Newsletter – March 2021

Visit our website

SCALING-UP POWER FLEXIBLE COMMUNITIES BUSINESS MODELS EMPOWERED BY BLOCKCHAIN AND AI

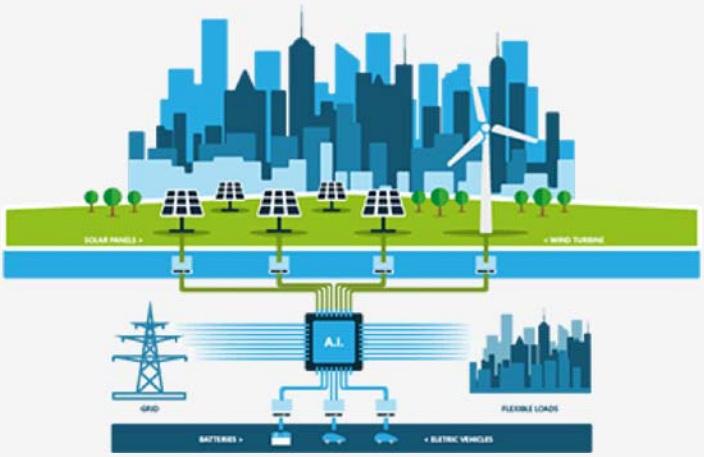
EDITORIAL

Dear reader,
We are happy to release the first issue of FleXunity´s newsletter.

This is a perfect time to present the project´s main expected outcomes and intermediate results. During the past months, besides other activities, the partners have focused their work on the technical and legal requirements analysis, assessment and definition of new market designs, pilot sites audits and site surveys, development of the Artificial Intelligence algorithms and on the implementation of Blockchain technology into the VPP platform.

OVERVIEW

The project receives funding from the European Union ´s Horizon 2020 research and innovation programme under grant agreement Nr. 870146. It aims at deploying novel services for retailers and aggregators, enhanced by Virtual Power Plant (VPP) technology empowered with Artificial Intelligence algorithms that can be focused on minimizing the cost of energy and optimizing the use of distributed renewables from the utility or community portfolio.



EXPECTED IMPACT

Energy Aggregator/ Retailer	End-user	Large energy consumer	TSO & DSO
Improve energy buying decision	Get the maximum time operation of RES	Reduce energy demand	Alleviate congestion issues
Provide secure transactions with blockchain	Secure participation of prosumers with Blockchain	Benefit from peak shaving	Reduce balancing costs
Reduce imbalances	Increase the energy savings	Reduce energy cost	Increase the number of market participants in TSO services
Automatize and reduce failure of DR programs	Monetize energy flexibility		
	Increase energy independence		

MAIN OBJECTIVES AND DEMONSTRATION PILOT SITES

The five main objectives of FleXunity are:

- **01 -** Scale-up Virtual Power Plant (VPP) technology with embedded AI and Blockchain technology;
- **02 -** Undertake two demonstration pilots in real-world buildings and communities (Iberia and UK);
- **03 -** Validate different levels of novel Business Models;
  - Aggregation of the flexible loads as universal VPP
  - TSO Balancing services using aggregator flexibility
  - Sharing surplus local energy within the Energy Community
  - Retailer accessing local energy market for portfolio optimization
  - Prosumer value via optimal demand side and DER management
- **04 -** Validate Optimization Algorithms in real-world conditions meeting the selected goals for each flexibility pool and energy community tariff scheme;
- **05 -** Start commercialization roll-out of VPP technology with embedded AI and Blockchain technology during 2022.

The pilot sites will play a fundamental role on the validation and demonstration in real world conditions of the VPP platform and its different innovations.

Distributed pilot community in Iberia

A distributed virtual energy community including 20 homes and 6 non-residential buildings with renewable energy generation, storage and flexible loads, and a control group with 10 houses with small flexible loads to isolate its economic impact. Most of the Spanish recruits (90%) are located in the Northern Galicia region, one recruit is located in the Castilla-La Mancha and two in the Castile and León regions. In Portugal one test home, five control homes and two non-residential sites were recruited across the northern regions of Portugal. New PV systems, batteries and flexibility management devices for remote control of the loads will be installed. 4 EV charging stations will be also installed next to the buildings to include flexibility from EVs in private parking spaces.

Localized pilot community in Corby

The UK pilot is located in Corby, Northamptonshire and represents a localized pilot community with members clustered within the geographical area of the Borough of Corby. The pilot in Corby will leverage pre-existing PV systems on homes and buildings and will add new storage and energy management devices to enable control of the community's collective flexibility profile. IoT devices and cloud-based platforms will be deployed at each site to enable control of small loads. The Corby pilot will also install 4 battery systems and 4 Vehicle-to-Grid (V2G) EV charging stations to enable the validation of the overall flexibility platform and its innovative services.

PROJECT NEWS

15.02.2020 Genera

Energia Simples had an opportunity to participate in the annually organized event in Madrid – GENERA, presenting the PowerPoint about the innovative side of FleXunity Project.

NEXT STEPS

- **01-** Installation and commissioning completion of pilot site equipment;
- **02-** Conduct surveys for stakeholders feedback and system optimization;

DISSEMINATION MATERIAL AND CHANNELS

You can also follow our project in social Network:
https://www.linkedin.com/company/flexunity/