

EUROPEAN HEAT PUMP NEWS

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EHPA NEWS

Activities in year 2000

UK – The Chair reviews the first year's activities of the Association and looks ahead to the next decade.

The year 2000 will be regarded as the time when we realised that the era of cheap fossil fuels was ending. The substantial increase in oil and gas prices reflects the fact that demand is exceeding supply and that there is only a short period in which to develop policies and strategies that can lead to a more sustainable life style. This creates tremendous opportunities for industries with the potential to manufacture energy efficient products such as heat pumps. Thus it is appropriate that our Association was founded in February 2000.

There have been five principal activities during the past year:

- a strategy subcommittee considering what long term strategy needs to be devised;
- a labelling subcommittee considering how to devise an energy label and quality mark for heat pumps;
- development of the EHPA website;
- production of the EHPA newsletter;
- advising the European Commission on how to mitigate the effects of climate change.

The initial membership of the Association reflects its interest as a public interest body and involves consultancies, installers, national associations and utilities. This has enabled the EHPA to provide a range of advice to interested parties. However we have to accept that knowledge about heat pumps is limited. The potential for heat pumps will only be realised if people know they exist, know where to find relevant information, and know who is able to install and maintain the installations.

The next decade will provide a real challenge to society as we try to reduce the environmental impact of energy use. This requires a bottom up approach in which consumers make rational and informed decisions about the appliances they buy and

the way that energy is used to heat and cool their homes. This is particularly difficult when the current price of energy does not reflect its resource availability or environmental impact. A rational decision making process is currently difficult or impossible as neither heating nor cooling systems are consistently labelled throughout Europe, both in terms of their energy consumption and seasonal energy efficiency.

The immediate goals for our Association are therefore clear:

- to increase our membership substantially;
- to develop European labelling schemes;
- to inform and educate consumers, installers, architects and planners about heat pumps;
- to identify and work with stakeholders and other bodies interested in introducing energy efficient technology.

Rayner Mayer, Chairman EHPA

Report from the EHPA Labelling group

Sweden – Labelling is a successful method of informing retailers and educating consumers about the performance and efficiency of appliances. The EU has promoted mandatory agreements for EU energy labels and minimum efficiency standards since 1992. More recently it has also negotiated voluntary agreements for minimum efficiency standards for appliances like refrigerators, freezers, and washing machines.

Following the foundation of the European Heat Pump Association in February 2000, it was unanimously agreed that an EU scheme should be piloted for residential

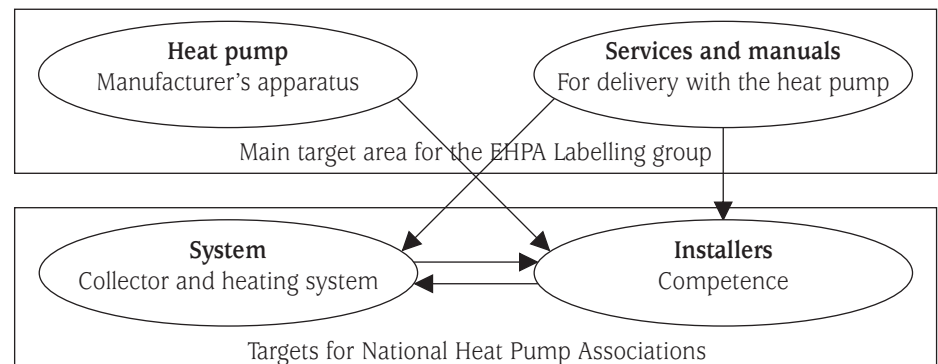
heat pumps including units for heating only. The EHPA Labelling group was established. As Germany, Austria and Switzerland have a scheme already and product certification has been practised in Sweden and Denmark since 1980, it is now possible to pilot a similar scheme at European level. This proposal will also support an existing SAVE project concerned with the 'Certification of heat pump technologies and installers' as installers will be able to provide the consumer with a visible guarantee if they choose to install a heat pump with a quality mark.

The first meeting of the Labelling group was on the 14th December 2000 in Paris. The participants agreed on the following main targets:

- The labelling system should include *testing the heat pump* and *valuation of services* (manuals, product and system description, guarantee, spare parts etc.) for heat pump delivery to consumers or installers.
- The peripheral systems and competence of installers are quite different in each country, so it is appropriate that national organisations, e.g. national heat pump associations, should take care of the certification of these. See the figure below.

The labelling group is seeking EU support for their heat pump labelling initiatives. At the time of writing, the labelling group planned to submit a proposal to the EU by 30 March 2001.

Arne Lögdberg, Chairman EHPA Labelling group



Financial report EHPA 2000

UK – The only form of income has been the membership fees of the 15 members and 3 associate members. The principal items of expenditure have been the publication of the EHPA newsletter, travel, subsistence, and association and meeting registration. At the end of the first year income and expenditure are roughly in balance, however other forms of income are required for a constructive expansion of the association.

Jean-Yves Cherruault, Treasurer EHPA

The EHPA on the Internet

Germany – The number of visitors to the EHPA website is increasing. The EHPA Secretariat presents last year's achievements.

The EHPA website (<http://www.ehpa.org>) was established in spring 2000 and is now an integral part of the website of the European Heat Pump Network (EHPN, <http://www.ehpn.de>). FIZ Karlsruhe has maintained and improved the website during the past year. The areas that have been the subject of continuous update have been News, Events, Newsletter, Market, Links as well as the List of Members. The improvements comprise the introduction of a search function and a European inventory of heat pump related publications.

In 2001 links to the relevant bibliographic and patent databases of STN International will be created. Furthermore the EHPN/EHPA websites will be integrated into the Energy Portal of FIZ Karlsruhe. These measures will open a gateway to world-wide and comprehensive information on heat pumps, renewables and energy efficiency.

The statistical data of the EHPN/EHPA websites underlines the increasing interest in this information tool. During the years 1999 and 2000 over 150,000 requests to these websites pages have been registered. The number of requests increased from 21,300 in January 2000 to 31,500 in December 2000. That means a rise of nearly 50%. However, the continuation of this favourable development requires the active engagement of all EHPA members.

Axel Lehmann, Secretariat EHPA

General

European policy on climate change

Brussels – The European Union is formulating a climate change policy to ensure that it can meet its target in terms of the reduction of greenhouse gases as agreed within the Conference of the Parties to the Convention for Climate Change in Kyoto.

The European Union together with its member states is a signatory to the Kyoto Protocol on climate change. It has therefore set up a number of working groups to formulate strategy and policy and to devise and seek agreement for new directives to use energy more efficiently and to increase the use of renewable energies. I am a member of working group 3, which is concerned with energy consumption.

The first output of this group will be a new directive on energy consumption in buildings, which consume 40% of European energy. The most significant feature of this directive will be a requirement for buildings to have an energy label (or certificate). This will initially be applicable to new buildings and buildings that are sold or rented, but the intention is eventually to label all buildings as residential, commercial or industrial. The label (or certificate) is also likely to require additional information about what measures can be taken to reduce the energy use of the building.

Other likely directives include those on public procurement, energy service companies and an amended SAVE directive (which requires member states to undertake a range of energy efficiency measures and evaluate them).

Another working group is considering the uptake of renewable energy sources and the measures that would be required to stimu-

late their purchase. A related issue, which has not yet been considered, is how to use renewable energy directly and efficiently in buildings. In the case of heat pumps for example this would require consideration of coupling heat pumps (which concentrate renewable energy from the ground or air) to renewable energy sources such as wind turbines, wave power or photo-voltaic devices.

The emphasis so far has been on legislation, but a host of other policy measures including implementation has yet to be considered. The EU plan must be completed by mid-year and will be launched at a stakeholders meeting in Brussels at the end of June.

Rayner Mayer, Chairman EHPA

Scandinavian Heat Pump Forum meets Finnish Authorities

Finland – The Scandinavian Heat Pump Forum recently held a meeting with Finnish authorities in Helsinki. Jussi Hirvonen from the Finnish Heat Pump Association SULPU reports.

The Heat Pump Associations of Norway, Sweden, Finland and Denmark met in Helsinki on 6th February 2000. Also at the meeting were representatives from the Finnish Ministries of Trade and Industry and Environment, from the National Technology Agency and from Motiva, the Energy Information Centre for Energy Efficiency and Renewable Energy Sources, which hosted the forum.

The national associations presented the heat pump markets in each country and also described the attitudes to heat pumps. In many countries there was a political preference for solar and wind energy rather than heat pumps although heat pumps in



Inside the new NIBE factory.

many cases have a better energy-saving and environmental potential, especially in Northern Countries. It was mentioned that in Scandinavia there are over 400,000 heat pumps used mainly for the heating of houses and water. Over 30,000 heat pumps are sold annually and sales are growing rapidly. The Ministry representative presented the program of renewable energy sources in Finland and said that the increase in renewables will be over 3 million tons of oil equivalent by the year 2010.

Both the Finnish authorities and the Scandinavian heat pump associations were pleased with the information they obtained during the day and are looking forward to similar events.

Jussi Hirvonen, SULPU
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Favourable avoidance costs for primary energy and CO₂ emissions

Germany – Heat pumps are characterised by favourable avoidance costs for primary energy consumption and CO₂ emissions compared to other innovative systems.

Primary energy and CO₂ emission avoidance costs are the extra burden that must be borne for saving energy or reducing emissions. For electrically driven heat pumps these avoidance costs are comparatively low. In many cases cost savings can be obtained as well. The heat pump is therefore one of a small number of energy conservation measures that are cost effective with regard to current investment costs and tariffs whilst contributing significantly to the protection of the environment.

Even the avoidance costs of the most expensive heat pump system, the ground water heat pump, are lower than those of measures like solar collectors, the replacement of old windows and the thermal insulation of roofs. They are comparable to the thermal insulation of outer walls or photovoltaic electricity generation covered by the new German law for renewable electricity.

The technical market potential of the various energy conservation measures varies considerably. The electric heat pump is well suited for application in new single- and multi-family houses and also for retrofitting to many existing heating systems.

Figure 1 shows the specific avoidance costs of the primary energy consumption of ten different energy saving technologies for a number of areas of application. The graphs show cost ranges based on the capacity of the installation, the baseline energy source, or different technology options. The positive conclusions from Figure 1 are even more evident in the comparison of avoidance costs for CO₂ emissions.

Even if the heat pump does not enjoy the same level of public attention and favour as, for instance, photovoltaic systems it is an important key technology for more innovative space heating systems. Ten years ago it was legitimate to ask whether the heat pump, with the annual COPs achieved in practice, was really able to save primary energy. Today we can answer with a definitive yes!

Translation of the article „Energievermeidungskosten von Wärmepumpen im Vergleich zu anderen innovativen Systemen“- by Univ. Prof. Dr.-Ing. Ulrich Wagner, Munich, IWP inform, issue 9/00. Submitted by FIZ Karlsruhe

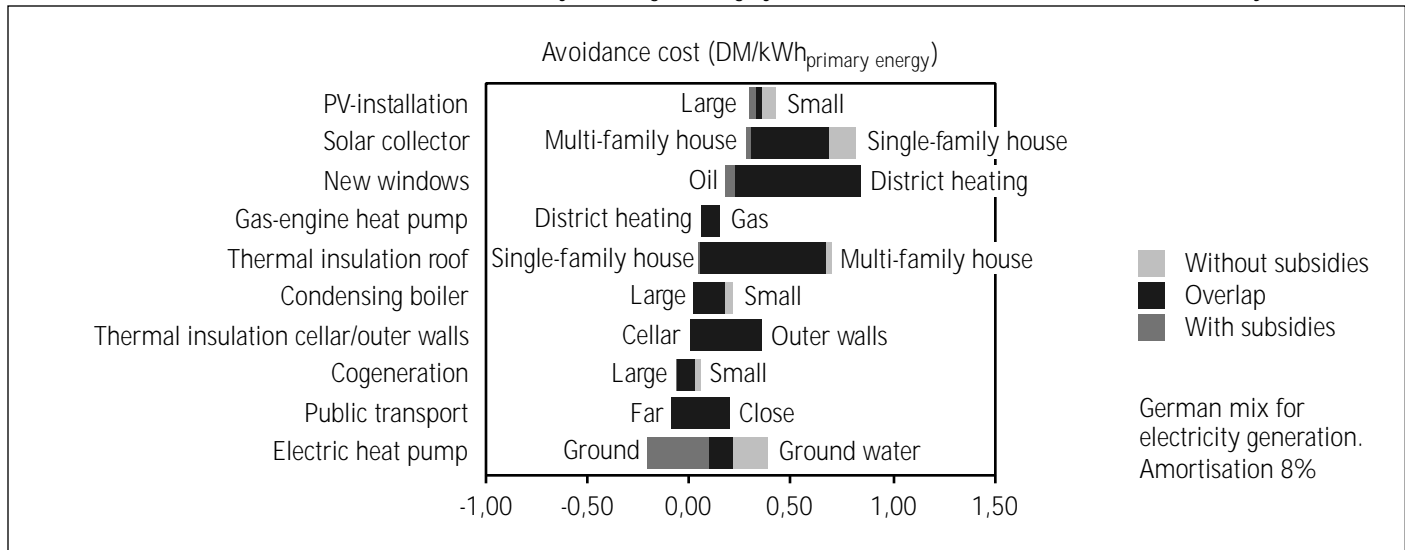


Figure 1: Primary energy avoidance cost

Market issues

New NIBE factory for 30,000 heat pumps/year

Sweden – NIBE Heating in Sweden is one of the biggest producers of heat pumps in Europe with a rapidly growing production volume consisting of mainly ground-source and exhaust air-source heat pumps. During the year 2000 a completely new heat

pump factory was built in Markaryd, Sweden. The factory is dimensioned to take care of a large part of Europe's future need for heat pumps and has currently a capacity of 30,000 units per year, which could be expanded if necessary. Particular attention was given to defining the workflow and the production methods with the aim of man-

ufacturing the highest quality heat pumps in a rational way. The factory is judged to be the most modern in Europe.

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Country in focus: united kingdom

Gilbert Burlison, Chairman of the UK Heat Pump Association (HPA), introduces the UK heat pump market, its history and prospects, and the role of the HPA in the UK. The UK has a population of 60 million.

History and market potential

A review of the current status of heat pumps in the UK, carried out by ETSU on behalf of the Government's Energy Efficiency Best Practice Programme, reveals that the UK is now in a strong position to grasp the opportunities afforded by heat pump technology. This arises from the need for heat pumps to be part of a strategy for energy efficiency and environmental protection.

A more constructive and supportive approach by government, local authorities and others is now possible. Recent UK membership of the IEA Heat Pump Centre and government funding for a UK Heat Pump Network¹⁾ are positive indicators of the government's growing awareness of the benefits of heat pump technology and the contribution it can make to saving energy and reducing CO₂ emissions.

Commercial/Institutional

During 1999, about 66,000 heat pumps were installed with approximately 90% being used in commercial/institutional buildings. These were mainly single reverse-cycle split air conditioners. The overall penetration of air conditioning in the commercial sector is estimated to be about 25%. The UK has an air conditioning driven market with less than 1% of heat pumps being used as a primary heating source.

The commercial/institutional heat pump market will continue to grow on the back of a robust air conditioning market. The growth rate is expected to be 4% per year²⁾. Additional growth will come from the use of alternative heat energy sources, recycled pre-paid energy, exhaust air heat recovery systems and ground source heat pump systems.

Residential

There are more than 23 million dwellings in the UK, of which 4.4 million are electrically heated. Since 1992 it is estimated that 4,000 heat pumps have been installed in single family homes with 40% being water-to-air heat pumps for swimming pools²⁾. There are approximately 50 ground source heat pumps installed. A few small reverse-cycle units are installed in conservatories to provide heating and cooling.

There is estimated to be 180,000 new build properties per annum representing an opportunity to influence the choice of heating system at the outset. Furthermore electrically heated houses form a tempting retrofit market when there is no competition from low-price gas-fired systems.

The UK manufacturing base is responding to the continued improvement in living standards and working conditions by gearing up to face entry into a residential market, not only to provide heating and cooling but also heating only using alternative heat energy sources e.g. ground source heat pumps.

Industrial

The installed base is over 10,000²⁾. The majority of units are small dehumidifier/dryers with less than 10% being larger mechanical vapour recompression (MVR) units. The annual rate of installation has been fairly stable at around 100 units. Additional growth will result from increased use of waste heat processes. A tremendous amount of R&D work has been carried out in this field by some of our leading universities.

A recent study by the German Heat Pump Centre, under a THERMIE initiative, suggested that there are 1,550 potential sites for large industrial heat pumps in the UK, out of an EU total of 8,045. The average size would be 800 kW, with the chemical sector having the greatest potential.

Ground-source heat pumps

Strong arguments in terms of energy efficiency, minimum environmental damage, and access to free cooling systems are encouraging the use of ground source heat pump technology. As with any innovative approach we must proceed with caution and take into account the barriers to progress. This applies both to residences and to the commercial/institutional sector.

1) The UK Heat Pump Network is supported by the Department of the Environment, Transport and the Regions (DETR) via ETSU, DTI and the HPA. There are more than 500 members.
2) Source BSRIA

The role of HPA

Formed in 1995 by 12 leading manufacturing companies in the heat pump industry the Heat Pump Association (HPA) is still actively promoting the benefits and proper use of heat pumps. As an association we are seeking the support of our Government by introducing the following:

- Subsidies for heat pumps
 - Incentive schemes for trained installers
 - Par rating with CHP and other energy efficient technologies benefiting from Climate Change Levy exemption, etc.
- We are a core sponsor of PRASEG (the Parliamentary Renewable & Sustainable Energy Group) a cross party association that is extremely helpful in promoting our cause.

The Heat Pump Association and its members are removing barriers in the marketplace by promoting training courses, liaising with other organisations to ensure environmental conformance, developing codes of practice, stimulating student engineering participation and, of course, adopting a best practice approach in all dealings.

For questions concerning membership, technical and market information and advice on industrial, domestic and commercial applications, please call + 44-(0)1491-578674.

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