



Great progress with innovative components of RES4BUILD's integrated energy system to deliver on decarbonisation objectives for Europe's buildings

Press release: July 2020

The EU-funded **RES4BUILD** project is developing integrated renewable energy-based solutions that are tailored to the needs and requirements of users and installers. The project aims to increase the uptake of renewable energy solutions for heating and cooling; decarbonising the energy consumption in buildings and contributing to EU energy and climate goals.

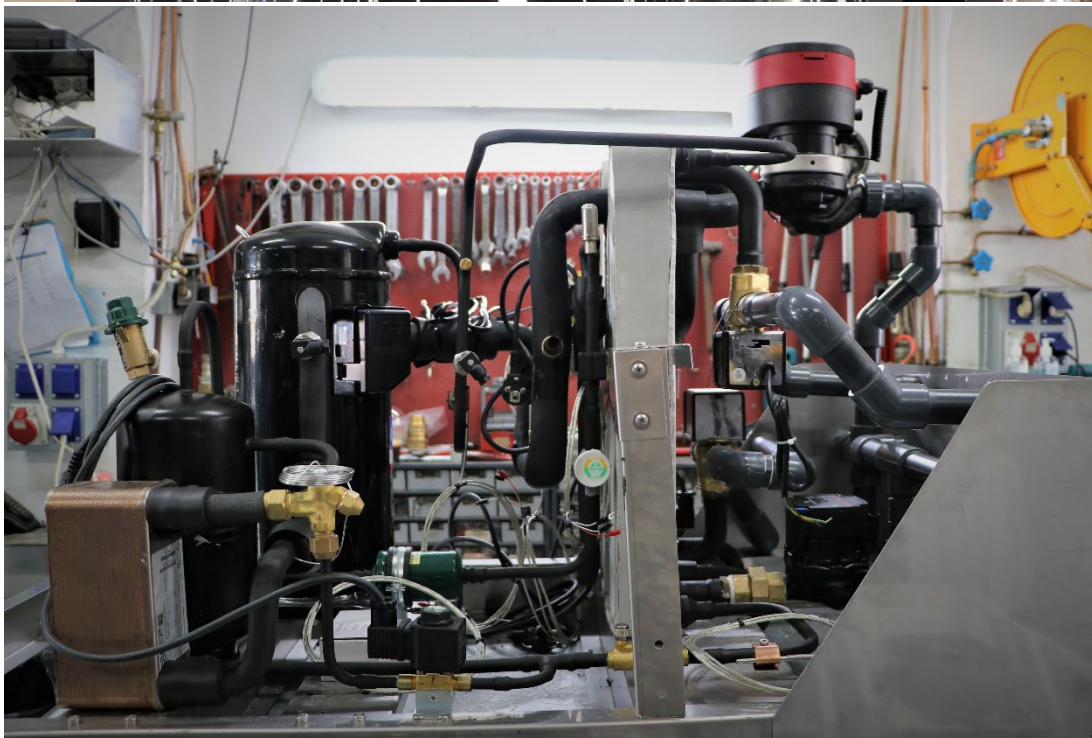
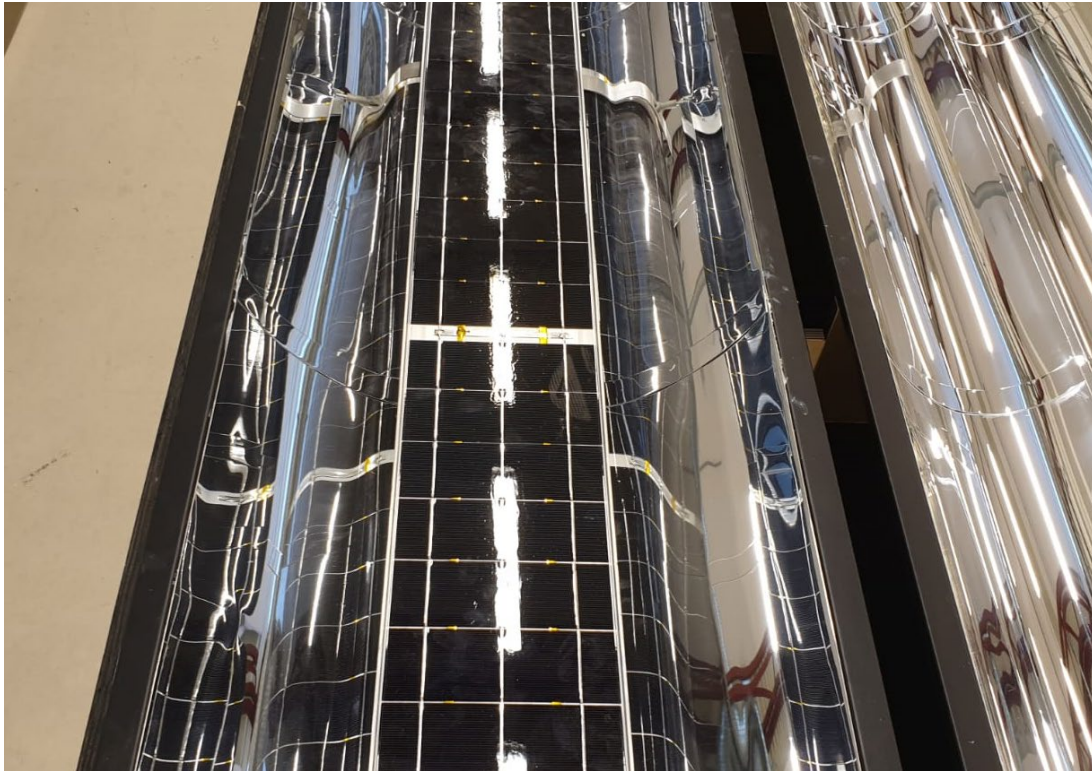
The consortium is working to improve the performance and reduce the cost of the most innovative components of the **RES4BUILD** solutions – by integrating photovoltaic thermal (PVT) collectors, magnetocaloric and multi-source heat pumps, optimising their performance through advanced control and building energy management systems. The developed solutions will be validated in different regions, paving the route to the market and ensuring wide adoption.

Much progress has been shown to date, with work on the main components well-underway. **RES4BUILD** partners MG Sustainable Engineering AB and the University of Gävle, both from Sweden, are constructing the novel concentrated PVT collector with a new reflector geometry. The prototype collectors, which provide both heat and electricity from the same area, will be tested from this summer both in Sweden and Greece to collect data from two different climatic zones.

The configuration and design of the multi-source vapour injection heat pump has also been finalised using a low-GWP refrigerant (an HFO: R1234ze(E)). It is supplied with the most optimal heat either from the outside air, from the PVT collectors or from the ground. The control unit is designed in a way to allow communication with the **RES4BUILD** building energy management system. A prototype of this heat pump has been manufactured by the project partner Psycotherm and installed at NCSR Demokritos for lab tests and characterisation. Initial tests already show a coefficient of performance (COP) of over 5. In August, the heat pump will be shipped to DTI in Denmark to become a valuable part of the integrated pilot system, which will be tested later in the project.

In parallel to the technical work, JIN and BAPE are working with end-users and other stakeholders on six case studies in the Netherlands and in Poland aiming to devise a best practice approach to renovations of energy systems in a more integrated and systematic way, resulting in more efficient operation and optimised interaction with the grid, and thus a lower energy bill for European consumers. The co-design approach will assist with social inclusion and ultimately contribute to an accelerated energy transition, in line with European Green Deal objectives.

For more information on the project and more regular updates, please visit the project website at res4build.eu or follow the project on Twitter [@RES4BUILD](https://twitter.com/RES4BUILD).



Notes for editors

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A Greek Supplier (Kontes S.A.) along with Honeywell supported the heat pump activities of **RES4BUILD** by providing at no cost the required quantity of refrigerant to Psycrotherm.

Coefficient of performance (COP) is the ratio of heating or cooling production to the electricity consumption. Higher COPs equate to higher energy efficiency and lower operating costs.

The European Green Deal is the roadmap for making the EU's economy sustainable, with actions to boost the efficient use of resources by moving to a clean, circular economy, and to restore biodiversity and cut pollution. For more information on its clean energy objectives see: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/clean-energy_en

Image 1 caption: Novel reflector geometry of the **RES4BUILD** concentrated photovoltaic thermal system © MG Sustainable Engineering

Image 2 caption: Construction of the **RES4BUILD** multi-source vapour injection heat pump © Psycrotherm