

Project META-BUILD



Since January 2024, the Municipality of Thessaloniki has been participating in the **META-BUILD** project - Powering the METAmorphosis of BUILDings towards a decarbonised and sustainable energy system. The project is funded through the European Union's Horizon Europe Research and Innovation Programme, under Grant Agreement No. 101138373, and brings together a partnership of 41 partners from 13 countries, coordinated by the National Technical University of Athens, with a total budget of 15.54 million €.

The goal of the META-BUILD project is the design, development, demonstration, validation and replication of innovative, highly efficient, integrated and replicable technological solutions for the electrification of thermal energy use in the building sector, while ensuring that the energy efficiency first principle is applied. In this way, the project achieves not only the improvement of the energy efficiency of smart buildings through the reduction of their carbon footprint, but also their contribution to the stability of the electricity grid and to sustainability in general.

The project explores electrification and decarbonisation technologies for buildings, adapting them to high levels of Technology Readiness (TRL 6-8), making them commercially exploitable. The technologies involved in META BUILD are Heat Pumps (HPs), Photovoltaic-Thermal Collectors (PVT) and Storage Systems (thermal and second-life batteries). In addition, the project includes the development and application of digital tools (AI – Digital twins) for monitoring and managing a building's energy performance in real time, as well as the integration of additional functions such as operation and predictive maintenance of systems, forecasting of energy consumption, monitoring of thermal comfort, etc.

In particular, META BUILD will explore commercially exploitable electrification solutions for residential and commercial buildings in Austria, Croatia, France, Greece, Italy and Spain. These buildings will operate as pilot buildings (Front Runners) and have been strategically selected across different countries and climate zones in order to address the complexity and challenges of different building typologies.

The technological solutions to be developed will be extended to additional buildings - Replication Multipliers - in Greece, Bulgaria, France, Germany, Latvia, Poland and Spain. This phase will also include the evaluation of the interactions between buildings and local energy infrastructures, guided by policy makers, decision makers and relevant stakeholders.

Through its participation in the META-BUILD project, the Municipality of Thessaloniki will integrate specific full-electrification and energy-monitoring technologies into selected school buildings, as determined through the evaluation of the technical solutions under development as well as the energy

needs of the buildings to be included. The main criteria for selecting the proposed technologies were their potential for replication in the remaining municipal buildings, as well as the degree of improvement in energy efficiency of the selected buildings - factors that will be further explored and evaluated during the completion phase of the project. In particular, the technologies to be applied within the framework of META-Build are the following:

- 1) Electrification Technologies for Thermal Energy Production.
- 2) Open and modular smart Energy Management and Monitoring Systems.

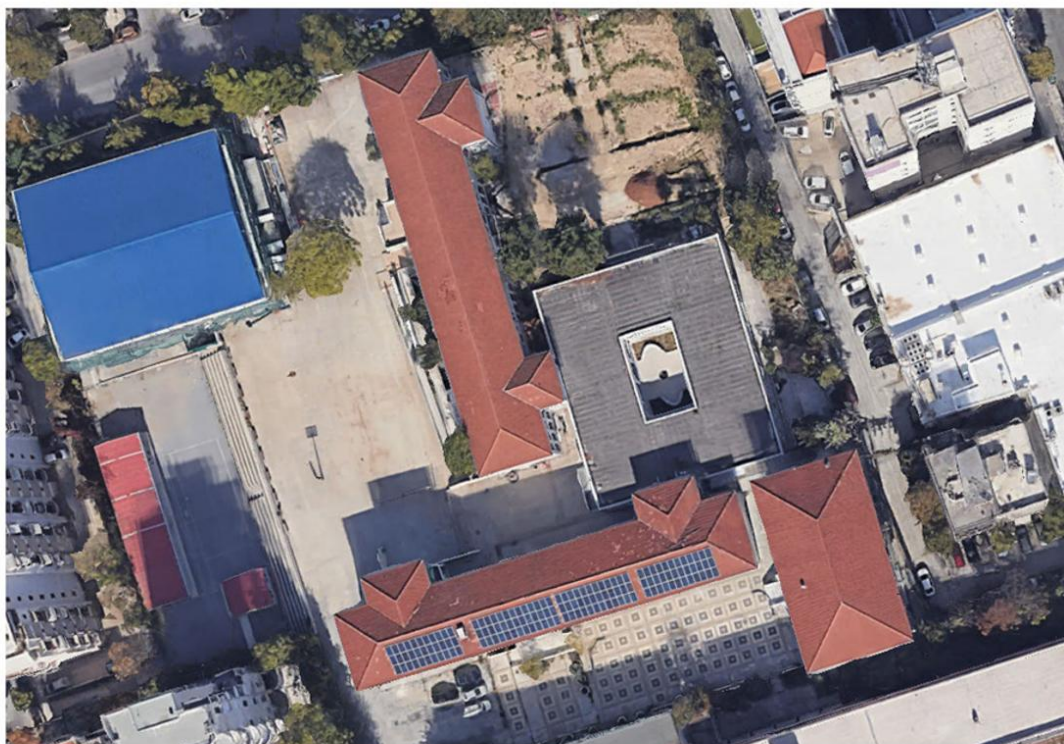
In the context of the current project, the Municipality of Thessaloniki is working closely with the energy provider ZENITH and the Institute of Communication and Computer Systems (ICCS), a research unit of the School of Electrical and Computer Engineering of the National Technical University of Athens (NTUA), jointly examining the technical feasibility of the proposed replication projects.

More information about META BUILD can be found on its official website <https://www.meta-build.eu/>, while additional information regarding the progress of the project is available on the social media X – Facebook – LinkedIn – YouTube (the relevant links are available on the project website).



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Photos of school units participating in META-Build



Kleanthous School Complex



1st – 8th Kindergarten of Thessaloniki