## BlueBird Context

To achieve the EU's Green Deal and sustainability targets, its power grid has seen a drastic increase in renewable energy sources (RES). Since such RES supply is highly variable and less controllable, balancing the electricity supply and demand becomes ever more challenging and calls for increased flexibility in the electricity system. Hence, flexibility schemes form a core component for the EU's mission to realize the required energy transition.

BlueBird focuses on unlocking such energy flexibility from buildings to deliver a comprehensive, validated **toolset, fully supporting competitive adoption of buildings as energy flexibility assets**.This toolset will build on standard ontologies to support smooth integration of services towards energy market players (i.e., TSO, DSO, aggregators) while maximally aligning with end-users' (i.e., building managers, occupants) requirements and acceptance criteria.

## BlueBird Objectives

The project has 5 key objectives:

- Provide multi-carrier flexibility services for buildings, **integrating energy and non-energy carriers, empowering end-users** with control;
- Facilitate **trading of energy flexibility** between buildings and the energy market stakeholders;
- Evaluate BlueBird's toolset in **7 demonstration sites** (see further) with residential, public, commercial, office and industrial buildings;
- Maximize adoption of BlueBird's toolset based on (1) business models and successful **value networks**, and (2) a set of **feasibility studies** for on-site energy storage and renewables;
- Deliver a highly replicable, standardized, benefit-demonstrated **Replicability Package**.

## Partners

CIMNE
Privatuniversität Schloss Seeburg
University of Stuttgart
inetum. Positive digital flow
KARNO ENERGY
BPIE
UPC Universitat Politècnica de Catalunya BarcelonaTech
Enea Operator
energie.kompass
wesmart
DTU
EWIH Energie & Service
imec
AMB
BE Barcelona Energia
PSNC
AIT Austrian Institute of Technology

For more information, please follow us on

linkedin.com/company/bluebird-project

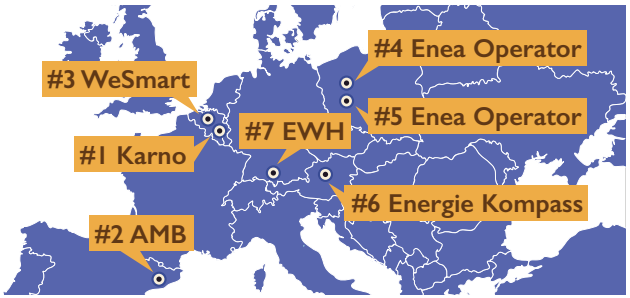
bluebird-project.eu

# BLUE BIRD

building-integrated user-empowered flexibility trading

*The BlueBird project has received funding from the European Union's Horizon Research and Innovation programme under grant agreement No. 101192452.*

# BlueBird Business Cases




BlueBird has defined a wide range of targeted high-level services that form the core drivers for the technical developments. These services have been identified through a detailed analysis of 7 business cases across Europe, covering 24 use cases. Below, we summarize the business cases that BlueBird will demonstrate, in terms of the available **equipment**, involved **stakeholders**, and how **flexibility** will be used.

To realize these services, BlueBird will deliver a toolset of **hierarchical predictive control software,** comprising a **Trading Manager** (to unlock flexibility and allow participation in energy markets), a **Flexibility Manager** (to jointly control assets at the building level), and **interaction tools** (to empower users and building managers).

## #1 Karno

Karno (a Belgian zero-carbon **district heating** developer) will upgrade its 4th generation low-temperature (35 °C) network to improve integration in the electrical power grid. This includes (1) increasing flexibility by adapting to user behavior, (2) leveraging additional flex from storage and local PV, and (3) expanding the heating network.

## #2 AMB

The metropolitan area of Barcelona (AMB) aims to leverage **flexibility from public building systems** (heat pumps for heating and/or cooling, gas-based heating) and EV chargers, to (1) optimize self-consumption of local PV and solar thermal, and/or (2) enable participation to the Iberian electricity markets (e.g., TOU-based).

## #3 WeSmart

As an energy aggregator, WeSmart will leverage EMS-based control within the **energy community** at the Tour & Taxis site in Brussels, Belgium. This comprises (1) real-time data acquisition from end users' smart meters, EV chargers and 10k rooftop PV panels, (2) recommendation-based DR from end users, and (3) validating economic viability accounting for user behavior.

## #4 EOP Office

Enea Operator from Poland will enable dynamic management of its **office building's cooling and heating system**, fed by a municipal heating grid. This includes (1) predictive monitoring and control of the offices' and social rooms' thermostats, and (2) providing users with thermostat settings accounting for their comfort.

## #5 EOP Grid

Enea Operator will also maximally exploit flexibility of a high/medium voltage **power station's cooling and heating**, with minimal impact on comfort and assuring safety of technical staff. We will realize (1) non-intrusive monitoring and AI-based predictive control, and (2) dynamic heating and cooling management to unlock flexibility.

## #6 EK

The Austrian flexibility aggregator and service provider Energie Kompass will market **battery and operational flex of a water works building** for Wasserverband Südliches Burgenland. They will (1) upgrade the water tanks' automation systems, (2) optimize their operation and scheduling, exploiting the tanks as energy storage, and (3) improve VPP capability and functionality.

## #7 EWH

EWH, as a **vertically integreated electricity supplier/DSO**, generates electricity from local renewables and manages supply. EWH will exploit BlueBird technology to better manage its largest customers (i.e., hotels) to (1) identify and forecast their load and flexibility, and subsequently (2) turn the hotels into smart-grid-ready buildings.