

Press Release

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Does the Heat Pump market still have energy?

World Heat Pump Market Review from BSRIA

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BSRIA have recently published the world heat pumps study based on 16 key countries around the world. The report highlights that despite the continued downturn in the world economy the Heat Pump market is increasing compared to other products. The market increased by 31% from last year and is forecast to increase by 33% in 2013. However this increase is due largely to ASIA as the biggest market is in China.

A reason for why the market is doing better in Asia in comparison to other regions is that Air source heat pumps are more used for space heating rather than hot water only in Europe. However, Heat Pumps are used for the production of sanitary hot water only are very common in China and some other Asian countries.

Government policy, availability of incentives and increasing disposable income are the main drivers in China. Growing construction industry also triggers demand. The Chinese market is dominated by air-water monobloc systems.

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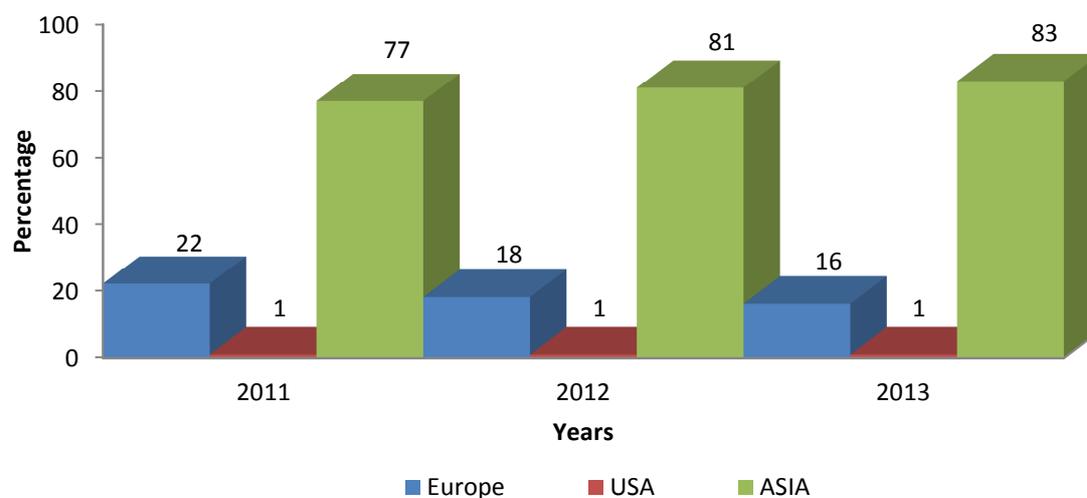
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World Heat Pump Market 2011 - 2013



Source: BSRIA

EUROPE

Europe has seen a decline in the heat pumps market share compared to other global regions from last year and is forecast to see a further decrease of 2% next year. This is heavily influenced by the economic crisis.

Austria

In the recent years the heat pump market conditions in Austria have become more difficult and not easy to predict as government's subsidies have been tightened. This, along with the quality of the product and installation are still challenges for the Austrian heat pump industry.

On the base of the construction output and building development it is predicted that the heat pump market will continue to dominate the residential sector. As the new build sector is set up to increase by only 1.5% in 2012, it is expected that demand will come mainly from the retrofit and refurbishment sector.

It is expected that the heat pump market will continue to grow in the next decade; however, the growth rate and the market size will depend on the government's investment in the social housing, and also on the average oil/gas prices.

Belgium

The heat pump market shows positive outlook in Belgium but heat pump suppliers are facing two major challenges in the near future:

In 2007 the Belgian government issued two directives regarding the installation of heating and cooling machines containing refrigerants based of F-gases (R407C, R410A and others), that oblige all installers involved in the installation and maintenance of such products to require appropriate qualifications from January 2009.

This regulation has had a direct impact on the installation capacities for air to water split heat pumps, where a refrigerant-based circuit need to connect the outdoor unit to the hydraulic box. Most heating installers do not yet have a certificate. This presents a major obstacle and favours air conditioning specialists.

Installers' lack of technical skills and experience needed for the specification and design of a heat pump based heating system is another issue that has been raised but it will take at least a few years to train young and active people to obtain required skills.

Italy

The current major hold-back to the development of the Italian heat pump market is represented by the economic downturn and accordingly by the slowdown of new construction and property transactions. Both factors are analysed in more details in the full report.

Other important challenges are represented by competition coming from traditional heating technologies and the high price of electricity.

Despite the increasing awareness towards renewables technologies, most end users know only boilers as a heating option. In fact, the majority of Italian residential single dwellings are equipped with wall hung gas boilers while multi-dwellings with floor-standing boilers or boilers installed in cascades. Both technologies have a significant price advantage on heat pumps. Gas boilers are less energy efficient than heat pumps, but significantly cheaper: the average selling price for a condensing wall hung gas boiler, for example, is around €800.

Installation costs for boilers are also considerably lower. Thus, the initial investment necessary to install a heat pump in lieu of a boiler is still high and the payback period considered too long by many end users, especially in a period of economic difficulties such as that currently experienced by Italian households.

The 55% tax deduction on installation costs introduced in 2007 undeniably played a fundamental role in the development of the market. The incentive was extended several times and is available until the end of 2012.

However, its impact has been weakened in 2011 because the repayment period has been extended to ten years, from the previous five.

A positive development has been the introduction by the main Italian electricity supplier ENEL of dedicated tariffs and a separate metering system for heat pumps. Electricity prices remain higher than gas prices, though. Moreover, the complexity and lack of knowledge about the dedicated tariff mechanism still discourage end users from choosing heat pumps.

The Netherlands

Increasing the end user' awareness of heat pumps is a crucial task. As many people are still suffer for a lack of information about renewable energies and heat pumps, market growth is hampered. Since reducing CO₂ emissions is a global issue, it is necessary to encourage people to use renewable energy products instead of using the conventional heating products such as gas and oil boilers.

The Dutch government encouraged the expansion of the heat pump market as a means to increase the share of renewable energies in the Netherlands. However, the relatively low cost of natural gas and high initial investment cost of heat pumps hamper market growth. However lack of the support from government in the near future could also have a negative impact on the development of the market.

Poland

The Polish heat pump market is developing at a far slower pace than in other European countries. The reason behind this is that there are many restrictions: legal, economic and informational. Factors preventing market growth can be divided into a few major categories:

First and foremost, the most important is the legal aspect. So far there are no established legal guidelines to regulate the use of heat pump technology. There is a lack of basic procedures for outlining technical and installation standards which results in numerous mistakes during installation. In addition, heat pumps are not recognized as RES in Polish law, which makes it difficult to obtain any form of subsidy at the other than regional level.

A further crucial barrier is lack of sufficient knowledge amongst end users. A large proportion of them are not aware of what heat pumps are and what benefits they can offer. So far there has been only one information campaign to raise awareness or promote the equipment in Poland. End users need to gain knowledge from uncertified sources of information, where the credibility of published information is often doubtful.

Spain

The greatest challenge faced by those operating in the heat pump market is weathering the economic storm. The Spanish market as yet does not consider heat pumps to be a viable alternative for replacement and refurbishment installation, so to date, the only real market is new build, which is not expected to “take off” for the next couple of years at the earliest. Those manufacturers who were polled for the purpose of this study came largely to the same conclusion, that the market will make a substantial leap around 2014-2015, and that currently the onus is on preparing the entire distribution channel for this. The largest challenge on the supply side is making sure that installers are fully prepared and ready to promote the sale of heat pumps for when the market grows.

Sweden

Saturation of the single-houses market means that new segments of the market need to be targeted. Multi-family dwellings and commercial premises are the most probable segments to be targeted, together with the market for replacements. Starting from the last quarter of 2010, larger installations have been growing in numbers and the trend is expected to continue. The market for heat pumps has grown fast over the last few years thanks to oil heating systems replacement, but the intensity of replacements is fading out. The industry is lobbying for the fading out of tax incentives granted to commercial companies using oil for their heating. If this lobbying activity should succeed, opportunity for replacements in the commercial/industrial sectors will arise.

Switzerland

The overall heat pump market is set to slightly grow in 2012, and it is likely to continue its increasing trend afterwards, even though with a moderate growing rate.

New entrants may be eager to enter this new market as the Swiss market is big and well developed. There is a variety of sales and distribution channels, as heating and refrigeration distributors also sell heat pumps. Online sales are another channel. Consumer awareness is high, which is what makes product marketing easier. However, the threat of new entrants is weakened by the fact that there are already numerous strong players in the market and even the smaller suppliers require substantial sales and service operations on the ground (despite the relatively small size of the country).

UK

Heat pumps, whilst sometimes seemingly portrayed as delivering ‘magic’ heat out of thin air, have suffered from the reality of not living up to the high COP ratings some of their advertising has promised. DECC’s own

research and monitoring of sites has delivered some disappointing results, recording less-than-anticipated energy-efficiencies in real-life retro-fit installations.

However the major realisation this has resulted in is that in order to deliver maximum efficiency, heat pumps must be correctly sized and properly installed. There must be adequate insulation in the property and ancillary parts of the system (heating radiators, for example, if they are used) must be properly sized for the lower-temperature hydronic system, and fit for purpose. To this end, more real-life monitoring of selected installations by manufacturers has been made available in an attempt to both gauge the adequacy of current installations, and plan better ones in the future.

This is particularly relevant in the case of retro-fit installations. Existing housing stock is not always suitable for conversion to heat-pump based systems, due low levels of insulation, or the requirement to fit heating system accessories – such as under-floor heating pipework. If all elements of an installation are not considered, sized adequately – or properly installed, the end result will not live up to efficiency expectations.

In the new-build sector, factors such as Part L are of consequence to heat pump sales. Together with adequate insulation and air-tightness, heat pumps can contribute to the overall energy-efficiency of new properties. In these circumstances, and particularly with the benefit of government subsidies, heat pumps can still be seen as a choice that is preferable to a low-cost high-efficiency gas installation, despite the latter's lower-than-electricity running costs.

In this light, the major impediments to increased heat-pump sales are the price of gas, its ubiquitous availability, and the lower capital cost of installation of a gas system. Even government assistance through schemes such as the RHI will not entirely counter this, as there is some suggestion (albeit unconfirmed) that high-efficiency condensing boilers might be included in the Green Deal being proposed for late 2012.

The challenge to increasing the sale of heat pumps is then on two quite separate fronts: the first is that where there is no gas available as a heat source – and so the competition is with heating oil and electricity – the main issue is that of installation cost. The second is where there is a gas supply, the competition for sales is with both a potentially cheaper installation cost, as well as potentially lower ensuing running costs. Added to this is the ability of gas-based systems to provide sanitary water heating at relatively little extra cost – and the reliance upon greater amounts of electricity for heat pumps to provide a similar service. On this latter note however, the availability of a bivalent system might provide an answer.

ASIA

China

BSRIA observed a phenomenon that besides residential applications, more commercial units are using heat pump as the source of cooled/heated air and water. The increasing demand from barbershops and swimming pools are the major driver for the commercial market. Along with the improved quality of assembly works and local production of parts, heat pumps will be much more popular in commercial market.

PESTLE analysis of China's Heat Pump market

Political		C.	I.	Economic		C.	I.	Social		C.	I.
Instructional views of the development of HP in Beijing	10	8	Shortage of supply of natural gas and electricity in certain regions requires substitutions of conventional natural resources Increasing trend of energy price in the next 2 years asks for energy efficient technologies	7	8	Raised awareness of energy conservation		3	10		
Supportive policies for adoption of HP in space heating	9	6		10	5	Raised awareness of environmental protection		2	10		
Policies and guidance to support and develop HP system in infrastructure construction industry in Qingdao	8	7		Demand for more comfortable, more reliable, more economic and safer product		6	8				
Sewage utilization and sewage HP – Sustainable development plan	6	10									
A2W HP heater to be put on the list of 'home appliances to the countryside' policy by the end of 2012	10	10									
Subsidy policy for HP heaters on national level – starting from 2012	7	10									
Technical		C.	I.	Legal		C.	I.	Environmental		C.	I.
Improved local assembly	10	2	No compulsory legal term to force organisations to adopt HP but some projects are legally restricted to buying high energy consuming products and HP products are recommended.	3	10	China's Energy saving and emission reduction target during the 12 th 5-year-plan		10	10		
Higher COP, lower cost	10	10									
Improved container technology	10	4									
Improved localized production of evaporator	7	5									
Improved technology of compressor to be adoptive in colder regions	7	10									

Source: BSRIA

Scores: I: Importance. From very important (10) to irrelevant (0)

C: Certainty. From very certain (10) to very uncertain (0)

For air to water heat pump, the product defects, low product awareness, lack of government support and the chaotic market situation were the key challenges of the market growth. Compared with gas and electric water heater, the heat recovery period is longer. The normal outlet water temperature is 60⁰C maximum and in the case of electric auxiliary heating, the temperature could reach 70⁰C maximum. Moreover, the product cannot perform well in low temperature ranges. When working in low temperatures, such as -10⁰C, air to water heat pumps do not achieve their energy efficiency target and some technical fault might still occur. It is impossible for air to water heat pump to work in conditions of -20⁰C or below, thus their development in North China has been hindered

Lack of Chinese heat pump specialists is another issue. Majority of the current heat pump water heater manufacturers have been switching from other industries, such as solar thermal and air conditioning and they do not have heat pump specialists.

Generally speaking, customer awareness towards heat pumps is low as air to water heat pump water heater did not enter into the Chinese market until 2003.

Czech

The largest obstacle for a substantial growth of the market is and remains the high price of the system and expensive and complicated installation. The subsidies that were provided by the Ministry of Environment in 2010-11 boosted sales, however also brought much uncertainty. Prices of heat pumps have to decline further in order to reach a substantial market share on the heating market.

Japan

Fortunately due to continuous efforts by heat pump manufacturers and by the Japanese government to improve efficiency of heat pumps and air conditioning products, the efficiency of Japanese heat pump is high and the market is growing. However, in spite of their high efficiency, the market growth is considered to be hampered by misgivings regarding cost and efficiency.

Since heat pumps and air conditioners run on electricity, consumers consider the cost of electricity. In the winter, air conditioners are not used for heating due to their inefficiency although Japanese air conditioners are the most efficient in the world. Therefore, despite a high ownership rate of air conditioners in Japan, gas and oil combustion devices are still used as the main heating products. In addition, particularly, the popular heat pump type “eco cute” is sold as a part of "All Denka” which means a house equipped with 100% electricity. This promotion sometimes makes consumers think that heat pumps consume much electricity. As a consequence, efforts have to be made to change consumers’ concerns regarding costs but efficiency of heat pumps.

Note to editors:

BSRIA's world renewables study was published in April 2012. They cover a total of 16 countries for **heat pumps** and 16 markets for **solar water** heating. Each report contains information on market size and segmentation, market trends, a strategic analysis, sales by application and distribution channel. Also, there is an overview report available which comes in an excel format which provides a useful tool to filter and sort data according to their needs and interests.

The reports are largely based on in-depth interviews with key manufacturers, distributors, utilities, and other influencers in the market.

For further information on content and analysis, please contact Tim Page at BSRIA

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