

HEAT4U: Europeans opt for gas absorption heat pumps and renewable energies to heat up their homes

Today, one of the most important research projects funded by the European Community has been presented with the purpose of developing an indoor heating solution that can provide a significant contribution to the use of renewable energies and to rational energy consumption. The European Commission supports a Consortium of 15 companies gathered under the HEAT4U project, whose goal is to further develop the gas absorption heat pump technology so as to make it available for existing small-size residential buildings, which are the main contributors to polluting emissions in the Old Continent.

MILAN, January 26, 2012 – Innovation and technology: this is the two-pronged foundation of HEAT4U, i.e. one of the most important international research projects in the area of climate change and energy efficiency applied to the built environment, which also falls under the Seventh Framework Programme for Research (FP7) promoted by the European Community.

15 among the most important European organizations in the energy, industrial, and research fields are involved in such project, namely Robur – which is also the project coordinator, - Pininfarina, ENEA, Polytechnic University of Milan, D'Appolonia and CF Consulting from Italy; Bosch Thermotechnology, E.ON and the Fraunhofer Institute research centre from Germany; GDF Suez and Gas Reseau Distribution France from France. The consortium also includes UK-based British Gas, the Polish Flowair, and the two Slovenian companies Primorje and ZAG. The overall investment for such effort amounts to close to Euro 10 million.

The challenge for this project, which shall continue through to 2014, is to implement the gas absorption heat pump technology – which is currently used for heating condominiums, commercial and industrial buildings, and public administration facilities – also in the area of single-family detached residential homes. What is even more important is the goal of building heat pumps that can be installed in existing buildings, which, according to recent studies carried out by the European Union, account for approximately 49% of the overall energy consumption in terms of primary energy, and for 36% of greenhouse-gas emissions. Gas absorption heat pumps shall also be presented as a means for improving the heating efficiency of the existing residential building stock, which, by itself, accounts for over 60% of the built environment in enlarged Europe.

“It is no coincidence that several among the European directives aimed at reducing harmful emissions actually encourage a modernization of heating systems and the implementation of advanced retrofitting projects with a view to making buildings more energy efficient, especially in those cases in which it would be harder to achieve more appropriate thermal insulation solutions,” explains Mr. Luigi Tischer, Strategic Business Director for Robur and coordinator of the HEAT4U international project.

Used in existing buildings, the gas absorption heat pump technology would increase the energy efficiency of such buildings by over 40% thanks to the use of renewable energies derived from the environment



(air, ground, water). Each gas absorption heat pump used in a single-family detached residential home would bring about an annual saving of 0.8 tons of oil equivalent and would prevent the emission of 2.1 tons of CO₂, which equals the amount that is absorbed by 300 trees. By using this technology, each household might compensate for the CO₂ emissions produced by their car. This technology would also enable to use the current heating units (radiators) and the existing gas grid, to maintain high levels of efficiency also under extremely low outdoor temperatures, as well as to provide domestic hot water.

The benefits of the gas absorption heat pump technology have already been broadly certified in the existing version developed for the light-commercial market. Over 6,000 absorption heat pumps presently installed in Europe allow to save 9,600 toe (tons of oil equivalent) every year and to prevent the emission of over 25,000 tons of CO₂.

Solving the technological challenges posed by this project, which must be tackled by the HEAT4U research group, shall bring the gas absorption heat pump technology into the typical power range of single-family detached residential homes (10 and 25 kW_{th}) and would allow to reach an estimated global efficiency on primary energy of 150-170%. Therefore, the products resulting from the developments of the HEAT4U project will be fully compliant with the European guidelines and with the 2020 goals. One of the benefits of the gas absorption heat pump technology is that it uses primary energy (natural gas) directly, which means that it does not require any expensive and inefficient conversion into electric power. Furthermore, these systems will use outdoor air as renewable energy source and will be "hydronic", i.e. they can be integrated with radiators and with additional renewable energy sources such as solar panels and biomass heaters. They are also a valuable solution for the market of newly developed buildings, where low-temperature floor heating is often used.

According to the goals of the HEAT4U project, the investment required for each heating unit for the residential building market shall make the gas absorption heat pump technology one of the most competitive solution on the heating market.

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