



## Testing of RES4BUILD integrated energy solution pilots underway with aim of decarbonising future energy systems in the built environment

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As the EU-funded **RES4BUILD** project enters its final year, two pilot systems will undergo testing to investigate and fine-tune the project's integrated energy solutions. With the recent focus on reducing dependence on external fossil fuels and accelerating the green transition in the European Union ([REPowerEU Plan](#)), RES4BUILD hopes its research can support the move to a clean energy future. The project is developing integrated renewable energy-based solutions tailored to the needs of users and installers with the aim of increasing uptake of such solutions for heating and cooling in buildings.

The team is working to improve the performance and reduce costs of the most innovative components of the **RES4BUILD** solutions - integrating photovoltaic thermal (PVT) collectors with magnetocaloric and multi-source heat pumps, and borehole thermal energy storage (BTES), as well as optimising their performance through advanced control and building energy management systems (BEMS). The fully integrated system is currently undergoing testing at two sites – the Danish Technological Institute, Denmark and the National Centre for Scientific Research Demokritos, Greece.

In parallel to the technical work, JIN Climate and Sustainability and the Baltic Energy Conservation Agency are collaborating with end-users and other stakeholders in the Netherlands and Poland to explore the needs and challenges with respect to decision making and implementation of integrated energy systems in their building(s). This, together with a full life-cycle impact assessment of the integrated RES4BUILD energy system performed by the University of Stuttgart, and a market review by ARUP, will pave the route to market for integrated energy systems.

**RES4BUILD** project coordinator, Michael Papapetrou notes *"We are delighted to have the pilot plants up and running in Greece and Denmark. The data to be collected will be very valuable and will allow us to validate our calculations. The results so far are very encouraging, and we expect that in a refurbished multifamily building the RES4BUILD integrated energy system can deliver a significant reduction of CO<sub>2</sub> emissions compared to a traditional solution where a gas boiler is used for heating and an AC chiller for cooling. The reduction ranges from 73% for Athens and 75% for Cork, up to 80% for Amsterdam or even 90% for Gdansk."*

Several publications on the technologies as well as articles on the end user collaborations are available. For more information, visit the project website [res4build.eu](https://res4build.eu), or Twitter [@RES4BUILD](https://twitter.com/RES4BUILD).

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Image ©NCSR Demokritos: Partners at one of the two RES4BUILD pilot systems in Greece in May 2022.

