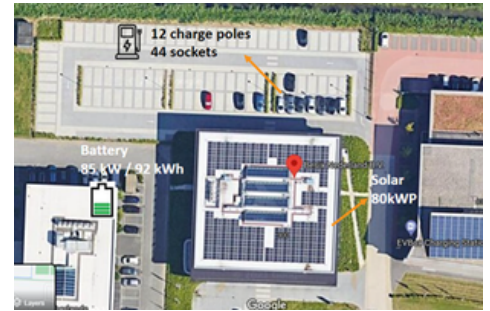# Use case of the BeNeLux Cross-country e-mobility Federation

FEDECOM (FEDErated - "system of systems" - approach for flexible and interoperable energy COMmunities) is a Horizon Europe project demonstrating sector coupling by federating energy communities. FEDECOM provides a scalable and adaptable cloud-based platform including analytical, modelling and optimisation services for planning, supervision and control of integrated local energy systems.

FEDECOM project partners:


Before FEDECOM

The **BeNeLux Cross-country e-Mobility Federation** pilot project aims to enable energy and flexibility sharing across interconnected communities in Belgium and the Netherlands, including the Brussels Brico Retail Community, Voorhout Village, and Besix Schelle alongside the Aug-e community. This initiative maximizes the exploitation of local renewable energy sources, such as solar PV installations, and leverages storage through batteries and e-mobility systems. The FEDECOM platform facilitates optimized renewable energy utilization, energy exchange, and flexibility management supports this cross-border collaboration by optimizing renewable energy usage, demonstrating the positive impact of scalable, cooperative efforts in sustainable energy solutions.

Existing Technologies

▶ Photovoltaic (PV) systems, present across commercial and residential sites, including rooftop installations up to 80 kWp

▶ Battery storage systems, such as 80 kW/100 kWh stationary units

▶ Smart metering and energy management systems for optimizing local energy flows

▶ EV charging infrastructure at Brico Retail locations with V1G charging poles and multiple sockets, as well as V2G-ready charging poles at Besix Schelle

After FEDECOM

The BeNeLux Cross-country e-mobility Federation has undergone a transformative upgrade through the FEDECOM initiative, enhancing energy flexibility and cross-border collaboration between interconnected communities. Leveraging FEDECOM's innovative platform, the project optimizes the integration and utilization of renewable energy, facilitates seamless energy sharing, and boosts demand flexibility.
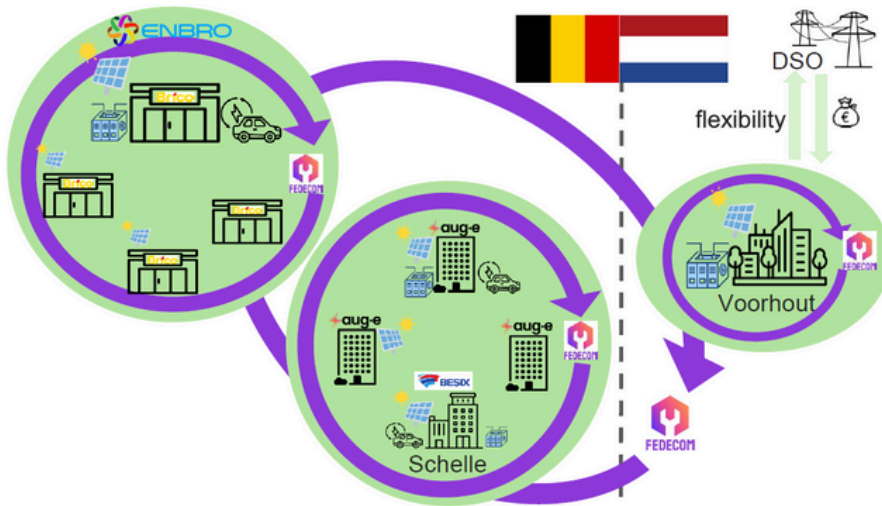
Installation upgrades

▶ Addition of **V1G** and **V2G** EV charging poles to enhance demand flexibility

▶ Installation of **additional photovoltaic** (PV) panels on rooftops to increase renewable energy generation capacity

▶ Integration of advanced data management systems for **real-time energy and flexibility sharing** across sites

▶ Implementation of cloud-based infrastructure for **centralized data collection**, security, and analytics

▶ Integration of **smart control systems** to optimize the use of local renewable energy sources and storage

▶ Implementation of state-of-the-art visualisation tools to enable energy insights and cost analytics

Community benefits

● Enhanced energy **self-sufficiency** and flexibility through integration of local renewable energy sources and advanced energy storage systems.

● **Cost savings** achieved by maximizing the use of PV-generated energy and efficient battery storage.

● Cross-border **energy trading**, fostering collaboration among diverse energy communities with a multi-layered approach.

● Increased demand flexibility, particularly through the integration of V1G/V2G EV charging, contributing to **energy optimization**.

Innovations of the FEDECOM Platform

● Real-time data management and **sharing across federated energy communities** to optimize renewable usage and flexibility.

● Application of a cross-border, **multi-layered approach to energy management**: self-consumption first, then sharing within site/community, and finally across communities.

● Advanced integration of EV charging infrastructure with renewable energy systems for **seamless energy balancing**.

● Support for **cross-border energy trading**, allowing surplus energy to be shared and monetized across different communities.

Interested in Replicating this Use Case in Your Community?

Do not hesitate to contact us for more details:

FEDECOM