



## **Achieving near Zero and Positive Energy Settlements in Europe using Advanced Energy Technology**

Acronimo: **ZERO-PLUS**

**Horizon 2020 – Pilastro Societal Challenges**

Work Programme part: Secure, clean and efficient energy

Call: **H2020-EE-2015-1-PPP**

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**Abstract:** In ZERO-PLUS, a comprehensive, cost-effective system for Net Zero Energy (NZE) settlements will be developed and implemented. The system will be composed of innovative solutions for the building envelope, for building energy generation and management, and for energy management at the settlement level. A reduction of operational energy usage to an average of 0-20 kWh/m<sup>2</sup> per year (compared with the current average of 70-230 kWh/m<sup>2</sup>) will be achieved through a transition from single NZE buildings to NZE settlements, in which the energy loads and resources are optimally managed.

A primary objective of the project will be to develop a system whose investment costs will be at least 16% lower than current costs. In order to reduce "balance of system" costs, an approach of mass customization will be employed. Mass produced technologies will be integrated in a system that is optimally designed according to the local climate and site of each project in which it is implemented. To this end, a structured process will be developed and applied for the integration, optimization and verification of the design.

The project's work programme will ensure a rapid market uptake, within its four-year scope, of the innovative solutions that will be developed. These solutions will be implemented in four different demonstration projects throughout the EU, with varying climates and building types. The results of their implementation will be monitored, analyzed and disseminated. A comprehensive market analysis and business plan will support the commercial exploitation of the project's results. The project will be carried out by a consortium that includes universities, project owners, technology providers and organizations, which will closely collaborate in all the project's phases.

The role of University of Perugia corresponds to the integration at settlement level of all the technology productions and energy needs, by sprawling the boundary between the building scale

and the neighborhood scale, which is the key contribution of this project at international level. Additionally, thanks to the effective construction of four settlements around Europe (in Italy, France, UK and Cyprus), the UNIPG group will also manage that design process, optimization and realization procedure, in order to take advantage of the initiative even at local scale.

The project is coordinated by the National and Kapodistrian University of Athens and its participants are: the Technische Universität München, the Ben-Gurion University of the Negev, the Oxford Brookes University, the The Cyprus Institute, the Technical University of Crete, ABB Italy, Anergdy A.G., FIBRAN S.A., CONSORZIO ARCA, Eco Ltd., OPAC38, CONTEDIL di Ricco M. & C. S.A.S., George Vassiliou Ltd., Joseph Rowntree Housing Trust, together with University of Perugia.

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