Heat Pump News
HEAT PUMP ASSOCIATION NEWSLETTER

Helping you save energy
to create a better environment

www.heatpumps.org.uk Volume: 1 No. 9

Two moves forward

There have been two important moves since the last Heat Pump News — RES and the creation of DECC.

There have been traces of an obsolete debate around heat pumps — are they a renewable technology? To those who understand them it is obvious that a device which harnesses energy from a renewable source — ground, air, wind, sun, water, etc — is renewable, but there have been lingering queries in the market. No longer. As a result of a thorough debate in the EU parliament surrounding the Directive for the Promotion of Energy from Renewable Sources (RES), all of Europe is committed to including heat pumps as a major tool in the introduction of renewables to reduce CO_2 emissions. BERR (DECC) was already supportive of this outcome, and HPA was, with its partner European HPA, able to play an important part in the successful outcome. Planners are now free to see heat pumps as part of renewable deployment and not solely as energy efficiency measures.

The other major development was the formation of the Department of Energy and Climate Change, a unit dedicated to a more coherent view of energy policy. The energy activities of BERR have been transferred to DECC, now headed by Ed Milliband. The SAP programme, previously run by Defra, has also moved across. HPA welcomes this change, something that has been requested formally and informally over the last few years.

The new department has made its intentions clear with the rapid launch of its Heat and Energy Saving programme on February 12th. Many consultations can now be expected, so HPA and its members will contribute, as usual, in a constructive and positive way.

Tony Bowen, President, HPA

HPA Seminar at HEVAR 09

HPA was invited to present a heat pump seminar at the 09 Manchester Hevar Show in January. Entitled 'A realistic update on tomorrow's technology', we aimed to provide an introduction to types of heat pumps and their uses. Speakers subordinated their main company interests to offer a near generic review of the technology in domestic and commercial applications and linked these to installed heating and cooling systems. The seminars were well attended, confirming our view that there is a strong appetite for generic information on all types in this field. More seminars are being planned.

Clean bill of health for energy-conscious hospital

An energy-conscious Essex hospital is cashing in on free hot water thanks to a Calorex heat recovery system.

Installed last summer as part of an on-going strategy to improve energy-efficiency at the busy Princess Alexandra Hospital in Harlow, three AW Calorex heat recovery units now capture previously wasted hot air from the hospital's boiler room.

The Calorex units recycle the energy to supply free hot water to the main building of the 400 bed hospital and for the busy maternity unit that sees an average 3,000 births annually.

"The Calorex machines are part of an overall strategy to improve energy efficiency at the hospital by cutting bills and reducing carbon emissions," said Bill Dickson, the hospital's energy officer.

"It is a win, win situation because we have improved conditions in the boiler room which is noticeably cooler at the same time helping to cut energy bills."

The AW1534 is one of a range of floor-standing heat pumps. A Calorex heat pump is capable of delivering up to five times more energy than it consumes.

Calorex heat pumps are simple to install, require little maintenance and alleviate the need for fuel storage tanks and flues that are normally associated with fossil fuel heating systems.

With lower CO_2 emissions than boilers, heat pump technology is the preferred heating choice of many government bodies and professional associations due to their low impact on the environment.

Calorex heat pump features include:

- Range of capacities from 6 kW to 59 kW.
- R134A refrigerant ensures reliable operation up to 70°C.
- Fully weatherproof polyester coated cabinet.
- Digital water thermostat as standard fitment.
- Seamless 90/10 cupro-nickel heat exchanger allows the units to be used in direct systems for potable water.
- Centrifugal fans fitted as standard — allows ducting from plant rooms or distribution of cold air for space cooling.

www.calorex.com

MCS update

The administration of the MCS scheme has now passed from BRE to Gemserv, and simultaneously the technical accreditation role has been opened up. The only current accreditation body is BRE Global, but a significant number of additional bodies have applied and are seeking approval from UKAS. By the middle of 2009 there should be a choice of accreditation bodies for both installers and manufacturers, thus increasing the potential for quick accreditation and, hopefully, reducing cost.

Altherma heat pumps for Scottish young persons home

Three Altherma air to water split heat pump systems, supplied by Daikin Airconditioning UK Ltd, specified by Helix Consulting, Dunfermline and installed by Enviroheat Ltd, Carnock, Fife, provide heating for a new special young persons centre in Croftmalloch, Whitburn, West Lothian. Opened at the end of October, the centre is an integral part of the West Lothian Children's Services Plan 2005/08. It provides a secure and disciplined, yet friendly family environment for up to 6 young persons at any one time.

The single storey building comprises young persons and staff bedrooms (one with wheelchair facilities), lounges, kitchen/dining room, family room, office and a general common area plus toilets and bathrooms etc.

The heat pumps are connected to under floor heating that is provided to most rooms — about 240m^2 of the 270m^2 building. The systems are designed on a water flow temperature of 42ºC (Altherma can provide water at 25ºC to 55ºC), which is supplied by two type 006 and one type 007 systems (6.8 kW and 8.4 kW nominal heating capacity respectively). The systems each comprise an outdoor unit (ERYQ) and an indoor unit (EKHBH) known as the 'Hydrobox' and are located in the plant room along with the under floor heating manifolds. Nominal COPs of these units are 4.34 and 4.05 respectively.

The inverter driven outdoor units are mounted at high level on an outside wall of the building and can operate in external ambient temperatures of –20ºC. Although Altherma can also be used for the supply and temperature regulation of domestic hot water, in this particular installation it is dedicated solely to the heating circuit.

The Hydrobox includes a built in user interface set to the required flow temperature, a programmable seven day timer, a weather compensator and other useful features. For complete flexibility the Altherma system can also be connected to most room thermostats on the market, providing the user with the choice between a single room thermostat or a fully programmable controller.

www.daikin.co.uk

New COP turns up the heat for ac

Mitsubishi Electric, has launched a new wall-mounted, inverter driven heat pump air conditioning system with a COP of 5.25 in heating and 5.15 in cooling modes at Standard T1 nominal conditions, outdoor 7/6ºC, indoor 19ºC.

The M Series, MSZ-FD models extend the possibility of energy efficient heating and cooling to a wider range of properties and applications.

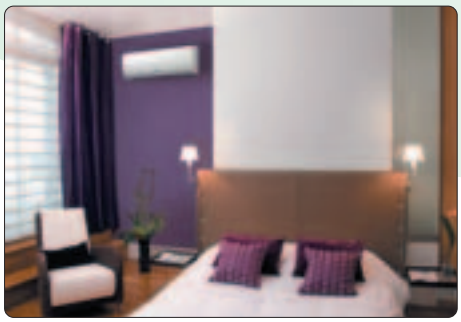
"These models are ideal for the UK climate because they can deliver energy efficient heating for the majority of the year, but can also be used for cooling when the British summer eventually arrives," explained Peter Cole, product manager for the range. "This is a fairly new concept for us to be promoting these products based primarily on their heating benefits."

The new range will initially have two models available in 2.5 and 3.5 kW sizes but Mitsubishi is planning to add more high COP models to the range later in the year. The units operate at 20 and 21 dBA respectively and also come with the ability to connect to an MXZ multi unit for even more flexibility of design and use.

Unique to Mitsubishi Electric is the additional 'Replace' facility, which can reduce replacement and upgrading costs by potentially allowing users to reuse the existing pipework.

The new MSZ-FD models come with an infra-red controller as standard and a maximum pipe length of 20 metres and a pipe height of 12 metres. Both models also include additional features including a plasma duo air filtration and deodorising system, self cleaning functions and the I-See sensor to aid temperature control and efficiency.

www.mitsubishielectric.co.uk/aircon



SAPQ

Member companies have been involved in the SAPQ project with Energy Savings Trust and BRE. During the last few months it had become clear that the project was in danger of losing its way, but progress has recently been made in talks between HPA and EST. We now feel that its objectives are clearer and its timetable tighter, so we look forward to some results to inform SAP before the next revision in 2010.

Air and water energy sources are renewable — official

The European Parliament has adopted the eagerly awaited EU Directive on the Promotion of Renewable Energy Sources. The final compromise text recognises for the first time aerothermal and hydrothermal energy as sources of renewable energy under EU law.

Geothermal, aerothermal and hydrothermal energy is currently exploited using heat pumps, which were recognised as such 'renewable energy technologies' by the EU, alongside wind turbines and solar panels.

Under the new legislation each member state should increase its share of renewable energies.

The European Partnership for Energy and the Environment (EPEE), the voice of the heating, cooling and refrigeration industry in Europe, says it is delighted that the use of aerothermal energy (energy in the air) and hydrothermal energy (energy stored in water) will now be promoted as part of the new EU policy on renewable energy sources.

Frans Hoorelbeke, Chairman of EPEE, said, "The potential of aerothermal and hydrothermal energy sources is enormous and can greatly contribute to Member States' success in reaching their renewable energy targets of 20% by 2020."

Colt proves Caloris WRF saves energy

Following energy audits of a number of sites across Europe Colt says it has been able to prove that its air source heat pump system, Caloris WRF, is highly energy efficient, with performance exceeding expectations.

The offices of Daimler Benz in Milton Keynes consume 65 kWh/m^2 per annum and the Bluebrick Premier Inn in Wolverhampton consumes 44 kWh/m^2 (even with occupancy levels of over 90%). In both cases performance exceeded expectations.

The Colt Caloris WRF system uses individual unitary reverse cycle heat pumps to heat or cool as required. Energy is sourced from a two pipe neutral water loop, which allows energy recovery between spaces that have opposite mode requirements. The water loop is allowed to float at temperatures between 15-30ºC to provide a degree of thermal inertia. The water loop temperature is controlled from air source air-to-water heat pumps, ground source water-to-water heat pumps or a hybrid system utilising both.

As a result of the design of the water loop the outdoor units generally run for only between 8-15% of the whole year. In fact they ran for 7% at the Daimler offices and 6% at the Premier Inn (*full load equivalent).

A further benefit of the system is that each heat pump is able to record running times and energy consumption (in kWh) in each of its modes (fan idle only, heating & cooling). This conforms to Building Regulation Part L metering requirements but also allows energy auditing to take place suggesting areas where further energy savings can be found. This was the case with Daimler Benz where Colt was able to identify areas for specific energy saving targets.

www.coltinfo.co.uk.

HeatKing improves 5 bed house

HeatKing's new BWarm i Range of air source heat pumps, which are able to achieve a flow temperature of up to 65°C, have been the key factor in the selection of a HeatKing system for a number of recent projects. One such project was a home improvement located on the border of Norfolk and Cambridgeshire and undertaken by Greensave Solutions.

Originally, a three-bedroomed detached house the completed property became a large detached five-bedroomed home with games room. The property, situated in an off-mains gas location, was originally installed with an oil boiler and the selection of a replacement heating system was an important aspect of the extension project.

Selecting two 13000i BWarm i HeatKing air source heat pumps; one of the units was connected to underfloor heating to serve the ground floor of the property while a second unit was connected to a traditional radiator system used for the first floor living accommodation and a domestic hot water system. Initially, the installation of a gas mains and a gas boiler was considered, however the HeatKing system was finally chosen for the potential long-term savings possible, the simplicity of one fuel source for the family and because of the 13000i's flexibility as explained by Jeremy Pallant of Greensave Solutions; "The ability to achieve a flow temperature of up to 65°C in the BWarm i Range enabled the system to be integrated with ordinary radiators and this was a key factor for selecting HeatKing for the project."

The BWarm i Range of air source heat pumps are available in both 9 kW and 13 kW sizes.

www.heatking.co.uk

All aboard for heat pumps

One of Britain's best known ships, The Royal Yacht *Britannia* has recently benefitted from the installation of heat pumps on board.

The Royal Yacht, launched in 1953, is permanently berthed at Leith Harbour, Edinburgh, Scotland. Now open as a visitor centre, with additional conference hire and banqueting facilities she signed up with Mitsubishi Electric and Kooltech to provide heat pump systems better fitted for her present day use.

Worldwide Journeys

In its day, the yacht could travel at speeds of 22.5 knots, using its extensive 125.65m length and 16.76m breadth to journey to locations worldwide. This was the ship that, even with its full complement of around 300 Royal Yachtsmen and Royal Household staff, The Queen named as the one place where she could truly relax.

In keeping with the traditional elegance of the yacht, Eric McPhail of refrigeration and air conditioning specialist Kooltech, selected and supplied a range of systems to provide comfortable conditions to blend into the background of the design.

The new heat pump installation includes two PUHY-P250YHM-A condensing units located in the ship's funnel and ten PEFY-P63-VMS1-E fan coil units.

Maintaining Glamour

"One of the key issues when working on the *Britannia* was to maintain its glamour and traditional design, while providing the optimum comfort for visitors," said Bob Farrington, Kooltech's brand manager.

"The purpose of the air-conditioned area on the yacht was to re-create the Royal Deck, which in the past was used for Royal cocktail parties, with a permanent awning and glazing."

Britannia has a dedicated maintenance team, many of whom have a Royal Navy or shipyard background, all working 363 days a year to look after and preserve the yacht in keeping with her former glory.

www.kooltech.co.uk or www.mitsubishielectric.co.uk/aircon

Can Europe prosper without heat pumps?

asks Thomas Novak, European Heat Pump Association

The European Union has declared some tough targets to meet until 2020 in order to increase its use of renewable energy sources and to reduce its demand for final energy as well as its emission of greenhouse gases.

In trying to establish a strategy on how to achieve these targets, the largely overlooked sector of heating and cooling has been moving into focus. Heating today is mainly provided using gas, oil and solid fuels (either wood or coal), with some areas still using electricity. Cooling is predominantly provided by electricity. It has been argued, that a larger share of renewables could reduce the total final energy demand in this sector by at least 20%.

In parallel, the contribution potential of heat pumps has repeatedly been questioned. This is surprising taking into consideration the fact that a heat pump on average saves more than 70% of final energy, provides 100% of a building's heating and hot water needs and cuts greenhouse gas emissions for this service roughly by 50% (in reality the value depends on several factors such as the insulation standard of the house, the efficiency of the heat pump unit, the emission characteristics of the electricity mix).

These effects will improve in the future due to the targeted share of renewable sources to be used in electricity production. From the economic perspective of an individual investor, a heat pump unit can provide heating, cooling and domestic hot water.

Its use does not only save space, but also the funds otherwise necessary for purchasing individual devices necessary to provide the services mentioned above.

With current prices for gas and oil, the investment in a heat pump in new houses pays back in less than 10 years. Improvements in the efficiency of building renovations make a heat pump suitable and economically feasible in more and more old houses. Consequently, heat pumps do not only over-contribute to the stated goals of the European Union, but they are also a cost-efficient solution for the individual decision maker making the cost for heating, cooling and domestic hot water more plannable for the foreseeable future.

The EHPA represents Europe's heat pump industry and has for the past year worked hard on establishing knowledge about the stated advantages of this technology with MEPs and key decision makers. The association's members have contributed to the recognition of this technology in the Ecolabelling Directive and the framework Directive on Ecodesign of energy using products as well as the Energy performance of buildings Directive.

Recent activities are focussed strongly on the inclusion of ambient heat as a form of renewable energy used by all heat pumps in the proposed Directive on the promotion of the use of renewable energy sources.

The potential offered by heat pumps has been overlooked for far too long by the member states — with one exception: in Sweden heat pumps exploit 10 times more renewable energy than wind power.

So again: can Europe prosper without heat pumps? It probably can, but heat pump technology offers a triple dividend that no member state can afford to neglect.

Heat pump show in China

An international energy-saving in buildings exhibition and forum featuring heat pumps, cooling and heating technology is being held in Shanghai Mart, China on August 26-28, 2009.

Chinese legislation covering energy consumption and conservation is growing and in 2006 the 'Renewable Energy Law' and 'Energy Conservation Law' were introduced and heat pumps are reported to be the mainstream products being used in China to reduce building energy consumption.

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Anders Heating Company Ltd
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Braeaire Ltd
Calorex Heat Pumps Ltd
Carrier Air Conditioning
Clivet UK Ltd
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How to Join:

The HPA is dedicated to the application of heat pump technology and will achieve this goal with the aid of new members joining the already committed companies.

If your company would like to receive information on joining the HPA. Please contact Terry Seward, HPA Secretary.

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The Heat Pump Association is a founder member of the U.K. Heat Pump Network.

Origination and printing by The Advertising Designers, Edenbridge, Kent.

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Attention of
Terry Seward HPA Secretary

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