



The use case describes how users of legacy natural gas boilers can upgrade their heating systems through a cost-effective IoT controller, while enabling their participation in energy efficiency services to the natural gas supplier. The core innovation of the proposed concept builds on the interconnection of major consuming legacy heating devices with the gas network, through the seamless integration of the domx heating controller, towards upgrading existing and long life-cycle building equipment to higher levels of smartness. Targeted devices include residential heating devices operating on natural gas, supporting different types of control modes. The system is interconnected with a cloud-based energy management system that constantly collects, stores and analyses the data from connected heating devices. The heating controllers are attached with the boilers of pilot users to enable smart and remote heating control, gas consumption estimation and communication with cloud energy management services over Wi-Fi. The user can interact with the upgraded boiler, both through the existing thermostat and the smartphone application, providing climate comfort limits and collecting real-time feedback on the boiler operation.



## TARGET GROUPS

Energy Suppliers, ESCOs, Citizen Energy Communities (CECs) and Renewable Energy Communities (RECs)



**Athens, Thessaloniki,  
Larisa, Trikala, Volos,  
Greece**

## CONTACTS



Stratos Keranidis, domx  
[stratos@domx.io](mailto:stratos@domx.io)  
Athanasios Papakonstantinou, Heron  
[apapakonstantinou@heron.gr](mailto:apapakonstantinou@heron.gr)

Visit our main webpage:  
[www.ieecp.org/projects/ineexs](http://www.ieecp.org/projects/ineexs)

Use and follow #InEEExS on  
social media:



## THE ROLE OF DISTRIBUTED LEDGER TECHNOLOGIES AND MEASUREMENT REPORTING VERIFICATION



Measurement Reporting Verification (MRV) is used to monitor, calculate and report the achieved metered energy savings, as captured by the smart heating controllers. Since energy savings cannot be directly measured, they will be determined by comparing measured energy consumption or demand before and after the implementation of an energy efficiency measure (EEM), making suitable adjustments for changes in conditions. Moreover, the MRV process will rely on estimating the consumption of the baseline mode through an ML-assisted simulation model, which enables the calculation of the estimated energy savings in comparison with the applied EEMs, over the entire heating season.

The Distributed Ledger Technologies (DLT) implementation will rely on the Energy Web Chain, the blockchain-based platform supporting the development of new energy services. It will build on the MRV calculated energy savings and will be used as input to implement smart “Pay 4 Performance” contracts for calculating the repayment of the initial investment per consumption point. The basis of the repayment will come from the gains of the Energy Supplier that will be derived through the satisfaction of their energy efficiency obligations following the EEOS definition in EED Article 7.

## BENEFITS

-  Reduced energy consumption, costs and CO2 emissions.
-  No up-front investment needed.
-  Improved customer trust through consumption transparency.
-  Quantified aggregate impact of large consumer portfolios and verified way to calculate energy savings.
-  Improved competitive edge in the energy service market.