March 2022

Smart Buildings EU-funded Innovations

The SmartBuilt4EU project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 956936.

Foreword
by the European Commission

European buildings generate 36% of the EU's greenhouse gas emissions, making them a key element of the Europe's strategy to achieve climate neutrality by 2050. As nearly 75% of the European buildings are energy inefficient, the European Green Deal is targeting the building sector's tremendous potential for energy savings through the Renovation Wave strategy.

Smarter buildings can not only complement renovation focusing on the building envelope or energy consuming equipment to make buildings energy performance even higher, but also reach buildings where renovation cannot be contemplated. Europe is currently preparing to introduce a Smart Readiness Indicator to inform and build trust in the benefits of smart buildings, including increased comfort, positive environmental impacts or financial gains.

The European Commission has been supporting innovation and market uptake of smart buildings technologies and services by trying to improve awareness and acceptance of building occupants, interoperability between devices and systems, energy optimisation within and between buildings, energy services offered to consumers, or the integration of building flexibility with energy networks.

In November 2020, the project SmartBuilt4EU started, with the objective of supporting and consolidating the Smart Building Innovation Community. In order to unlock the full potential of smart buildings in terms of innovation, energy transition and jobs, SmartBuilt4EU aims to break silos and increase exchanges between innovation, markets and policy.

This brochure contributes to identify innovation leaders demonstrating new technologies and approaches, bringing down barriers or sharing good practices among recent EU-funded projects.

European Commission
European Climate, Infrastructure and Environment Executive Agency (CINEA)

Foreword
by the SmartBuilt4EU Partners

The SmartBuilt4EU project Partners are pleased to introduce the second edition of the "Smart Buildings EU-funded Innovations" brochure, which reading we hope you will enjoy.

SmartBuilt4EU is an EU-funded project that aims, in particular, at supporting the innovation ecosystem in the domain of smart buildings through concrete networking and communication actions. One of these actions, which is directly linked to the present publication, consists in highlighting and promoting past or ongoing initiatives, projects and technologies, which make the Smart Building sector and related topics evolve and progress.

In addition, SmartBuilt4EU is strongly related to the last developments of the Smart Readiness Indicator (SRI) - a common EU scheme introduced by the 2018 European Energy Performance of Buildings Directive (EPBD) for rating the smart readiness of buildings - and to the seven "Impact criteria" that it has defined and that will be detailed in the following pages. SmartBuilt4EU will indeed coordinate the Smart Buildings Innovation Community's contributions to the SRI promotion, experimentation and implementation.

Within this framework, this brochure provides a portfolio of synthetic factsheets concerning 69 EU-funded projects, which have been identified and selected for their particular relevance with the Smart Building topic. They are organised by alphabetical order and include an executive summary, a description of the consortium, general information about the duration and budget as well as a link to the projects' websites. In addition, each factsheet indicates which of the seven SRI impact criteria are concerned by the project.

This brochure will be updated in 2023, so as to include a wider set of newly identified projects.

The SmartBuilt4EU Partners

Contents

" Smartness of a building

REFERS TO

the **ability** of a building or its systems to **sense, interpret, communicate** and **actively** respond in an **efficient manner** to **changing conditions.**

THIS IS IN RELATION TO

the **operation** of **technical building systems** or the **external environment** (including energy grids) and to **demands** from **building occupants**. " [1]

Background

A Smart Readiness Indicator for buildings

Smart technologies in buildings can be a cost-effective means to assist in creating healthier and more comfortable buildings with a lower energy use and carbon impact. Smart technologies can also facilitate the integration of renewable energy sources in future energy systems.

In the 2018 revision of the European Energy Performance of Buildings Directive (EPBD), the potential of smart technologies in the building sector was heavily emphasised. As part of this focus, the EPBD introduced the concept of a "Smart Readiness Indicator" (SRI): a **common EU scheme for rating the smart readiness of buildings**.

The SRI examines the technological readiness of buildings across three main pillars:

- to interact with their occupants,
- to interact with connected energy grids
- and to operate more (energy-)efficiently.

The aim of the SRI is to raise awareness of the benefits of smarter building technologies and make their added value more tangible for building users, owners, tenants, and smart service providers. It seeks to support technology innovation in the construction sector and create an incentive for the integration of cutting-edge smart technologies in buildings.

The methodology for calculating the SRI is based on the assessment of smart-ready services available or planned at design stage in a building or building unit, and of additional smart-ready services that are considered relevant.

In this brochure, each 'smart building'-related innovation project is categorized by these impact criteria depending on their focus.

Seven impact criteria

A smart-ready service can provide several positive impacts to the building, its users, and the energy grid. The SRI scheme proposes seven impact criteria as follows:

ENERGY EFFICIENCY

This category refers to the impacts of the smart-ready services on energy saving capabilities. The SRI rating does not consider the whole energy performance of buildings, but only the contribution of the smart-ready technologies, for instance resulting from better control of room temperature settings.

MAINTENANCE AND FAULT PREDICTION

This impact category refers to automated fault detection and diagnosis. This has the potential to significantly improve maintenance and operation of technical building systems. It also has potential impacts on the energy performance of the technical building systems by detecting and diagnosing inefficient operations.

COMFORT

This category refers to the impacts of services on occupants' comfort. Comfort refers to conscious and unconscious perception of the physical environment, including thermal, acoustic, and visual comfort. For instance, provision of sufficient lighting levels without glare.

CONVENIENCE

This category refers to the impacts of services on convenience for occupants. In other words, the extent to which services "make life easier" for the occupant. For instance through technical building systems requiring fewer manual interactions.

HEALTH, WELL-BEING AND ACCESSIBILITY

This category refers to the impacts of services on the well-being and health of occupants. For instance, smarter controls can deliver an improved indoor air quality compared to traditional controls, thus raising occupants' well-being, with a commensurate impact on their health.

INFORMATION TO OCCUPANTS

This impact category refers to the ability of the building and its systems to provide information on building operation to occupants or to facility managers. For instance, real time information on renewable energy conversion, or actual indoor air quality.

ENERGY FLEXIBILITY AND STORAGE

This category refers to the impacts of services on the energy flexibility potential of the building: i.e. the capacity to shift energy demands in time to create a better match between energy demand and energy supply (especially in case of intermittent renewable energy sources). The scheme does not solely focus on electricity grids, but also includes flexibility offered to district heating and cooling grids.

References for further reading

- [1] Final report on the technical support to the development of a smart readiness indicator for buildings ; Published: 2020-09-18; ISBN 978-92-76-19197-1; DOI 10.2833/41100; Catalogue number MJ-03-20-335-EN-N
- Commission Delegated Regulation (EU) 2020/2155 of 14 October 2020 supplementing Directive (EU) 2010/31/EU of the European Parliament and of the Council by establishing an optional common European Union scheme for rating the smart readiness of buildings (Text with EEA relevance) – C/2020/6930
- Commission Implementing Regulation (EU) 2020/2156 of 14 October 2020 detailing the technical modalities for the effective implementation of an optional common Union scheme for rating the smart readiness of buildings (Text with EEA relevance) – C/2020/6929

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

4RinEU

Robust and Reliable technology concepts and business models for triggering deep Renovation of Residential buildings in EU

4RinEU provides new products, tools, and strategies to encourage large-scale deep renovation of existing buildings, fostering the use of renewable energies, and providing reliable business models.
It's solutions minimize failures in design and implementation, manage different stages of the deep renovation process, and provide information on energy, comfort, users' impact, and investment performance.

Website **4rineu.eu**

Coordinator EURAC, Italy

Partners

Germany: Gumpp & Maier Gmbh
Italy: Aderma Srl, Thermics Energie Srl, R2M Solution Srl
Netherlands: Trecodome Bv, Stichting Woonzorg Nederland
Norway: Oslo Kommune, Sintef As
Spain: Sistemes Avancats De Energia Solar Termica Sccl – Aiguasol, Acciona Construccion Sa, Agencia De L'habitatge De Catalunya
United Kingdom: IES - Integrated Environmental Solutions Limited

Start date **Oct. 2016**
Duration **57 months**
Status **Completed**

Total budget **4,6 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

ACCEPT

Active Communities & Energy Prosumers for the Energy Transition

The ACCEPT project intends to develop and deliver a digital toolbox that allows energy communities to exploit the flexibility of energy resources within their portfolio to offer innovative digital services and access revenue streams that can financially support their functions and secure their sustainability and effectiveness. The ACCEPT framework will be demonstrated in four pilot sites in Greece, the Netherlands, Spain, and Switzerland.

Website **accept-project.eu**

Coordinator **Hypertech, Greece**

Partners

Austria: EEE
Cyprus: Witside
Denmark: GECO
Greece: Hypertech, QUE, CERTH, Mytilineos
Ireland: UCC
Italy: RINA-C
Netherlands: ESB, EDBR
Spain: CIRCE, MIWenergia, LaSolar, Viesgo
Switzerland: AEM

Start date **Jan. 2021**
Duration **42 months**
Status **In Progress**

Total budget **7,6 M€**

accept
active communities & energy prosumers for the energy transition

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

Auto-DAN

Deploying Augmented intelligence solutions in EU buildings using Data analytics, an interoperable hardware/software Architecture and a Novel self-energy assessment methodology

Auto-DAN aims to enable small-to-medium-sized buildings to optimize their energy consumption and to provide a self-assessment and self-optimizing system by implementing a flexible hardware infrastructure and augmented intelligence. Auto-DAN accelerates investments in sustainable energy by providing a live self-energy assessment incorporating monitoring and smart controls based on the quality of systems installed and users' operational habits.

Website **autodan-project.eu**

Coordinator IES R&D - Ireland

Partners **Ireland:** MSEMICON Teoranta, O Cualann cohousing alliance company limited by guarantee, Technological University of Dublin
Italy: Civiesco SRL, Delta Ecopolis – Società Cooperativa, Flairbit SRL, RINA Consulting, Schneider Electric SPA
Spain: Fundacion Cartif, Universidad de Burgos
Turkey: Arcelik A.S.

Start date **Oct. 2020**
Duration **48 months**
Status **In Progress**

Total budget **5,6 M€**

Auto-DAN

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

BENEFFICE

Energy Behaviour Change driven by plug-and-play-and-forget ICT and Business Models focusing on complementary currency for Energy Efficiency for Households

BENEFFICE aims to reduce wasted energy by changing the daily behaviour of people in their homes. Here's how it works: Users homes are monitored and save energy. BENEFFICE measures it and users get rewarded in €O2s, which can be spent using a neo-banking application. BENEFFICE launched €O2, an alternative currency, which aims to support reduction of energy waste in houses, through a system of rewards for its users.

Website **beneffice.eu**

Coordinator European Dynamics Belgium SA.

Partners

Austria: VerbundSolutions4Customers
Denmark: GECO Global
France: Compte CO2
Greece: National Technical University of Athens, Kafkas
Spain: Eurofunding

Start date **Nov. 2017**
Duration **42 months**
Status **Completed**

Total budget **2 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

BEYOND

A reference big data platform implementation and AI analytics toolkit toward innovative data sharing-driven energy service ecosystems for the building sector and beyond

BEYOND develops & offers a Big Data platform & a set of technologies that allow energy value chain actors to search, find & utilize data generated by buildings. By using the platform, these actors can run analytics & simulations that are needed to design a project & exploit them during the real-time run time of the buildings so as to optimize their operation & energy performance.

Website **beyond-h2020.eu**

Coordinator UBITECH, Greece

Partners

Greece: Ubitech, IGM, Mytilinaios
Finland: VTT, Forum Virium
Spain: Circe, Cuerva, Urbener
Cyprus: Suite5
Croatia: KONCAR
France: Artelys
Serbia: Belit, Beogradske elektrane

Start date **Dec. 2020**
Duration **36 months**
Status **In Progress**

Total budget **5,2 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

BIM2TWIN

Digital twin platform for efficient construction management

BIM2TWIN aims to build a Digital Building Twin (DBT) platform for construction management that implements lean principles to reduce operational waste of all kinds. The platform provides full situational awareness and an extensible set of applications like monitoring of schedule, quantities & budget, quality, safety, and environmental impact.

Website **bim2twin.eu**

Coordinator CSTB, France

Partners

Denmark: Aarhus Universitet
Finland: FIRA Group Oy
France: CSTB, INRIA, SPADA Construction, Orange SA
Germany: Technische Universitaet Muenchen, Ruhr-Universitaet Bochum, Siemens Aktiengesellschaft
Israel: Technion - Israel Institute of Technology, INTSITE Ltd
Italy: Universita Politecnica delle Marche, Unismart
Spain: Tecnalia, Acciona, IDP Ingeneria y Arquitectura Iberia SL
United Kingdom: University of Cambridge

Start date **Nov. 2020**
Duration **42 months**
Status **In Progress**

Total budget **6 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

BIM4EEB

BIM based fast toolkit for Efficient rEnovation of residential Buildings

BIM4EEB aims to foster the renovation industry by developing an attractive and powerful BIM management system with BIM-based toolset to support designers, construction and service involved in building retrofitting. The BIM management system and tools will also facilitate the decision making due to the exploitation of augmented reality and the use of updated digital logbooks.

Website **www.bim4eeb-project.eu**

Coordinator Bruno Daniotti from the Politecnico di Milano, Italy

Partners

Belgium: Architects' Council of Europe (ACE)
Cyprus: Suite5 Data Intelligence Solutions Limited
Germany: Technische Universität Dresden
Finland: Caverion Suomi Oy, VisuaLynk Oy, Teknologian tutkimuskeskus VTT Oy
Ireland: University College Cork, National University of Ireland
Italy: One Team Srl, Regione Lombardia, Azienda Lombarda per l'Edilizia Va-Co-MB
Poland: Busto Arsizio and Prochem
Spain: Solintel M&P
Sweden: Research Institutes of Sweden (RISE), CGI Sverige AB

Start date **Jan. 2019**
Duration **41 months**
Status **In Progress**

Total budget **6,9 M€**

BIM4EEB
BIM based fast toolkit for Efficient rEnovation in Buildings

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

BIM4REN

Building Information Modelling based tools & technologies for fast and efficient Renovation of residential buildings

BIM4REN adapts 3 workflows of the construction sector segmentation to provide BIM developments for each, focusing on renovation of the EU building stock. B4R digital ecosystem will be accessible via a web-based One Stop Access Platform, where depending on user profile needs, best practices from a dedicated database and links to the different tools and services will be provided on differentiated access schemes underpinned by new business models.

Website **bim4ren.eu**

Coordinator NOBATEK INEF-4, France

Partners

Belgium: European Builders Confederation
France: NOBATEK INEF-4, CSTB, EDF, WISEBIM, Logirep, EnerBIM
Germany: AEC3, RWTH, FRAUNHOFER ISE
Ireland: IES
Italy: R2M Solution, GBC Italy, CMB Capri, ATI Project
Lithuania: Vilnius Gedimas
Netherlands: TNO
Romania: TERMOLINE
Spain: TECNALIA, COMET, Kursaal
UK: EKODENGE

Start date **Oct. 2018**
Duration **48 months**
Status **In Progress**

Total budget **6,9 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

BIM-SPEED

Harmonised Building Information Speedway for Energy-Efficient Renovation

BIM-SPEED project aims to accelerate the energy-efficient renovation of residential buildings across the EU through the implementation of state-of-the-art BIM solutions with a real impact on the energy performance of buildings. Through innovative BIM tools and methodologies, BIM-SPEED aims to facilitate deep renovation processes, in a shorter time, with reduced costs, better quality and higher performance.

Website bim-speed.eu

Coordinator Technische Universität Berlin, Germany

Partners

Belgium: REHVA, EBC, FIEC, ACE-CAE
Bulgaria: Architectural Spies
France: CSTB
Germany: TUB, Hochtief, PB40, Metabuild
Italy: UNIVPM, STRESS
Netherlands: DEMO, UN Studio, Erasmus University
Poland: Mostostal, Fasada,
Romania: Arcadis
Spain: CARTIF, CYPE, KREAN, Visesa

Start date **Nov. 2018**
Duration **48 months**
Status **In Progress**

Total budget **7 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

Build-in-Wood

Sustainable wood value chains for construction of low-carbon multi-storey buildings from renewable resources

The project will develop a sustainable and innovative wood value chain for the construction of multi-storey wood buildings. It will develop the materials and components as well as structural systems and façade elements for both new construction and retrofitting applications. The project will deliver a Design Guide on materials and components and will demonstrate digital case projects and a test system for prototypes.

Website **www.build-in-wood.eu**

Coordinator TEKNOLOGISK INSTITUT, Denmark

Partners

Austria: Proholz Tirol, Rtd Services
Canada: Ellisdon Corporation
Denmark: Scandi Byg, Adserballe & Knudsen, Alexandra Instituttet
Germany: Knauf Gips, Hsbcad Gmbh
Greece: National Technical University of Athens
Italy: Distretto Tecnologico Trentino Scarl, Rotho Blaas Srl, Piva Franco, Universita Degli Studi Di Siena
Norway: Norsk Treteknisk Institutt Forening
Romania: Urbasofia Srl, Agentia Metropolitana Pentru Dezvoltare Durabila Brasov Asociatia
Spain: Bimetica Parametric Design Services
Sweden: C.F. Moller Sverige Ab
United Kingdom: Waugh Thistleton Architects Limited
Finland: STORA ENSO OYJ

Start date **Sep. 2019**
Duration **48 months**
Status **In Progress**

Total budget **10,3 M€**

BUILD IN WOOD

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

BuiltHub

Dynamic EU building stock knowledge hub

BuiltHub will define a roadmap for durable data flow to characterise the EU building stock by developing an organised and inclusive data collection method, a structured web-based datahub, and long-lasting data flow through a benefits-based engagement strategy addressing data and metadata providers and users. The strategy will be applied through value information services tailored to users.

Website **www.builthub.eu**

Coordinator Eurac Research, Italy

Partners

Austria: TU Wien
Belgium: BPIE
Germany: ICLEI-EU
Greece: Sympraxis
Spain: CARTIF, NTT Data
Sweden: Research Institutes of Sweden (RISE)

Start date **Oct. 2020**
Duration **48 months**
Status **In Progress**

Total budget **2,2 M€**

BuiltHub

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

CHARGED

Enjoy Energy Saving @ Work

SavE@W service: (a) monitors energy consumption at the level of circuits (and even appliances) as well as each employee and commonly used facilities or energy consuming devices and infrastructure (e.g. Lifts) and (b) a gamified mobile app attracts and engages employees in energy savings actions by reacting to actual actions.

Website **www.charged-project.eu**

Coordinator European Dynamics Belgium SA.

Partners

Germany: BOSCH Software Innovations
Greece: Plegma Labs Technologikes Lyseis Anonymos etaireia, Athens University of Economics and Business, Dimos Athinaion Epicheirisi Michanografisis
Ireland: Wattics Limited
Luxembourg: National Museum of History and Art
Spain: Institut Catala D'ENERGIA

Start date **Mar. 2016**
Duration **36 months**
Status **Completed**

Total budget **2 M€**

charged

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

Chess Setup

Combined HEat SyStem by using Solar Energy and heaT pUmPs

The Chess Setup project has designed, implemented and promoted a reliable, efficient and profitable system able to supply heating and domestic hot water from renewable sources to both new and existing buildings. It is based on the optimal combination of solar energy production, heat storage and a heat pump in a single system managed by an intelligent monitoring and control system.

Website **www.chess-setup.net**

Coordinator Urban Ecology Agency of Barcelona, Spain

Partners

France & Spain: Edenway
Germany: Eurogrant
Netherlands: Renne Wansdronk
Spain: Lavola Anthesis, Wattia Innova, Ajuntament de Sant Cugat del Vallès, Veolia Serveis Catalunya
UK: Ulster University, Electric Corby

Start date **Jun. 2016**
Duration **40 months**
Status **Completed**

Total budget **3,7 M€**

CHESS SET UP

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

COLLECTiEF

Collective Intelligence for Energy Flexibility

COLLECTiEF aims to implement an interoperable and scalable energy management system to smart up buildings and their legacy equipment on large scale. Enhancing the energy flexibility on both supply and demand sides can boost the movement towards sustainable and resilient urban energy solutions, especially in high-energy dense and heterogeneous urban areas. The project responds to this urgent need to review existing buildings' energy strategy.

Website **collectief-project.eu**

Coordinator NORGES TEKNISKNATURVITENSKAPELIGE UNIVERSITET NTNU, Norway

Partners

Cyprus: The Cyprus Institute
France: CSTB
Hungary: Geonardo Environmental Technologies
Italy: CETMA, Energy@Work, LSI Lastem, R2M Solution, Teicos Ue
Norway: Alesund Kommune, EM Systemer
Sweden: NODA, Lunds Universitet, Virtual Manufacturing

Start date **Jun. 2021**
Duration **48 months**
Status **In Progress**

Total budget **4,6 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

D^2EPC

Next-generation Dynamic Digital EPCs for Enhanced Quality and User Awareness

D^2EPC aspires to deliver the next-generation of dynamic Energy Performance Certificates for the operational and regular assessment of buildings' energy performance through a set of cutting-edge digital design and monitoring tools and services. The aim is to trigger energy-efficient behavioral change and stimulate smart buildings. The D^2EPC platform will enable the issuance of next-generation EPCs on a regular basis, along with additional services.

Website **d2epc.eu**

Coordinator Centre for Research and Technology Hellas, Information Technologies Institute, Greece

Partners

Austria: ASI, AEA
Cyprus: FRC
Germany: CLEO, SEC
Greece: CERTH, GSH, HYP, IsZEB
Lithuania: KTU
Netherlands: DEMO
Spain: SGS, UNE

Start date **Sep. 2020**
Duration **36 months**
Status **In Progress**

Total budget **2,9 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

domOS

Operating System for Smart Services in Buildings

domOS defines guidelines for an open, secure, privacy-enabled, multi-service IoT ecosystem for smart buildings. IoT platforms and applications operated by different parties can be integrated seamlessly thanks to interoperability standards (e.g. W3C) and to common nomenclatures (e.g. SAREF). Compliant services for energy efficiency, prosumers feedback and flexibility are developed and demonstrated.

Website **www.domos-project.eu**

Coordinator Haute Ecole Spécialisée de Suisse Occidentale (HES-SO), Switzerland

Partners

Czech Republic: FENIX TNT
Denmark: Aalborg Universitet (AAU), Neogrid Technologies, Suntherm APS, Aalborg Energi Holding AS (AFE)
France: Electricité de France (EDF)
Slovenia: INEA DOO
Switzerland: Centre Suisse d'Électronique et de Microtechnique (CSEM), aliunid, OIKEN

Start date **Sep. 2020**
Duration **36 months**
Status **In Progress**

Total budget **5 M€**

domOS

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

DR-BOB

Demand Response in Block of Buildings

DR-BOB demonstrated that up to 23% reduction in energy demand and up to 37.5% reduction in the difference between peak and minimum demand is achievable. The project developed a scalable energy management system applicable to blocks of buildings and delivered DR Technology Readiness Levels, a baseline method for DR forecasting and several tested products e.g. the Local Energy Manager.

Website cordis.europa.eu/project/id/696114

Coordinator Teesside University, United Kingdom

Partners

France: CSTB, Nobatek, GridPocket
Italy: R2M Solution Srl, Fondazione Poliambulanza,
Netherlands: DuneWorks
Romania: Servelect, Universitatea Technica Cluj-Napoca
United Kingdom: Siemens

Start date **Mar. 2016**
Duration **42 months**
Status **Completed**

Total budget **5,1 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

DRIMPAC

Unified DR interoperability framework enabling market participation of active energy consumers

DRIMPAC aims to provide a unique and universal technological framework that facilitates the end-to-end interoperability between the energy markets and multiple building typologies (covering over 90% of building stock) along with the extraction/delivery of demand flexibility via environmental monitoring and intelligent algorithms, while preserving comfortable and healthy living conditions.

Website **www.drimpac-h2020.eu**

Coordinator CERTH, Greece

Partners

Austria: E7
Cyprus: UCY
France: Sorea
Germany: KIT, SWT
Greece: Hypertech
Italy: JRC, STAM SRL
Romania: Siemens SLR
Spain: MyEnergia

Start date **Sep. 2018**
Duration **48 months**
Status **In Progress**

Total budget **4,6 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

E2VENT

Energy Efficient Ventilated Façades for Optimal Adaptability and Heat Exchange enabling low energy architectural concepts for the refurbishment of existing buildings

The EVENT system is an external thermal building refurbishment module with external cladding and air cavity that embeds an Efficient anchoring system, a Smart Modular Heat Recovery Unit for the air renewal while recovering energy losses and a Latent Heat Thermal Energy Storage based on phase change materials for heating and cooling peak saving. Both controlled on real time by a smart management system.

Website **www.e2vent.eu**

Coordinator NOBATEK/INEF4, France

Partners

Belgium: European Aluminium
Czech Republic: FENIX TNT
Greece: Aristotelio Universitly of Thessalonikis, ELVAL COLOR
Italia: RINA
Spain: ACCIONA, CARTIF

Start date **Jan. 2015**
Duration **42 months**
Status **Completed**

Total budget **3,4 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

ebalance-plus

Energy balancing, and resilience solutions to unlock the flexibility and increase market options for distribution grid

The ebalance-plus project develops and demonstrates smart-grid solutions (smart storage, V2G systems, SiC power inverters, P2H, control of CHP, IoT-based BMS, and scalable EMS platform) to upgrade buildings. It has also developed distributed energy resources and electric grids for integration in future flexibility markets, along with increasing the distribution grid reliability and resilience. Project demos are in progress in Italy, France, Spain, and Denmark, and testing starts in 2022.

Website **www.ebalanceplus.eu**

Coordinator CEMOSA, Spain

Partners

Denmark: Technical University of Denmark, ENFOR A/S
France: JUNIA
Germany: IHP, ESCI
Greece: EMTECH
Italy: University of Calabria
Poland: National Information Processing Institute
Portugal: MAGNUMCAP
Spain: AMPERE, University of Malaga, SOFTCRITS
Turkey: REENGEN
United Kingdom: TPS

Start date **Feb. 2020**
Duration **42 months**
Status **In Progress**

Total budget **9,5 M€**

ebalanceplus

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

ePANACEA

Smart European Energy Performance AssessmeNt And CErtificAtion

ePANACEA develops a holistic methodology for energy performance assessment and certification of buildings. ePANACEA comprises the creation of a prototype (the Smart Energy Performance Assessment Platform) making use of the most advanced techniques in dynamic and automated simulation modelling, big data analysis and machine learning, inverse modelling or the estimation of potential energy savings and economic viability check.

Website epanacea.eu

Coordinator CENER, Spain

Partners

Austria: EASt, TUWIEN
Belgium: VITO
Finland: VTT
Germany: IZES
Greece: CRES, SYMPRASIS
Spain: IDAE, EFINOVATIC, CENER

Start date **Jun. 2020**
Duration **36 months**
Status **In Progress**

Total budget **2,7 M€**

ePANACEA
Smart European Energy Performance Assessment & Certification

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

EPC4SES

EPC based Digital Building Twins for Smart Energy Systems

The EPC4SES project – EPC based Digital Building Twins for Smart Energy Systems – is utilizing input data needed for issuing asset based Energy Performance Certificates EPC to optimize planning and operational control of smart energy systems. In the project, six use cases were set up. Model-based prediction applications will be implemented as research prototypes with real data from the three pilot regions Andalusia, Berlin, and Salzburg/Vienna.

Website smartenergy.nu

Coordinator effiziente.st Energie- und Umweltconsulting e.U., Austria

Partners

Austria: effiziente.st, FH Salzburg
Germany: SEnerCon GmbH, Cleopa Gmbh
Norway: WRNI
Spain: WTG Wellness Telecom Group

Start date **Sep. 2019**
Duration **34 months**
Status **In Progress**

Total budget **1,3 M€**

EPC4SES
Digital Building Twins

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

EPC RECAST

New toolbox to assess building energy performance and retrofit needs

EPC RECAST sets a well-structured process and a toolbox supporting the evolution of the Energy Performance Assessment and Certification (focus on existing residential buildings). By enhancing EPCs usability, reliability, and comparability, and by linking them to renovation roadmaps and building digital notebooks, EPC RECAST can achieve unprecedented user-friendliness and user awareness about building performance.

Website **epc-recast.eu**

Coordinator CSTB, France

Partners

Belgium: REHVA
France: Bimeo, CSTB, EDF, ENGIE
Germany: Fraunhofer
Italy: Politecnico Milano, R2M Solution Srl
Luxembourg: LIST
Slovakia: ENBEE
Spain: Tecnalia

Start date **Sep. 2020**
Duration **40 months**
Status **In Progress**

Total budget **2,8 M€**

EPC RECAST
ENERGY PERFORMANCE CERTIFICATE RECAST

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

eTEACHER

end-users Tools to Empower and raise Awareness of Behavioural CHange towards EneRgy efficiency

eTEACHER aims to empower building users to achieve energy savings and improve comfort conditions. The solution is a set of ICT tools that collect data from buildings and users by an universal communication interface. This then processes data in several cloud services and provide tailored recommendations and information through an App that integrates gamification techniques and encourages behavioural change.

Website **www.eteacher-project.eu**

Coordinator CEMOSA, Spain

Partners

Finland: Granlund Oy
Germany: ASCORA GMBH, IFM Software GMBH, Fraunhofer Gesellschaft zur Foerderung Der Angewandten Forschung E.V, Steinbeiz Innovation GMBH
Italy: Fondazione Icons
Romania: ICPE SA
Spain: CEMOSA, Agencia Extremeña de la Energia, Laura Otero Insatalaciones
United Kingdom: De Monfort University, Nottingham City Council

Start date **Oct. 2017**
Duration **45 months**
Status **Completed**

Total budget **2 M€**

eTEACHER
Empowering Energy Education

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

EXCESS

FleXible user-CEntric Energy poSitive houseS

EXCESS showcases how to transform nearly-zero energy buildings into positive energy buildings (PEB). In four demonstration projects in Spain, Austria, Belgium & Finland, EXCESS introduces technical solutions enabling buildings to produce more renewable energy than they consume in different climate zones. With it's demo projects EXCESS seeks to test, validate, share and replicate PEB solutions across Europe.

Website **positive-energy-buildings.eu**

Coordinator Joanneum Research Forschungsgesellschaft mbH, Austria

Partners

Australia: Joanneum Research Forschungsgesellschaft mbH, AEE - Institute for Sustainable Technologies, BAR Vermögensverwaltungs GmbH, Thomas Schwarzl IT, NETxAutomation Software GmbH
Belgium: VITO, Prospex institute, Cordium Cvba
Cyprus: Suite5
France: DualSun
Finland: VTT, Gebwell Oy, Basso Building Systems Oy, Tom Allen Senera Oy
Greece: CGSoft
Germany: ICLEI Europe - Local Governments for Sustainability
Spain: CENER National Renewable Energy Centre of Spain, Agencia Andaluza de la Energia – AAE, TRYCSA, Urb-atelier
United Kingdom: MuoviTech

Start date **Sep. 2019**
Duration **48 months**
Status **In Progress**

Total budget **7,9 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

frESCO

New business models for innovative energy service bundles for residential consumers

frESCO aims to engage with ESCOs and aggregators and enable the deployment of innovative business models on the basis of novel integrated energy service bundles that properly combine and remunerate local flexibility for optimizing local energy performance both in the form of energy efficiency and demand side management under common Pay for Performance Contracts.

Website **www.fresco-project.eu**

Coordinator CIRCE, Spain

Partners

Austria: EI-JKU
Belgium: UBE
Croatia: KONCAR KET, KRK
Cyprus: S5
France: VOLT
Greece: UBITECH, VERD, IOSA
Italy: RINA-C
Spain: CARTIF, LCTE, COMSA

Start date **Jun. 2020**
Duration **42 months**
Status **In Progress**

Total budget **5,1 M€**

frESCO
new business models for innovative energy service bundles for residential consumer

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

GEOFIT

Deployment of novel GEOthermal systems, technologies and tools for energy efficient building retroFITting

GEOFIT is an integrated industrially driven action deploying cost-effective shallow geothermal solutions for energy efficient building retrofitting, developing innovative system components including but not limited to non-standard heat exchanger configurations, a novel hybrid heat pump, and a suite of heating and cooling components, all to be integrated at system level and designed to be applied in energy efficient building retrofitting projects.

Website **geofit-project.eu**

Coordinator R2M Solution, Italy

Partners

Austria: OCHSNER, Austrian Institute of Technology
Belgium: i.LECO
Germany: FAHRENHEIT
Finland: UPONOR
France: NOBATEK INEF-4
Italy: R2M Solution, CNR-ITAE, University of Perugia, IDS Georadar, SIART, CAREL
Ireland: NUI Galway, CFO
Spain: IDP, COMSA, Sant Cugat, CDP, EURECAT, COMET, UNE
Sweden: KTH, LTU
Netherlands: Groenholland

Start date **May 2018**
Duration **54 months**
Status **In Progress**

Total budget **9,9 M€**

GEOFIT SMART GEOTHERMAL

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

HEART

Holistic Energy and Architectural Retrofit Toolkit

The HEART toolkit incorporates different components and technologies, which cooperate to transform an existing building into a smart building.
In developing this toolkit, the project advances and improves energy efficiency and the use of renewable energies in buildings across Europe.

Website **heartproject.eu**

Coordinator Politecnico de Milano, Italy

Partners

Austria: Heliotherm
Belgium: REVOLVE, Housing Europe
Croatia: Stille Group
France: Est Métropole Habitat, ENTPE
Italy: EURAC Research, ACER, ZH
Slovenia: University of Ljubljana
Spain: CTIC, Garcia Rama
Switzerland: Quantis
United Kingdom: TPS, University of Southampton

Start date **Oct. 2017**
Duration **54 months**
Status **In Progress**

Total budget **6,6 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

Heat4Cool

Smart building retrofitting complemented by solar assisted heat pumps integrated within a self-correcting intelligent building energy management system

The Heat4Cool concept proposes innovative, efficient and cost-effective solutions that support EU energy efficiency policies through an optimal integration of relevant rehabilitation systems. The project develops, integrates and demonstrates an easy to install and highly energy efficient solution for building retrofitting. Heat4cool implement four benchmark retrofitting projects in four different European climates.

Website **www.heat4cool.eu**

Coordinator Politecnico di Milano - Department of Energy, Italy

Partners

Belgium: EHPA
Bulgaria: BALKANIKA
Germany: FAHRENHEIT
Greece: WATT + VOLT
Hungary: Thermowatt Ltd.
Poland: IZNAB SP
Spain: TECNALIA, SOLINTEL, SYMELEC
Switzerland: HOCHSCHULE LUZERN
United Kingdom: Sunamp Ltd, AES Ltd

Start date **Oct. 2016**
Duration **56 months**
Status **Completed**

Total budget **7,9 M€**

HEAT4COOL

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

HIT2GAP

Highly Innovative building control Tools Tackling the energy performance GAP

The HIT2GAP project has developed a new generation of building monitoring and control tools based on advanced data treatment techniques allowing new approaches to reduce the energy performance gap. HIT2GAP solution builds on existing measurement and control services that are embedded into a new open source software platform for performance optimization called BEMServer.

Website **cordis.europa.eu/project/id/680708** **www.bemserver.org**

Coordinator NOBATEK/INEF4, France

Partners

Cyprus: Cyric LTD
France: Bouygues Energies&Services, Université de Pau et des Pays de l'Adour, Evolution
Germany: Fraunhofer ISE
Greece: Apintech
Ireland: University of Galway, Cylon Controls, Enerit, Zutec
Italy: R2M Solution Srl, Abo Data
Poland: City of Warsaw, Mostostal
Spain: EURECAT, University of Girona, IK4-Tekniker, Giroa
Turkey: Ege University
United Kingdom: Building Research Establishment, University of Strathclyde

Start date **Sep. 2015**
Duration **48 months**
Status **Completed**

Total budget **7,9 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

HOLISDER

Integrating Real-Intelligence in Energy Management Systems enabling Holistic Demand Response Optimization in Buildings and Districts

HOLISDER introduces a Holistic DR Optimization Framework that enables significant energy cost reduction at building/consumer side. Additionally, small and medium sized buildings are introduced as major contributors to maintain the energy networks' stability in response to network constraints and conditions through deployment of implicit and hybrid DR schemes and optimized energy management.

Website **holisder.eu**

Coordinator TECNALIA Research & Innovation, Spain

Partners

Croatia: Koncar
Czech Republic: HONEYWELL
Finland: CAVERION
Greece: HYPERTECH, MYTILINEOS
Netherlands: TNO
Poland: ASM
Serbia: Belit, Beogradske Elektrane
Spain: ETRA I+D, Solintel
United Kingdom: KiWi Power

Start date **Oct. 2017**
Duration **42 months**
Status **In Progress**

Total budget **5 M€**

HOLISDER

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

Homes4Life

Certified smart and integrated living environments for ageing well

A huge share of the building stock is not adapted to permit us to age in our homes. Homes4Life addresses this challenge by defining the Homes4Life certification scheme to tackle end-users' needs and requirements through a life-course approach ensuring our homes support our changing needs and lifestyles as we move forward in life and allow us to stay active, participate in society and protect our health.

Website **www.homes4life.eu**

Coordinator TECNALIA, Spain

Partners

Belgium: Eurocarers, ECTP, AGE Platform Europe
France: Certivea, R2M Solution
Italy: Universita Politecnica Delle Marche
Netherlands: TNO, Uuniversiteit Utrecht

Start date **Dec. 2018**
Duration **27 months**
Status **In Progress**

Total budget **1 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

HYBUILD

Innovative compact hybrid storage systems for low energy buildings

HYBUILD developed two innovative compact hybrid electrical/thermal storage systems for buildings: one for the Mediterranean climate primarily meant for cooling energy provision, and one for the Continental climate primarily meant for heating and DHW production. The overall solution is controlled by a Smart Building Energy Management System (Smart BEMS).

Website **hybuild.eu**

Coordinator COMSA, Spain

Partners

Austria: AIT, FRESNEX GMBH, Ochsner Warmepumpen GMBH, PINK GMBH
Cyprus: Municipality of Aglantzia, University of Cyprus
Czech Republic: Mikrometal Sro
France: R2M Solution, NOBATEK/INEF4
Germany: AKG Verwaltungsgesellschaft, Fahrenheit
Greece: Daikin Air-conditioning Hellas SA, NTUA
Italy: EURAC, CNR, Engineering – Ingegneria Informatica Spa, STRESS
Spain: **Ajuntament almatret, Universidad de Lleida (UdL)**
Switzerland: CSEM

Start date **Oct. 2017**
Duration **54 months**
Status **Completed**

Total budget **6 M€**

HYBUILD
Hybrid Energy Storage for Buildings

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

iBECOME

Intelligent building asset control for comfort, energy and flexibility optimisation

iBECOME offers a paradigm shift in building energy efficiency by utilising IoT big data and advanced analytics. The project will demonstrate the functionality and viability of a virtual BMS platform deployed as a SaaS solution that can optimise the energy performance, comfort conditions and flexibility potential of buildings and facilities while allowing 3rd parties to interconnect for providing other energy or non-energy related services

Website **ibecome-project.eu**

Coordinator IES R&D, Ireland

Partners

Ireland: IES R&D, IRISH MANUFACTURING RESEARCH, ELECTRICTY EXCHANGE
Italy: CIVIESCO, RINA CONSULTING, SCHNEIDER ELECTRIC, ENER.GI
France: EOLYA, CEA
UK: IES LTD

Start date **Jun. 2020**
Duration **42 months**
Status **In Progress**

Total budget **4,9 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

InterConnect

Interoperable Solutions Connecting Smart Homes, Buildings and Grids

InterConnect is the name of the project that gathers 51 European entities to develop and demonstrate advanced solutions for connecting and converging digital homes and buildings with the electricity sector. The main goal? Bringing efficient energy management within reach of the end-users by interoperable Solutions Connecting Smart Homes, Buildings and Grids.

Website **www.interconnectproject.eu**

Coordinator INESC TEC, Portugal

Partners

Austria: cyberGRID
Belgium: VITO, Th!nk E, ThermoVault, Vrije Universiteit Brussel, IMEC, DuCoop, 3E, CORDIUM CVBA, RDGfi, EDSO, OpenMotics, ABB, Daikin Europe, KNX
France: YNCREA Mediterranee, TRIALOG, ENEDIS, ENGIE, SENSINOV
Germany: EEBUS, Fraunhofer IEE, KEO GMBH, UNI KASSEL, DFKI, Fh-Dortmund, BSH, Miele, Wirelane GmbH, Vaillant GmbH
Greece: Wings ICT Solutions, GridNet, Athens University of Economics and Business – Research Center, HERON, COSMOTE
Italy: Planet Idea, Whirlpool, RSE SPA, POLIMI
Netherlands: TNO, VolkerWessel iCITY, Stichting VU
Poland: FundingBox
Portugal: INESC TEC, EDPD, SONAE, Domótica SGTA, Schneider Electric Portugal Lda
Serbia: VizLore
Slovenia: Elektro Ljubljana

Start date **Oct. 2019**
Duration **48 months**
Status **In Progress**

Total budget **36 M€**

interconnect

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

LIFE-SBE4LCHCB

Smart Building Envelope for Low Carbon and High Comfort Buildings

The LIFE-SBE4LCHCB project aims at developing a universal and affordable low-carbon solution that can be implemented on every new building constructed in the EU. ecoXia will demonstrate its innovative low-carbon building concept that includes studies and construction of new buildings in France. The Smart Building Envelope (SBE) is designed as a complete system that incorporates natural materials and very effective insulation.

Website **www.ecoxia.fr**

Coordinator ecoXia SAS, France

Partners **France**: ecoXia SAS

Start date **Jun. 2020**
Duration **36 months**
Status **In Progress**

Total budget **1,3 M€**

ecoxia®
Constuction bas carbone et haut confort

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

LowUP

LOW valued energy sources UPgrading for buildings and industry uses

The project develops and demonstrates three new efficient heating and cooling technologies that significantly reduce both CO2 emissions and primary energy consumption. All three systems combine innovative heat and cool recovery technologies fuelled by low valued energy sources. These include both renewable and wasted energy sources.

Website **lowup-h2020.eu**

Coordinator ACCIONA, Spain

Partners

Austria: Tisun Gmbh
Finland: Halton Oy, Wasenco Oy
France: Lgi Consulting
Italy: Pozzi Leopoldo Srl, Rdz Spa
Netherlands: Gea Refrigeration Netherlands Nv
Spain: Endef Engineering Sl, Fundacio Eurecat, Fundacion Cartif, Fundacion Tecnalia Research & Innovation
Switzerland: Fafco Sa

Start date **Nov. 2016**
Duration **48 months**
Status **Completed**

Total budget **3,7 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

MATRYCS

Modular Big Data Applications for Holistic Energy Services in Buildings

Unlocking Big Data for Energy-Efficient Building Management and Policy Making. MATRYCS elevates building energy management to a new level through improved building data processing, analysis and aggregation. The project tests new ways of building data collection, connects data sets from different platforms for Big Data analytics, and makes them accessible and visually appealing to decision makers.

Website **matrycs.eu**

Coordinator ENGINEERING - INGEGNERIA INFORMATICA, Italy

Partners

Belgium: Housing Europe
Czech Republic: SEVEn - The Energy Efficiency Center
Germany: RWTH Aachen University, ICLEI European Secretariat
Greece: National Technical University of Athens, HOLISTIC
Italy: Eurac Research, ASM TERNI
Latvia: Latvian Environmental Investment Fund
Poland: FASADA, Gdynia Municipality
Portugal: Coopérnico
Slovenia: BTC Company, ComSensus
Spain: Fundación CARTIF, Veolia, Ente Público Regional De La Energía De Castilla Y León

Start date **Oct. 2020**
Duration **36 months**
Status **In Progress**

Total budget **4,6 M€**

MATRYCS

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

MERLON

Integrated Modular Energy Systems and Local Flexibility Trading for Neural Energy Islands

The de-centralization of electricity generation requires equally de-centralized and affordable solutions to integrate more RES, increase security of supply and decarbonize the EU energy future. MERLON introduces an Integrated Local Energy Management Framework for the Holistic Optimization of Local Energy Systems to support grid stability in presence of high shares of volatile distributed RES.

Website **www.merlon-project.eu**

Coordinator Hypertech, Greece

Partners

Austria: Energie Gussing Gmbh, Europaisches Zentrum Fur Erneuerbare Energie Gussing Gmbh
Cyprus: Suite5 Data Intelligence Solutions Limited
Greece: Xorotexniki Anonymo Texniko Etaireia, University Of Peloponnese, Merit Consulting House - Olokriromenes Symvouleftikes Ipiresies Epixeiriseon Idiotiki Kefalaiouxiki Etaireia
Spain: Atos Sa, Cobra Instalaciones Y Servicios S.A, Etra Investigacion Y Desarrollo Sa, Cooperativa Electrica Benefica San Francisco De Asis Sociedad Cooperativa Valenciana
United Kingdom: Imperial College of Science Technology And Medicine, University Of Newcastle Upon Tyne

Start date **Jan. 2019**
Duration **40 months**
Status **In Progress**

Total budget **7,4 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

MiniStor

Minimal Size Thermal and Electrical Energy Storage System for In-Situ Residential Installation

MiniStor aims at designing and producing a novel compact integrated storage system for achieving a sustainable heating, cooling and electricity storage adaptable to residential buildings.The system is constituted by a thermochemical reactor, hot and cold phase-change materials, Li-ion batteries responsive to grid signals and renewable sources such as hybrid photovoltaic thermal panels, and it is managed by a smart Home Energy Management System.

Website **ministor.eu**

Coordinator International Energy Research Centre (IERC), Ireland

Partners

France: CNRS-PROMES, Sofrigam
Greece: DUTH, CERTH, Psyctotherm
Hungary: EMI, Woodspring
Ireland: CORKCITY
Italy: R2M, Enetech
Poland: Enetech
Spain: CARTIF, ENDEF, FEUGA, SGS TECNOS, USC
Switzerland: HSLU

Start date **Nov. 2019**
Duration **54 months**
Status **In Progress**

Total budget **8,5 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

MORE-CONNECT

Development and advanced prefabrication of innovative, multifunctional building envelope elements for MOdular REtrofitting and CONNECTions

MORE-CONNECT developed prefabricated multifunctional renovation elements by the development and demonstration of 1) Cost optimal deep renovation solutions with the possibility of customized features 2) Prefabricated multifunctional modular renovation elements in series of 1 in a mass production process 3) New fully automated production lines for multifunctional modular renovation elements and 4) One-stop-shops.

Website **www.more-connect.eu**

Coordinator Huygen, Netherlands

Partners

Czechia: Czech Technical University in Prague, RD Rýmařov
Denmark: Cenergia, Innogie ApS, Invela ApS
Estonia: Tallinn University of Technology, AS Matek, REF Ehitustööd
Latvia: Riga Technical University, Wood Construction Cluster, Technological Centre of Zemgale
Netherlands: Huygen Installatie Adviseurs, Zuyd University, BJW, WEBO
Portugal: University of Minho, Darkglobe
Switzerland: Econcept

Start date **Dec. 2014**
Duration **54 months**
Status **Completed**

Total budget **4,4 M€**

MORE—
CONNECT

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

P2Endure

Plug-and-Play product and process innovation for Energy-efficient building deep renovation

Give evidence of the innovative added value of Plug-and-Play solutions for deep renovation.
Technical goals: Implement a new 4M Methodology for PnP deep renovation. Ensure the readiness of PnP solutions (building envelope and Technical Systems retrofits). Configure and use supporting ICT tools (BIM, BEM, software tools). Demonstrate in real deep renovation projects.

Website p2endure-project.eu

Coordinator DEMO Consultants, The Netherlands

Partners

Denmark: Invela
Germany: 3L-Plan Lenze-Luig Architects, Fermacell GmbH, Technischen Universität Berlin
Italy: Becquerel Electric S.r.l., SGR Servizi S.p.A., RINA Consulting S.p.A., Università Politecnica delle Marche
Poland: Bergamo Tecnologie SP Z.O.O., Fasada, Mostostal Warszawa S.A., Miasto Stoleczne Warszawa
Netherlands: Huygen Installatie Adviseurs, Panplus architectuur, Camelot Vastgoed Nederland BV

Start date **Sep. 2016**
Duration **54 months**
Status **Completed**

Total budget **5,3 M€**

P2ENDURE

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

PARITY

Pro-sumer AwaRe, Transactive Markets for Valorization of Distributed flexibilITY enabled by Smart Energy Contracts

PARITY delivers a unique local flexibility market platform which seamlessly integrates IoT and blockchain technologies. By delivering a market for automated flexibility exchange based on smart contracts & blockchain, PARITY will facilitate transparent local flexibility transactions under real-time grid operational constraints and available DER flexibility to increase grid durability and efficiency.

Website **parity-h2020.eu**

Coordinator CERTH, Greece

Partners

Austria: E7
Belgium: MERIT
Cyprus: UNICOSIA
Greece: Hypertech, Que, BFS, HEDNO
Spain: Circe, Cuerva, Urbener, UDEUSTO
Sweden: CWATT, E.ON
Switzerland: AEM, SUPSI, HIVE

Start date **Oct. 2019**
Duration **42 months**
Status **In Progress**

Total budget **9,4 M€**

PARITY

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

PHOENIX

Adapt-&-Play Holistic cOst-Effective and user-frieNdly Innovations with high replicability to upgrade smartness of eXisting buildings with legacy equipment

PHOENIX will design the necessary hardware and software upgrades and make use of artificial intelligence technologies as well as edge/cloud computing methods to transform existing buildings into smart buildings. The project's key deliverable will be a portfolio of ICT solutions capable of providing intelligence to legacy systems and appliances in existing buildings.

Website **eu-phoenix.eu**

Coordinator University of Murcia, Spain

Partners

Austria: Siemens
Cyprus: Suite5
Greece: Kataskevastiki Makdeonias, Elin Verd, UBITECH, Merit Consulting House
Ireland: Arden Energy
Spain: ODIN SOLUTIONS S.L., MIWenergia
Sweden: SKEBIT, Lulea University of Technology

Start date **Sep. 2020**
Duration **36 months**
Status **In Progress**

Total budget **5,2 M€**

PHOENIX

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

PLURAL

Plug-and-Use renovation with adaptable lightweight systems

PLURAL designs, validates and demonstrates a palette of versatile, adaptable, scalable, off-site prefabricated Plug-and-Use kits integrating renewable energy generation and smart control for residential building deep renovation. Optimal component selection, design, faster and low-cost manufacturing and installation are enabled via a BIM based platform and a Decision Support Tool.

Website **www.plural-renovation.eu**

Coordinator NTUA, Greece

Partners

Germany: ZRS Architekten Gesellschaft Vonarchitekten mbH
Greece: Proigmenes Erevnitikes & Diahiristikes Efarmoges. Dimos Varis – Voulas – Vouliagmenis, Daikin Airconditioning Hellas SA
Czech Republic: Fenix Tnt Sro, Obec Kasava, Ceske Vysoke Uceni Technicke V Praze, Recuair S.R.O., Rd Rymarov SRO Luxembourg: Intrasoft International SA
Poland: Bergamo Tecnologie SPZOO
Spain: Institut De Tecnologia De La Construccion De Catalunya, Pich-Aguilera Arquitectos SL, Fundacio Institut De Recerca De L'energia De Catalunya, Agencia De L'habitatge De Catalunya, Denvelops Textiles SL
Switzerland: HSR Hochschule Fur Technik Rapperswil

Start date **Oct. 2020**
Duration **48 months**
Status **In Progress**

Total budget **9,7 M€**

PLURAL

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

PRECEPT

A novel decentralized edge-enabled PREsCriptivE and ProacTive framework for increased energy efficiency and well-being in residential buildings

PRECEPT 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)active and Proactive Building Energy Management System (PP-BMS). The project will develop new sustainable business models for transforming traditional reactive buildings into proactive buildings.

Website **precept-project.eu**

Coordinator WVT, Greece

Partners

Greece: CERTH
Lithuania: KTU
Cyprus: FRC
Germany: CLEOPA, NUROMEDIA, CON
Spain: Odins
Netherlands: DEMO Consultants
Austria: ASI
Hungary: LCII
Ukraine: PSACEA, STROITEL-P
Spain: MIWENERGIA
Italy: Polimi

Start date **Oct. 2020**
Duration **36 months**
Status **In Progress**

Total budget **7,65 M€**

PRECEPT
Less Energy > Smarter Buildings

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

PVSITES

Building-Integrated photovoltaic technologies and systems for large-scale market deployment

The main objective of PVSITES project is to pave the way towards a large market deployment of BIPV technology by demonstrating an ambitious portfolio of building-integrated solar technologies and systems. The project activities are focused on providing a forceful, reliable answer to the market requirements identified by the industrial members of the consortium in their day-to-day activity.

Website **www.pvsites.eu**

Coordinator TECNALIA, Spain

Partners

Belgium: FORMAT D2
France: NOBATEK INEF 4, CEA, Vilogia
Italy: R2M Solution Srl
Netherlands: BEAR
Portugal: CENTRO TECNOLOGICO DA CERAMICA E DO VIDRO
Spain: ONYX SOLAR, CRICURSA, ACCIONA CONSTRUCCION
Switzerland: FLISOM
United Kingdom: Film Optics Ltd

Start date **Jan. 2016**
Duration **54 months**
Status **Completed**

Total budget **8,5 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

QUEST

Quality Management Investments for Energy Efficiency

QUEST supports the uptake of investments in Sustainability and Energy Efficiency by identifying and empirically risk-grading factors that influence performance. QUEST has developed a simple toolkit to evaluate the financial added value of Quality Management Services to specific building projects. It may be easily applied to both renovation and new construction projects, covering project design-construction-operation risks.

Website project-quest.eu

Coordinator synavision GmbH, Germany

Partners

France: COPILOT - Building Commissioning Certification
Denmark: Sweco
Sweden: KTH - Royal Institute of Technology in Stockholm
Belgium: REHVA, AMICE
Italy: Politecnico di Torino, Fondazione LINKS

Start date **Jan. 2019**
Duration **36 months**
Status **In Progress**

Total budget **1,5 M€**

QUEST

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

ReDREAM

Real Consumer Engagement through a new user-centric Ecosystem Development for end-users' assets in a multi-market scenario

The REDREAM project will enable the effective participation of consumers and prosumers in the energy market. It will develop a strategy for the creation of a value generation chain based on a revolutionary service-dominant logic paradigm. The project will collect DR tools and energy/non-energy services to enable consumers to participate in the energy market. The results will assist in the generation of a new concept of connected ecosystem.

Website **redream-energy-network.eu**

Coordinator Universidad Pontificia Comillas, Spain

Partners

Spain: Universidad Pontifica Comillas, OMIE, Energetica S. Coop, Stemy Energy, Soulsight, OlivoEnergy
Belgium: Timelex
Croatia: Green Energy Cooperative
France: Université de Bourgogne Franche-Comté
Germany: European Science Communication Institute (ESCI)
Greece: The National Technical University (NTUA)
Italy: Rimond, CiviESCO, Bio-Distretto della Via Amerina e delle Forre
UK: Bath & West Community Energy

Start date **Oct. 2020**
Duration **36 months**
Status **In Progress**

Total budget **7,2 M€**

ReDREAM
change your energy

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

REMOURBAN

Regeneration Model for accelerating the Smart Urban Transformation

REMOURBAN has validated a holistic Urban Regeneration Model in 5 EU cities accelerating the clean energy transition via an urban transformation process that takes into account all aspects of sustainability: energy efficiency, sustainable mobility, ICT integration and engagement of all societal players.

Website **www.remourban.eu**

Coordinator CARTIF Technology Centre, Spain

Partners

Belgium: AREBS, youris.com
Germany: Steinbeis Europa Zentrum
Hungary: Miskolc Holding
Italy: Officinae VERDI
Spain: ACCIONA, Ayuntamiento de Valladolid, GMV, Iberdrola, VEOLIA, XERIDIA
Turkey: Tepebasi Municipality, DEMIR Enerji, Energon, Olcsan, Anadolu University
United Kingdom: Nottingham City Council, Nottingham Trent University, Nottingham Energy Partnership, Infohub, Sasie

Start date **Jan. 2015**
Duration **66 months**
Status **Completed**

Total budget **32,5 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

REnnovates

Flexibility Activated Zero Energy Districts

REn(n)ovates demonstrated an innovative systemic deep renovation approach combining envelope renovation with pre-fabricated modules with an Energy Module 'container box' that integrates all HVAC equipment and communication technology. The inclusion of smart control strategies introduced at building and district level unlocked the residential energy flexibility for grid and system level services.

Website **www.rennovates.eu**

Coordinator BAM, the Netherlands

Partners

Belgium: VITO, Enervalis, Belfius
Finland: Massive Cell Technologies
Germany: KEO
Poland: Mostostal
Spain: MONDRAGON
Netherlands: STEDIN

Start date **Sep. 2015**
Duration **36 months**
Status **Completed**

Total budget **6,8 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

RenoZEB

Accelerating Energy renovation solutions for Zero Energy Buildings and Neighbourhoods

RenoZEB aims to unlock the nZEB renovation market through a systemic approach to retrofitting. Key aspects include a holistic, cost efficient & fast deep renovation process supported by ICT tools & low-disturbance technological solutions. All phases of a renovation are covered (planning, design, construction & management) guided by 3 main drivers: cost reduction, time reduction & net primary energy use reduction.

Website **www.renozeb.eu**

Coordinator SOLINTEL M&P SL, SPAIN – Project Coordinator: Michele Vavallo

Partners

Belgium: CONSEIL DES ARCHITECTES D'EUROPE, FEDERATION EUROPEENNE DE LA PROPRIETE IMMOBILIERE
Bulgaria: BALKANIKA ENERGY AD
Cyprus: HIT HYPERTECH INNOVATIONS LTD
Estonia: KORTERIUHISTU RANNALIIVA, TARTU ENERGY
France: CSTB
Germany: BECK+HEUN GMBH, FRAUNHOFER ISE
Italy: FOCCHI SPA, RINA CONSULTING-D'APPOLONIA SPA, UNIVERSITA POLITECNICA DELLE MARCHE
Spain: CYPE SORT SL, TECNALIA, DURANGO ERAIKITZEN SA, SYMELEC
United Kingdom: THE UNIVERSITY OF SALFORD, ENERGYPRO

Start date **Oct. 2017**
Duration **52 months**
Status **Completed**

Total budget **8,7 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

REPLICATE

REnaissance of Places with Innovative Citizenship and Technology

REPLICATE aimed to develop and validate a sustainable city business model in the lighthouse cities of San Sebastian, Florence and Bristol, to improve the transition process towards a SmartCity in the fields of energy efficiency, sustainable mobility and infrastructures, deploying innovative technologies, increasing the quality of life of the citizens, and influencing the replication process.

Website **replicate-project.eu**

Coordinator Fomento San Sebastián, Spain

Partners **Germany**: Stadt Essen, Nec Laboratories Europe Gmbh, Technomar Gmbh
Italy: Comune Di Firenze, Consiglio Nazionale Delle Ricerche, E-Distribuzione Spa, Enel X Srl, Mathema Srl, Spes Consulting, Telecom Italia Spa, Thales Italia Spa Universita Degli Studi Di Firenze, Thales Italia Spa
Spain: Fomento De San Sebastian Sa, Ayuntamiento De Donostia San Sebastian, Compania Del Tranvia De San Sebastian Sa – Ctss (Dbus), Eurohelp Consulting Sl, Euskaltel Sa, Giroa Sa, Ikusi, Leycolan S.A.L. Sistelec S.L Fundacion Esade, Fundacion Tecnalia Research & Innovation, Zabala,Innovation Consulting, S.A
Switzerland: Administration Communale De La Ville De Lausanne Turkey: Nilufer Belediye Baskanligi, De Surdurulebilir Enerji Ve Insaat Sanayi Ticaret Limited Sirketi (Demir)
United Kingdom: Bristol City Council, Bristolisopen Limited, Co-Wheels Car Club Community Interest Company, Esoterix System Ltd, Knowle West Media Centre Lbg, Nec Europe Ltd, Route Monkey Ltd, Toshiba Europe Limited, University of Bristol, Zeetta Networks The University Of Exeter, University Of The West Of England, Bristol, The Chancellor, Masters And Scholars Of The University Of Oxford (Limited)

Start date **Feb. 2016**
Duration **60 months**
Status **Completed**

Total budget **29,3 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

RESPOND

Integrated demand REsponse Solution towards energy POsitive NeighbourhooDs

RESPOND deploys and demonstrates an interoperable, cost effective and user-centred DR solution. It uses energy automation, control, and monitoring tools to integrate a cooperative DR program into legacy energy management systems. It follows an integrated approach to optimise energy dispatching in real time, considering both energy demand and supply while exploiting all available energy assets.

Website **project-respond.eu**

Coordinator Fenie Energía, Spain

Partners

Czech Republic: ENERGOMONITOR S.R.O
Denmark: AALBORG UNIVERSITET, ALBOA - ALMEN BOLIGORGANISATION AARHUS, AURA A/S, DEVELCO PRODUCTS AS
Ireland: COMHARCHUMANN FUINNIMH OILEAIN ARANN TEORANTA, NATIONAL UNIVERSITY OF IRELAND GALWAY
Serbia: INSTITUT MIHAJLO PUPIN
Spain: DEXMA SENSORS SL, FENIE ENERGIA SA, FUNDACION TEKNIKER

Start date **Oct. 2017**
Duration **36 months**
Status **Completed**

Total budget **3,6 M€**

RESPOND
DEMAND RESPONSE FOR ALL

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

REWARDHeat

Renewable and Waste Heat Recovery for Competitive District Heating and Cooling Networks

REWARDHeat will demonstrate a new generation of low-temperature district heating and cooling networks, which will be able to recover renewable and waste heat, available at low temperatures. REWARDHeat will promote punctual metering, thermal storage management, network smart control as a means to enable and optimise the exploitation of renewable and waste heat in DHC networks.

Website **www.rewardheat.eu**

Coordinator Eurac Research - Italy

Partners

Belgium: Euroheat & Power, European Heat Pump Association
Croatia: Ljeciliste Topusko, Sveuciliste U Zagrebu, Fakultet Strojarstva I Brodogradnje
Denmark: Aalborg Universitet, Albertslund Kommune, Danfoss A/S
France: Artelys, Dalkia, Electricite De France, Energie Solidaire
Germany: Enisyst Gmbh, Energie Plus Concept Gmbh, Hawk Hochschule Fur Angewandte Wissenschaft Und Kunst Fachhochschule Hildesheim/Holzminden/Gottingen, Hochschule Fur Technik Stuttgart, Warme Hamburg Gmbh
Italy: A2a Calore & Servizi Srl, Rina Consulting
Netherlands: Mijnwater Energy Bv, Thermaflex International Holding Bv
Poland: Szczecinska Energetyka Cieplna Spolka Z Ograniczona Odpowiedzialnoscia
Spain: Fundacion Cartif, Hulleras Del Norte Sa, Sampol Ingenieria Y Obras S.A.
Sweden: Arvalla Ab, E.On Energilosnigar Aktiebolag, Indepro Ab, Ivl Svenska Miljoeinstitutet Ab

Start date **Oct. 2019**
Duration **48 months**
Status **In Progress**

Total budget **18,9 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

RUGGEDISED

Rotterdam, Umea and Glasgow: Generating Exemplar Districts In Sustainable Energy Deployment

The project creates urban spaces powered by affordable and clean energy. The overall aims are: 1. Improving the quality of life of the citizens, by offering the citizens a clean, safe, attractive, inclusive and affordable living environment. 2. Reducing the environmental impacts of activities, by achieving a significant reduction of CO2 emissions. 3. Creating a stimulating environment for sustainable economic development.

Website **www.ruggedised.eu**

Coordinator City of Rotterdam

Partners

Australia: Austrian Institute of Technology
Czech Republic: Municipality of Brno, University of Brno
Germany: ICLEI
Italy: ISINNOVA, Municipality of Parma, Infomobility
Netherlands: City of Rotterdam, Erasmus University, KPN, Uniresearch B.V, TNO , ENECO, Ballast Nedam, Uniresearch B.V., Future Insight, RET (ROTTERDAMSE ELEKTRISCHE TRAM)
Poland: City of Gdansk, PICTEC, Gdansk Water Utilities
Sweden: City of Umeå, RISE SWEDEN, Umeå university, Akademiska hus AB, Västerbotten County Council, Umeå energi AB, UPAB
United Kingdom: University of Strathclyde, Transport Scotland, Siemens, Glasgow City Council, SP Power Systems, Tennents Caledonian Brewery, The Wheatley Group

Start date **Nov. 2016**
Duration **60 months**
Status **In Progress**

Total budget **19,5 M€**

RUGGEDISED
Designing smart, resilient cities for all

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

Sim4Blocks

Simulation Supported Real Time Energy Management in Building Blocks

Within Sim4Blocks, software optimization prototypes and interfaces for the flexibilized operation of heat pumps have been developed and tested at three pilot sites. It was shown that heat pumps represent a large flexibility potential and that it is possible to manage clusters of heat pumps to increase PV self-consumption, to apply flexible electricity prices and to serve the operating reserve.

Website **www.sim4blocks.eu**

Coordinator HFT Stuttgart, Germany

Partners

Austria: Austrian Institute of Technology GmbH
Belgium: Centrica
Germany: Municipality of Wüstenrot, Schwäbisch Hall Municipal Utilities, enisyst GmbH, European Institute for Energy Research (EIFER)
Ireland: University College Dublin
Spain: Centre Internacional de metodes numeric en enginyeria (CIMNE), Energea Enginyeria en Eficiència Energètica SL, S.P.M. Promocions Municipals de Sant Cugat del Vallès S.A. Promusa.
Switzerland: Haute école spécialisée de Suisse occidentale, Elimes AG
United Kingdom: EDF Energy R&D UK Centre Limited, Insight Media Ltd.

Start date **Apr. 2016**
Duration **54 months**
Status **Completed**

Total budget **5,5 M€**

Sim4Blocks

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

SmartEnCity

Towards smart zero CO2 cities across Europe

SmartEnCity aims to develop a highly replicable systemic approach towards urban transformation into sustainable, smart environments. The concept is the Smart Zero Carbon City , where carbon footprint and energy demand are minimized by the use of demand control tech to save energy and promote awareness; energy supply is renewable; local energy resources are smartly managed by citizens, public and private stakeholders.

Website **smartencity.eu**

Coordinator TECNALIA RESEARCH & INNOVATION, Spain

Partners

Bulgaria: Obshtini Asenovgrad, Sofia Energy Centre Ltd
Denmark: Project Zero A/S, Sonderborg Andelsboligforening, Boligforeningen Soebo, Planenergi Fond, Aalborg Universitet, Sonderborg Forsyningsservice As, Boligforeningen B42, Vikingegaarden As
Estonia: Tartu Ulikool, Smart City Lab, Institute Of Baltic Studies, As Fortum Tartu, Cityntel Ou, Tartu Linn, Mittetulundusuhing Tartu Regiooni Energiaagentuur, Takso Oü, Telia Eesti As
Germany: Steinbeis Innovation Ggmbh
Italy: Citta Di Lecce*Comune Di Lecce, Rina Consulting Spa
Spain: Vivienda Y Suelo De Euskadi S.A., Centro De Estudios Ambientales Cea, Mondragon Corporacion Cooperativa Scoop, Fagor Ederlan S.Coop., Agrupacion Cluster De Electrodomesticos De Euskadi (H Enea), Etic-Embedded Technologies Innovation Center S. Coop, Giroa Sociedad Anonima, Lks Infraestructuras It Sociedad Limitada, Fundacion Tecnalia Research & Innovation, Ayuntamiento De Vitoria-Gasteiz, Acciona Construccion Sa, Fundacion Cartif, Estudios Gis S.L., Ondoan S Coop Ltda , Ingenieria Especializada Obra Civil E Industrial Sa, Mcctelecom S Coop

Start date **Feb. 2016**
Duration **66 months**
Status **In Progress**

Total budget **31,9 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

SMI

Smart Meter Inclusif : Artificial intelligence to support the proactive management of energy consumption by end users

The project is part of a perspective linking artificial intelligence and micro-societal analysis.
The objective is to design a new intelligent tool that is more efficient, safe and better accepted by consumers. The users of this intelligent tool will be able to collect and predict the consumption of their electrical appliances. The project will evaluate new techniques to improve the security level.

Website **www.smi.uha.fr/en**

Coordinator Djaffar Ould Abdeslam, France

Partners

France: Université de Haute-Alsace, CNRS – Alsace delegation, Pôle Fibres-Energivie, Mobasolar, OPAL-RT EUROPE
Germany: Hochschule Furtwangen, Hochschule Offenburg, University of Freiburg, Hochschule für öffentliche Verwaltung Kehl, Badenova, European Institute for Energy Research, Easy Smart Grid GmbH, Universität Koblenz-Landau
Switzerland: Fachhochschule Nordwestschweiz, Swiss Confederation, Canton of Basel-Stadt, Canton of Basel-Landschaft, Canton of Aargau, IWB

Start date **Sep. 2019**
Duration **36 months**
Status **In Progress**

Total budget **1,9 M€**

SMI
Smart Meter Inclusif

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

SPHERE

Service Platform to Hoste and SharE REsidential data

SPHERE IS A BIM DIGITAL TWIN ECOSYSTEM. SPHERE is a 4-year, Horizon 2020 project that aims to provide a BIM-based Digital Twin Ecosystem to optimise the building lifecycle, reduce costs, and improve energy efficiency in residential buildings. Achieved through the integration of several DT Platforms and IoT Platforms with different energy, sustainability, construction and O&M software tools based on a webAPI service, ontologies & semantics.

Website **sphere-project.eu**

Coordinator IDP, Spain

Partners

Austria: CREE
Finland: VTT, Caverion
France: OPY
Germany: MBCC, Ascora
Ireland: NUIG, VRM
Netherlands: TNO, Neanex
Spain: COMSA, COMET, EAI, Eurecat
United Kingdom: R2M Solution, Ekodenge

Start date **Nov. 2018**
Duration **48 months**
Status **In Progress**

Total budget **12,7 M€**

SPHERE
BIM DIGITAL TWIN PLATFORM

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

STARDUST

Holistic and integrated urban model for smart cities

STARDUST brings together 3 advanced European cities with associated follower cities to pave the way towards the transformation of the carbon supplied cities into Smart, highly efficient, intelligent and citizen oriented cities, developing urban green solutions and innovative business models, integrating buildings, mobility and efficient energy through ICT. It is then validating these solutions and enabling their roll out.

Website **stardustproject.eu**

Coordinator FUNDACION CENER, Spain

Partners

Belgium: Greenovate ! Europe
Czechia: Mesto Litomerice
Finland: Tampereen Kaupunki, Teknologian Tutkimuskeskus Vtt Oy, Tampereen Sahkolaitos Oy, Skanska Talonrakennus Oy, Enermix Oy, Aurinkotekno Oy
Greece: Dimos Kozanis
Italy: Comune Di Trento, Accademia Europea Di Bolzano, Fondazione Bruno Kessler, Fondazione Icons, Officinae Verdi Group Spa, Dolomiti Energia Holding Spa, Instituto Trentino Per L'edilizia Abitativa S.P.A., Dedagroup Public Services Srl, Distretto Tecnologico Trentino Scarl
Romania: Asociatia De Dezvoltare Intercomunitara Zona Metropolitana - Cluj
Spain: Ayuntamiento De Pamplona, Zabala Innovation Consulting, Comunidad Foral De Navarra - Gobierno De Navarra, Naturgy Energy Group Sa, Navarra De Suelo Y Vivienda Sa, Sociedad Iberica De Construcciones Electricas, Universidad Publica De Navarra, Mancomunidad De La Comarca De Pamplona, Beeplanet Factory Sl
United Kingdom: Derry City And Strabane District Council

Start date **Oct. 2017**
Duration **41 months**
Status **In Progress**

Total budget **21 M€**

STARDUST
Enlightening european cities

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

StepUP

Solutions and Technologies for deep Energy renovation Processes UPtake

Deep renovation is key to drastically reduce energy demand. Currently, despite the availability of technology to achieve energy reduction, deep renovation is considered to be a risky investment. StepUP will develop an iterative process for deep renovation for decarbonisation, with fast design to operation feedback loops to minimise the performance gap, reduce investment risk and maximise value.

Website **stepup-project.eu**

Coordinator Integrated Environmental Solutions Ltd. , United Kingdom

Partners

Belgium: Greenovate ! Europe
Belgium: ENERGINVEST
Denmark: SUNTHERM
Hungary: ABUD, BP18
Ireland: IES R&D
Italy: MANNI,UNISMART
Spain: ACR,EURECAT
United Kingdom: IES Ltd.

Start date **Aug. 2019**
Duration **42 months**
Status **In Progress**

Total budget **4,8 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

SunHorizon

SunHorizon

The main objective of SunHorizon is to demonstrate up to TRL 7 innovative and reliable Heat Pump solutions (thermal compression, adsorption, reversible) that acting properly coupled and managed with advanced solar panels (PV, Hybrid, thermal) can provide heating and cooling to residential and tertiary buildings with lower emissions. A cloud-based monitoring platform will optimise algorithms and tools for predictive maintenance.

Website sunhorizon-project.eu

Coordinator RINA consulting s.p.a., Italy

Partners

Belgium: EHPA, GRE
France: DS, CEA, BS
Germany: FAHR, RATIO
Ireland: IES
Italy: RINA-C, ITAE, SE
Latvia: RTU
Spain: VEO, EMVS,AJSCV, CARTIF
Sweden: CW, IVL
Switzerland: TVP
The Netherlands: BDR

Start date **Oct. 2018**
Duration **48 months**
Status **In Progress**

Total budget **8,99 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

SUPERHERO

SUstainability and PERformances for HEROTILE-based energy efficient roofs

SUPERHERO promotes the use of Ventilated and Permeable Roofs for an effective and low-cost answer to cities and buildings overheating. Here "passive cooling" technologies allow the reduction of the temperatures of buildings envelope (roofs and walls) and consequently of the surrounding air, thus limiting Urban Heat Island, decreasing the energy demands for artificial cooling and improving the indoor comfort.

Website **www.lifesuperhero.eu**

Coordinator CENTRO CERAMICO, Italy

Partners

France: CTMNC, EDILIANS
Italy: ACER, COMREGGIO, CONFCERAMICA, ICOTTOPOSSAGNO, TERREAL, UNIVPM
Spain: HYSPALIT

Start date **Jun. 2020**
Duration **60 months**
Status **In Progress**

Total budget **3 M€**

life SUPERHERO

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

syn.ikia

Sustainable Plus Energy Neighbourhoods

The syn.ikia innovation project within the EU Horizon 2020 framework aims at enabling the development of sustainable plus-energy neighbourhoods in different climates, contexts and markets in Europe.
Four real-life plus-energy demo neighbourhoods tailored to four different climatic zones will be developed, analysed, optimized and monitored within the duration of the project.

Website **www.synikia.eu**

Coordinator **NTNU, Norway**

Partners

Belgium: BPIE, Housing Europe
Denmark: DTU, ENFOR
Hungary: ABUD
Netherlands: TNO, AREA
Norway: NTNU, SINTEF, OBOS
Spain: IREC, INCASOL

Start date **Jan. 2020**
Duration **54 months**
Status **In Progress**

Total budget **7,4 M€**

syn.ikia | Sustainable plus energy neighbourhoods

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

TABEDE

TowArds Building rEady for Demand rEsponse

TABEDE enables all building types to integrate demand response schemes through a low cost extender for BMS systems or as a standalone system. Independent of communication standards, it integrates energy flexibility control algorithms so building managers can lower energy cost without affecting occupant comfort and energy providers can maximize the usage of renewable energy and ensure power quality.

Website tabede.eu

Coordinator Tractebel (Engie Impact), Belgium

Partners

France: SCHNEIDER ELECTRIC INDUSTRIES SAS, CEA
Italy: R2M Solution Srl, SCHNEIDER ELECTRIC SPA
Switzerland: CSEM CENTRE SUISSE D'ELECTRONIQUE ET DE MICROTECHNIQUE SA - RECHERCHE ET DEVELOPPEMENT
United Kingdom: CARDIFF UNIVERSITY

Start date **Nov. 2017**
Duration **42 months**
Status **Completed**

Total budget **3,8 M€**

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

TIMEPAC

Towards innovative methods for energy performance assessment and certification of buildings

TIMEPAC project will improve the current energy performance certification by transitioning from a single, static certification to one that is more holistic and dynamic. TIMEPAC will combine EPC databases with other data sources to make certification more reliable. The methods and tools to enhance the current EPC schema will be tested in Austria, Croatia, Cyprus, Italy, Slovenia, and Spain. The findings will be used to develop training resources.

Website **timepac.eu**

Coordinator FUNITEC, Spain

Partners

Austria: SERA
Croatia: EIHP
Cyprus: OEB
Italy: EDIC, POLITO, RP
Slovenia: JSI, MzI, GOLEA
Spain: CYPE, FUNITEC, ICAEN

Start date **Jul. 2021**
Duration **36 months**
Status **In Progress**

Total budget **1,9 M€**

TIMEPAC
The new EPC for Europe

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

TRI-HP

Trigeneration systems based on heat pumps with natural refrigerants and multiple renewable sources

TRI-HP project develops affordable and efficient trigeneration systems that provide heating, cooling, and electricity. These systems are based on natural refrigerant heat pumps coupled with renewable electricity using cold, heat, and electricity storage. An advanced energy management system and a model predictive control will further increase their efficiency and enable interaction with the grid, resulting in energy savings of up to 20%.

Website **tri-hp.eu**

Coordinator SPF-OST, Switzerland

Partners

Belgium: REHVA
Denmark: DTI
Germany: ISOE, Karlsruhe University of Applied Sciences
Norway: NTNU
Spain: Tecnalia, IREC
Sweden: Alfa Laval
Switzerland: SPF-OST, HEIM, ILAG

Start date **Mar. 2019**
Duration **48 months**
Status **In Progress**

Total budget **5 M€**

TRI-HP PROJECT

Energy savings on site

Maintenance & fault prediction

Comfort

Convenience

Health & wellbeing

Information to occupants

Grid flexibility & storage

U-CERT

Towards a new generation of user-centred Energy Performance Assessment and Certification; facilitated and empowered by the EPB Center

U-CERT introduces a user-centred Energy Performance Assessment and Certification Scheme to value buildings in a holistic and cost-effective manner. The focus is on strengthening actual implementation of the EPBD by providing and applying insights from a user perspective and creating a level playing field for sharing implementation experience to all involved stakeholders, facilitated and empowered by the EPB Center.

Website **u-certproject.eu**

Coordinator Huygen Installatie Adviseurs, Netherlands

Partners

Belgium: REHVA
Bulgaria: EnEffect
Denmark: DTU
Estonia: Tal Tech
France: Tipee
Hungary: Comfort Consulting
Italy: AiCARR
Netherlands: Huygen, EPB Center, ISSO, TNO
Romania: AIIR
Slovenia: IRI UL
Spain: IVE, Atecyr
Sweden: KTH

Start date **Sep. 2019**
Duration **36 months**
Status **In Progress**

Total budget **2 M€**

U-CERT
User-Centred Energy Performance Assessment and Certification

About SmartBuilt4EU

SmartBuilt4EU (SB4EU) is an EC-funded project that aims to support the innovation ecosystem in the smart building value chain through concrete networking and communication actions:

- Reference and promote the key innovators and innovations in the sector
- Propose collaborative work to identify barriers, opportunities and best practices for the take up of smart buildings
- Consolidate these findings into a Strategic Research & Innovation Agenda that will feed the design of future Horizon Europe calls on smart buildings
- Provide recommendations to policy makers
- Develop tools to support the deployment of the Smart Readiness Indicator, a common scheme for rating the smart readiness of buildings

Join the SB4EU Community and benefit from several advantages:

INCREASE THE VISIBILITY OF YOUR INNOVATION OR R&D PROJECT	**CONTRIBUTE** DEFINING THE FUTURE EC-FUNDING CALLS ON SMART BUILDINGS	**NETWORK** WITH STAKEHOLDERS FROM ALL OVER EUROPE

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Project partners

The project is coordinated by ECTP, the European Construction, built environment and energy efficient building Technology Platform.
It brings together five partners and five linked third parties throughout Europe.

Smart Built4EU
The European Smart Buildings Community

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