



## THIS TOOLKIT CAN DECARBONISE EUROPE'S BUILDING STOCK

The HEART project is developing and testing several components to make existing buildings “smarter” and reduce energy consumption by up to 90%.

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REVOLVE will present the [Holistic Energy and Architectural Retrofit Toolkit](#) (HEART), an H2020-funded project, at Enlit Europe in Milan, Italy, on 30 November – 2 December. The Toolkit brings together different components and technologies that can transform existing buildings into smart buildings, contributing to the Renovation Wave and decarbonising the European building stock.

Current solutions for building renovation are both expensive and complex. Buying a state-of-the-art heat pump or investing in full heating insulation is a significant investment for most consumers. Also, consumers do not have the expertise or knowledge to navigate the complexities of making their homes more energy-efficient. That's why an out-of-the-box retrofit solution like **HEART is an important and timely project that aims at helping the continent become greener, working towards the clean energy transition**. Consumers will only get on board the Renovation Wave if the renovation process is simplified, making it quicker, easier, and cheaper for them to do so.

Highlighting HEART's benefits, Claudio Del Pero, Associate Professor at the Politecnico Di Milano, explained, *“the toolkit developed under the HEART project will reduce the investment and risk of the renovation projects. The real-time monitoring features will allow prompt information actions on the system, and cloud-based data management will fully utilise the collected information. Advantages of these key features and the innovative business models developed within the HEART project will further help in scaling up renovation.”*

The HEART project is developing and testing several components that promise to facilitate renovation by using a multifunctional prefabricated facade system, universal photovoltaic tiles, a high-efficiency water storage tank, direct current smart fan coils and heat pumps, a multi-input/multi-output controller, and a cloud-based platform to support decision-making and energy management phases. **This toolkit can reduce energy consumption, with overall savings on heating, summer air conditioning, and domestic hot water production between 60% and 90%.**

The Toolkit development is currently in an advanced stage and is being deployed in two demonstration cases in Reggio Emilia (Italy) and Lyon (France). One of the critical aspects of the Italian demonstration case is that renovation work is being carried out while the residents live in their apartments. In this case, the work does not require any scaffolding, reducing the cost and restrictions caused by the renovation work, which can be a game-changer for many consumers. Ultimately, the HEART Toolkit will significantly improve comfort for the inhabitants who will manage their consumption directly.

*“Although HEART's holistic approach relies on energy systems automation, algorithms and smart appliances, it is all about the people.”*

– Sébastien Garnier, innovation, and project manager at [Housing Europe](#)

The complex decision-making process in multi-apartment buildings, including the multiple property owners and building managers, is another of the significant challenges to renovation. **HEART's cloud-based decision support system and building energy management system include a useful multi-user operational tool to support the whole building retrofit intervention, from decision-making, through the design phase to the operational phase.** It allows the tenants and energy managers to access necessary data to assist their decision-making and simplifies the renovation process by providing possible variations and choices during renovation planning.

The climate change mitigation and decarbonisation require a substantial rethinking of the building sector. The process of improving buildings' energy efficiency is often uncoordinated and fragmented while underestimating synergies and benefits gained through different technologies' systemic integration. Access to finance and one-stop-shops for renovation advice to guide people are also needed to get consumers on board to achieve a successful Renovation Wave. Out-of-the-box solutions like HEART, which makes the renovation process faster, more straightforward, and holistic, keeping the spirit of innovation and modernisation of buildings at the core, are vital to achieving climate goals on time.



**Come and meet us for a free demonstration on Stand the EU Zone at Enlit Europe, which takes place 30 November - 2 December 2021 in Milan, Italy.**

Visitor registration is open now at <https://www.enlit-europe.com>, and you can scan the QR code to register directly via our invite for a free Visitor Pass or a Summit Pass at a discounted rate.

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## ABOUT HEART PROJECT:

HEART Project received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 768921. The project is developing and testing several components that will facilitate renovation by using: a multifunctional prefabricated façade system; universal photovoltaic tiles; a high-efficiency water storage tank; direct-current smart fan coils and heat pumps; a multi-input/multi-output controller; and a cloud-based platform to support decision-making and energy management phases. Toolkit installation and envelope technologies are structured as a function of their synergic action, practicality, installation time and non-invasiveness. Applying the HEART's envelope solutions (thermal insulation and windows) ensures thermal loads reduction while applying novel installation technologies (PV, heat pump, fan-coils, storage system) provides energy efficiency and RES exploitation. HEART's control system optimises the building energy performance, enhancing synergies between different installation and technology sub-systems and operating according to an integrated logic.

## ABOUT ENLIT EUROPE:

Enlit Europe is the new unifying brand for European Utility Week and POWERGEN Europe. Taking place in Milan from 30 November-2 December 2021, it brings together over 18,000 power professionals – established players, external disruptors, innovative start-ups, and the increasingly engaged end-user – to seize current opportunities, spotlight future ones and inspire the next generation to participate in the energy transition journey.

Enlit Europe is organised by Clarion Energy, which is part of Clarion Events and, with over 40 events that cover the oil, gas, power, and energy sectors, is one of the group's largest portfolios.

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