

EHPA NEWS

EHPA focus for 2003

The Chair describes some of the issues raised at the recent Executive meeting and the actions that will follow.

The contribution of heat pump systems towards mitigating climate change is considerable - sales in 2001 will result in annual energy savings of 3 - 4 TWh. If sales can be maintained at this level then annual savings for the period 2001 to 2010 will be about 20 million tons of carbon dioxide, or about 5% of the EU's Kyoto commitment. Of course, some of these sales are for reversible systems, which are primarily used for cooling in the summer.

The EHPA exists to develop the market for heat pump heating and cooling systems in Europe. So as part of our marketing strategy we affirmed that we would pursue two specific objectives, namely labelling and the education and training of installers.

The DACH label is already widely used in Switzerland, Austria and Germany and is a voluntary labelling scheme that ensures a minimum level of performance, reliability and eco-friendliness. Whilst this label can be extended to include other countries, our long-term goal is to seek European recognition via the EU eco-label and EU energy labelling schemes.

The award of these labels will recognise the ability of specific heat pump systems to save both energy and the environment as indicated above.

Heat pumps differ from other systems in their need to access a source of low-grade heat and to be optimally sized for the appropriate heat loss. As the new Energy Performance in Buildings directive sets out, the optimum heating system may also involve adding insulation to dwellings to reduce the heat loss. An internationally recognised training programme will greatly help in establishing a sustainable heat pump market.

Two new members accepted at our last Executive meeting were the component

manufacturer Copeland and AREA, the Air Conditioning and Refrigeration European Association, which unites European installers. Air conditioners, which are reversible and concentrate heat from the air, can also be classified as heat pumps. Such cooperation will help us to develop the market by virtue of their expertise and knowledge.

We were also happy to welcome a new associate member from Eastern Europe, Vasil Kolikovski, who is based in Sofia and runs Geosolar, a company developing heating systems for Bulgaria.

Rayner M Mayer
Chairman EHPA

Heat Pump Best Practice (HPBP)

At a meeting on 8 November 2002 in Brussels the Strategy Committee of the EHPA agreed to a new Heat Pump Best Practice (HPBP) initiative designed to demonstrate the benefits of heat pumps with respect to primary energy saving and CO₂ emission reduction, and to encourage their introduction into the European market.

The aims of this initiative are

- to gather and compile information available on heat pump related best practice from databases, Internet, projects, Flyers, reports, etc.
- to analyse and evaluate this information, make recommendations for successful heat pump application, and disseminate appropriate information to targeted groups.

As EHPA Webmaster, FIZ Karlsruhe has included this new item on the European Heat Pump Network Website (<http://www.ehpn.de>).

Please, send your tips and information on HPBP to: axel.lehmann@fiz-karlsruhe.de

Axel Lehmann
FIZ Karlsruhe

Education and Training Committee in the EHPA

After years of work promoting the quality of heat pump units (e.g. within the DACH label) Austria and a number of other countries have introduced a comprehensive training programme for installers.

The Education and Training Committee was established in June this year, and the first meeting took place in November. Chairwoman Brigitte Bach from Arsenal Research, Austria, is looking forward to exchanging experiences and expertise with other members.

The working programme of the group will include the collection and exchange of relevant information about national training schedules, regarding contents, organisational matters, time schedules, financial matters, etc. We plan to publish the information on the EHPA website. We are also developing a common quality standard, and discussions will soon be held about defining the contents of a standard training course.

Austria, Bulgaria, Estonia, Finland, France, UK, Switzerland and Sweden are the first countries to participate in the Training and Education Committee. Further interested parties are invited to join the group, please contact: brigitte.bach@arsenal.ac.at. The next meeting will be organised in Vienna at the end of March.

Brigitte Bach
Arsenal research, Austria

French heat pump association AFPAC established

France - The Association Française pour les Pompes A Chaleur (French Heat Pump Association), AFPAC, was founded on 26 January 2002 with the aim of supporting and broadening the efforts undertaken by members of the heat pump market sector.

Main objectives

AFPAC has the following objectives:

- To promote and develop heat pump technologies in the residential, tertiary, and industrial sectors, by targeting French and European public authorities, in order to raise their awareness of the energy and environmental advantages of heat pumps, in particular with respect to the use of renewable energy sources.
- To co-ordinate and direct scientific and technical exchange between members in order to facilitate the development of heat pumps and heat pump systems.
- To facilitate relations with organisations working in the field of heat pumps, both in France and in Europe.

- To monitor and follow up the French and European certification and standardisation work on heat pumps and heat pump systems.

What AFPAC wants to be

AFPAC brings together all those who wish to promote and develop heat pump quality. Members include representatives from manufacturing, office design, installers, technical and training centres, public bodies, utilities, professional organisations, etc.

AFPAC's activities

The work of the association is conducted through various committees, as listed below. All members are welcome to participate in discussions and offer opinions.

Who can join AFPAC?

Any individuals or bodies in France, directly or indirectly concerned with heat pumps or heat pump systems, may become members of AFPAC.

AFPAC (French Heat Pump Association)

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Germany: HFC ban discussed

The German Federal Environmental Ministry has published a paper on the reduction of fluorinated greenhouse gases in line with Kyoto protocol targets. It includes a proposal to ban the use of HFCs as refrigerants for residential heat pumps. For safety reasons the majority of heat pump manufacturers advocate the use of HFC blends instead of hydrocarbons (propane).

The deadline for comments on this proposal from industry, professional organisations and German Federal States was 30 October 2002.

*Axel Lehmann
FIZ Karlsruhe*

Austrian Heat Pump Association restructured

The Austrian Heat Pump Association (formerly the LGW - Leistungsgemeinschaft Wärmepumpe), now known as AUSTRIA Wärmepumpe, has successfully finished a restructuring process, and is now registered as a legal association in Austria.

The association's main tasks will be PR and lobbying for heat pumps, quality management including the DACH Quality Label, and education and training.

Mr. Kurt Atzgerstorfer was unanimously voted President and Mr. Andreas Bangheri Vice President. AUSTRIA Wärmepumpe will be represented within the EHPA by Prof. Halozan, scientific working group, and Dr. Brigitte Bach, member of the managing board.

*Brigitte Bach, Arsenal research, Austria
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Committee	Objective
Floor coverings for floor heating and cooling systems	Establish rules for floor coverings with respect to heating and cooling systems.
Heating and hot water generation using heat pumps	Establish a technical reference for space heating and hot water generation using a single heat pump.
Specifying ground collectors and implementation	Analyse the current rules for specifying and implementing ground exterior collectors (horizontal and vertical collectors).
Specifying air-to-water heat pumps	Analyse the current rules for specifying these pumps
Building thermal control (RT2000) and heat pumps	Monitor and follow up the work of the RT 2000 group. Define and propose the necessary improvements to be made to RT 2000 to stop heat pumps from being penalised.
Sector and quality training	Define the sector's training needs, and encourage implementation of training programmes.
Internet	Define and put in place an Internet site specific to AFPAC.
Issues for the tertiary sector	Analyse the tertiary market for heat pumps, particularly the specification of machines and rules for implementation.

New IEA Annex on test procedures

Switzerland - The Executive Committee of the IEA Heat Pump Programme approved a new Annex (international collaborative project) at the recent meeting in Madrid. The title of the new initiative is "Test procedure and seasonal performance calculation for residential heat pumps with combined space and domestic hot water heating". It concerns heat pumps with hydronic heat distribution

systems and alternative or simultaneous domestic hot water production.

The first objective of the initiative is to develop a test procedure that yields the data needed to calculate the overall seasonal performance factor of heat pump systems, with a minimum requirement for test equipment and test time. The second objective is to

work out a simple method for calculating the seasonal performance factor for the systems mentioned previously. Participating countries are Austria, Canada, France, Switzerland and USA. The initiative starts on 01 January 2003 for a period of 28 months.

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GSHP system in Paldiski, Estonia



A major project was recently completed in the Estonian port of Paldiski. It consists of an installation in the port itself and a veteri-

nary centre. The heating system for the entire port has been implemented using four GSHPs (ground source heat pumps); three "Lampoassa" 60T and one 30T. The maximum output of these GSHPs is 250 kW.

As the building site was not big enough to install a ground loop of 8500 metres, and drilling a well was not economical, it was decided to take primary energy from the sea.



Fig 1. View of one of the buildings.

A pump house on the coast pumps seawater through a pipeline to a machinery room where it passes through Cetetherm's heat exchangers, before being discharged into the sea further along the coast.

The water is obtained at a depth of six metres, where the temperature does not fall below 0°C. To keep the system working on geothermal energy the water temperature

must be at least + 1 °C. The GSHPs have two compressors, so we can keep the whole system working on geothermal heat if the temperature of the seawater is + 0.5°C and obtain 50% of all necessary energy. During winter, if the temperature of the water falls below + 1 °C, electrical heaters in the two accumulation tanks (4000 litres and 1200 litres) switch on automatically.

All technical equipment is of Finnish origin, but the complete system has been engineered by Estonian specialists.

We look forward to seeing how the system fares during the winter months.

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COUNTRY IN FOCUS: IRELAND

Ireland: an exciting market development

Compared to a number of other countries Ireland is a relative newcomer to the European heat pump market, and with just over 1000 ground or water source heat pumps installed (there is no statistical data available for air source heat pumps) Ireland has been slow to embrace the proven technology of heat pumps.

However, that is about to change. The Irish heat pump market benefits from excellent conditions, perfect for the development of a heat pump market and industry. The climate is mild and Ireland has good heat sources to tap into (for example the average temperatures in Dublin during the 'heating season' are: ground at a depth of 1 m, 6.3°C, outdoor air, 6.6°C). Heating requirements and heat loads are also quite low and can be met by smaller heat pumps (outdoor design temperature ranging from -2.5 to 1.8°C). Electricity is also relatively cheap (night rate € 0.04/kWh; day rate € 0.095/kWh).

A growing population of almost 4 million, coupled with a continued boom in the housing market (50,000 new houses every year for the next five years) will see the heat pump market in Ireland expand very rapidly.

This positive framework has already resulted in a rapid increase in sales, with an an-

nual growth superior to 130% during the last three years. The Irish heat pump industry is also expanding with the number of companies involved in the installation of heat pumps tripling during the last three years.

Most of the major companies providing heat distribution systems, especially under floor heating, are now including heat pumps in their range of products. Currently, there are two Irish manufacturers of heat pumps and a growing number of major European manufacturers in the Irish market place. As a sign of the times, a Swedish heat pump distributed by an Irish under floor heating company won the "Most Sustainable Product of the Year" award at the recent Plan Expo 2002, the showcase exhibition for the national construction industry.

The Irish government has realised the vast potential in developing renewable energy resources including heat pumps as a means of mitigating the impact of greenhouse gas emissions.

The Renewable Energy Information Office, a service of the Sustainable Energy Authority of Ireland, has estimated that 80,000 units could be installed by 2012 providing the right measures are put into place. Sustainable Energy Ireland (SEI) is currently working on a four-year action plan for the development

of heat pumps, which will include a training and certification programme, a marketing and promotion campaign, a quality charter scheme for the industry and an installation labelling project. Funding is also available via SEI's Research Development and Demonstration Programme for Renewable Energy and a subsidy of up to 25% for medium to large-scale demonstration projects should boost the number of heat pumps in commercial/institutional buildings, as well as in the industrial sector.

By investing in quality, demonstration and promotion, Sustainable Energy Ireland wants to support the safe growth of the Irish heat pump market. This market presents significant opportunities for Irish companies as well as other European heat pump technology providers.

For further information regarding heat pumps in Ireland, please contact:

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Sales

Sales of heat pump in Norway reached almost 6400 units in 2001. This continued the positive trend established in 1997 (see **Figure 1**). About 6000 (94%) have been installed in homes. More than 90% of units sold had an installed capacity of less than 10 kW and about 1% an installed capacity of more than 100 kW. Of the 6400 units 73% are small air-to-air units and 17% water-to-water units ranging from 5 kW to several MW. The remaining 10% are exhaust air and air-to-water units. By the end of 2001 a total of 37,000 heat pumps had been installed in Norway. A majority (90-95%) are found in the domestic sector.

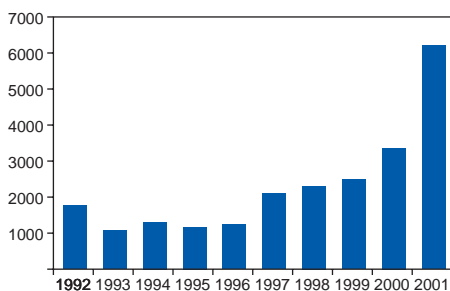


Fig 1. Heat pump sales in Norway

Buildings

Small air-to-air heat pumps (split units) dominate the market, as electricity (hydropower) is the major space-heating source in dwellings and the tertiary sector. In the residential sector almost 70% of space heating energy is electricity. The figure for the tertiary sector is more than 65%. As a result, a limited number of houses have hydronic heat distribution systems, which restricts the extensive use of water-to-water heat pump systems. Last year, however, some 30% of all new dwellings were fitted with hydronic heating systems (floor heating).

District heating

There is a growing number of small district heating systems based on heat pumps in various parts of Norway. In 2001 it was decided to build 23 of these plants. These plants are being built with subsidies from the energy authorities.

Industry

Heat pump installation in the industrial sector is dependent on return on investment. As a result only 0.1 - 0.3% of process heat is supplied by heat pumps in most European countries. In this context Norwegian industry is outstanding, since more than 15% of the process heat is produced by heat pump systems. Most industrial heat pumps are used for drying purposes and in fish-farming.

Energy savings

It has been estimated that the 6400 units sold in 2001 will result in annual energy savings of 135 GWh, which will be evenly divided between dwellings and the industrial and tertiary sectors. Although the domestic market is dominated by small heat pump units there are many exceptions, particularly in the Oslo region, where brine-to-water systems have replaced oil burners in a wide variety of apartment blocks. In one block with close to 1000 apartments the heat pump reduces energy consumption by some 8 GWh annually and CO₂ emissions by roughly 2000 tonnes.

Governmental support

Large-scale subsidies to encourage heat pump installation are almost non-existent. NOVAP feels that subsidy schemes to encourage buyers in the residential and tertiary sectors will not promote the market in the long term.

The attitude of the Norwegian energy authorities to heat pumps has varied quite considerably over the last 20 years or so. From 1983 to 1993 a heat pump "Prototype and Development Programme" was initiated. This programme was supported by SINTEF and comprised some 60 heat pump systems, in dwellings, greenhouses, hotels, hospitals, factories, etc. SINTEF was involved in system planning and the follow up several years after the plants had been started up. From 1989 to 1992 the Norwegian Research Council sponsored a heat pump publicity programme. The main activities in this context were seminars and courses for laymen, and the distribution of films, brochures and pam-

phlets. In 1992/93 the Ministry of Oil and Energy subsidised the purchase of 1000 small heat pumps (mainly air-to-air) over a two year period. From 1993 to 1996 heat pumps were hardly mentioned in any energy policy paper. However, a white paper in 1996/97 from the Ministry of Environmental Protection stated that biomass and heat pumps would be basic technologies in any attempt to reduce electricity consumption.

The Norwegian Heat Pump Association, NOVAP believes that the best way to promote market expansion is by:

- quality assurance activities, i.e. certification of sellers/buyers, standard contracts and guarantees, and product information to potential buyers.
- buyer support through insurance and loan arrangements.
- information for potential buyers on the impact of heat pumps on energy consumption.
- good statistical data on sales, etc.

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