sphere of activities. This could promote use of alternative energy in the country as a whole.

The main types of activity planned by the Association are:

- promotion of the heat pump as the most effective method of heating for public and private institutions.
- organisation of educational courses at different levels.
- cooperation with scientists to extend scientific research on the topic.
- cooperation with banks to create favourable leasing conditions for heating projects.
- awarding of certificates.

According to the figures available a two-fold increase in the number of heat pumps installed in Estonia occurs every year. Forty-

three heat pumps were installed in 1999, 85 in 2000, and 183 in 2001. This shows that interest in heat pumps is growing steadily and will hopefully continue. One reason is an increase in the building or purchasing of private houses; also people are thinking ahead and making a shrewd investment. At the same time environmentally friendly energy is becoming more popular. All this points to a positive future for the heat pump in Estonia.

Meelis Rae
ESPEL

Ground water-source heat pumps for large buildings in Italy

The ALTENER project, which tackled the problem of increasing ground water levels and provided energy efficient space conditioning, has recently come to an end.

The ground water level in the Milan metropolitan area is increasing as a consequence of de-industrialisation. This results in the flooding of underground spaces, such as underground railway lines, parking areas, etc. The ALTENER project "Diffusion of ground water heat pumps for large building space conditioning, using low temperature geothermal energy" promoted the application of heat pumps using the ground/surface water as a low temperature geothermal source (12-15°C) for heating large buildings.

With good quality commercial chillers and properly designed installations, COPs well above four can be achieved easily, meaning that more than 75% of the heat required for winter heating is obtained from the ground as a renewable source. In this way the primary energy required for building heating is reduced to less than 50% of the conventional method.

More projects than the three to six pilot projects planned have been started, without the need for regional funding and other financial incentives. The illustrations show a pilot project at the University of Bocconi, and a second one at the Province of Milan building.

A market analysis was carried out to assess the potential of applications and the required conditions. This market analysis included other Italian regions, such as the Po plain, Venice, and coastal and riverside sites, as well as the application of gas-driven heat pumps. The latter application is very important for the Italian market.

On the basis of the results obtained a strong promotional campaign was organised, starting in the Milan area. The campaign comprised a conference, seminars, courses, brochures, design guides, standard specifications, etc., to encourage ground water heat pump applications, both in new buildings and for retrofitting existing buildings.

The Province of Milan was the project co-ordinator, liasing with the Lombardy Region and the Municipality of Milan and supported by utilities such as ENEL and AEM and engineering companies, as well as industrial and professional associations (e.g. FIRE, ENEA). The European-wide dissemination of the results was carried out by FIZ Karlsruhe (Germany), ENEA and the Province of Milan itself.

University of Bocconi, equipped with a ground-source heat pump

Province of Milan building, equipped with a ground-source heat pump

For more information on the project visit the EHPA Website: www.ehpa.org.

Source: Province of Milan / FIZ Karlsruhe

Increasing support for heat pumps in the UK

In the UK there is increasing support for the application of heat pumps, as evidenced by the following recent developments:

The UK HPA has recently widened its membership categories in recognition of the growing interest in heat pumps in the UK. The inclusion of consultants, utilities and designers permits the organisation to speak with greater authority on heat pumps and related services and applications.

Close liaison with government agencies by HPA and growing awareness of the technology have prompted the UK government to include heat pumps in the key list of energy efficient products to benefit from ECA (Enhanced Capital Allowances), a recently introduced tax incentive for the use of efficient products. The announcement in the recent UK budget is likely to be implemented by the third quarter of 2002.

The Carbon trust, a recently formed body charged with long-term policy for the reduction of energy consumption in the UK, has selected heat pumps as one of the renewable technologies that it wishes to foster.

UK government policy aims to increase the amount of 'green' energy provided by utilities. As this energy increases it will feed strongly into heat pump technologies to provide high efficiency without CO_2 emissions.

The Heat Pump Network, funded by DEFRA, continues to promote heat pumps by means of seminars held around the UK and working committees developing different applications.

Tony Bowen
President HPA, UK

SwissEnergy and the Association for the Promotion of Heat Pumps (FWS)

Thomas Afjei describes the Swiss programme for energy efficiency and renewable energy. FWS is a key player in the use of ambient heat. The new organisational structure of FWS is then examined, with a special focus on international activities.

SwissEnergy

SwissEnergy is a Swiss Federal Government programme for the promotion of renewable energy and more efficient use of energy. **Figure 1** shows its homepage. It involves cooperation between the cantons and many local authorities, as well as the private sector and various environmental and consumer groups. SwissEnergy is the successor to the Energy 2000 Action Programme, both of which cover a period of 10 years.

Programme objectives

The objectives of the new SwissEnergy 10-year programme are derived from the Swiss Federal Constitution, the Federal En-

ergy Law and the CO_2 Law, and also reflect Switzerland's commitments under the international convention on climate warming. Specifically, these objectives are:

- The consumption of fossil fuels in Switzerland and corresponding CO_2 emissions must be reduced by 10% between 2000 and 2010.
- The growth of demand for electricity must not exceed 5%.
- Hydropower's share of final electricity consumption must not fall, despite deregulation of the Swiss electricity market.
- The contribution made by other forms of renewable energy must increase to 0.5 TWh or 1% of total electricity production, and in the case of heating energy to 3 TWh or 3% of the total.

Other important SwissEnergy objectives that are less easy to measure include the development of a greater awareness by the general public of the energy dimension as a prerequisite for the optimum implementation of voluntary measures, closer co-operation between partners, a spirit of innovation in all fields and an overall strengthening of the Swiss economy.

New organisation of FWS

A key player in the efficient use of ambient heat is the Swiss Association for the Promotion of Heat Pumps, also known by the German abbreviation FWS. EnergySwiss mandated all market related activities on the use of ambient heat to FWS. In 2002 a major

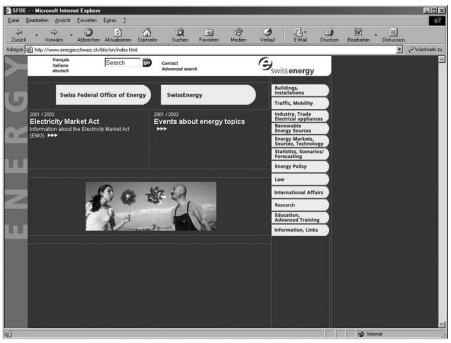


Figure 1: Homepage of SwissEnergy (www.energieschweiz.ch).

reorganisation took place. FWS is now divided into three departments for marketing, education and quality assurance and an additional department for international relations (see **Figure 2**).

The new structure is simple, clear and delegates more responsibility to departmental managers.

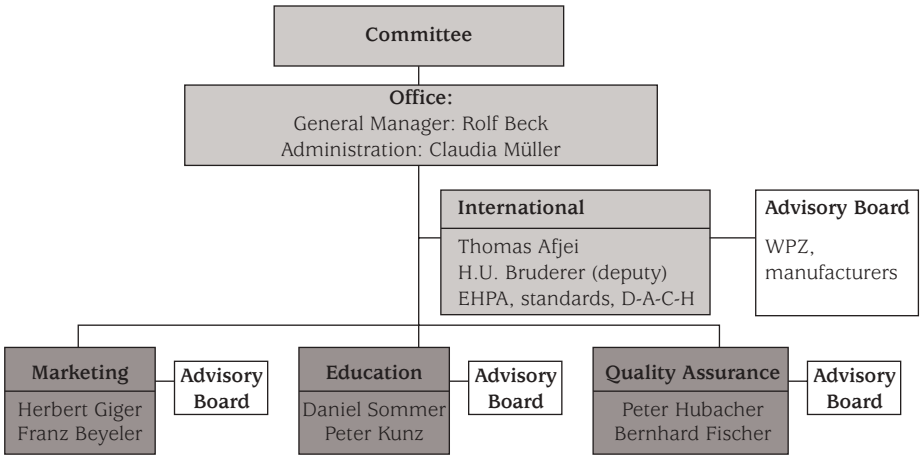


Figure 2: New FWS organisation chart (www.fws.ch)

The main activities of the "International Department" are:

- transferring information and expertise relating to international developments and market trends;
- Collaborating with international standard organizations such as CEN/TC 113, 182 and 228;
- Collaborating with the European Heat Pump Association e.g. the Strategy and Labelling Committees;
- Developing standards for the use of natural working fluids, e.g. hydrocarbons, ammonia and CO_2;
- Highlighting the impact of the European Pressure Equipment Directive PED 97/23/EC on the use of heat pumps with hydrocarbons.

Furthermore the "International Department" offers a bridge for developing international research and dissemination projects mainly on the European level, and a link to the Swiss heat pump industry.

Dr. Thomas Afjei
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News from the Bulgarian heat pump market

FIZ Karlsruhe received the following information from Vasil Kolikovski, Manager of "Geosolar V-63" Ltd, Bulgaria:

During the past six years there has been substantial development in heat pump applications in Bulgaria. The heat pump market is dominated by small air source heat pumps manufactured mainly in South Korea, Japan, China and USA (heating capacity 2-8 kW). They are all reversible window and split system air conditioners. We have no information about the number of units sold in the past few years. Five or six attempts to use ground source heat pumps (GSHP) have been made, but a number of them failed due to lack of experience in ground coupling. The Bulgarian public, in general, are not aware of the excellent properties of the GSHP to heat and cool with large energy savings.

The goal of "Geosolar V-63" Ltd, is to fill this gap and to offer the consumer highly efficient, reliable and cost-effective GSHP. We have developed an original technology for producing freeze-proof heat exchangers that Bulgarian customers can afford (patent pending). We use mostly "Made in Europe" Copeland scroll compressors, Bitzer semi hermetic compressors for the larger units and L'Unite hermetique for the smaller ones, Danfoss automatic controls and Grundfos circulation and submersible pumps. We use refrigerants such as R22 and the environmental friendly R407C and R134A. The heating power range of our heat pumps is 5-170 kW. For single-family houses we produce single-phase units up to 25 kW, because three-phase current is not available in most private houses.

We also perform calculations using the IGSHPA (International Ground Source Heat Pump Association) manuals and calculation guide, earth drilling and ground coupling for open and closed systems. We are trying to popularise GSHP in the mass media and directly to homes using prospects and flyers. Unfortunately the Bulgarian Government's new energy development programme provides no finance for renewable energy sources. In future we intend to develop solar thermal systems and the production of selective Bulgarian solar collectors.

Source: FIZ Karlsruhe

COUNTRY IN FOCUS: GERMANY

Joachim Ogorek, BWP, Germany, reports on the German heat pump market. He considers the impact that the new German building regulation will have.

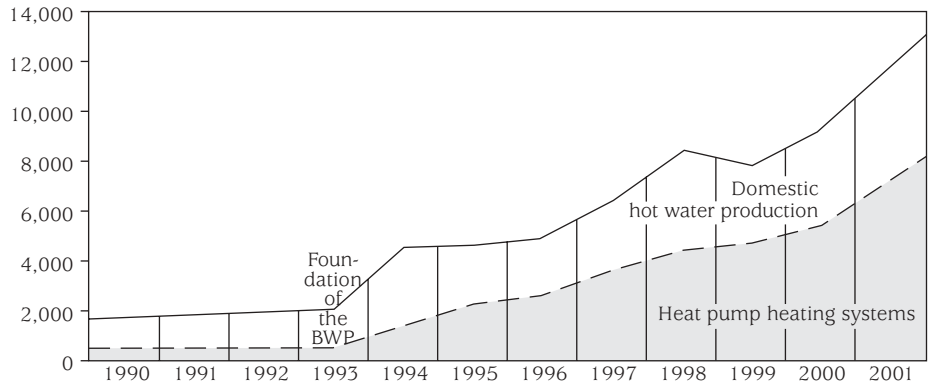

Figure: Sales of heat pumps for space heating in Germany

High growth rates in 2001

The heat pump market has grown by 43 % in 2001 compared to 2000, which is a favourable result. Many more German house builders have decided to install heat pumps, even though political support is not as strong as it could be. Heat pumps account for only about 2 % of the German heating market.

Policy and subsidies

The heat pump has been excluded from the Federal Government subsidies for renewable energies as of 31 March 2001. This decision was made quickly and unexpectedly. In response to an enquiry by the BWP, the Federal Ministry of Economic Affairs (BMWi) indicated that the main reason was the low number of requests, which did not justify the administrative organisation. The low number of requests probably results from the requirement that power for the heat pumps has to be from renewable sources, and not the lack of interest of builders. BMWi stresses, that this does not change its support for the heat pump as such.

Although the Federal Government no longer supports heat pumps by grants, there are attractive loans for heat pumps. These are awarded by the CO_2 reduction programme and the CO_2 building retrofit programme of the KfW, Kreditanstalt für Wiederaufbau.

Support by "Länder" and others

Five out of 16 German Länder (provinces) i.e. Bavaria, Brandenburg, Bremen, North Rhine-Westphalia and Rhineland-Palatinate support heat pumps through grants. There are also a few cities and communities that support heat pumps financially. A large number of utilities support heat pumps with a special tariff. These tariffs are lower than the normal prices.

New German building regulation

The new German Building Energy-Saving Regulation (EnEV – EnergieEinsparVerordnung) will have a great impact on the German heat pump market. The new regulation has been in force since February 2002 and replaces the Heating System Regulation and the Insulation Regulation. Buildings conforming to the new regulation will be 25 % more energy efficient than those built according to the previous standard. The regulation also requires that the energy saving potential of existing buildings should be exploited more fully than formerly. This is why the regulation also contains a compulsory retrofit of some types of old boilers. The time allowed to achieve this retrofit depends on the type of boiler, but by 2008 every boiler must be replaced.

Advantages of the new regulation

The new building regulation covers not only the demand for space heating, but also domestic hot water and ventilation. It also considers losses at the point where the heat is transferred to the room, distribution throughout the house and storage. The energy used to drive (distribution) pumps is considered as well. All energy sources are placed on equal footing by demanding a maximum primary energy requirement. The quality of the installation work will be a more important parameter than before and building techniques, including requirements for building sealing, are also part of the regulation.

The new regulation allows planning of the building envelope to be combined with the heating technology. This means that the primary energy requirements of a house with relatively poor insulation can meet the standard by installing a very efficient heating system. Alternatively, a very well insulated house will meet the standard with a less efficient heating system.

Professor Dr.-Ing. Ullrich Wagner, Chairman of BWP (German Heat Pump Association, formerly called IWP) has shown that a heat pump saves primary energy compared to a modern gas- or oil fired boiler when it has an SPF of 3.1 or higher.

The heat pump market will benefit

The new regulation will contribute to a broad application of energy-efficient heating technologies. The heat pump market is therefore expected to grow considerably. The market for home ventilation systems will also profit, since the buildings that meet the requirements for building sealing will need mechanical ventilation. All in all the new building regulations will ensure that newly built residences and other buildings are more energy efficient, more economic and more comfortable.

Brochure

BWP has printed a brochure on the new building regulation "Neue Perspektiven für die Wärmepumpe: Energie-Einsparverordnung EnEV 2002" which can be ordered from June 2002 onwards. It explains the new requirements and goes into detail about installation techniques.

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