



# PRECEPT

Less Energy > Smarter Buildings

Project Acronym: **PRECEPT**

Project Title: **“A novel decentralized edge-enabled PREsCriptivE and ProaCTive framework for increased energy efficiency and well-being in residential buildings”**

## Project Factsheet



This project has received funding from the European Union’s Horizon 2020 research and innovation programme under **grant agreement No 958284**



## LIST OF BENEFICIARIES

Short Name	Full Name	Country
WVT <sup>1</sup>	WATT AND VOLT A.E.	Greece
CERTH	Centre for Research and Technology Hellas	Greece
KTU	Kaunas University of Technology	Lithuania
FRC	Frederick Research Center	Cyprus
CLEO	Cleopa GmbH	Germany
NURO	Nuromedia	Germany
OdinS	Odin Solutions S.L.	Spain
DEMO	DEMO Consultants B.V.	The Netherlands
ASI	Austrian Standards International	Austria
LCII	LC Innoconsult International	Hungary
PSACEA	STATE HIGHER EDUCATIONAL INSTITUTION PRYDNIPROVSKA STATE	Ukraine
CON	Contecht GmbH	Germany
STROITEL-P	PRIVATE CONSTRUCTION AND ASSEMBLY ENTERPRISE	Ukraine
MIWENERGIA	MY ENERGIA ONER S.L.	Spain
POLIMI	Politecnico di Milano	Italy

---

<sup>1</sup> Coordinator



## MAIN PROJECT INFORMATION

<b>Coordinator:</b>	WATT AND VOLT S.A., GREECE (WVT)
<b>Contact Person:</b>	Konstantinos Arvanitis, k.arvanitis@watt-volt.gr
<b>Duration:</b>	01/10/2020 – 30/9/2023
<b>Total Budget:</b>	7.654.025,00 €
<b>Total EU Contribution:</b>	6.053.667,50 €
<b>Agreement No:</b>	958284
<b>Programme:</b>	Technologies enabling energy-efficient systems and energy-efficient buildings with a low environmental impact
<b>Topic:</b>	LC-EEB-07-2020 - Smart Operation of Proactive Residential Buildings (IA)
<b>Call:</b>	H2020-NMBP-ST-IND-2020-singlestage

## PROJECT DESCRIPTION

Energy consumption in buildings has been decreasing since 2008, mainly due to efforts observed in the residential sector and policy measures, as well as higher energy prices and the recession. The deployment and operation of proactive residential buildings will soon become yet another reason. The EU-funded PRECEPT project will facilitate the smooth and almost zero operational costs transformation of conventional residential buildings into highly efficient proactive residential buildings. It is tapping into this new framework and is proposing a Pred(scr)ictive and Proactive Building Energy Management System (PP-BMS). By making buildings smarter as regards energy management systems, the project will develop new sustainable business models for transforming traditional reactive buildings into proactive buildings.

## OBJECTIVE

PRECEPT ambitiously aims to set the grounds for the deployment and operation of proactive residential buildings. The proposed framework introduces a “plug-n-play” Pred(scr)ictive and Proactive building energy management system (PP-BMS) installed locally at building level, at the Edge-Enable Proactiveness (EEP) device. The proposed PP-BMS is self-adapted, self-learned, -managed, -monitored, -healing and -optimized, requiring no (or minimum) installation costs and no maintenance. PP-BMS transform traditional reactive buildings to proactive ones, increasing their performance (both energy efficiency and occupants’ well-being), exploiting RES, storage, forecasts and energy tariffs. PRECEPT also targets to the development of a real-time digital representation of the intelligent proactive residential buildings by employing 6D BIM technology. Further to that, a set of novel indicators leveraging on the smart readiness rationale will be introduced for rating the Smart Proactiveness of buildings. The proposed indicators will enable the introduction of a reliable framework under which the comparative assessment of the level of smartness and proactiveness of buildings can be regulated and assessed. Also, PRECEPT approach will deliver advanced data visualizations, utilizing big-data and visual analytics techniques, which in conjunction with a social collaboration platform will engage stakeholders to exchange best-practices. Interaction with the grid will be supported in a secured (Hyperledger Fabric) manner through the decentralized EEP device, supporting the implementation of D/R strategies. To maximize its potential impact, PRECEPT demonstrates novel sustainable business models for rendering traditional reactive buildings to proactive buildings that go beyond the energy-related benefits and cost-optimal analysis but include occupants’ well-being, and other services. PRECEPT framework will be demonstrated in relevant environments in 5 use cases, including 250 apartments.