Masterpiece

Multidisciplinary Approaches and Software Technologies for Engagement, Recruitment and Participation in Innovative Energy Communities in Europe

A modular platform to cover the EC journey via MASTERPIECE project

Adelaida Parreño Rodríguez
Juan Sánchez Valverde

25 Sept. 2024

UNIVERSIDAD DE MURCIA

SUSTAINABLE PLACES 2024

This project has received funding from the European Union's Horizon 2020 Framework Programme for Research and Innovation under grant agreement no 101096836.

Multidisciplinary Approaches and Software Technologies for Engagement, Recruitment and Participation in Innovative Energy Communities in Europe

MISSION

MASTERPIECE aims at creating a **digital coordination and cooperation modular platform of services** that **will facilitate the creation and operation of energy communities**. The facilities given to members of the community to contribute to services and other developments will represent the distinction of the solution offered in this proposal, making it participative by design.

HOW?

MASTERPIECE **focuses** on **social innovations and participatory processes** to engage stakeholders. **ICT tools will support creating, managing, and replicating energy communities**. A digital platform ecosystem will **assist organizational, legislative, and operational activities**.

Masterpiece

Main objectives

1

To **develop technical and social innovations to empower traditional energy consumers** and to make them **active agents of collaborative energy communities**, paving the way towards a new energy market paradigm

2

To create **user-centric solutions** that based on participatory approaches such as co-creation and naturally accelerate citizens' involvement

3

To propose **new business strategies and incentive mechanisms** that activate the reactions of market participants craving for business opportunities that imply energy use and cost reduction

4

To **configure** a **standardised and sound cyber-security infrastructure** so the active citizens are protected against cyber-attacks, at the same time that **privacy is defended in accordance with the revised EPBD and the GDPR law**

5

To **demonstrate the applicability and replicability of methodological, technical, and business innovations in** a variety of **real-life pilots** in different geographical locations, with heterogeneous social and economic environments and different regulatory/administrative frameworks

6

To ensure **wide reaching impact and use of project methodological, business, and technological outcomes among different stakeholders' categories**

Masterpiece

Pilot sites 1/2

Spain – UMU (PoC) – Universidad de Murcia

Italy – BERC – Municipality of Berchidda

Turkey – TROYA – Aşağıçavuş Forest Village

France – RDIUP/SEIN – Les Mureaux

France – ALEC – Solévent

Pilot sites 2/2

Sweden – UPP – Dansmästaren

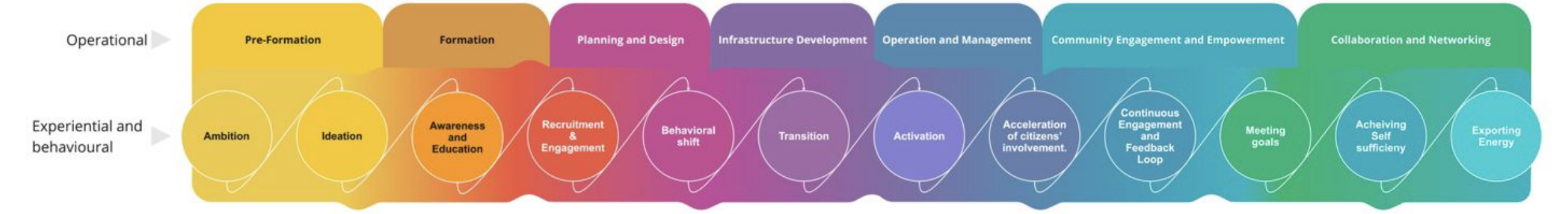
Sweden – NGENIC – BRF Väppeby Backe

Sweden – NGENIC – BRF Venus

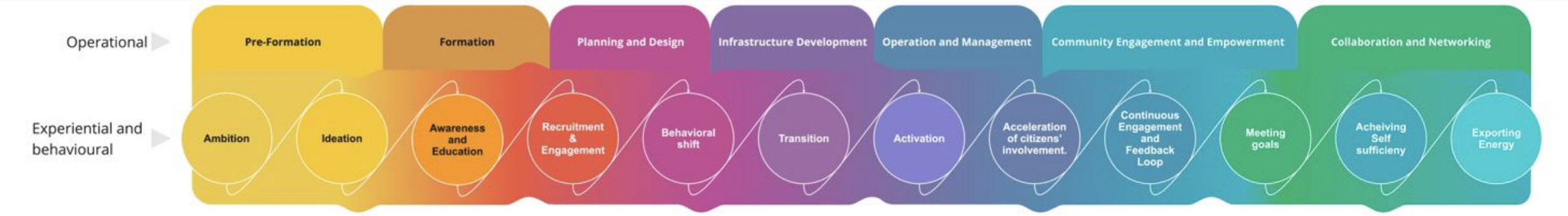
Sweden – NGENIC – Austerland

EC journey – our approach

EC journey = Operational + Experiential & Behaviorual pathways



EC journey – dimensional pathways



Experiential path

Importance of personal development and community interaction in realizing the EC's objectives

It **recognizes** the **crucial role of member engagement and behavioural transformation** in the success of energy communities (e.g. passive to active to leader…)

Operational path

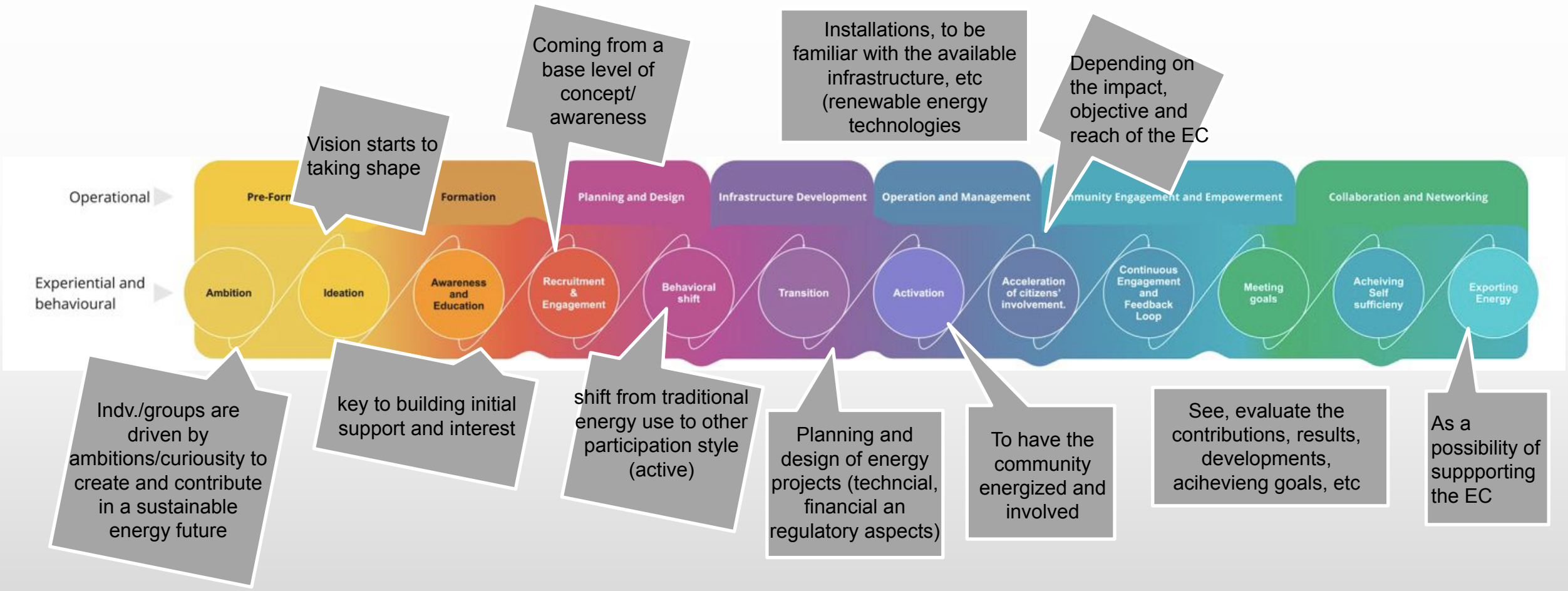
Technical, **logistical**, and **management aspects** necessary in the different stages of an EC

It includes **planning, design, infrastructure implementation, resource management, regulatory compliance**, and **everything related to the operational viability and sustainability of the project.**

Cyclical

Masterpiece

EC journey - in a glance

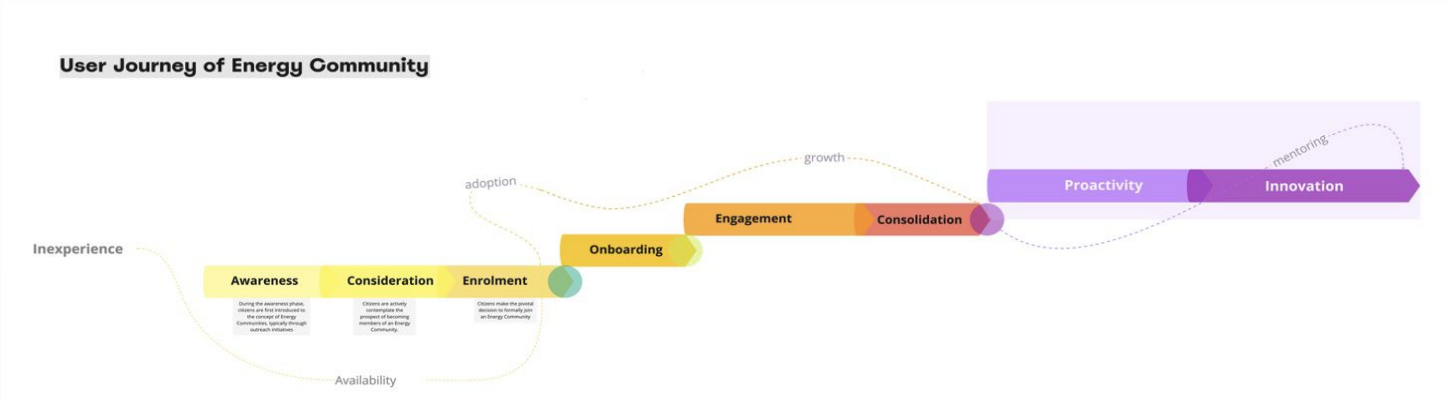


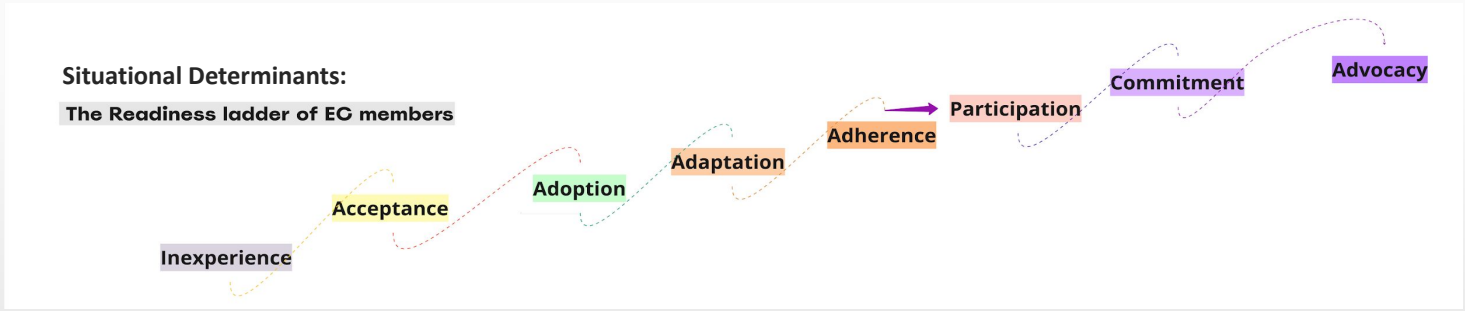
Masterpiece

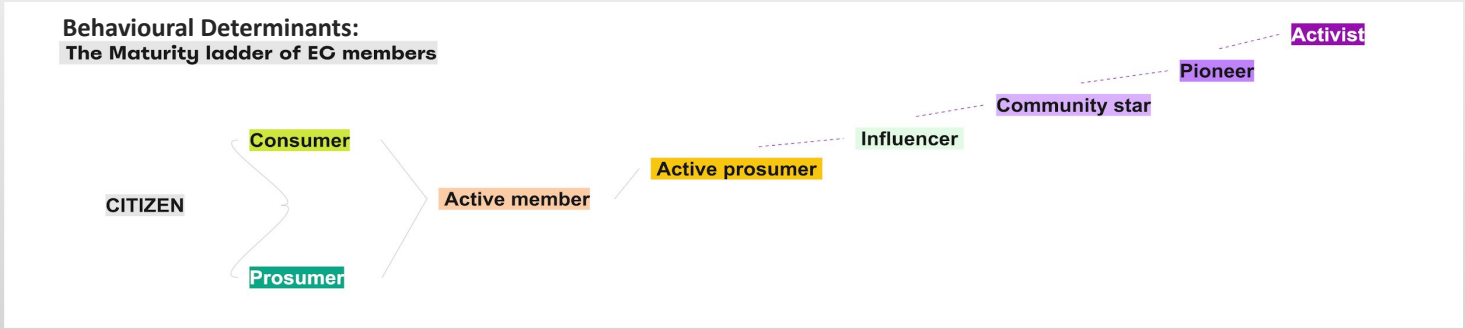
The User Journey in EC

The user journey in energy communities represents the experience of individuals as they interact with the community, from initial awareness to long-term participation

NOT a sequence of actions (emotional & cognitive response of users as they progress)



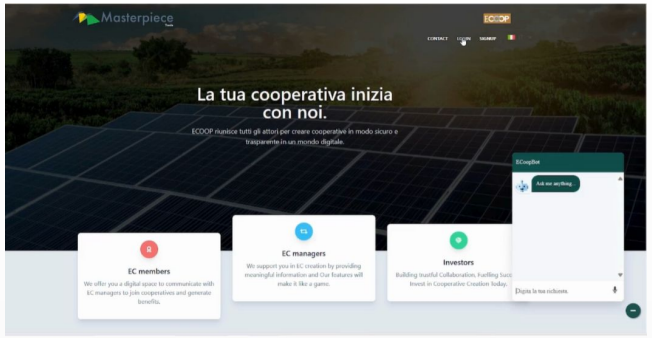




Various stages from Inexperience to mentoring

- The readiness ladder
- The Maturity ladder

Masterpiece Modular platform



Masterpiece

Central Gateway Platform landing page

Digital tools ecosystem

SIT

COMPASS

ECOOP

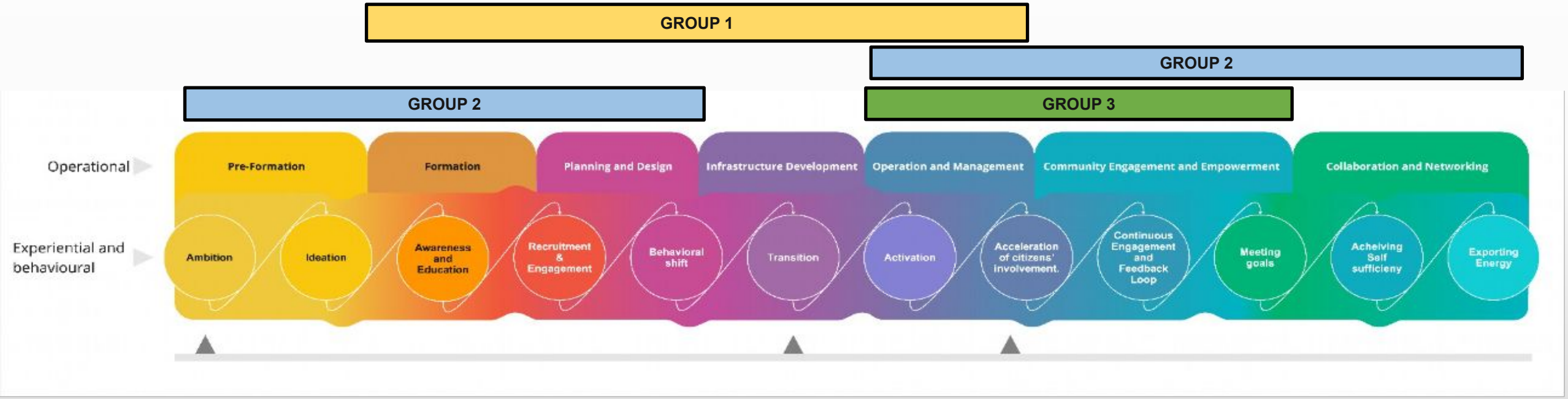
DR-FLEX

MEET APP

RECOMME

DLT Secure Platform

EC journey & Modular platform

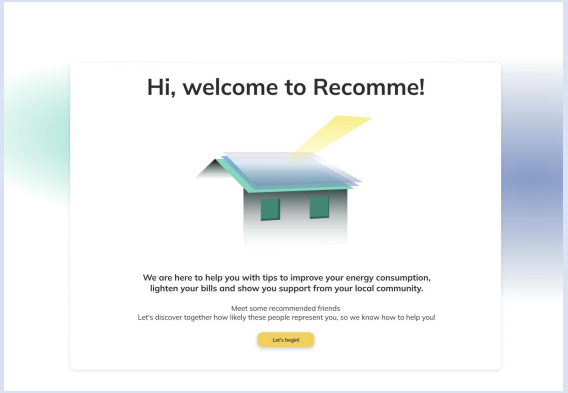


RECOMME - An EC personalised recommendation tool

RECOMME aims **to improve engagement and participation in ECs by providing personalized recommendations to stakeholders**, including potential and existing members, as well as managers and facilitators.

Impact

RECOMME serves as a **comprehensive guide for EC stakeholders**, promoting sustainable innovation and deeper community involvement.

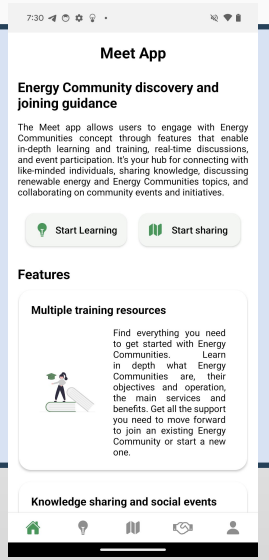


MEET app – putting people together

MEET app mobile application is a comprehensive digital solution that facilitates the **process of understanding, searching, and discovering Ecs.**

Impact

MEET offers a **social and collaborative space** to create and participate in group discussions, share knowledge with other citizens, organize and promote social events and initiatives while at the same time resource for learning.

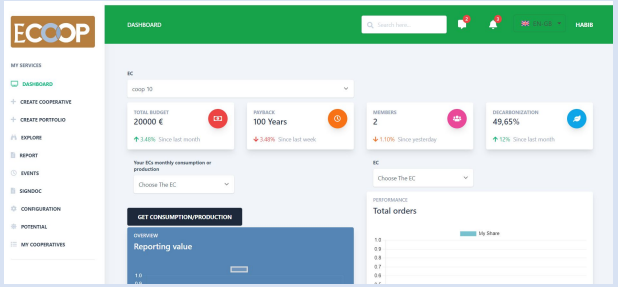


Ecoop – putting people together

ECOOP helps establish energy projects and develop shared assets, promoting cooperation to build & join a Ecs.

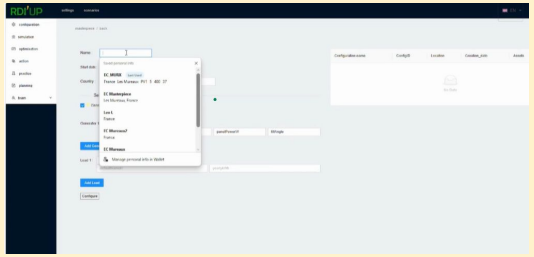
Impact

Open ecosystem to bring together managers, producers, and consumers, to build and scale energy communities.



SIT – Smart Investment Tool

SIT is designed for self-consumption energy configurations. It **generates sustainable plans** by incorporating **various energy system components** and **practices for a cost-effective energy transition**.

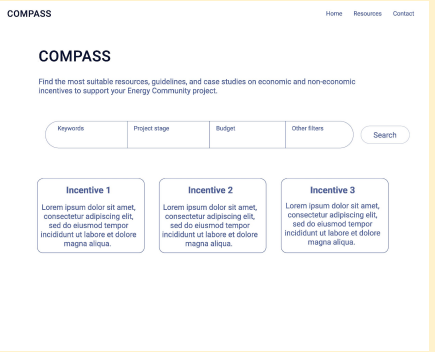


COMPASS – Incentive guidance

The COMPASS digital tool **offers**

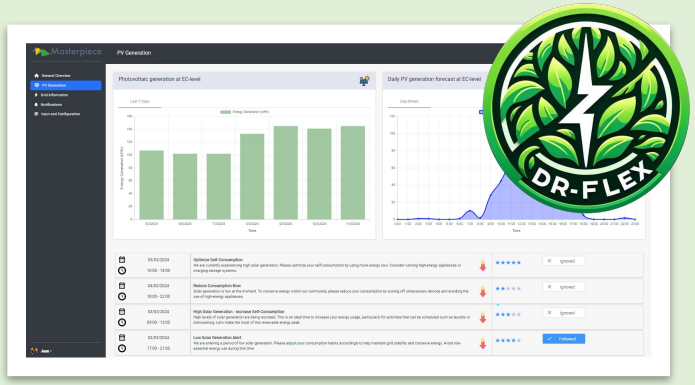
Impact

Resources, guidelines, and case studies on economic and non-economic incentives aiming to lower entry barriers for citizens, prosumers, socially vulnerable groups, and communities, and encourage wider participation in distributed generation and energy community projects**.**



DR-FLEX – Demand Response and demand optimisation as an EC service

DR-FLEX is a tool aimed at **optimizing energy demand and promoting Demand Response (DR)**. Key features include **demand optimization for grid requirements**, encouragement of **self-consumption from renewable sources**, and a **user-friendly dashboard** offering personalized recommendations.



Impact

It establishes an information environment for data analysis, optimizes demand at Energy Community (EC)-level, and sends customized notifications for demand modification.

Masterpiece

Multidisciplinary Approaches and Software Technologies for Engagement, Recruitment and Participation in Innovative Energy Communities in Europe

Thank you!

Masterpiece

SUSTAINABLE PLACES 2024

COMMUNITAS

Best Practices and Strategies for Stakeholders Engagement

The COMMUNITAS project

Support citizens to become **active participants** in energy activities and deliver a set of tools to support the **creation, growth, and capacity building** of Energy Communities.

Social engagement & innovation

Technical & market tools

Financial, regulatory & administrative support

Stakeholder Engagement in Communitas Project

Key Stakeholders:

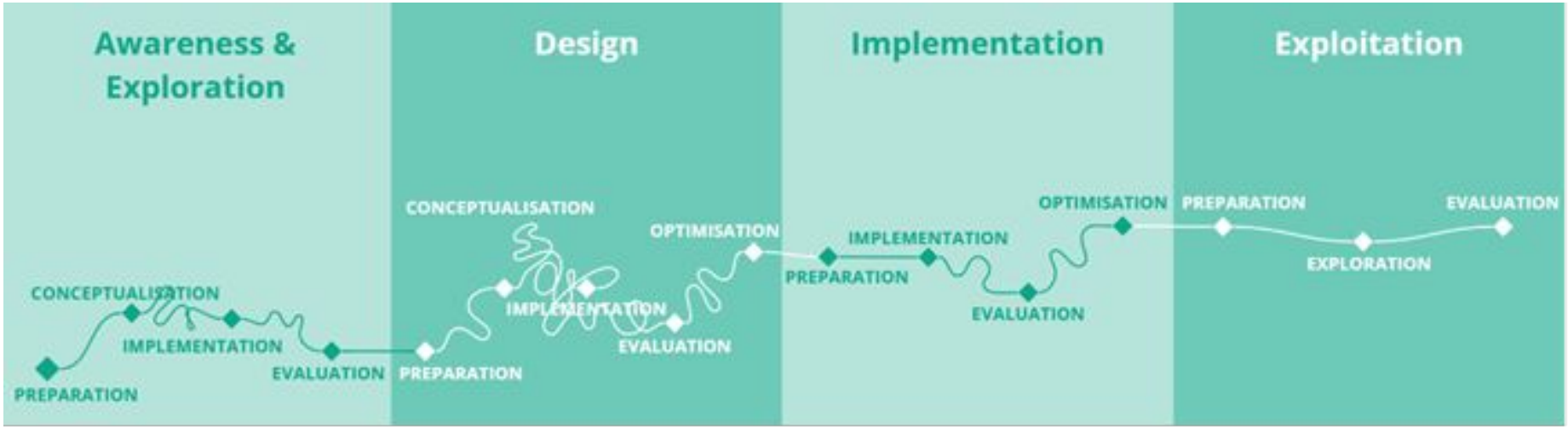
- Citizens, Local Authorities, Energy Cooperatives, SMEs, and Energy Service Providers.

Engagement Objectives:

- Foster active participation in Energy Communities (ECs).
- Ensure diverse perspectives for the development of sustainable energy initiatives.
- Promote transparent communication and long-term collaboration among stakeholders.

Citizen-Centered Design and Participation

COMMUNITAS emphasizes the importance of co-creation with citizens, aiming to position them at the center of energy markets and EC development. The methodology is meant to be used by EC's to engage members in development of their activities. By supporting the pilots in engagement & proposition design activities, COMMUNITAS fosters involvement of citizens in their local energy communities and in software development that supports their communities..



Bottom-up and Top-down Engagement

COMMUNITAS recognizes that ECs can be initiated in two main ways: bottom-up (citizen-driven) and top-down (institution-driven). Bottom-up approaches generally result in higher citizen involvement and stronger support, as citizens have a personal interest in the energy services. Top-down initiatives may meet resistance, but they can also bring rapid development. Both approaches require tailored engagement strategies, ensuring that community members feel valued and represented

Value-Based Proposition Design

The project emphasizes value-based proposition design to align services with citizens' needs, values, and desires. This ensures that EC services are not only financially viable but also socially and environmentally desirable. Ideally, engagement is sustained and the value propositions are sometimes refined to match evolving community needs.

Inclusive and Participatory Methods

The methodology stresses the importance of inclusivity by actively involving marginalized groups such as the elderly or those facing energy poverty. Communitas asim to support Ecs to use various tools, including workshops, surveys, and interviews, to ensure that all voices are heard. Additionally, communication tools are deployed to regularly update and engage citizens, fostering a sense of ownership and continuous participation

Ten basic human values, adapted from Sheldon (2001)

Social and Policy Labs (Participatory Labs)

The COMMUNITAS project incorporates Social and Policy Labs as an iterative, experimental platform for the energy communities and other project partners to learn and share. These labs provide a dynamic environment for testing the effectiveness of engagement strategies and (digital) tools, adapting them to real-world conditions, and incorporating feedback from citizens. Through these labs, the project aims to ensure that engagement methods are practical, scalable, and culturally adaptable.

SOCIAL POLICY LABS
ITALY

SOCIAL POLICY LABS
SPAIN

SOCIAL POLICY LABS
DENMARK

SOCIAL POLICY LABS
NETHERLANDS

Social Acceptance Campaigns

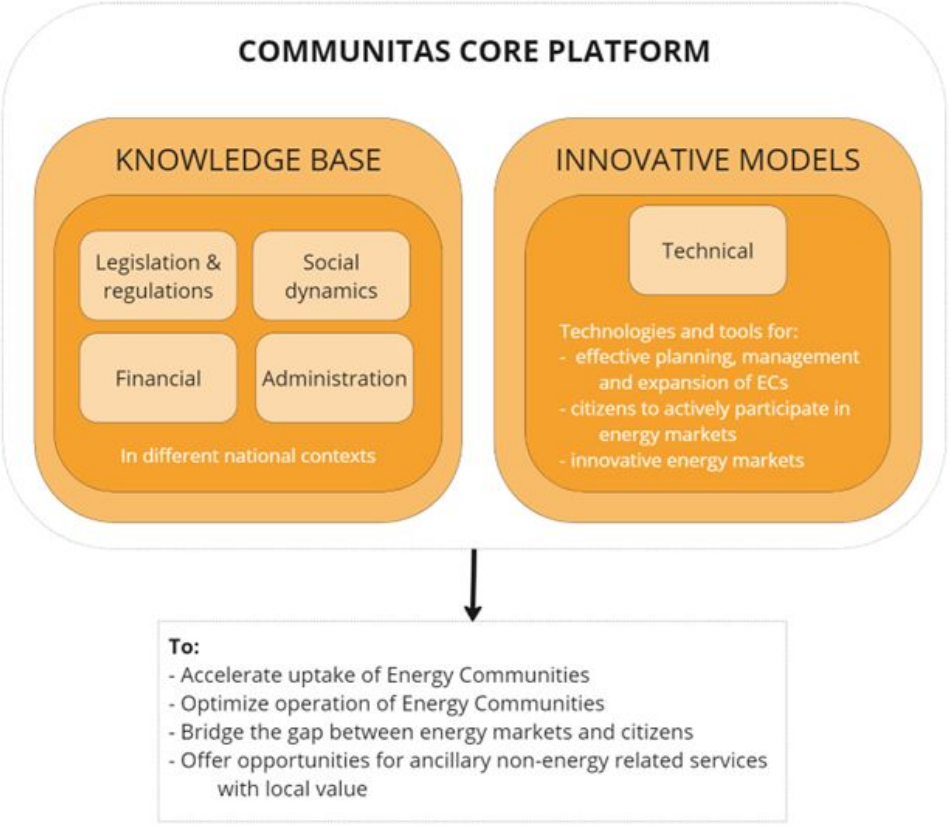
In the COMMUNITAS project, campaigns focus on raising public awareness by emphasizing the benefits of local renewable energy initiatives. These campaigns aim to educate the public on how joining energy communities can provide environmental benefits, financial savings, and greater community empowerment. Through localized communication strategies, the campaigns address specific community concerns while promoting the advantages of collective energy actions.

Replication Academy

The **Replication Academy** offers a structured platform where communities, policymakers, and energy stakeholders can access knowledge, best practices, and tools developed through the COMMUNITAS project. The Academy facilitates workshops, training sessions, and interactive tools that empower communities to replicate the successful models from the project's pilot sites. Participants are guided through the legal, technical, and financial processes needed to establish an EC, making the replication process smoother and more accessible.

Utilizing Digital Tools for Engagement

Digital tools are developed in COMMUNITAS to support energy communities deploying activities such as energy sharing, energy trading, giving advice to citizens and the community about investments for increasing sustainable energy use and sustainability.
Engagement is needed to grow strong energy communities and input from EC members is needed to make sure the digital tools (that support EC's in deploying several activities) match the needs of EC's and their members.



Łukasz Wilczyński
Project Manager

l.wilczynski@asmresearch.pl
+48 697 122 540

THANK YOU

SOCIAL SCIENCE HUMANITIES

FOR YOUR PROJECT

DE-RISK

Building Energy Communities: *A User's Journey in DE-RISK Pilot case studies*

Technologies and user engagement

Konstantinos Mamis

Miguel Miñano

25 September

DE-RISK in a Nutshell

DE-RISK *aims to support the market uptake of RES by fostering the adoption of demand response & LFMs and unlock up to 100GW of flexibility by 2030.*

Core project elements include:

- Flex platform based on Digital Twins
- Customer Behaviour Journey
- Multi-sided Business Models
- LFM Regulatory Package
- Financing Schemes
- Exhaustive Validation in TR, ES, IE

- HEU Topic: HORIZON-CL5-2021-D3-02-03 - Market Uptake Measures of renewable energy systems
- Project Type: Coordination & Support Action
- EU Funding: € 1 999 711
- https://deriskproject.eu/

DE-RISK

SUSTAINABLE PLACES 2024

MIW ENERGÍA

Que technologies

Aims & objectives

- Engage end consumers to take an active part under the local flexibility strategy
- Increase RES hosting capacity and minimize the risk of implementation and operation of Local Flexibility Markets
- Expose local flexibility regulatory challenges and develop a regulatory recommendation to overcome them
- Leverage the adoption of Local Flexibility Markets and RES investments
- Validate the DE-RISK holistic solution to guarantee scalability and replicability

DE-RISK

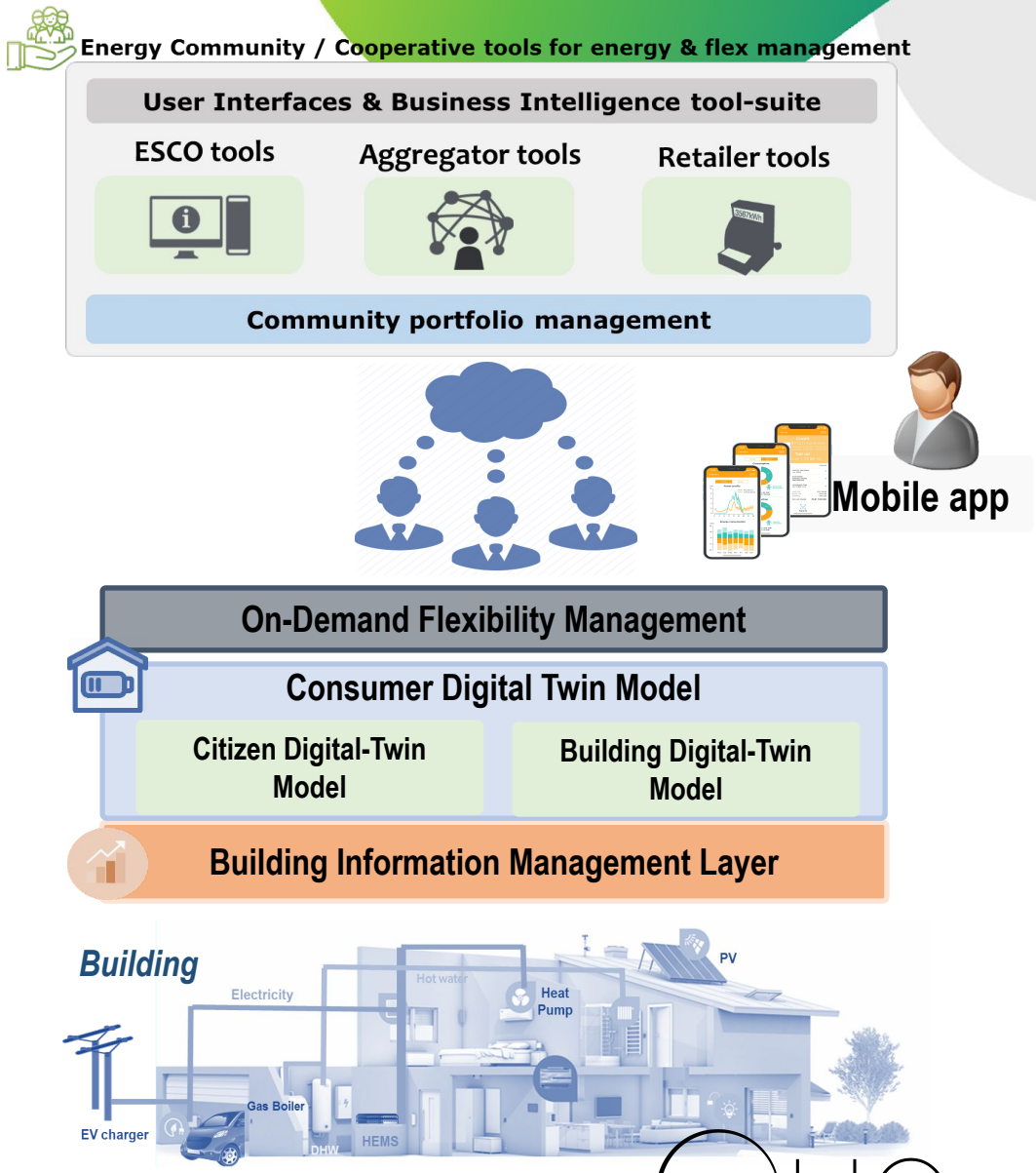
SUSTAINABLE PLACES 2024

MIW ENERGÍA

Que technologies

Demand-response tool-suite for flex discovery, management & delivery

- Modular software stack delivering DR services to market actors and householders
- 4 layers facilitate alternative business models, deployments and service delivery options
- Facilitates implicit & explicit DR, and building-level energy management (self-consumption, cost reduction, energy efficiency)



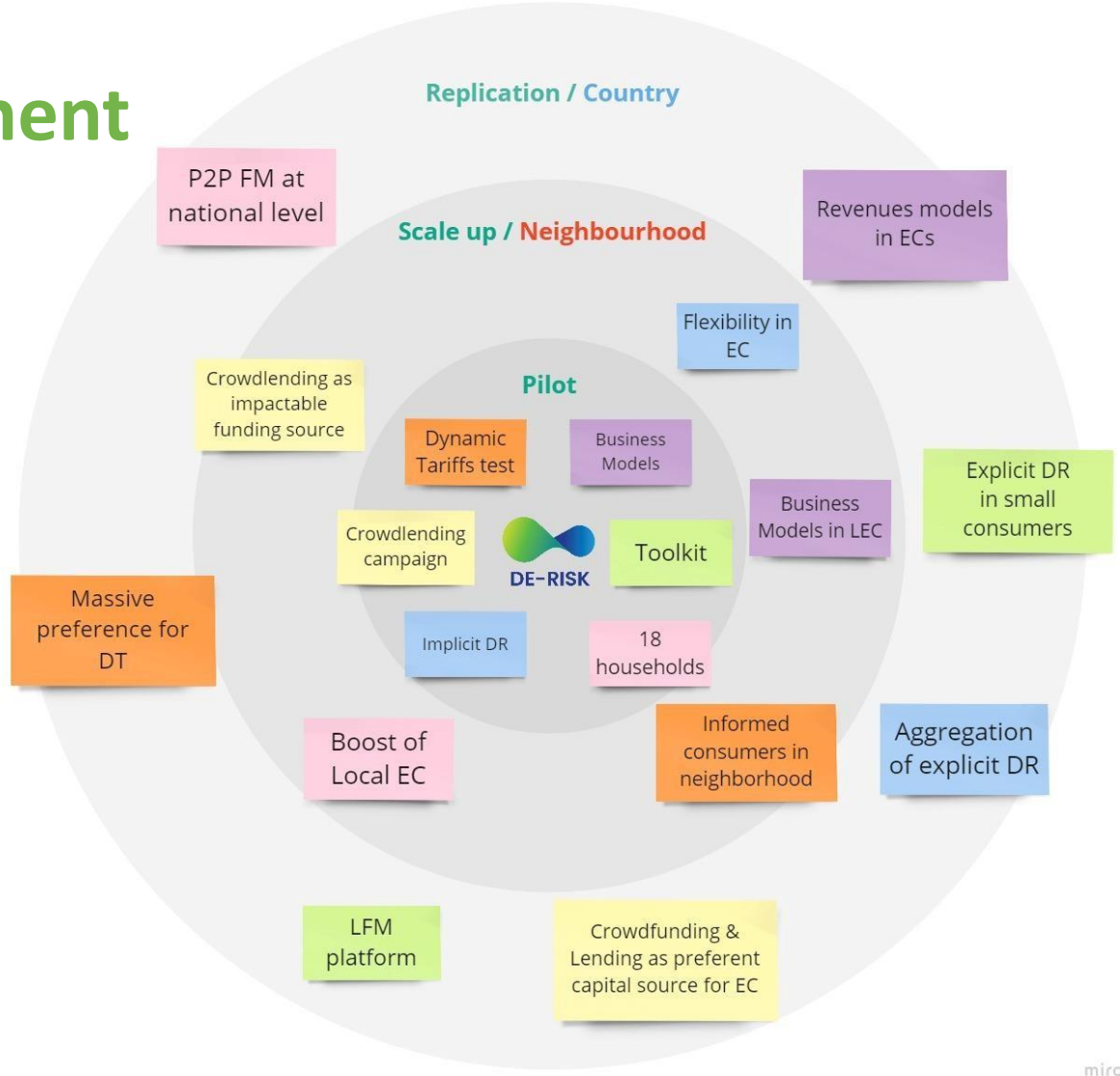
DE-RISK

SUSTAINABLE PLACES 2024

MIW ENERGÍA

Que technologies

Engagement


Replication / Country
Scale up / Neighbourhood
Pilot
P2P FM at national level
Revenues models in ECs
Flexibility in EC
Crowdlending as impactable funding source
Dynamic Tariffs test
Business Models
Explicit DR in small consumers
Business Models in LEC
Crowdlending campaign
DE-RISK
Toolkit
Massive preference for DT
Implicit DR
18 households
Boost of Local EC
Informed consumers in neighborhood
Aggregation of explicit DR
LFM platform
Crowdfunding & Lending as preferent capital source for EC
miro

Upscaling by confidence: crowdlending

Ecrowd!
Invest in a better today

Total investment: 6.500 €
Assets: 5 kWp + Monitoring, control & Gateway
Interest rate: 5%
Payback: 1 year
Status: Open

DE-RISK

SUSTAINABLE PLACES 2024

MIW ENERGÍA

Que technologies

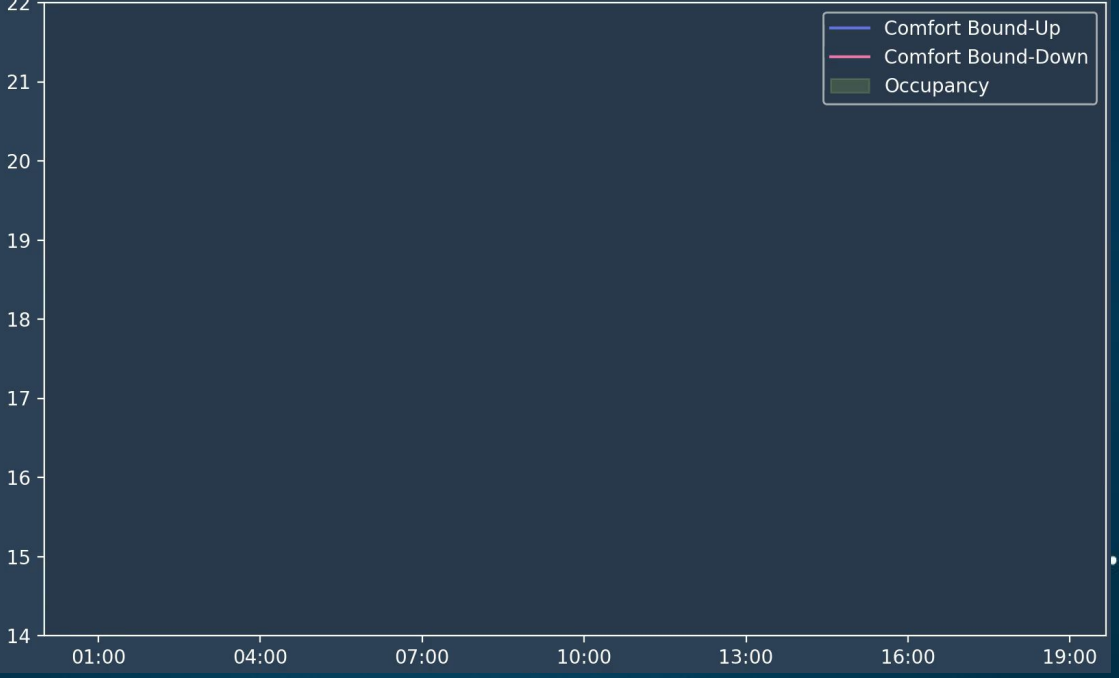
Technologies

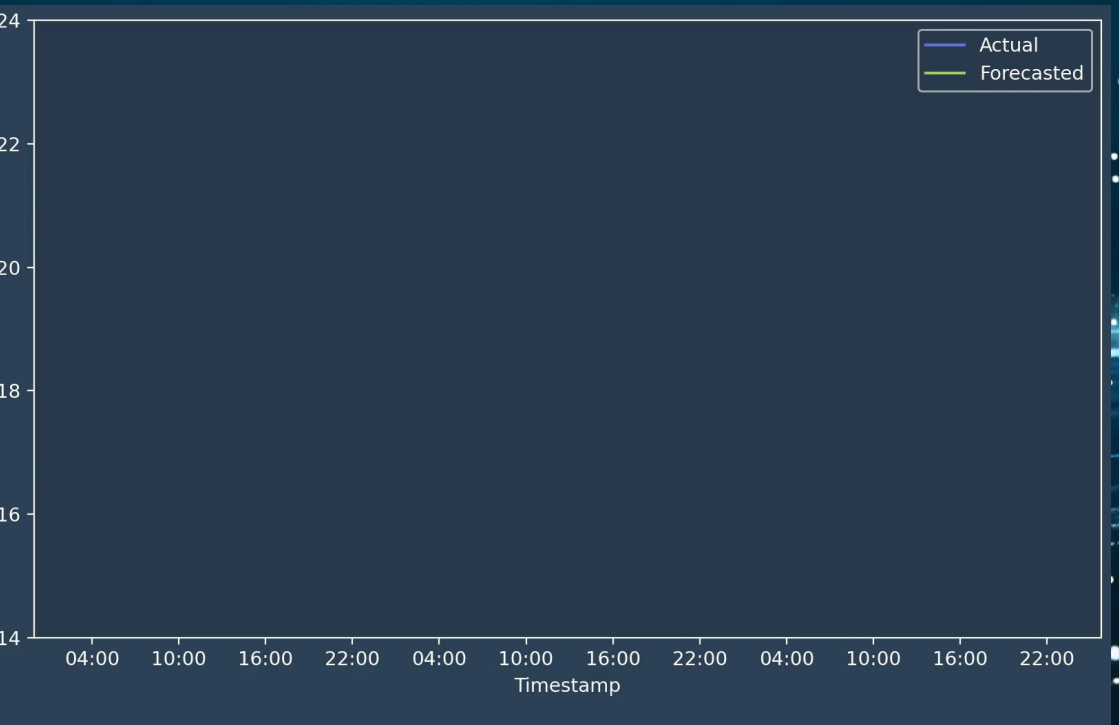
DE-RISK

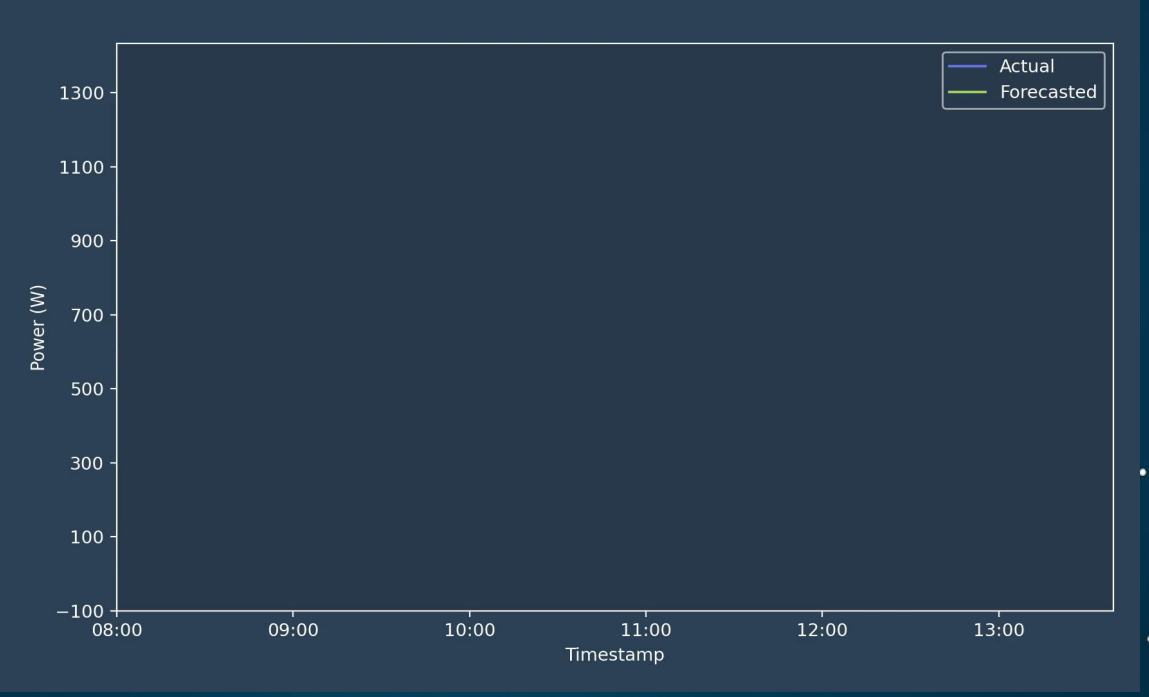
Technologies

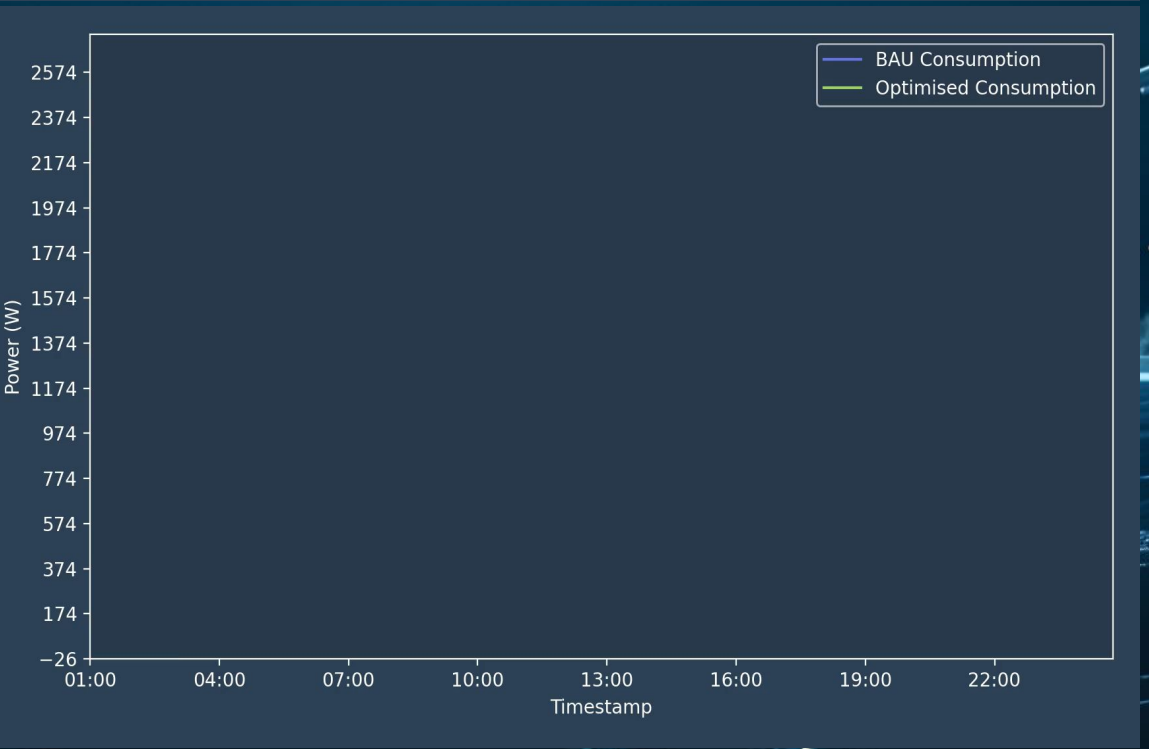
DE-RISK

Technologies

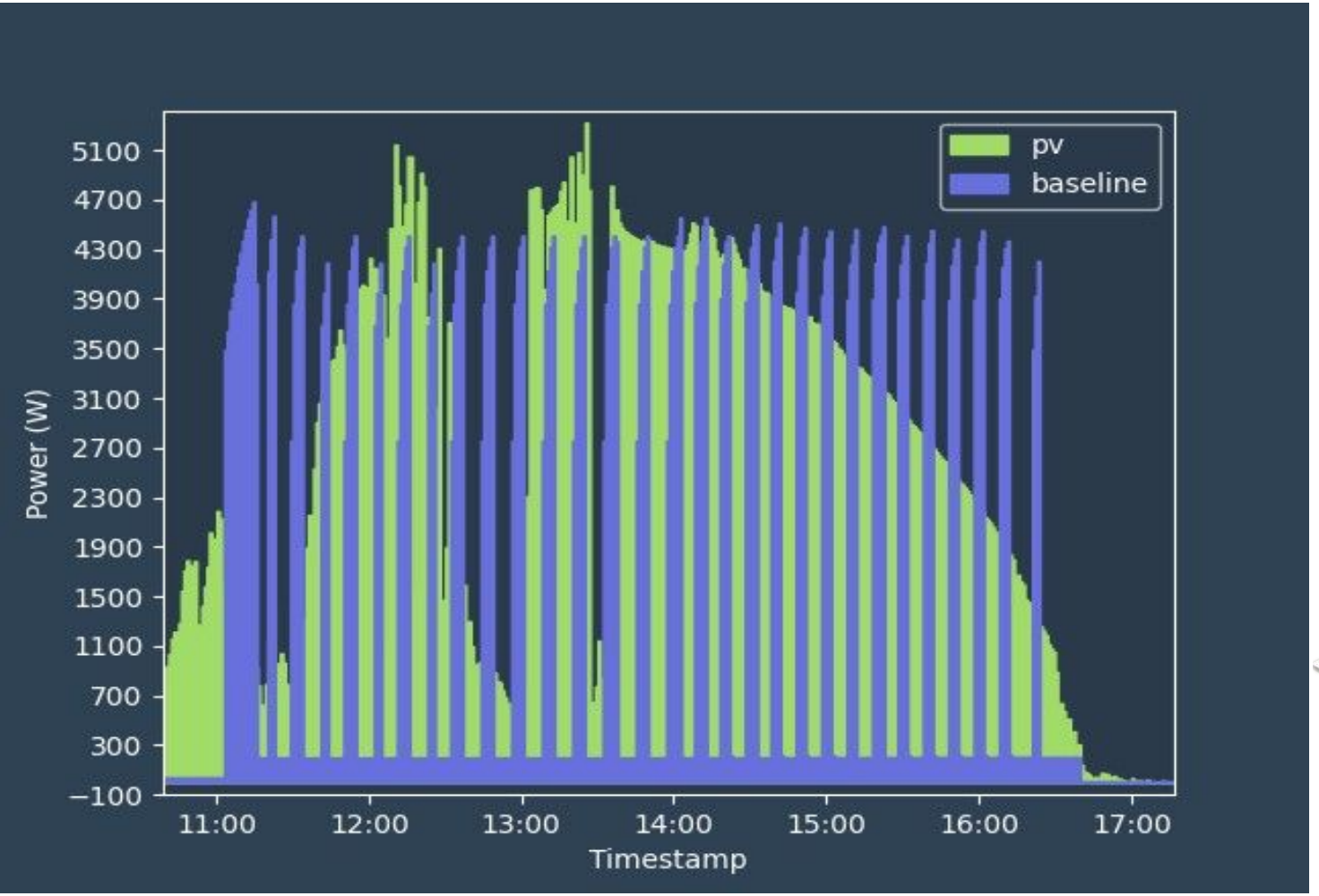

Comfort Bound-Up
Comfort Bound-Down
Occupancy
22
21
20
19
18
17
16
15
14
01:00
04:00
07:00
10:00
13:00
16:00
19:00


Actual
Forecasted
24
22
20
18
16
14
04:00
10:00
16:00
22:00
04:00
10:00
16:00
22:00
04:00
10:00
16:00
22:00
Timestamp


Actual
Forecasted
1300
1100
900
700
500
300
100
−100
Power (W)
08:00
09:00
10:00
11:00
12:00
13:00
Timestamp

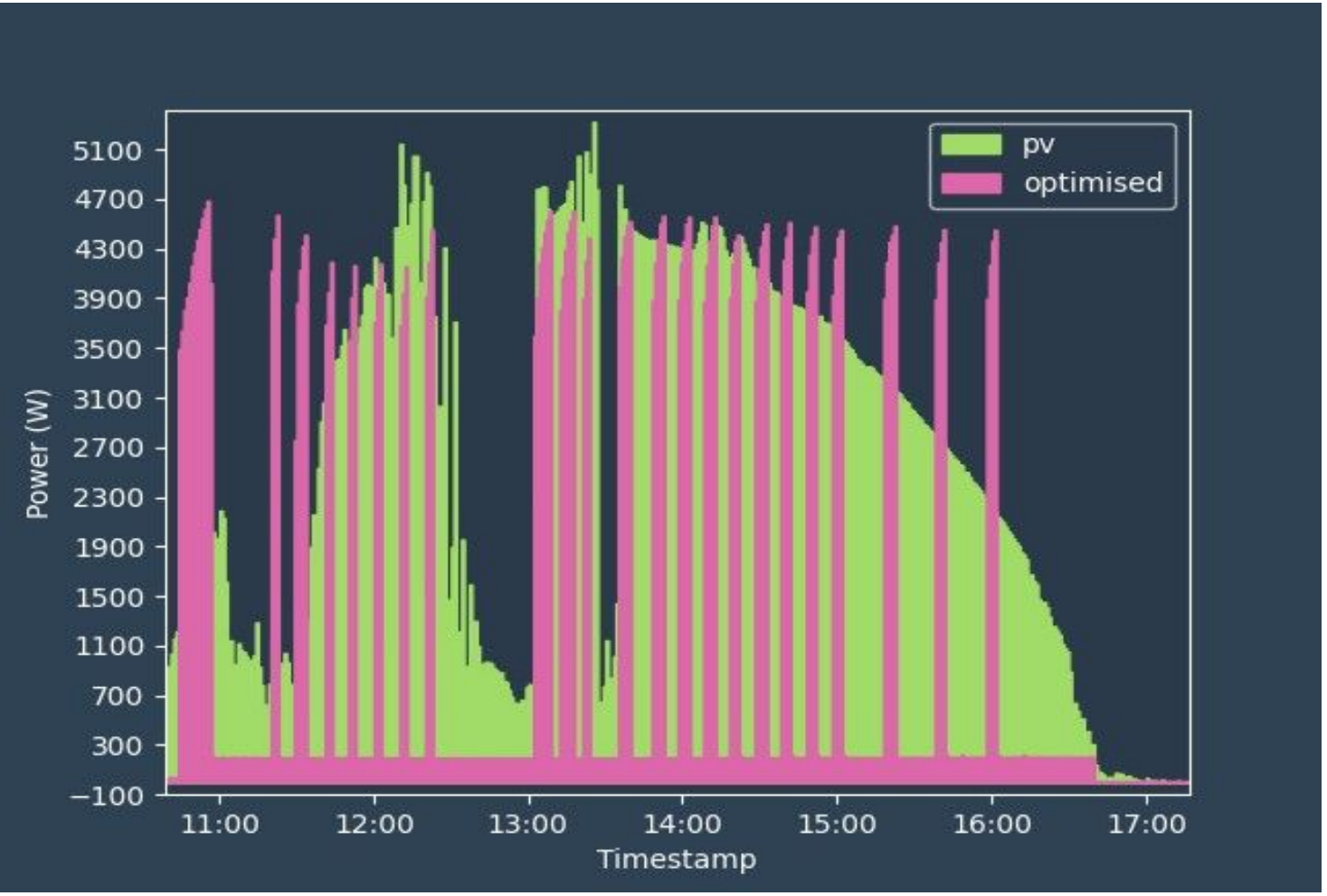

BAU Consumption
Optimised Consumption
2574
2374
2174
1974
1774
1574
1374
1174
974
774
574
374
174
−26
Power (W)
01:00
04:00
07:00
10:00
13:00
16:00
19:00
22:00
Timestamp

Self – consumption



DE-RISK

Self – consumption



Self-Consumption BAU	43%
Self-Consumption OPT	55%

Self-Sufficiency BAU	67%
Self-Sufficiency OPT	85%

DE-RISK

Conclusion

- DE-RISK is demonstrating its ability to scale and endure, mobilizing people and investment beyond the project itself (Miguel)
- A key aspect is to design the demonstrators not as a mere technical validation, but also as a response to users' hesitations about the innovation (Miguel)
- Insights from the deployment and operation of DE-RISK platform in the Pilot case studies, will guide further expansion and development

DE-RISK

THANK YOU!

miw ENERGÍA

miguel.m@miwenergia.com

Que technologies

k.mamis@que-tech.com

SUSTAINABLE PLACES 2024

The project has received funding from the **European Union's Horizon EUROPE Programme under grant agreement No. 101075515**

LocalRES

SUSTAINABLE PLACES 2024

Digital tools to support the growth of energy communities

From planning to operation

Karine Laffont-Eloire

Karine.laffont@dowel.eu

DOWEL Innovation

25/09/2024

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Content

- Presentation of LocalRES
- Our tools to support the creation and operation of energy communities
- Next steps & conclusions

This project has received funding from the European Union's
Horizon 2020 Programme under the Grant Agreement no. 957819

Presentation of LocalRES

This project has received funding from the European Union's
Horizon 2020 Programme under the Grant Agreement no. 957819

Project in a nutshell

- Objective: Support the development of **Renewable Energy Communities** (RECs) as main actors to lead the structural change towards the decarbonisation of the local energy systems

©iStock/rawpixel

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Project in a nutshell

- Objective: Support the development of **Renewable Energy Communities** (RECs) as main actors to lead the structural change towards the decarbonisation of the local energy systems
- 2 key results:

Planning tool to enable citizen participation in the REC planning processes (co-design)

Multi-Energy Virtual Power Plant (MEVPP) approach to optimize in real time different energy vectors and different flexibility services provided by the REC

- 4 demonstration sites in rural areas
- 5 years (1/5/2021 to 30/4/2026)

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Project Consortium

8 Countries

Austria
France
Belgium
Finland
Italy
Ireland
Germany

22 Partners

3 LARGE
1 COOP.
6 SMES
1 ASSOC.
1 UNIV.
4 PUBLIC
*2 3rd PRTY

4* Demo sites

Ollersdorf (Austria)
Ispaster (Spain)
Berchidda (Italy)
Kökar* (Finland)
Osimo** (Italy)

Kökar* (Finland)
[fellow case]

Ollersdorf (Austria)

Flexens
FLEXIBLE ENERGY SOLUTIONS
VTT
Kökar
MTU
Ollscoil Teicneolaíochta na Mumhan
Munster Technological University
ENERGYCITIES
centrica
Dowel innovation
Artelys
UNIVERSITÄT PASSAU
AIT
AUSTRIAN INSTITUTE OF TECHNOLOGY
eurac research
tecnalia
Barrizar
EZE
Ispaste
CARTIF
R2M SOLUTION
Ollersdorf
revolt data revolution
RINA
astea
AIGUASOL
Berchidda

Ispaster (Spain)

Berchidda (Italy)

Osimo** (Italy)
[P2P demonstration]

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Ispaster

Basque country, Spain

- **POPULATION:** 740 INHABITANTS
- **OBJECTIVES:**
  - ENERGY SELF-SUFFICIENCY
  - INCREASE RURAL POPULATION
- MANAGEMENT BY A **COOPERATIVE**
- **PUBLIC & PRIVATE BUILDINGS**
- THE MUNICIPALITY OWNS THE **MICROGRIDS**

TEAM

Ispasterko Udala

Barrizar EZE

tecnalia

AIGUASOL

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Berchidda

North of Sardinia Island, Italy

- **POPULATION:** 2,758 INHABITANTS
- **OBJECTIVES:**
  - ENERGY INDEPENDENCE
  - STRENGTHEN THE LOCAL COMMUNITY
- LOCAL PLAN AS A **SMART GRID**
- THE MUNICIPALITY **OWNS PART OF THE GRID** (25 SUBST., 5 MVA); ACTS AS **DSO**
- PV SYSTEMS: 68 PRIVATE + 2 INDUSTRIAL + 3 MUNICIPAL (~600 kWp) + 1 UNDER CONSTRUCTION (800 kWp)

TEAM

Comune di Berchidda

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Ollersdorf

Burgenland, Austria

- **POPULATION:** ~1,000 INHABITANTS
- **OBJECTIVE:** SMART MUNICIPALITY
- **KEM** REGION (+7 MUNICIPALITIES)
- INNOVATION LAB **act4.energy**
- GREAT **CITIZEN ENGAGEMENT**
- ONLY **AUSTRIAN** PRODUCTS AND SERVICES FROM THE **REGION**
- 7 PV ON PUBLIC BUILDINGS
- **USE OF ROOFS** FOR COLLECTIVE PV

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Kökar

Archipelago municipality, Åland islands, Finland

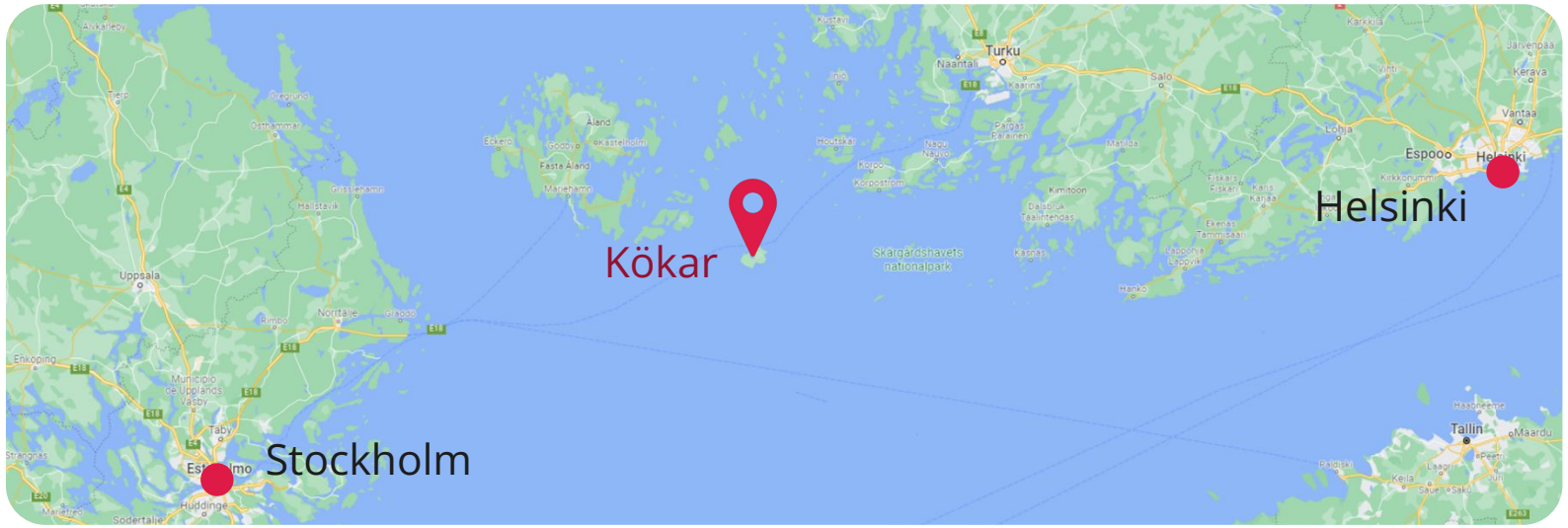
- **POPULATION:** 234 INHABITANTS
- **OBJECTIVES:**
  - MINIMIZE BLACKOUTS
  - 100% RENEWABLE (2030: 60%)
- MEMBER OF **CE4EUI**
- SPECIFIC **"WORKING GROUP"**
- *INITIAL ACTION PLAN NOT FEASIBLE ANYMORE AFTER DELAY DUE TO ISSUES WITH THE MUNICIPALITY, SO NOW KÖKAR IS A **FELLOW CASE**

TEA

Kökar kommun

Flexens
FLEXIBLE ENERGY SOLUTIONS

VTT



This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

LocalRES tools to support energy communities

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

The life-cycle of an energy community

01 – Citizen engagement

02 - High-level planning and initial decision-making

07 – Maintenance & growth

03 - Financing

06 – Operation & optimisation

04 - Detailed planning & permits

05 – Deployment / installation

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

The life-cycle of an energy community

- Main barriers

Regulatory: changing regulatory landscape at EU and Member State level for energy sharing and energy communities, with strong national disparities, and fully functional frameworks only in a few countries

Market: energy communities are not on a level playing field to participate in energy markets…but recast of EMD and new network codes on DR should help

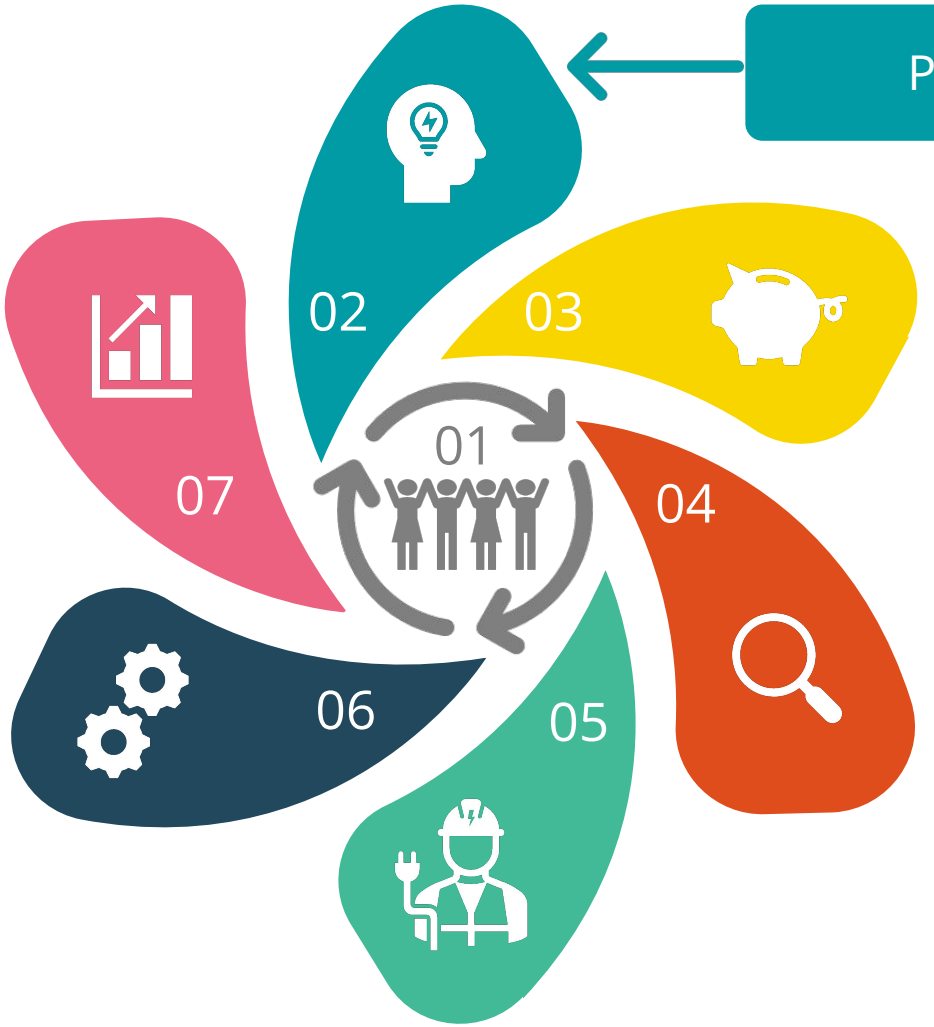
Social: lack of citizen awareness, low social acceptability, focus on security of delivery and energy prices, lack of understanding of available incentives and support

Financial: high upfront investment needed, lack of clarity about potential financial benefits, fear of risks

Technical: lack of skills, legacy equipment that needs to be upgraded, lack of interoperability, incomplete roll-out of smart meters in some Member States

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

The life-cycle of an energy community



Planning tool

Artelys

CENTRO TECNOLÓGICO CARTIF

Multi-Energy Virtual Power Plant (MEVPP)

centrica

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Planning tool

- Objectives
  - Assist the user in the definition of community-based scenarios for the local energy transition (1), the optimization of networks layout (2), and the assessment of the scenarios (3) in an understandable way
  - Enables the active participation of users in the design and planning of their REC and delivers pre-feasibility studies to promote informed decisions of all actors involved
- 3 specific computation modules developed for LocalRES

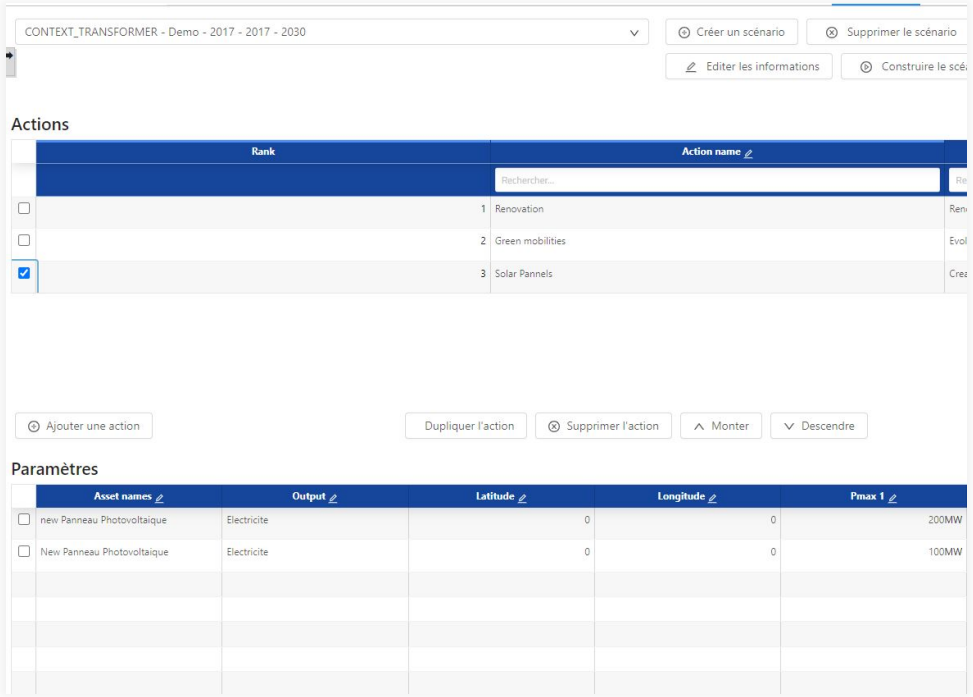
*District heating route optimiser & Smart sizing module for the electrical grid

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

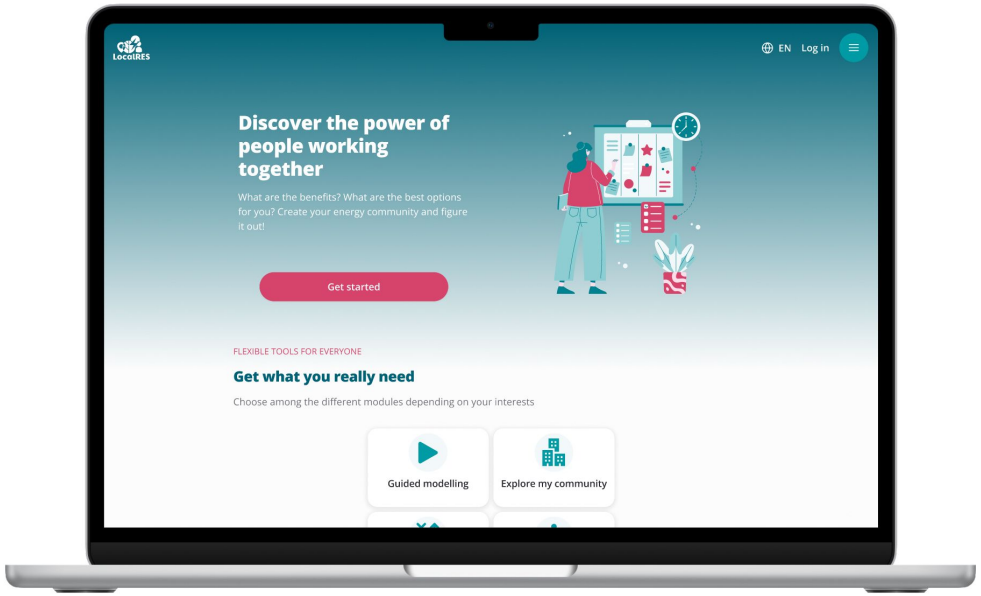
Planning tool

- 2 user interfaces

  For the **experts** : a detailed scenarisation tool



For the **citizens** : an accessible interactive survey with insights in every step

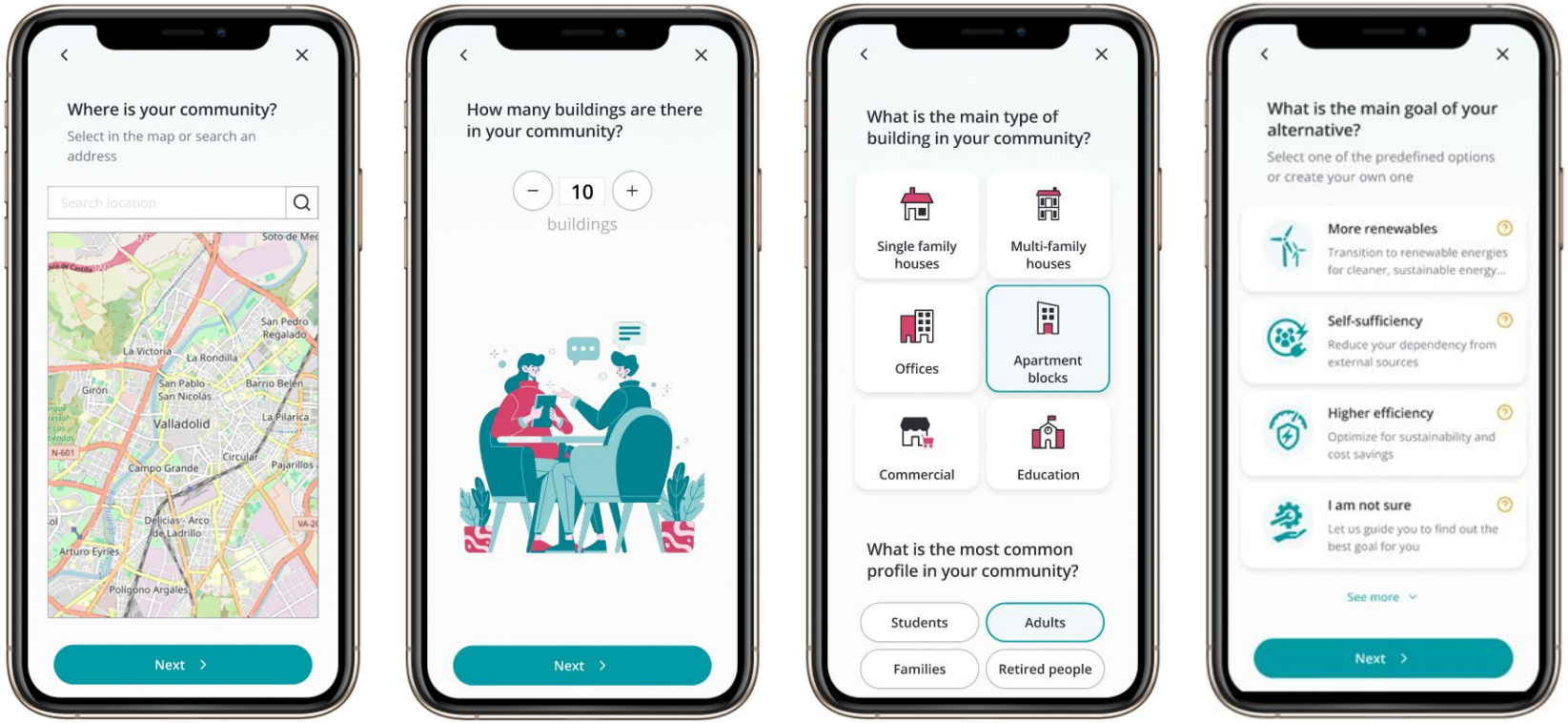


User inputs from the citizen interface are transformed into recommendations and specific actions, which can be simulated as scenarios.

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Planning tool

1. RES-based scenario generator



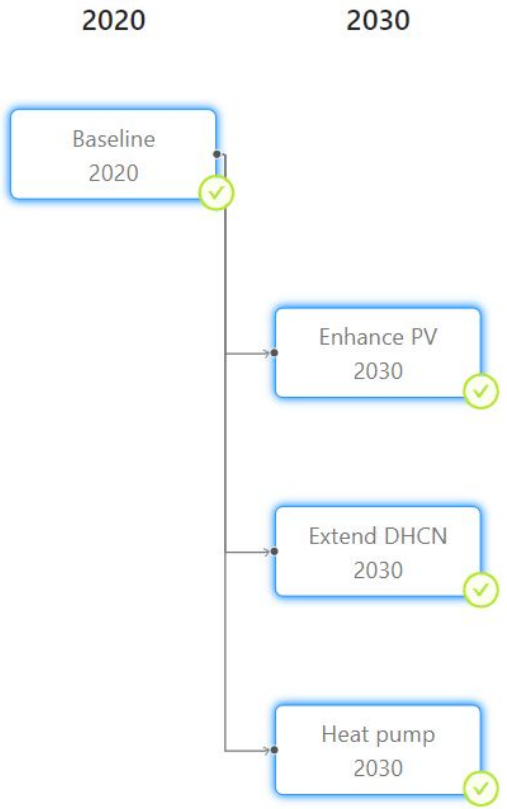
The collection of user inputs is adapted to different levels of data availability and technical knowledge

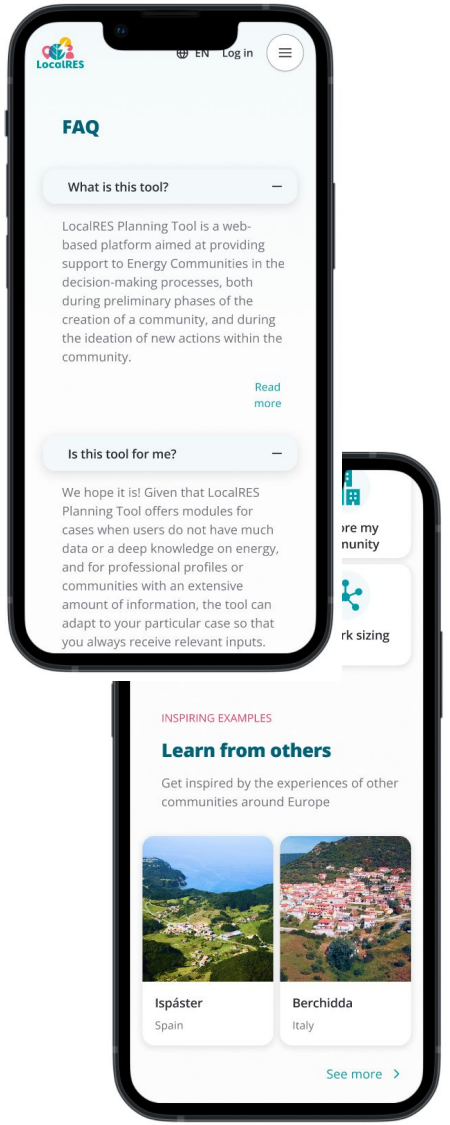
This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Planning tool

1. RES-based scenario generator

- Scenarios oriented to explore alternatives for the local energy transition are generated:
  - Either, based on recommended actions derived from user inputs collected through the citizen UI
  - Or directly based on experts' (detailed) inputs
- Users can access complementary insights to support the planning process and contribute to the accessibility for all actors
- The different scenarios will be then simulated and results will be analyzed in the third module



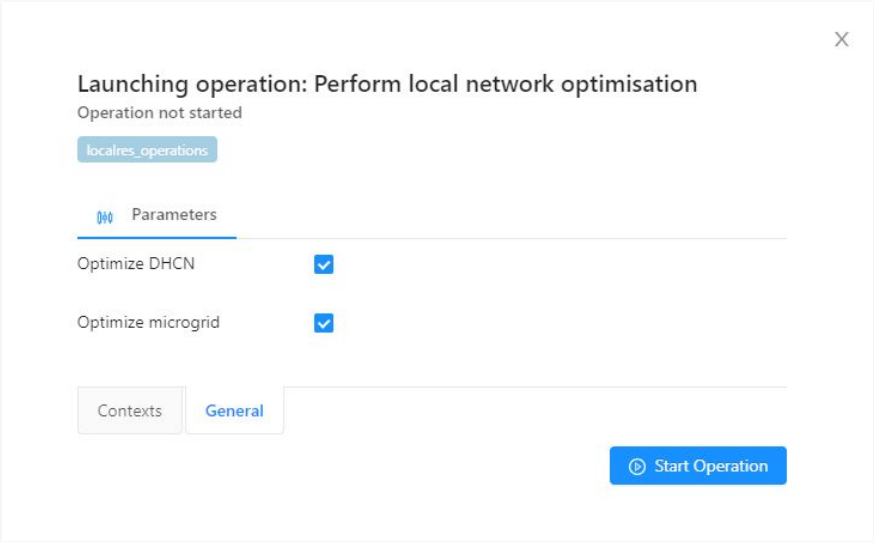


This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Planning tool

2. Optimisation of networks architecture

- Optimisation of DH&C network and LV network architecture
- Integrated within the scenarios



This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

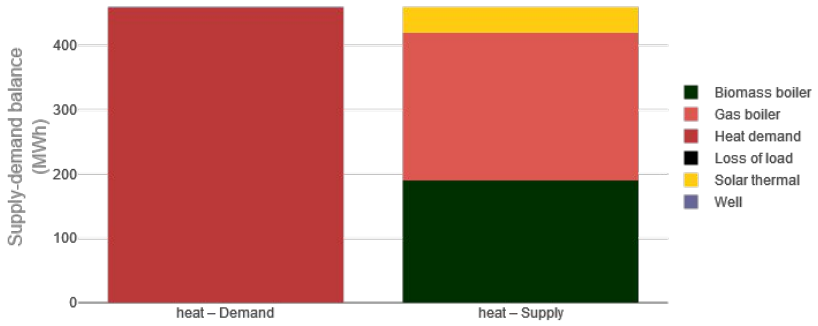
Planning tool

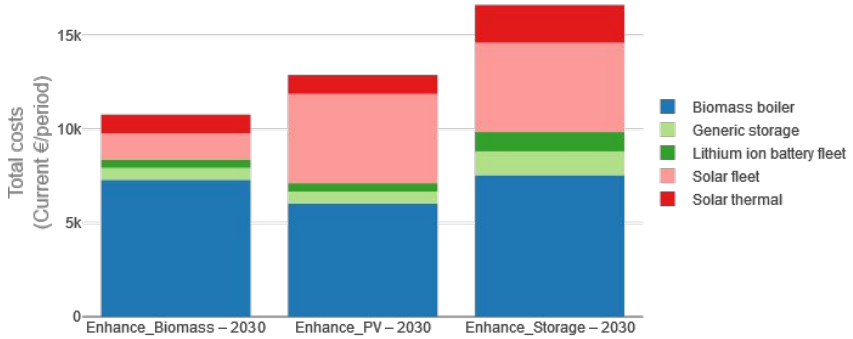
3. KPI-driven assessment module for decision-making

- Calculation of Technical KPIs for REC experts based on the computation of scenarios

With test data

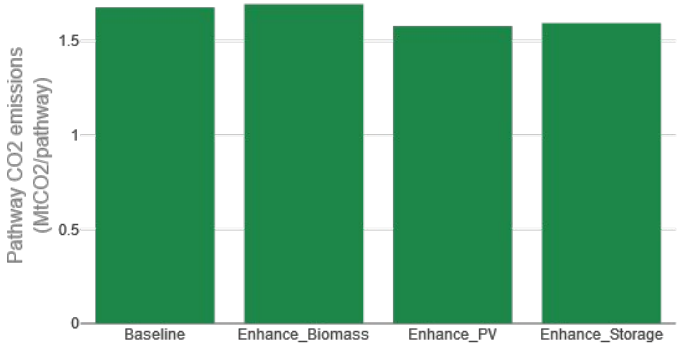
Understand the supply-demand balance equilibrium





Analyse the breakdown of costs in each scenario

Compare CO2 emissions between the different scenarios

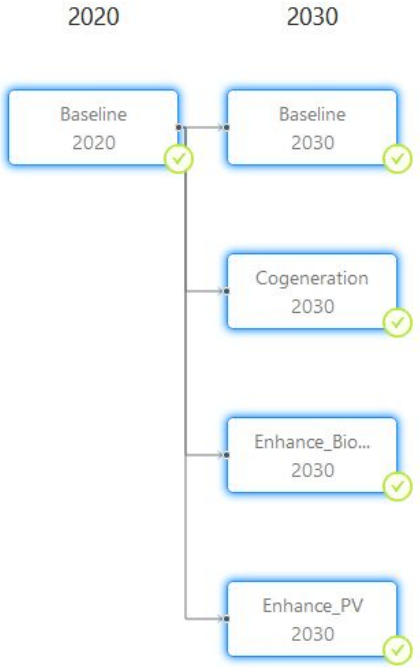


This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

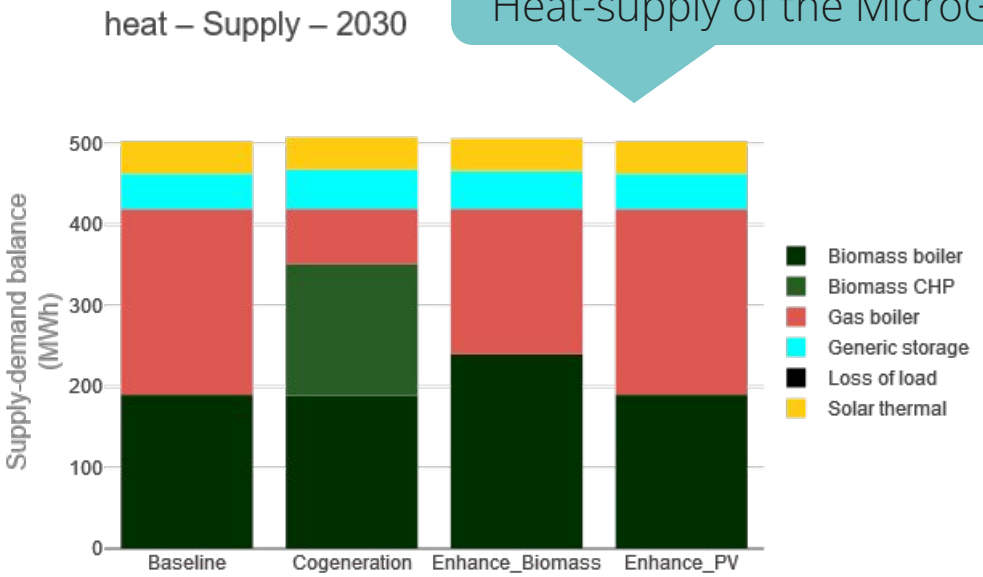
Planning tool

Preliminary results

- Concrete example with Ispaster
  - 3 differents experts' scenarios exploring different paths : Enhance PV, Biomass or Cogeneration



Direct impacts on the Heat-supply of the MicroGrid



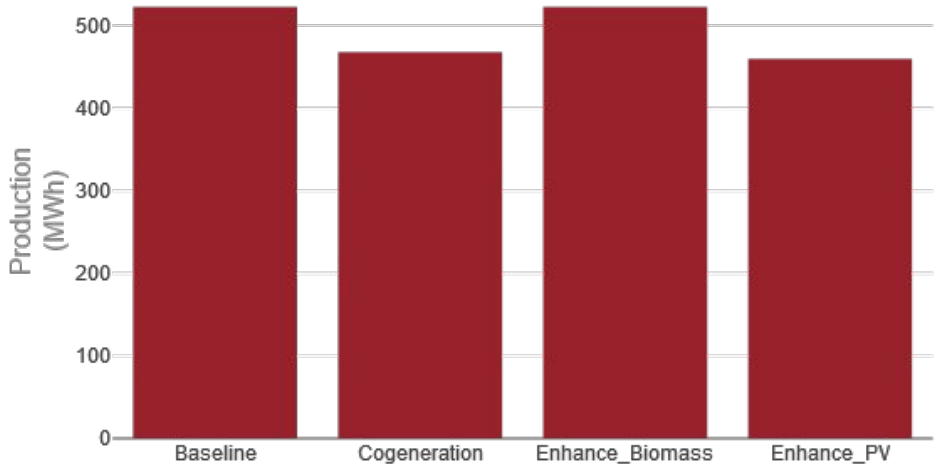
This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Planning tool

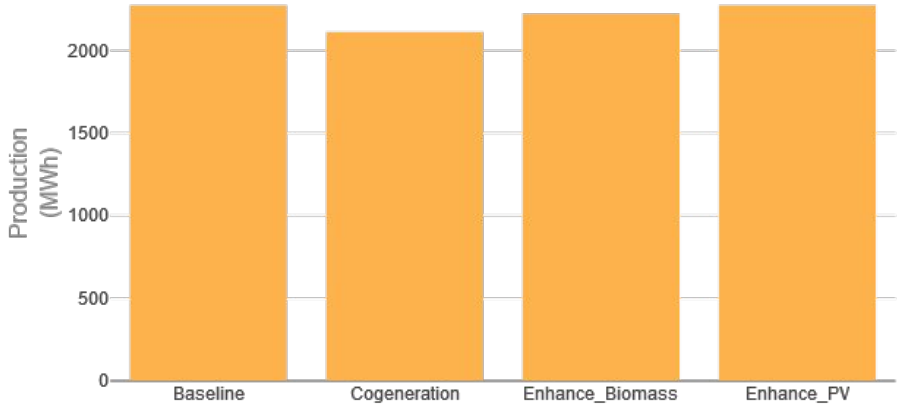
Preliminary results

- Concrete example with Ispaster
  - 3 differents experts' scenarios exploring different paths : Enhance PV, Biomass or Cogeneration

Electricity imports from the National Grid differ according to the scenario (*lower with the development of PV or cogeneration*).



REC Gas Boiler usage vary also between the scenarios (*lower with the deployment of Biomass or cogeneration*), resulting in different CO2 emissions

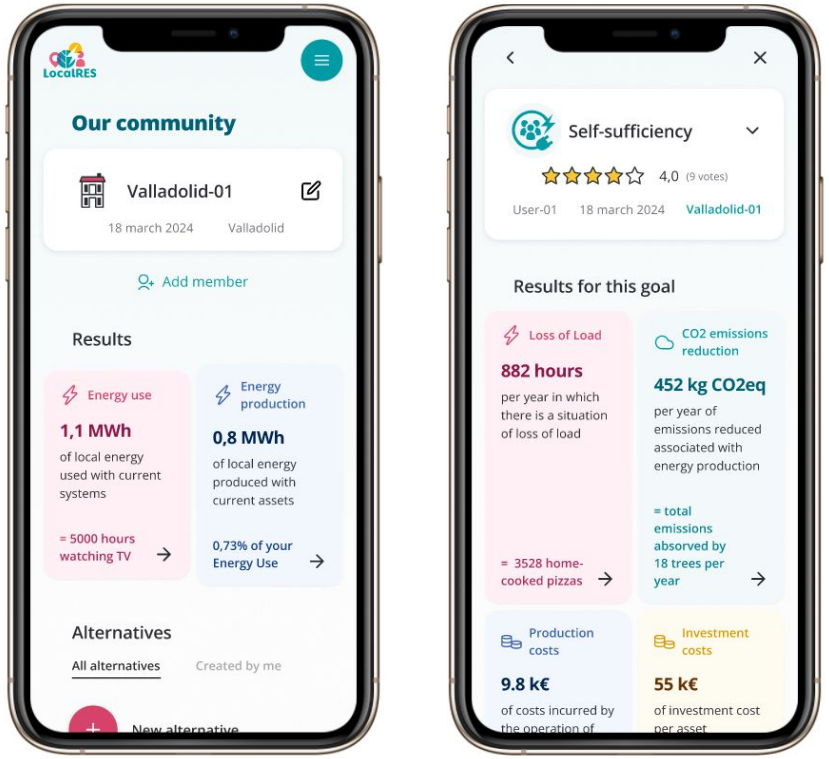


This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Planning tool

3. KPI-driven assessment module for decision-making

- Conversion of Technical KPIs into “Citizen KPIs”



Easily-understandable indicators for intuitive comparison

Illustrative examples

10 h 38 min
Time having a hot water shower (produced by an electrical boiler, normal 20 l/min shower head)

137 km
Distance travelled by a family-sized diesel-fuelled vehicle (90 km/h on a flat stretch)

35,360
Full charges of a smart phone

256 h
Time watching TV

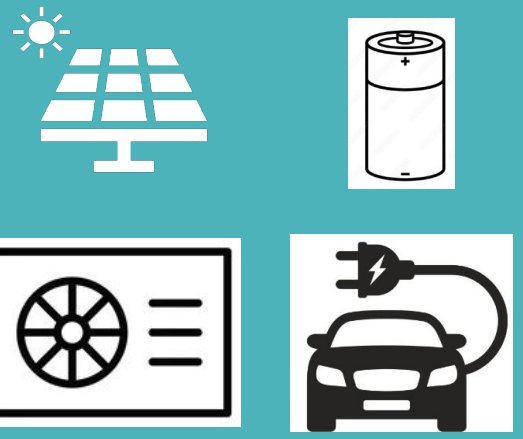
6,248
Baked pizzas

1,755
Cups of hot coffee

This project has received funding from the European Union’s Horizon 2020 Programme under the Grant Agreement no. 957819

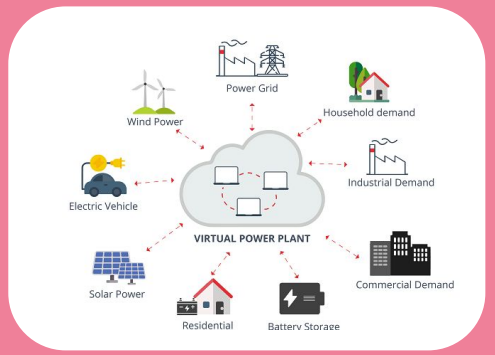
MEVPP

Multi-inputs



Multi-assets in a pool
Data for forecasters (e.g. climatic data)

MEVPP



Enabling multi-market energy trading and optimise dispatch of different markets and services
Forecast + optimisation

Multi-outputs

Provided services: Local services (energy sharing, collective peak shaving), DSO flexibility service, Energy markets & TSO services

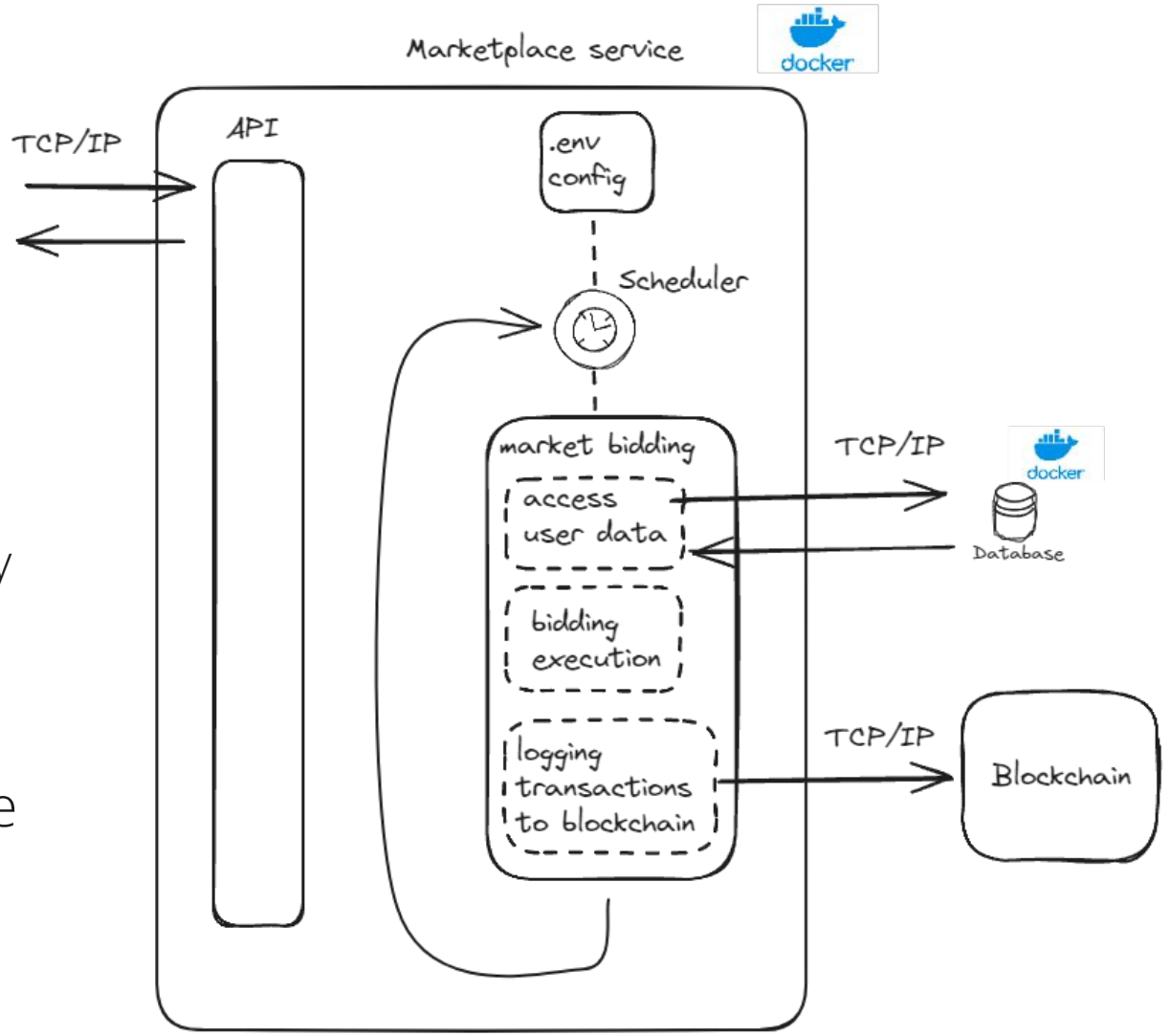
Interfaces with other services like P2P energy trading and blackout strategy

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

P2P trading platform

revolt
data revolution

- Main benefits:
  - improvement of virtual energy self-consumption
  - increase in economic benefits directly for the consumers participating in the trading
  - users are made aware of their energy behaviour with respect to renewable energy production and encouraged to shift their load
- The blockchain system ensures that each transaction is public and accessible through the ledger.
- Open source library, developed by Revolt, which can be used by other projects



This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Next steps & conclusions

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Next steps

- The planning tool is still being developed, and will be available in a few months
- Workshops are currently organized with RECs from different contexts to collect their feedback and validate the tool
  - Meetings with experts from Ispaster and Berchidda
  - Conclusion from initial co-design sessions: Interests and preferences vary a lot among potential users, so it is almost impossible fulfilling everyone's expectations.
  - However, we are prioritizing a wide coverage of different knowledge levels.

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Challenges & conclusions

- Wide range of regulatory contexts around Europe regarding RECs, energy sharing and energy-related services:
  - makes it very difficult to ensure that the recommendations provided by the tool are actually feasible from a regulatory standpoint…
- Detailed studies and developments related to actual energy systems are very complex, accurate results require detailed and accurate inputs.
  - The presence of an expert is always necessary if accuracy is a priority.
  - In case the tools aim at triggering discussions / promoting informed decisions of all actors, gamification or other techniques are more appropriate
  - Tools related to RECs should be adaptable and flexible to a variety of cases, to provide the right support depending on the status of the community.

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Thank you for your attention!

LocalRES

Karine.Laffont@dowel.e
U
ulbbel@cartif.es
Thomas.Rousselet@artelys.com
Mahtab.Kaffash@centrica.com

This project has received funding from the European Union's
Horizon 2020 Programme under the Grant Agreement no. 957819

reschool

Strategies and tools for the management of flexibility in Energy Communities with distributed resources

Adrian Brasero

bamboo energy

SUSTAINABLE PLACES 2024

Funded by the European Union

Table of contents

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

1

Introduction

Reschool

Project Objectives: To develop tools to motivate and captivate community members through gamification and active demand management. Additionally, regulatory and social barriers will be identified in the different demonstrators, proposing replicable business models.

reschool

Project Scope: To manage different energy communities within 4 different pilot locations, situated in Spain, the Netherlands, Sweden, and Greece.

BambooEnergy is the project's flexibility provider and leader of the active community energy management work package. The goal will be to facilitate intra-community energy exchange, maximize consumption from local generation, and participate in local and national flexibility markets.

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

2

Concept and Consortium

RESCHOOL concept (I): general view

RESCHOOL aims to develop tools that enhance and facilitate the collective participation (energy communities) of citizens in the energy system and the relationship with other stakeholders like DSOs, aggregators, or other energy communities.

SOCIAL TOOLS

- Aiming for **800 prosumers** and **20.000 citizens** in 4 countries.
- Strategies for community engagement and growing.
- Intergenerational learning and training.

OBJ 1

- Gamification tools will be used to optimize the energy production/consumption of prosumers.
- Collaborative Community Platform.
- Data acquisition to understand users' energy behaviour.

OBJ 2

ENERGY COMMUNITIES

- Prosumers are at the center of the project.
- RESCHOOL will work with national/regional legislations and specific regulations.

PRODUCTION

CONSUMPTION

ENERGY STORAGE

CONNEXION TO GRID

FLEXIBILITY MEASURES

- Set of services aiming to facilitate the participation of energy communities in energy markets.
- P2P collaboration with DSOs for congestion avoidance or peak reduction services

OBJ 3
OBJ 4

TECHNOLOGICAL TOOLS

Energy & flexibility services

Active Monitoring

Aggregation & Benchmarking

Schedulling & Visual UI

Data Management Platforms

PILOTS

- 4 Pilots in 4 different EU regions & 11 High Level Use Cases.
- SPAIN: Girona
- THE NETHERLANDS: Amsterdam
- SWEDEN: Stockholm
- GREECE: Athens

OBJ 5

EXPLOITATION & REPLICATION

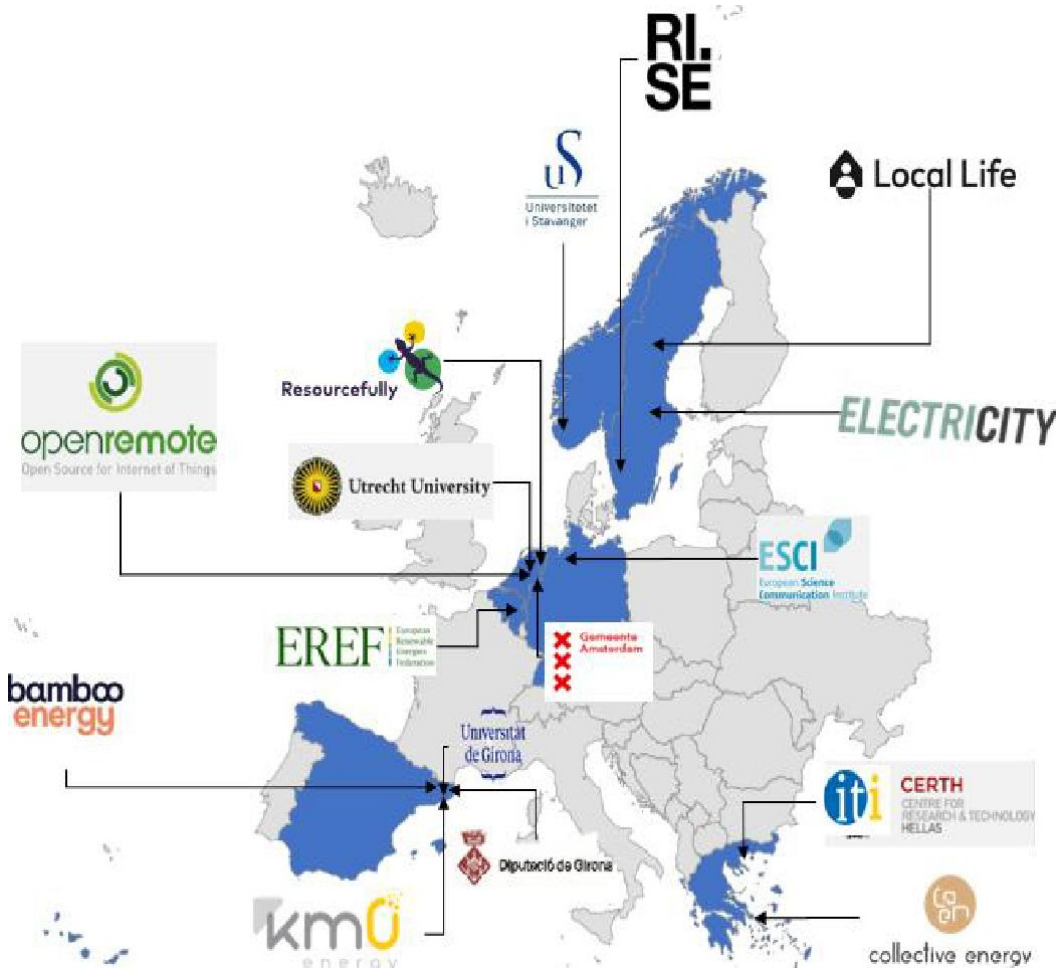
- Demonstrate existing and potential economic benefits within the pilot communities.
- Enable the market uptake of activities conducted, countries' framework analysis.
- Replication of the activities in nearby districts/municipalities and at national scale.

D&C ACTIONS

- Raising awareness and informing about the role of prosumers in energy communities.
- Increasing trust and acceptance of innovative energy tools and technologies.
- Collaborating with stakeholders, knowledge transfer, adoption and replication of RESCHOOL tools.

Consortium

PARTICIPANT NUMBER & NAME	EU	TYPE
1 (Coo) – UdG (Universitat de Girona)	ES	UNI
2 – UiS (University of Stavanger – Universitetet I Stavanger)	NO	UNI
3 – UU (Utrecht University)	NL	UNI
4 – BBEN (Bamboo Energy Tech)	ES	SME
5 – RISE (Research Institute of Sweden AB)	SE	RTD
6 – EREF (European Renewable Energies Federation)	BE	NP
7 – ESCI (European Science and Communication Institute)	DE	NP
8 – KMo (Kmo Energy)	ES	LARGE
9 – RESF (Resourcefully Consulting)	NL	SME
10 – ELEC (ElectriCITY)	SE	CC
11 – COEN (Collective Energy)	GR	SME
12 – CERTH (Centre for Research & Technology HELLAS)	GR	RTD
13 – OR (Open Remote)	NL	SME
14 – AMS (City of Amsterdam)	NL	PE
15 – DdG (Diputació de Girona)	ES	PE
16 – LCLF (Local Life)	SE	SME



This project has received funding from the European Union
research and innovation programme under grant agreeme

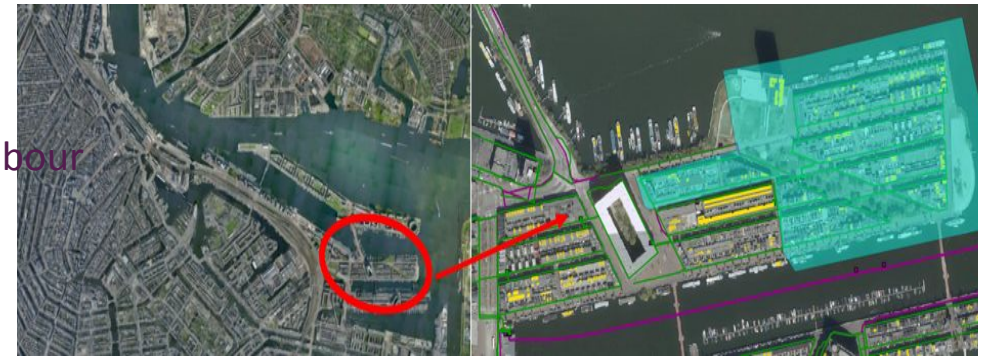
3

Sites and Architecture

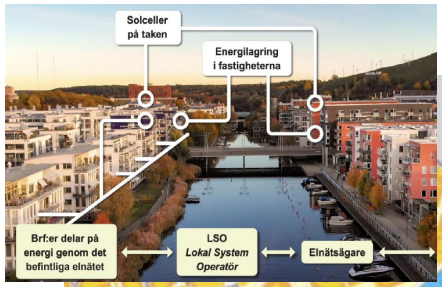
Validation: 4 pilots

PILOT 1: LOCAL ENERGY COMMUNITIES LED BY MUNICIPALITY (Diputació de Girona – 4 municipalities)

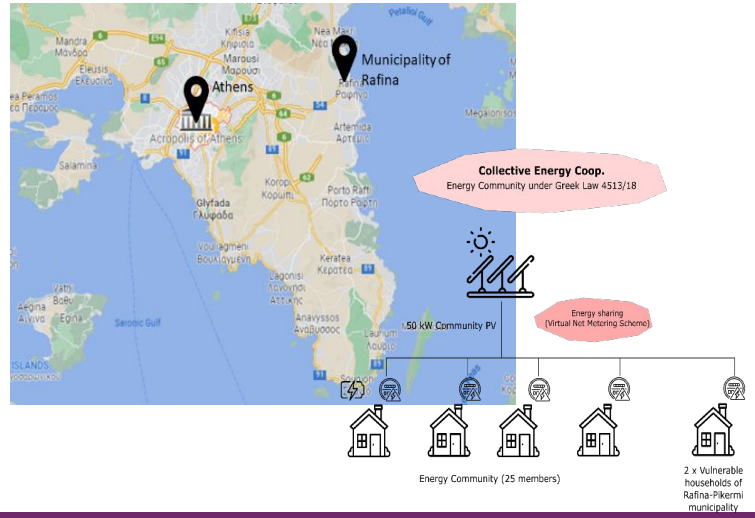
PILOT 2: AMSTERDAM EASTERN DOCKLANDS ENERGY-FLEX COMMUNITY, THE FLEX-CITY PILOT (Amsterdam-neighbourhood)



PILOT 3: HAMMARBY SJÖSTAD 2.0, MICROGRID PROJECT (Stockholm - neighbourhood)



PILOT 4: COLLECTIVE ENERGY COOPERATIVE (Athens/Rafina – 2 cooperatives)

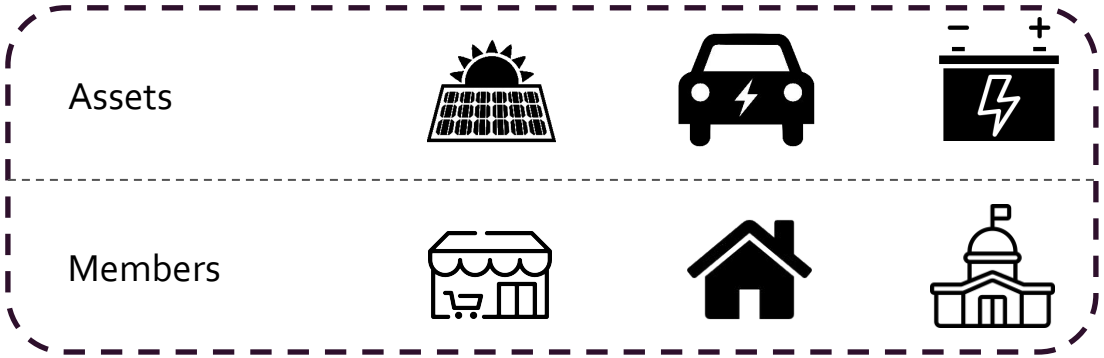


This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Pilots

Characteristics of each Energy Community:

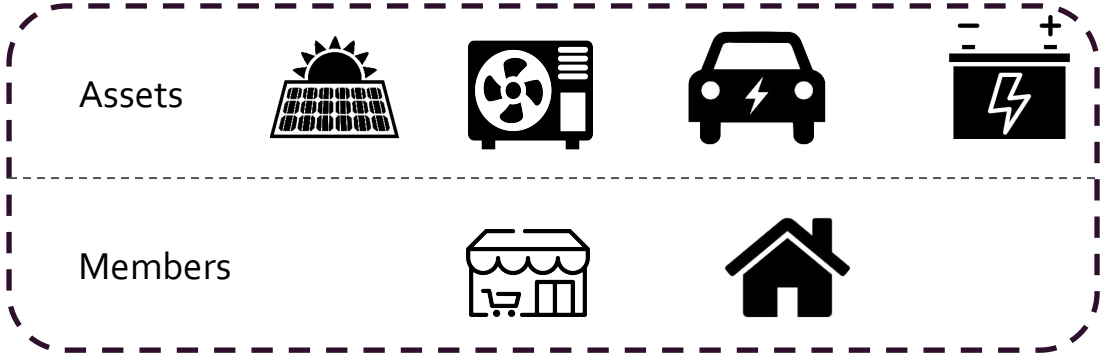
Spain. Girona



Objectives

1. Optimal energy balance.
2. Flexibility and demand response.
3. Congestion management at the DSO (Distribution System Operator) level.

Sweden. Stockholm



Objectives

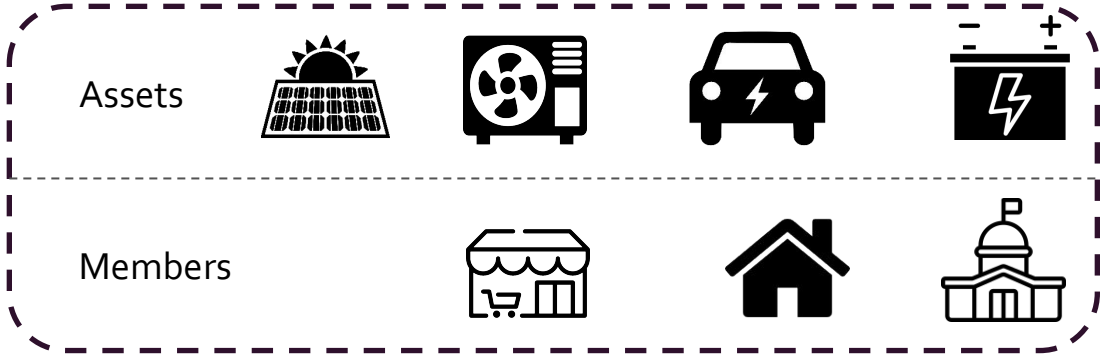
1. Optimal management of batteries and heat pumps.
2. Participation in balancing markets.
3. Participation in local markets (DSO).

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Pilots

Characteristics of each Energy Community:

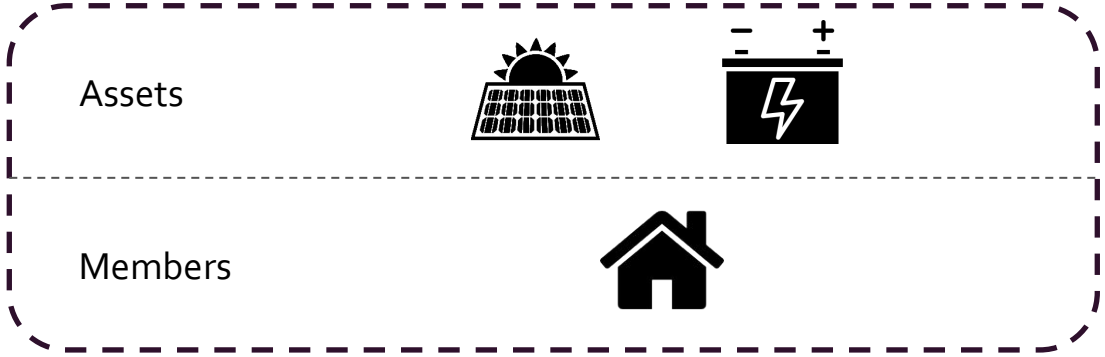
Netherlands. Amsterdam



Objectives

1. Optimal energy balance.
2. Flexibility and demand response.
3. Congestion management at the DSO (Distribution System Operator) level.

Greece. Athens



Objectives

1. Optimal energy balance.
2. Implicit flexibility by using the batteries

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

3.1

Girona

Spanish pilot

Spanish Pilots

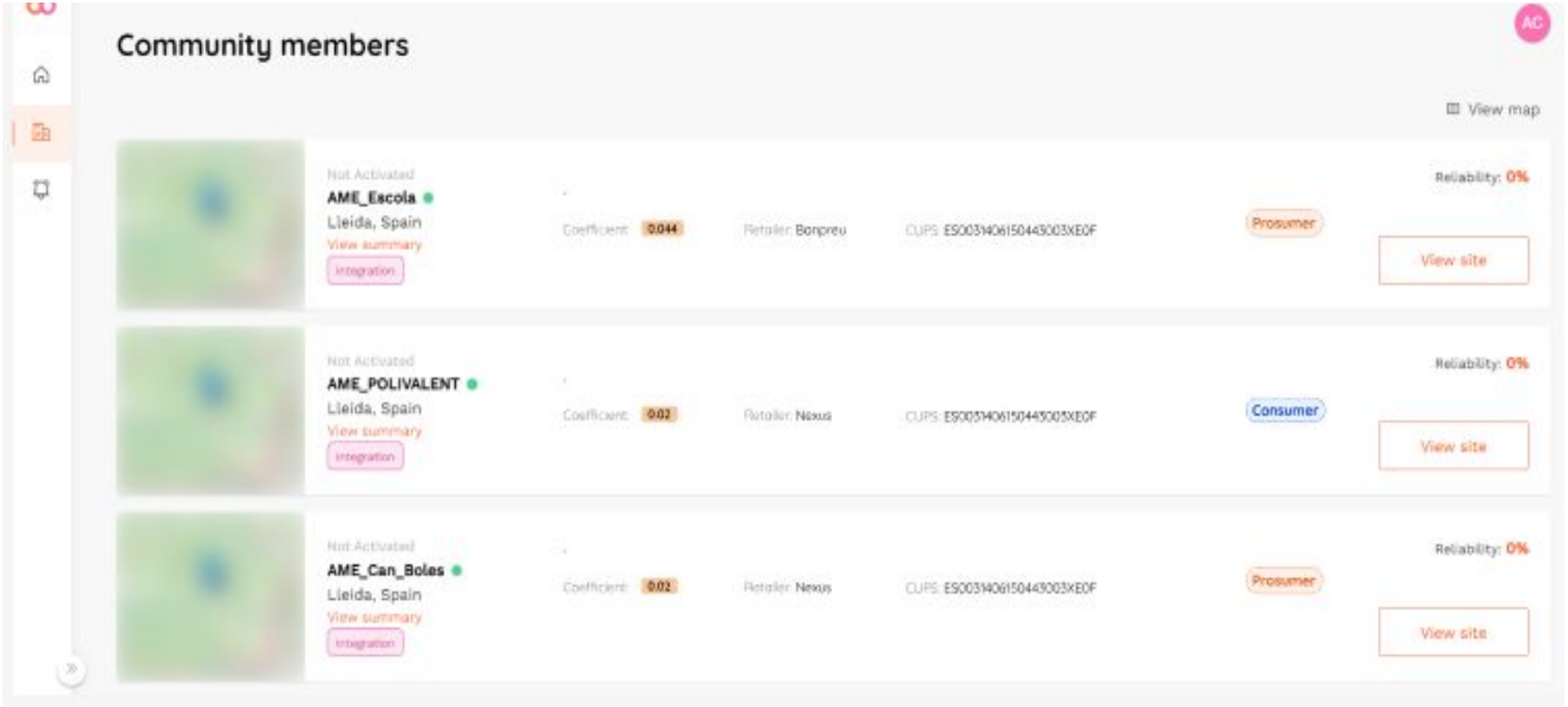
- Increase production and consumption of renewable energy
- Optimal management of the battery, evs heat pumps.
- Simulation in balancing markets (TSO)
- Simulation in local markets (DSO).

Community Involvement

- 4 Energy communities: AMER (21), RUPIA (29), CORNELLA DE TERRI (28), CELLERA DE TERRI (30)
- 2 monitoring hardware providers
- PV: 180 kWp installed in the 4 villages
- 4 Batteries Huawai I Sonnen
- 4 EV charging points

Girona Demo

Bamboo Energy platform. List of members



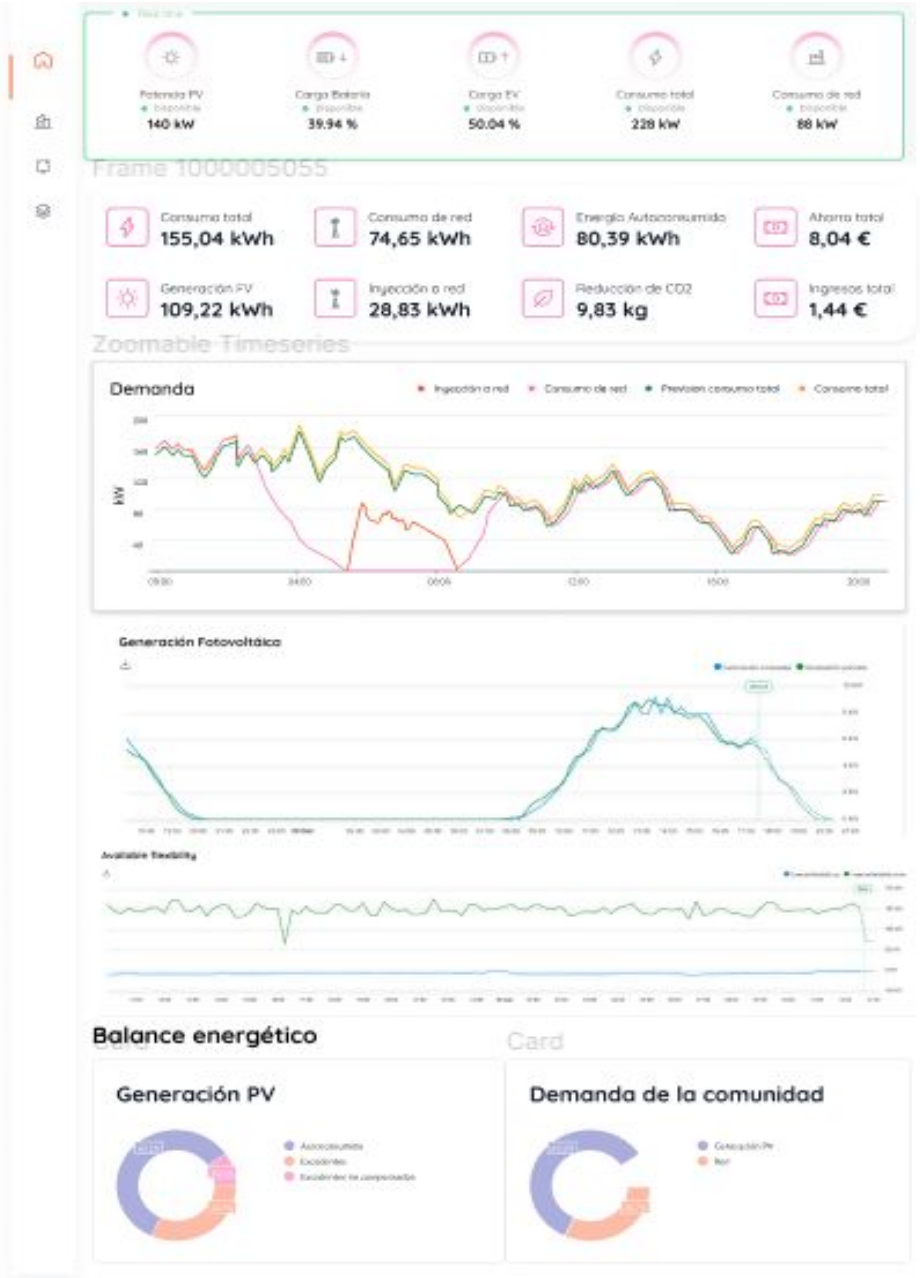
- Allows the ECM to list the members within the community
- Presents basic information of the energy community member. To point out:
  a. Site status (active/inactive)
  b. Sharing coefficient
- Visualization as a Map or as a list.

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Girona Demo

Bamboo Energy platform

- Real time telemetry
- KPIs done. Still developing (savings & benefits)
- Consumption & Generation
- Available flexibility and activations
- Overall Community energy balance

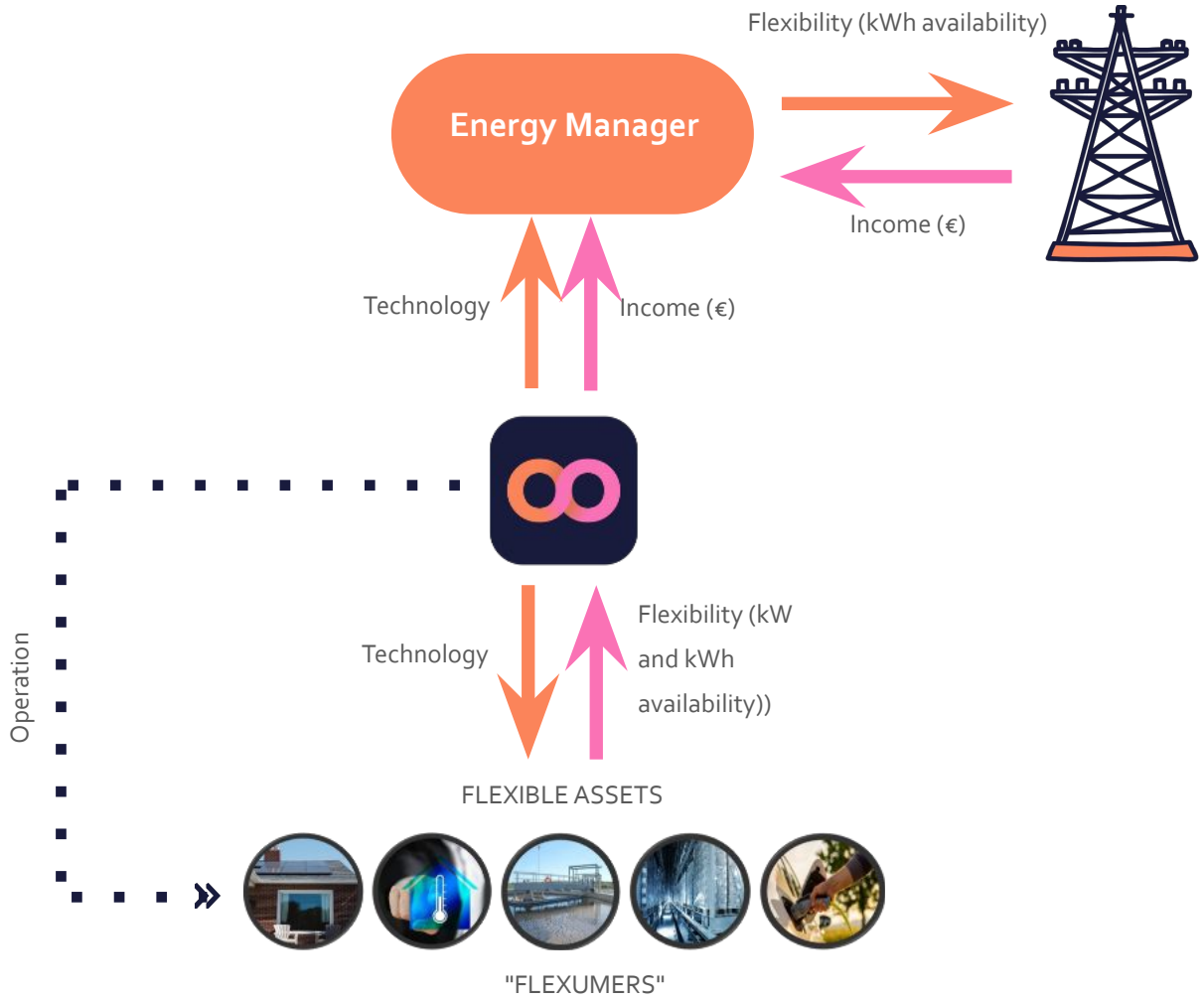


This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Architecture - Girona

Solution for flexibility management

The demand aggregation platform that allows you to manage the flexibility of a portfolio of assets



ENERGY RETAILER AND INDEPENDENT AGGREGATOR

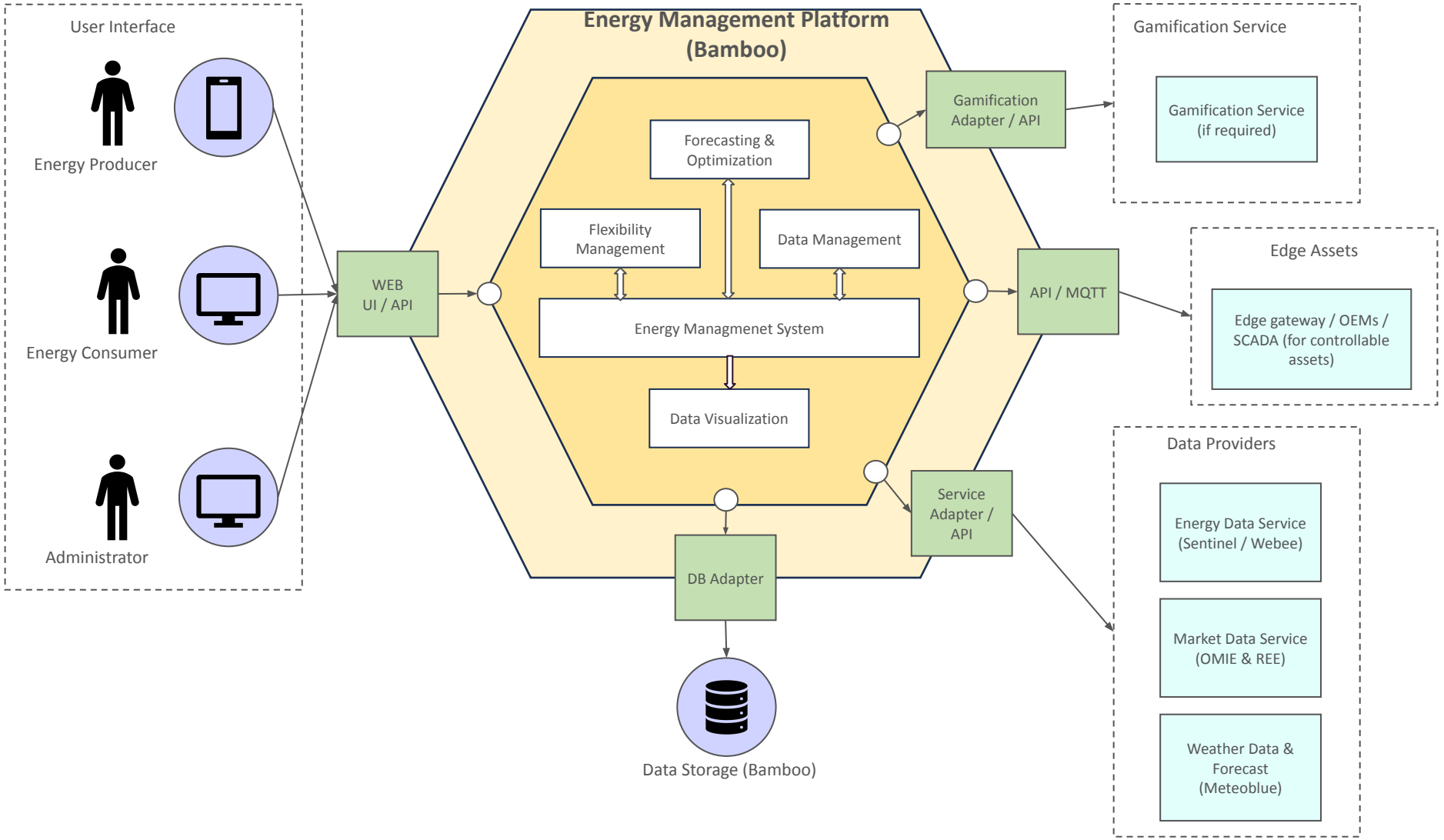
ASSET MANAGER AND END CONSUMER

ENERGY SERVICE COMPANIES (ESE)

LOCAL ENERGY COMMUNITIES (LEC)

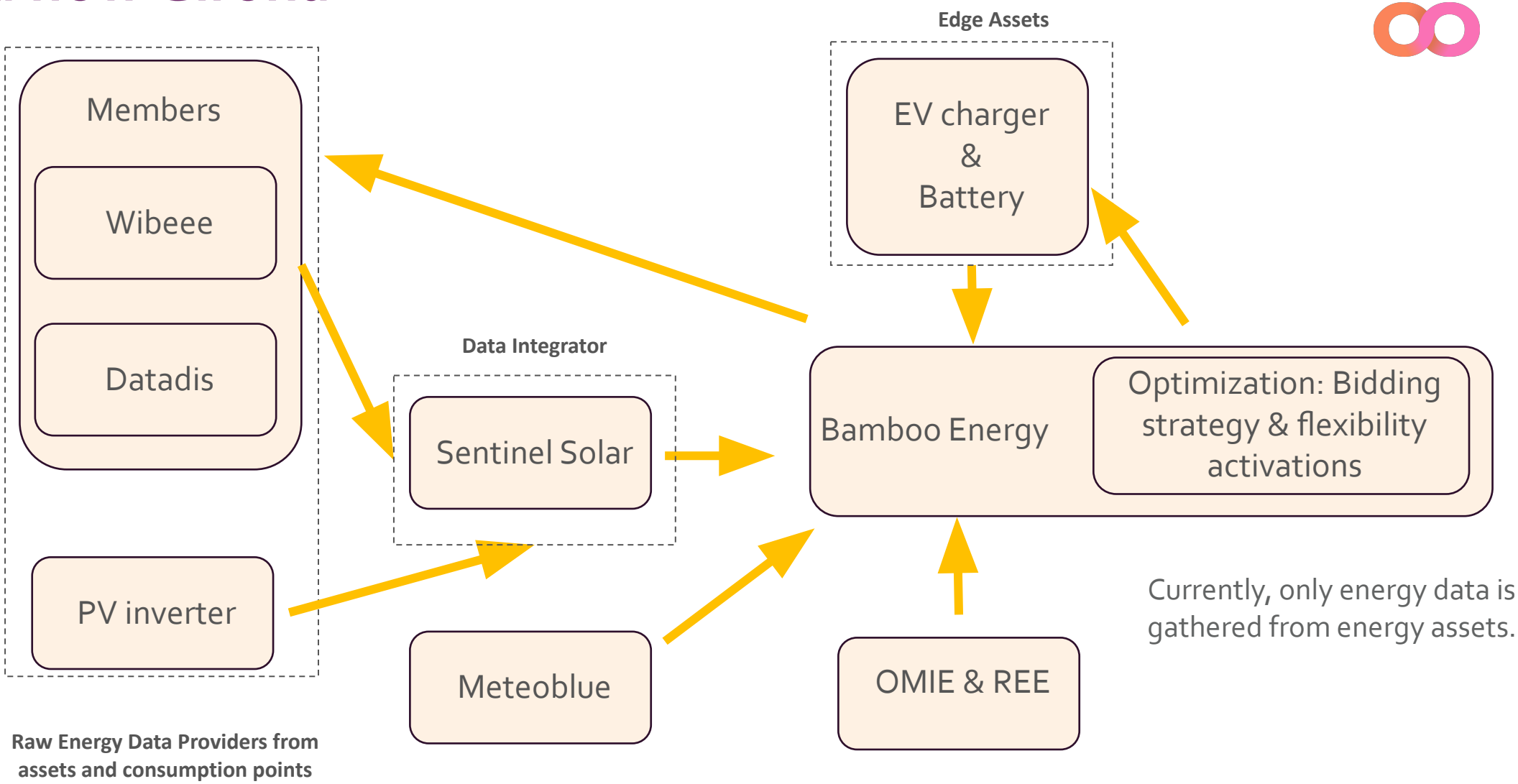
This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Solution Architecture - Girona



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Data flow Girona

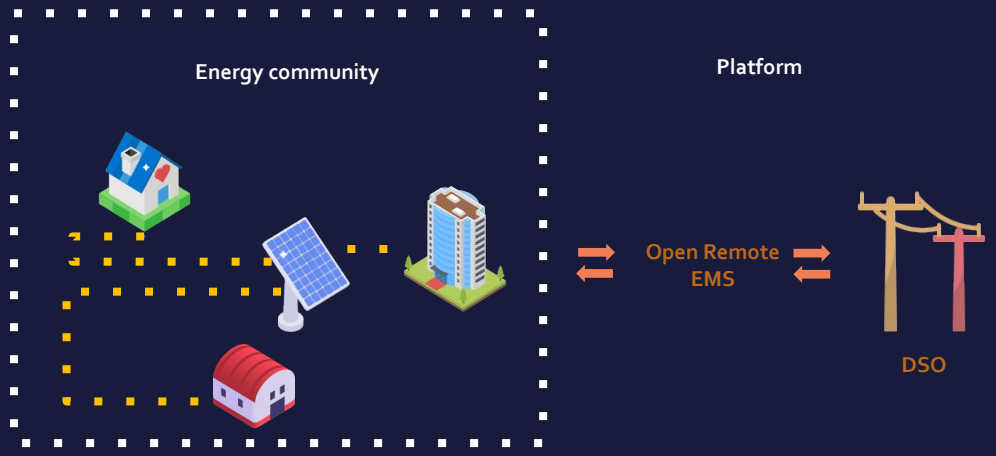


This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

3.2

Amsterdam

Amsterdam



Netherlands Pilot

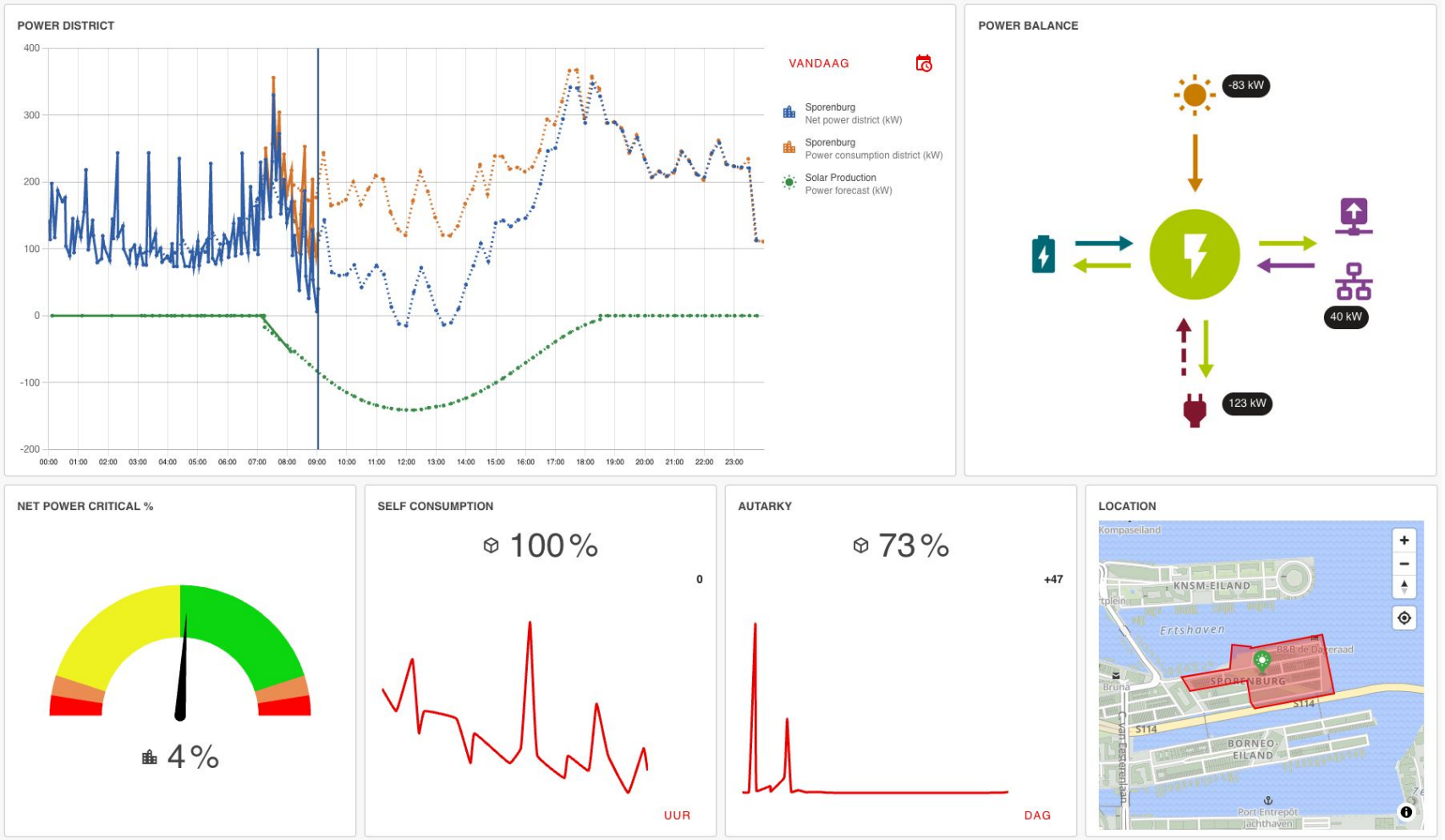
- Community EMS introduced in Sporenburg
- Increase production and consumption of renewable energy
- Optimal management of the battery, evs heat pumps.
- Participate in local markets (DSO).

Community Involvement

- 65-70 active users and growing (out of 500 households)
- PV: +100 kW installed
- Batteries: Still to define
- Heat pumps: Still to define

Amsterdam Demo

Open Remote



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

3-3

Stockholm

Swedish pilot

ENERGY COMMUNITY
HAMMARBY SJÖSTAD

Swedish Pilot: Hammarby Sjöstad

- Increase production and consumption of renewable energy
- Optimal management of the battery, evs heat pumps.
- Participation in balancing markets (TSO)
- Participate in local markets (DSO).

Community Involvement

- Number of apartments in total is 900
- PV: 280 kW installed
- Batteries: 144 kW installed
- 19 heat pumps
- EVs: 427 charging points

BRIKKS locallife Recap

Energy Community Hammarby Sjöstad

- Established in September as an economic association
    - Statues decided by the founding members and board members
    - Board with representatives from housing associations
    - 9 housing associations are members

ENERGY COMMUNITY HAMMARBY SJÖSTAD

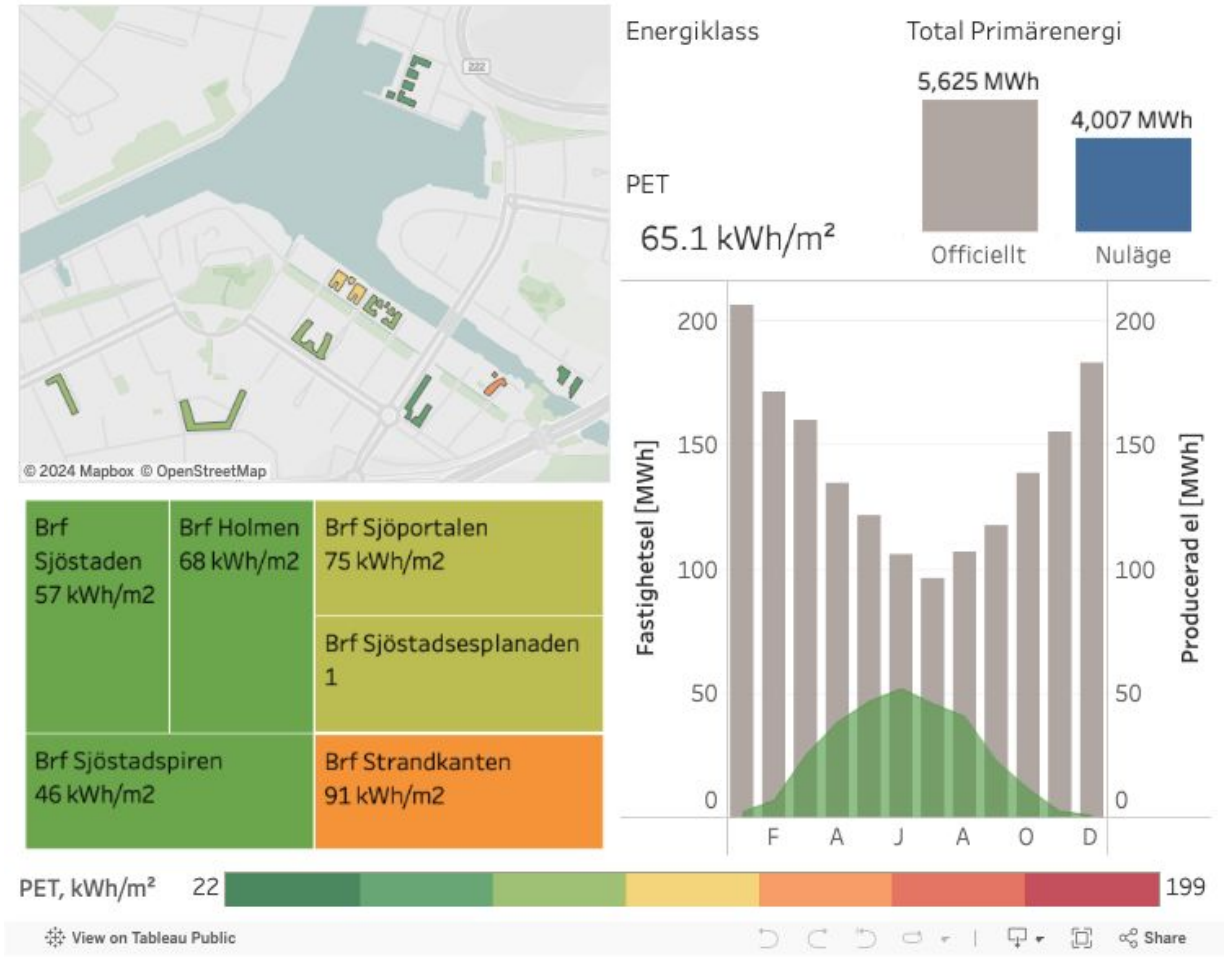
This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Stockholm Demo

Deductions
1 - 12 %

Energy Class Journey
D → B

Energy Community Primary Energy Use
65 kWh/m2



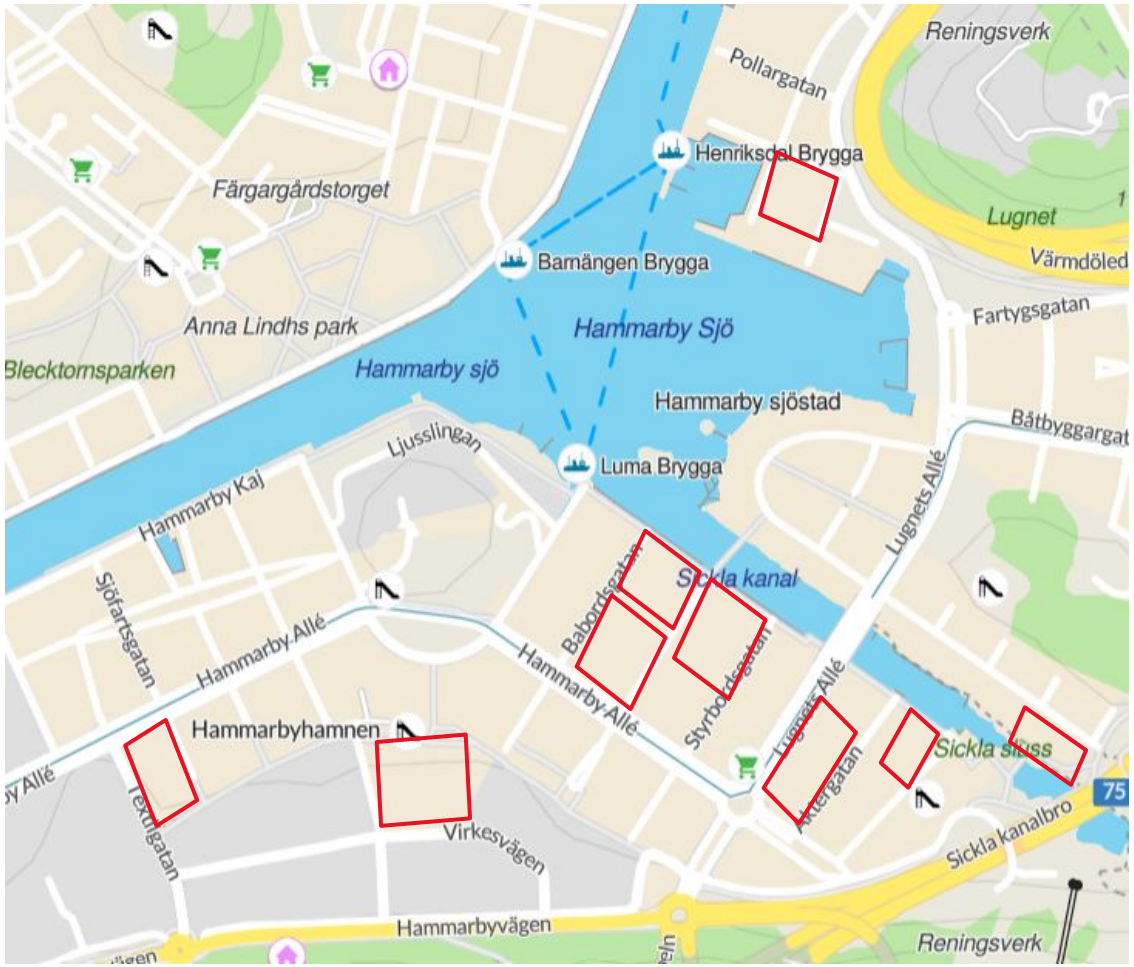
This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Building blocks

Existing technologies

- Number of apartments in total is 900 (37 in smallest, 226 in largest)
- Energy classification B to F
- Energy performance 53 to 155 kWh/m²
- Different BMS (Fidelix, Saia, Bastec, Larmia)

Extensive variations. Challenging and complex but creates opportunities to to explore different conditions and find solutions that can work for different types of buildings.

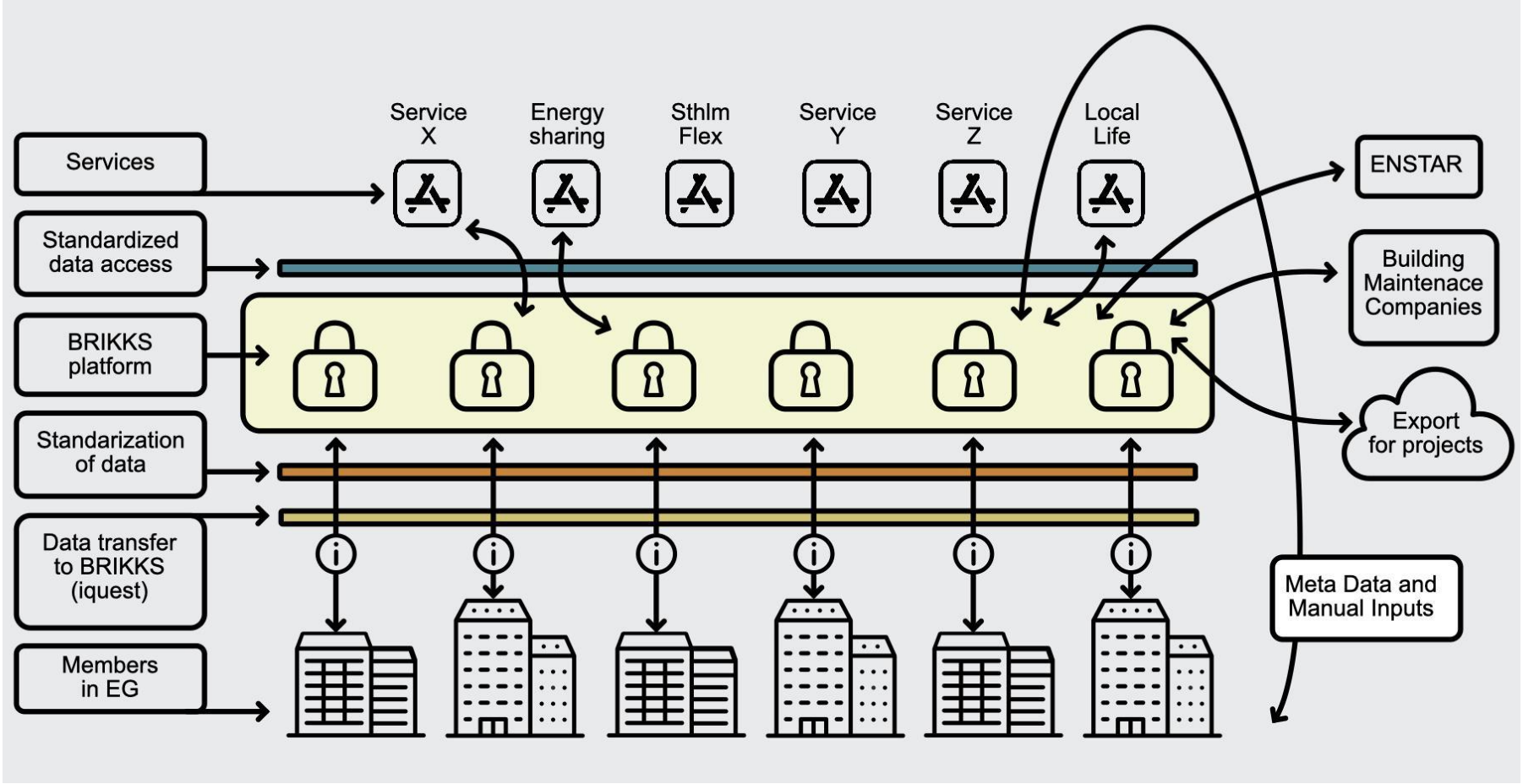


This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Data flow Stockholm pilot

Service providers receive access to data by connecting to BRIKKS

- Aggregator (Recap) managing the flexible loads on the local flexibility market (Sthlm Flex) and ancillary services to SvK
- Energy sharing
- Community platform for visualization and engagement of energy community members (LocalLife)
- Etc

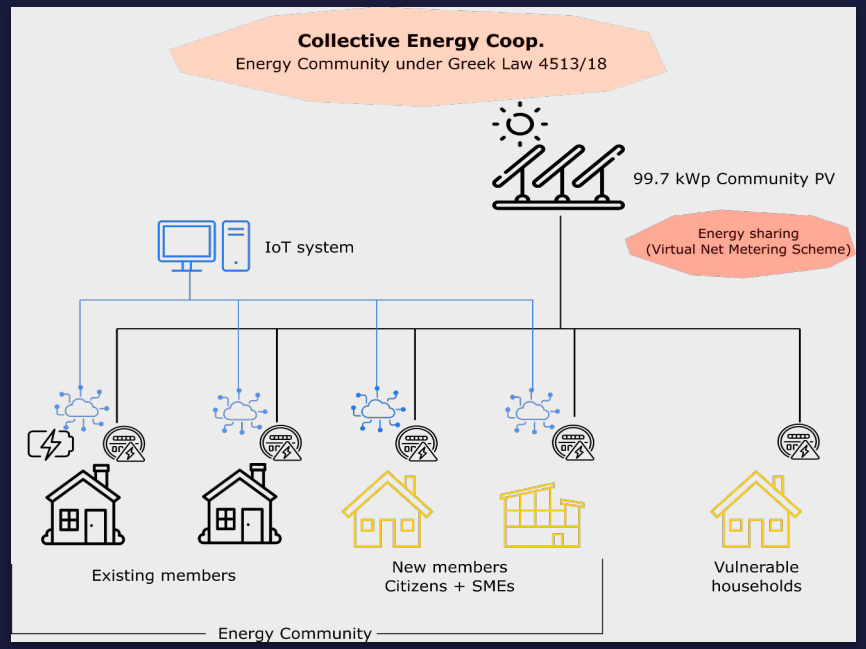


This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

3.4

Athens

Athens



Greek Pilot

- Increase production and consumption of renewable energy
- Optimal management of the battery, evs heat pumps.
- Virtual net metering
- Simulation in local markets (DSO).

Community Involvement

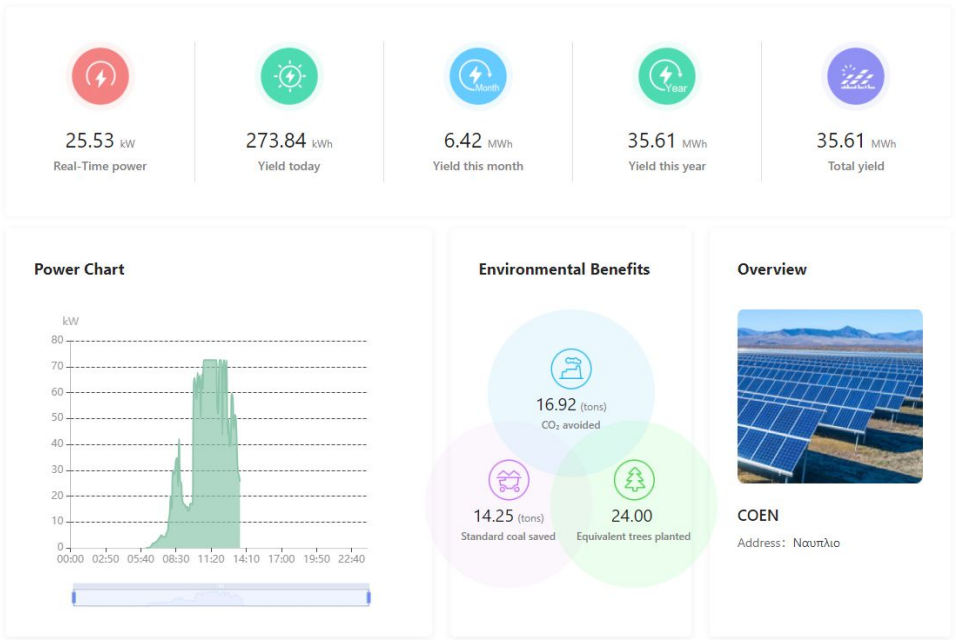
- 65-70 active users and growing (out of 500 households)
- PV: 99.7 kW installing
- Batteries: Still to define
- Heat pumps: Still to define

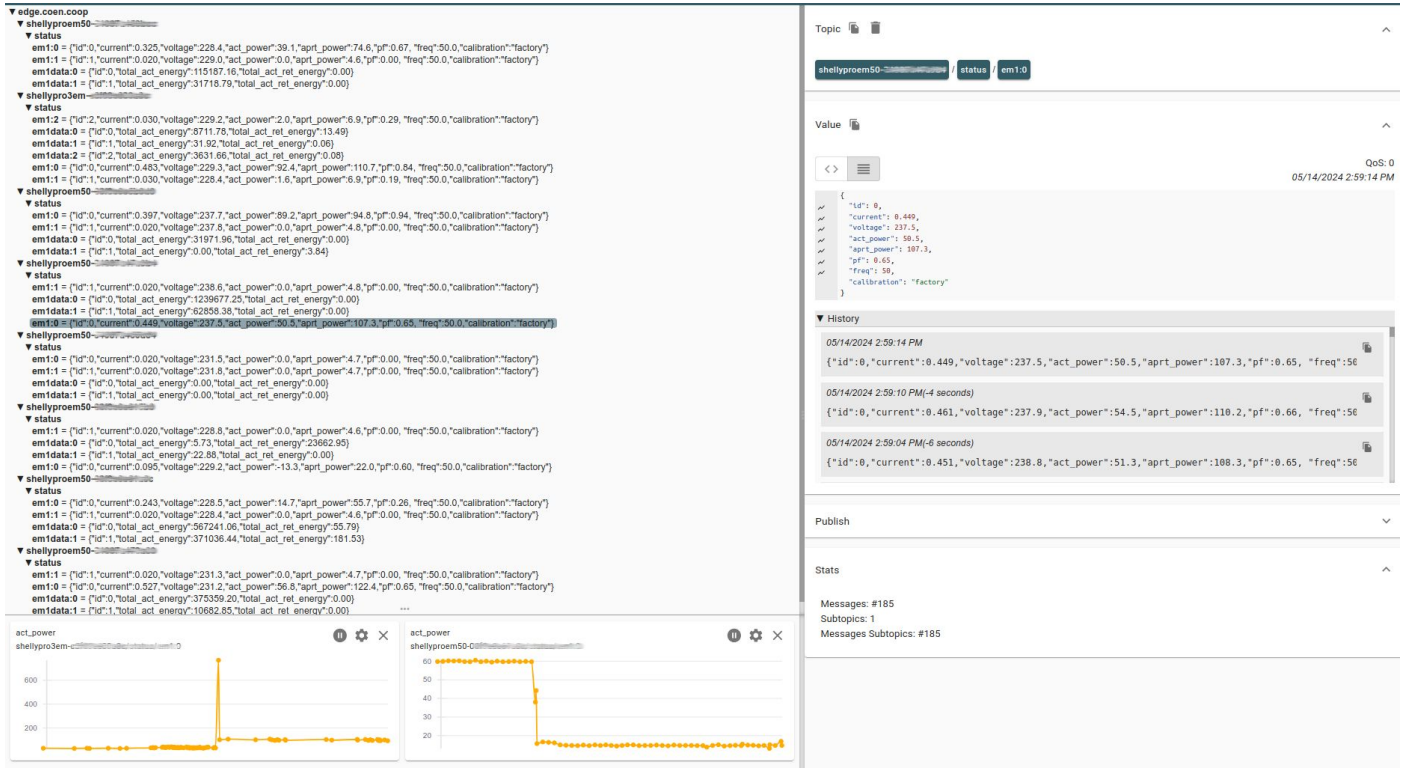
openremote

collective energy

Athens Demo

Current status





This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

4

RESCHOOL's Technological Results

RESCHOOL's Technological results

- **Data driven energy services,** modules & toolbox that allow benefitting from monitoring, forecasting and flexibility scheduling capabilities
- RESCHOOL **Collaborative Community Platform**
- 100% **Open Source** Energy Management System for 2 pilots
- EMS with enhance capabilities for **flexibility management** (Bamboo)
- **New gamifications methods** and tools for engagement and empowerment of energy community members
- **AI-powered gamification** framework
- **Visualisaiton toolbox** foe enhanced user interaction and visual presentation of energy data and performance indicators

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Thank you!

Contact
abrasero@bambooenergy.tech
Bamboo Energy

Funded by
the European Union

The project RESCHOOL, "*Strategies and tOOls for Incentivization and management of flexibility in Energy Communities with distributed Resources*", receives funding from Horizon Europe programme under the grant agreement nº. 101096490

Amsterdam Pilot status

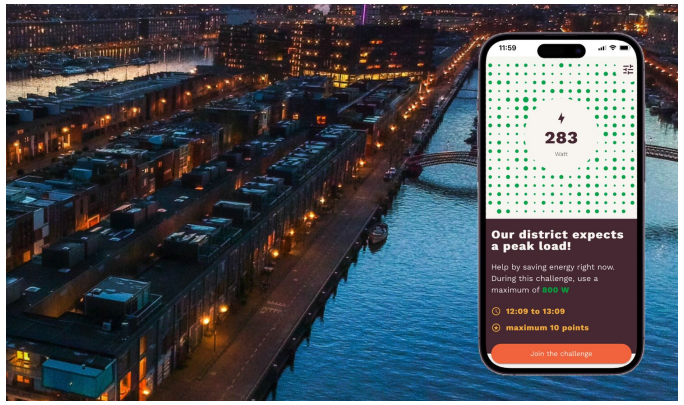
Community EMS introduced in Sporenburg

65-70 active users and growing (out of 500 households)

End user mobile app ‘OurGrid’
- Real time insight (seconds) individual and district
- Challenges and rewards

Smart meters provide second insight

Dashboard for energy cooperation
- Monitor and forecast grid congestion
- Visualise KPI’s



This project has received funding from the European Union’s Horizon Europe research and innovation programme under grant agreement No 101096490

COEN's first PV project

99.7kWp PV

- Expected to be finalized during November
- Electrified in December/January

- Sharing of PV produced energy – Virtual net metering

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

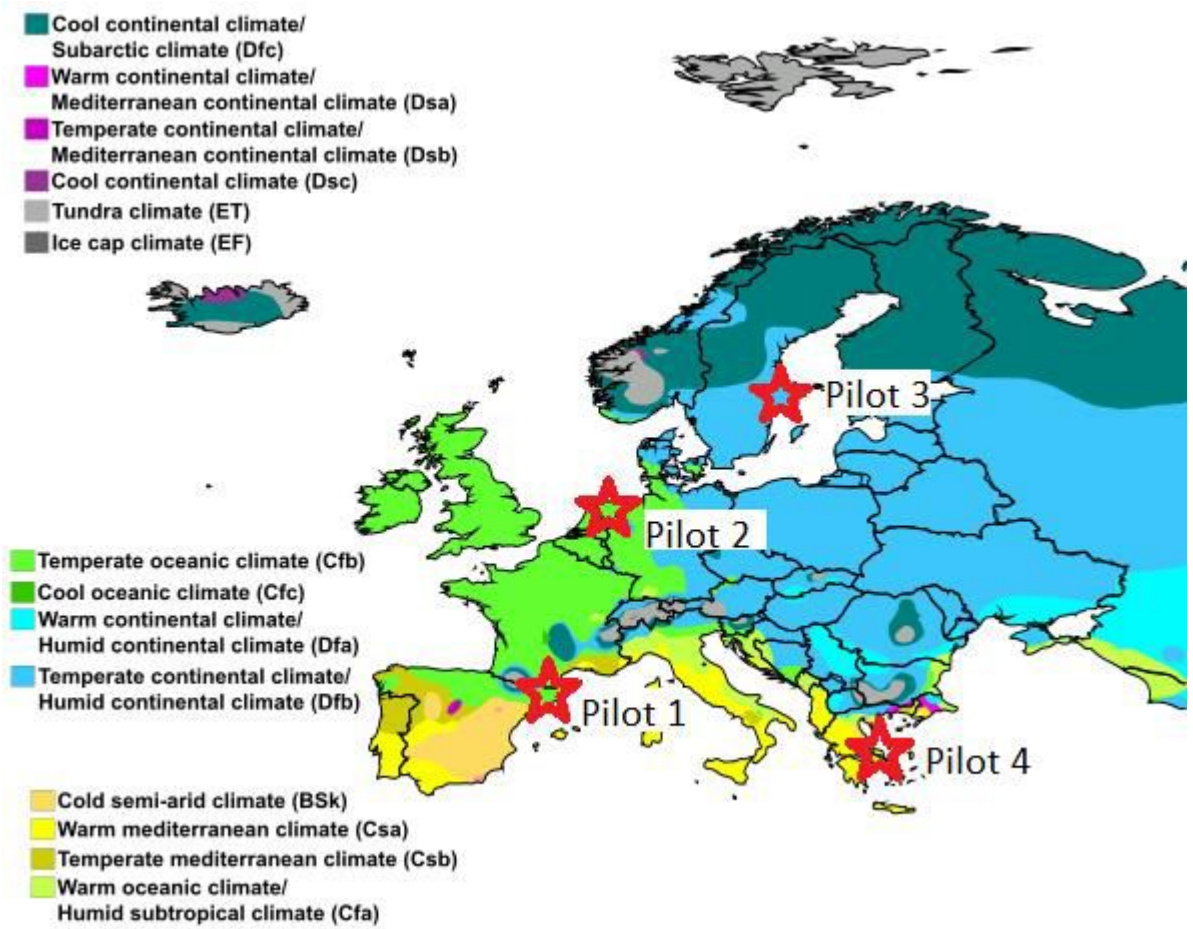
Girona Energy communities

Amer, Rupià, Cellera and Cornellà de Terri

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Sites

Pilot	Site	Partners
1	Girona	Lead: Km0 Partners: UdG.
2	Amsterdam	Lead: RESF Partners: AMS & OR
3	Stockholm,	Lead: ElectriCITY.
4	Athens	Lead: Collective Energy



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Girona Pilot status

Integration:

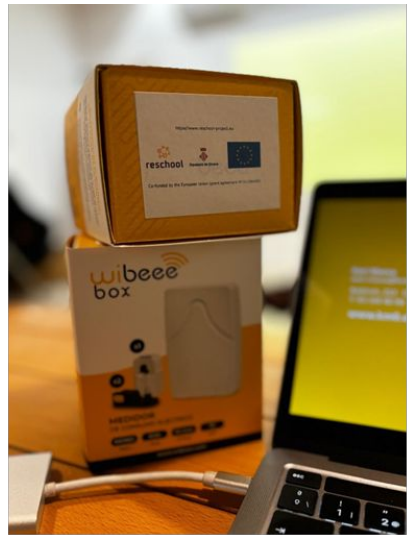
- Amer's data (Sentinel Solar, Wibeee and specific info) fully integrated in Bamboo Platform.
- Next steps:
  - Integrate all the data for La Cellera and Rupià (same path as Amer).
  - Same for Cornellà del Terri as UdG obtained DSO data (integration Bamboo?)

Real-time data:

- All the local buildings with smartmeters.
- Approximately 25 out of 50 smartmeters for citizens delivered.

Front-end EMS:

- Bamboo



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

Reschool solutions

- Monitoring of energy consumed and forecasted and flexibility visualization – 4 municipalities

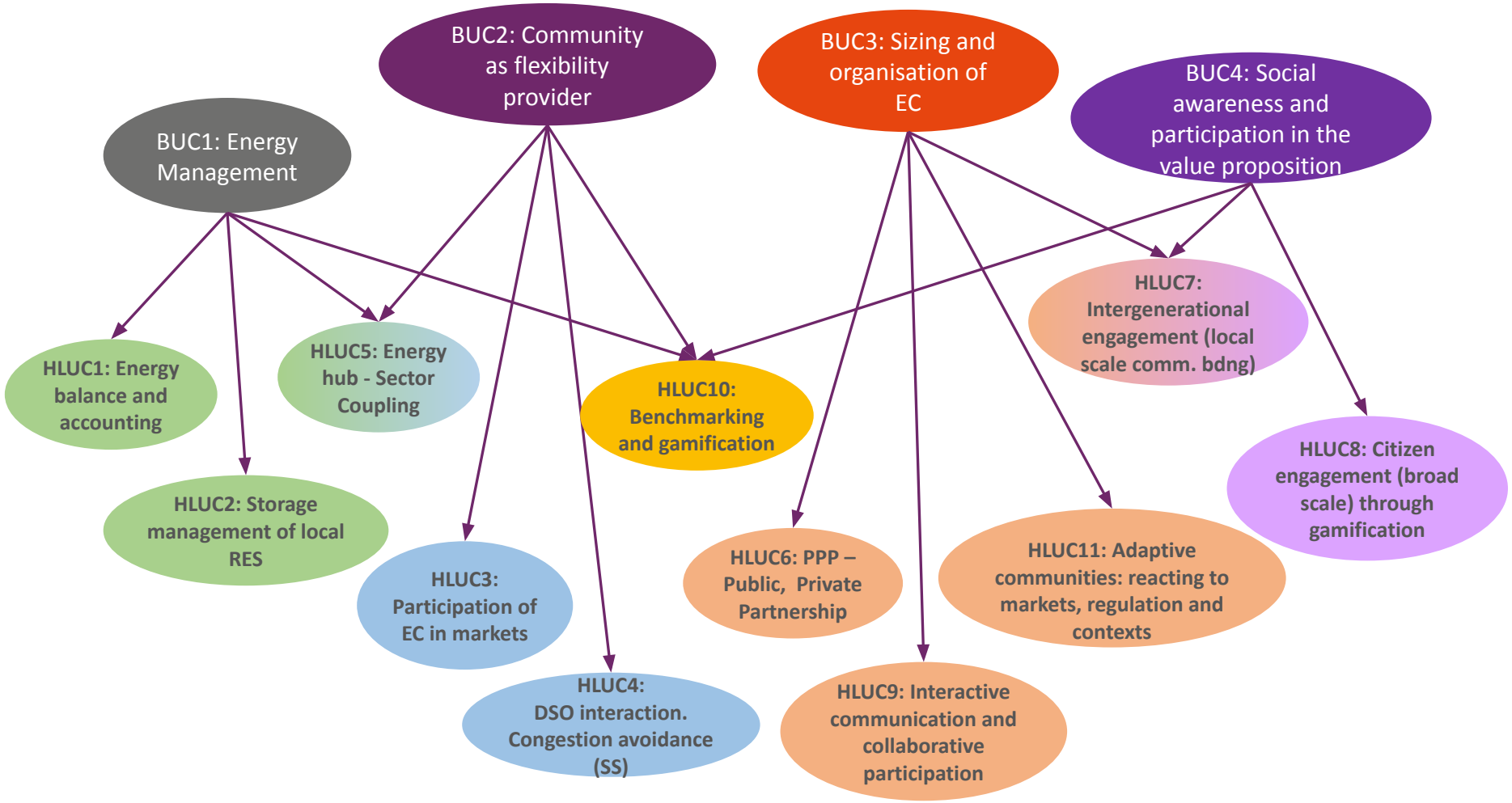
Objective	Justification
Monitoring energy consumed	Monitoring power/energy consumed and generated and the respective energy costs
Monitoring energy forecasted	The results obtained from the forecasting service Will be used for monitoring and visualitzacion purposes
Flexibility visualization	The results obtained from the optimization and flexibility management services will be used for monitoring and visualitzation purposes

- Management of self-consumption surpluses among the members – 4 municipalities

Objective	Justification
Improve energy surplus economic compensation due to the PV for the community	Manage generation and energy demand to improve the operational cost of the community and optimally manage the energy surplus of the community as a whole
Validate usage of hourly vs static energy sharing coefficients	Optimally manage how the energy production by the PV is shared with the members to maximize self-sufficiency and reduce operational cost
Manage energy surplus by either using community mambers or the battery	Optimally manage energy surplus by using either batteries or loads to increase self-consumption and an efficient energy management

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

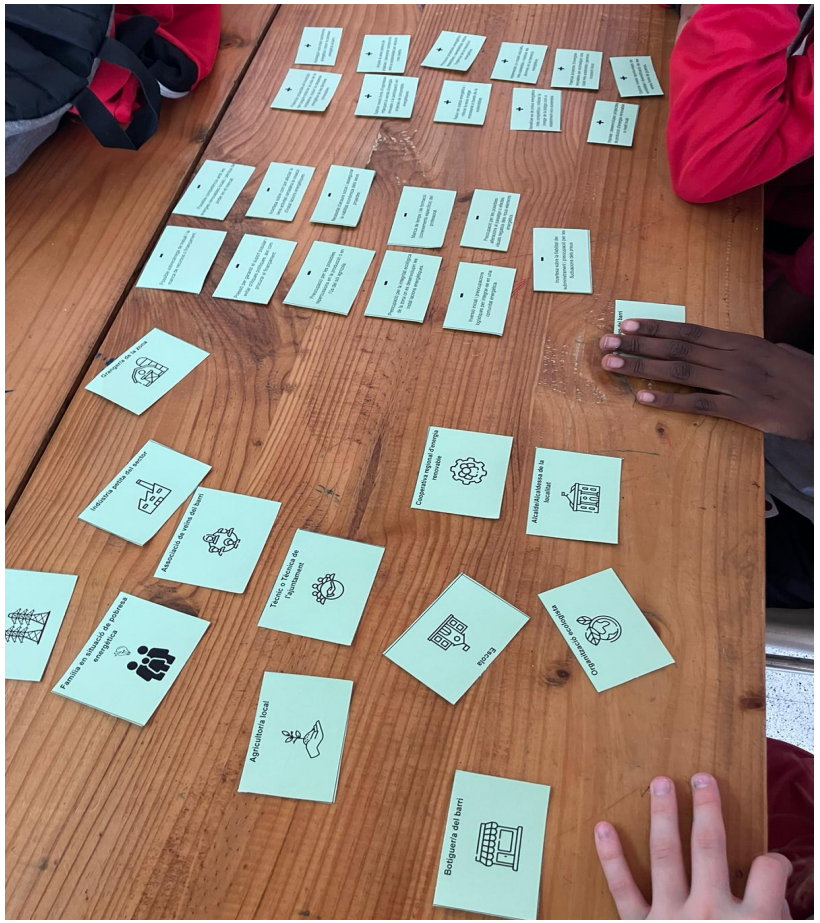
BUC



42

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

School Session in Girona



Reschool member leading a session in a school - 08 May 2024

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096490

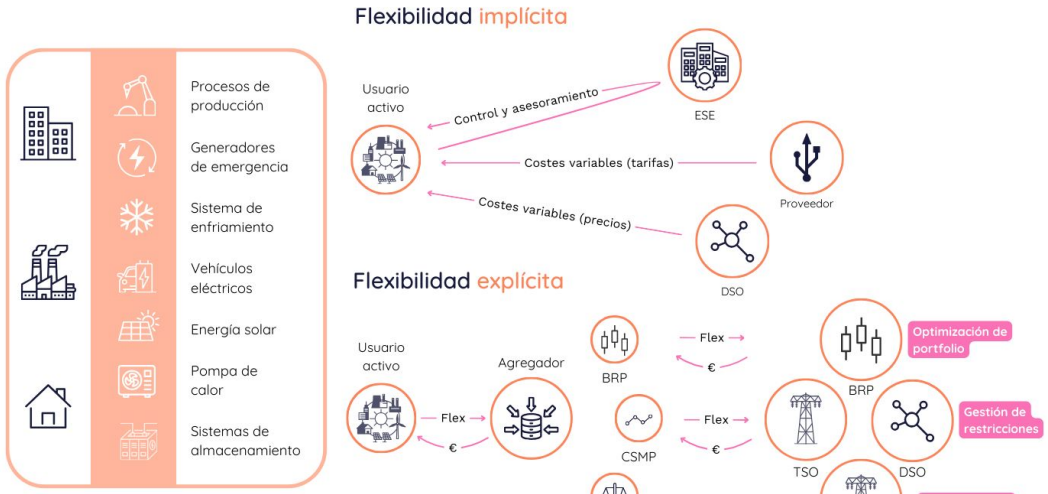
Tipos de flexibilidad

Distintos tipos de mecanismo para aprovechar la flexibilidad

- Procesos de producción
- Generadores de emergencia
- Sistema de enfriamiento
- Vehículos eléctricos
- Energía solar
- Pompa de calor
- Sistemas de almacenamiento

Tipos de flexibilidad

Distintos tipos de mecanismo para aprovechar la flexibilidad



No hace falta precalificación

No hay penalizaciones ni requisitos particulares

- Arbitraje de precios
- Maximización autoconsumo individual y compartido
- Peak-shaving o reducción de picos de potencia

Hace falta precalificación

Hay posibles penalizaciones por no cumplir

Hay requisitos específicos por tipo de mercado

- Reserva terciaria
- Reserva secundaria
- RR
- Restricciones técnicas
- SRAD
- Mercados locales*

CSMP
TSO
DSO
BSP
TSO

- Reserva terciaria
- Reserva secundaria
- RR
- Restricciones técnicas
- SRAD
- Mercados locales*

“Non-EU-directive Energy Communities in citizen-centred local energy system transitions”

Workshop

“Energy Communities 2050: Renewables, Citizens, and Collective Self-Consumption”

25 September 2024

UNIVERSITY OF TWENTE.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

DEPARTMENT OF SCIENCE & TECHNOLOGY
Ministry of Science and Technology
Government of India
सत्यमेव जयते

Importance of local energy systems in the energy transition

- What energy communities do we need for the local energy transition?
  - Community energy and energy communities are used interchangeably
  - EU: Citizen-driven energy actions that contribute to the clean energy transition, advancing energy efficiency within local communities.
- Do citizen-driven energy actions have to be based on the concept of energy communities that the EU introduced in its legislation? Barriers?
- Can existing social communities—like homeowner associations, user groups, and neighbourhood or village organisations—fulfil the role of energy communities? (Dis)advantages?
- Context of discussion: local energy system transition and characteristics of new local communities (as a place and identity)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

Importance of local energy systems in the energy transition

- EU advantages of energy communities:
  - Contribute to increasing public acceptance of renewable energy projects
  - Make it easier to attract private investments in the clean energy transition.
  - Effective means of re-structuring our energy systems by empowering citizens
  - Makes citizens directly benefit from better energy efficiency, lower bills, reduced energy poverty and more local green job opportunities.
- Local energy system transition through innovations
  - Community power: affecting the decision-making process and the use of resources, ownership and benefits
  - Making the transition possible: social acceptance, support and financial contribution by citizens
  - Innovative power and local knowledge in communities

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

Sustenance-project

- SUSTENANCE project ‘Sustainable Energy System for Achieving Novel Carbon-neutral Energy Communities’
- The EU-funded SUSTENACE project aims to set up sustainable citizen-centred renewable local energy systems.
- The focus of the SUSTENANCE project is not only to build local, sustainable, and efficient integrated energy systems but also to make these renewable local energy systems a vital part of the future of the community where people live.
- In a citizen-centred approach, citizen involvement and motivation become the criteria for success and the basis for achieving novel carbon-neutral energy communities (in terms of places).
- Demos in Denmark, Poland, Netherlands and India (not EU, of course)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

DEPARTMENT OF SCIENCE & TECHNOLOGY
Ministry of Science and Technology
Government of India
सत्यमेव जयते

Socio-technical local energy system transition

- Socio-technical systems are ‘interconnected, integrated systems that link social, economic, and political dynamics to the design and operation of technological systems’ (Miller et al., 2015).
- Transitions of socio-technical systems involve the co-evolution of technological components, institutions, business models and user practices (Schot and Geels, 2008).
- Complementary organisational framework to make sustainable innovations possible
- Social innovation; energy communities to support technical innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

Meaning of communities

Kinds of meanings that the community may have for its members (Bauwens et al. (2022)

1. A way to distribute costs and benefits collectively (“Outcome”)
2. The voluntary and collaborative involvement of people in the activities (“Process”)
3. Meaning due to beliefs and values or ways of thinking and living shared with other members (“Identity”).
4. Equated to a specific actor (individuals, groups, or organizations) in the sense of embodying the community (“Actor”).
5. Extend beyond place and be more vested in virtual networks or social relationships (“Network”).
6. Geographical proximity of members as meaning-defining aspect of the community (“Place”).
7. An intermediate hierarchical level exceeding the household but subject to a municipality or other aggregated level of governance (“Scale”).
8. Community as technology for cases in which the community is limited to the material connection of members through technological devices (“Technology”).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

Cases (I)

Type of collective citizen-driven energy actions by energy communities:

- Generating renewable energy, energy efficiency services, energy storage, electric mobility, managing energy distribution and supply, education

Sopot Poland, apartment buildings, community apartment owners' association

- Sustainable hot water system realised by owners' association for the whole building, *democratic decision-making*
- Rooftop PV project based on formal energy community stagnates
- *Unclear legislation, resistance against the cooperative concept*

Aardehuizen, Netherlands 24 Earth ship houses. Owners' community

- Sustainable houses built by members of foundations themselves, individual and collective *democratic* decisions and investment
- *Scale, larger energy community in the municipality*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

DEPARTMENT OF SCIENCE & TECHNOLOGY
Ministry of Science and Technology
Government of India
सत्यमेव जयते

Cases (II)

Slimpark, **Netherlands** EV charging park, EV car users

- Individual charging decisions that influence other users
- *No co-ownership*

Voerladegård, Denmark Community as technology, self-selected household, mostly owners from one neighborhood

- Individual investment HP and CEMS replacing heating with gas
- *Voluntary cooperation, future grid based tariff structure*

Barubeda and Borakhai village, India Village communities

- Community-based integrated renewable energy system (RES) for RES energy supply in weak and no grid connection situation
- *Village council, representative democracy*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

DEPARTMENT OF SCIENCE & TECHNOLOGY
Ministry of Science and Technology
Government of India
सत्यमेव जयते

Conclusions

- Existing social community structures can fulfil the function of ‘legal’ energy communities, particularly in the context of system innovations (community as technology)
  - EU Directive Transposition and unclear legislation
  - Resistance against getting formally organised
  - Calendar time needed to start a formal energy community (initiators, finance, legal structure)
  - Scale and already existing energy communities
  - Potentially fewer problems with the organisational durability because they are existing organisations
- However, the EU-based energy community guarantees the organisation of collective investment, for instance, for energy generation projects and democratic quality.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022587, and the Department of Science and Technology (DST), Government of India under the SUSTENANCE project. Any results of this project reflect only this consortium's view and the funding agencies and the European Commission are not responsible for any use that may be made of the information it contains.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957781.

Barriers to community flourishing

Antonis Papanikolaou,
ACCEPT coordinator

accept

active **c**ommunities & **e**nergy
prosumers for the energy **t**ransition

SUSTAINABLE PLACES 2024

accept

active communities & energy prosumers for the energy transition

start date 2021 january

duration 48

end date 2024 dec

16 partners

9 countries

4 living labs

OBJECTIVES

Technical & Technological

Delivering an integrated tool-chain for the transition of energy communities to fullplayers of the energy & flexibility markets

Developing a Consumer Digital Twin model to streamline the information exchange between building-level tools and market actors

Creating a secure and interoperable digital toolbox compatible with the majority of residential building systems used across the EU

Citizen Engagement & Co-creation

Designing compound (energy & non-energy) service offerings and business models to enable the participation of the residential sector in demand response markets/services

Identifying incentives and drivers of citizens and energy communities and delivering a citizen engagement methodology to stimulate citizen participation in the energy transition and community flourishing

Validation of the expected impact of the ACCEPT solution in real-life conditions (citizens, communities) in four European countries and maximize replication potential

EMPOWERMENT OF ENERGY COMMUNITIES

DIGITAL TOOLBOX & INNOVATIVE DIGITAL SERVICES

DEMONSTRATION & VALIDATION AT FOUR PILOT SITES

Regulations (a.k.a. regulatory barriers)

Legal

Variation and volatility in national regulations & policies.

MS legislation may introduce significant administrative overheads to ECs (e.g. establishment of legal entity and complex reporting processes).

Transition to net-billing : 1) diminishes the benefits of collective self-consumption for citizens, 2) forces them to seek professional support for planning & designing the generation system, leading to further costs.

Regulations prioritise grid over communities. E.g. geographical or grid-topology-related constraints on proximity of community members hinders the ability of communities to grow and involve more citizens in the energy transition.

Infrastructure

Grid capacity can be a roadblock for community-owned PV or energy sharing. DSO rigidity blocks innovative schemes.

Finding suitable land for larger-than-rooftop PV installations is a complicated challenge.

Permit approval times can be very slow.

Smart metering & real-time smart meter data acquisition to drive recommendations or automation are often missing.

Barriers for self-consumption schemes & citizen participation

Cultural

Energy / appliance usage patterns are different across MSs – they necessitate custom approaches per country. Typical example is DHW switching on/off patterns.

Good energy consumption practices should be adapted to local lifestyle practices, e.g. shifting consumption to solar hours especially in case of real-time self-consumption (net-billing).

Economic

Several MSs are very protective of retail markets (e.g. subsidise retail energy prices) which reduces the comparative benefit of self-consumption schemes.

Personal

Balance between involvement / fuss and (diminishing) economic benefits. Impact of personal principles (e.g. environmental benefits) in balance? Attitude toward automation (that can reduce active personal involvement)?

Barriers for community involvement in professional services

ACCEPT is testing & delivering digital tools to enable ECs to operate as ESCOs or FSPs

Market barriers

High participation thresholds (e.g. capacities for energy market access, license costs, etc)

Risks involved in commercial activities introduce additional headaches in EC management. Typical community members are risk averse

Organisational barriers

Participative community management vs business decision making

- Inclusion vs agility & efficiency

Difficult route to grow from a grassroots cooperative to a legal entity providing professional services

- Similar to a startup journey, it involves acquisition of financial, operational, HR capacities and domain expertise…

PROJECT CONSORTIUM

HYPERTECH energy labs

circe

SMART INNOVATION NORWAY

viesgo

Energie Samen Rivierenland

WITSIDE

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

RINA

lasolar

energie samen

CERTH
CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

miw ENERGÍA

AEM

MYTILINEOS

QUE TECHNOLOGIES

EUROPÄISCHES ZENTRUM FÜR ERNEUERBARE ENERGIE GÜSSING GMBH

FIND US

Twitter:
@AcceptH2020

LinkedIn:
@Accept_H2020

Youtube:
Accept_H2020

www.accept-project.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957781.

Kraków Metropolitan Area

SUSTAINABLE PLACES 2024

Experience of Krakow Metropolitan Area in Energy Communities - identified barriers - COMANAGE project

Bartłomiej Smenda

Specialist, Team for Environment and Spatial Management

25.09.2024

comanage

Co-funded by the European Union

Krakow Metropolitan Area

The **Krakow Metropolitan Area** creates a platform for cooperation for 15 municipalities - Krakow and the surrounding 14 municipalities

- Biskupice
- Czernichów
- Igołomia – Wawrzeńczyce
- Kocmyrzów – Luborzyca
- Liszki
- Michałowice
- Mogilany
- Niepołomice
- Skawina
- Świątniki Górne
- Wieliczka
- Wielka Wieś
- Zabierzów
- Zielonki.

Krakow Metropolitan Area

There are currently three energy communities operating in the Krakow Metropolitan Area:

- Niepołomice Energy Cooperative
- Energy cooperative in Skawina
- Northern Crown of Krakow Cluster

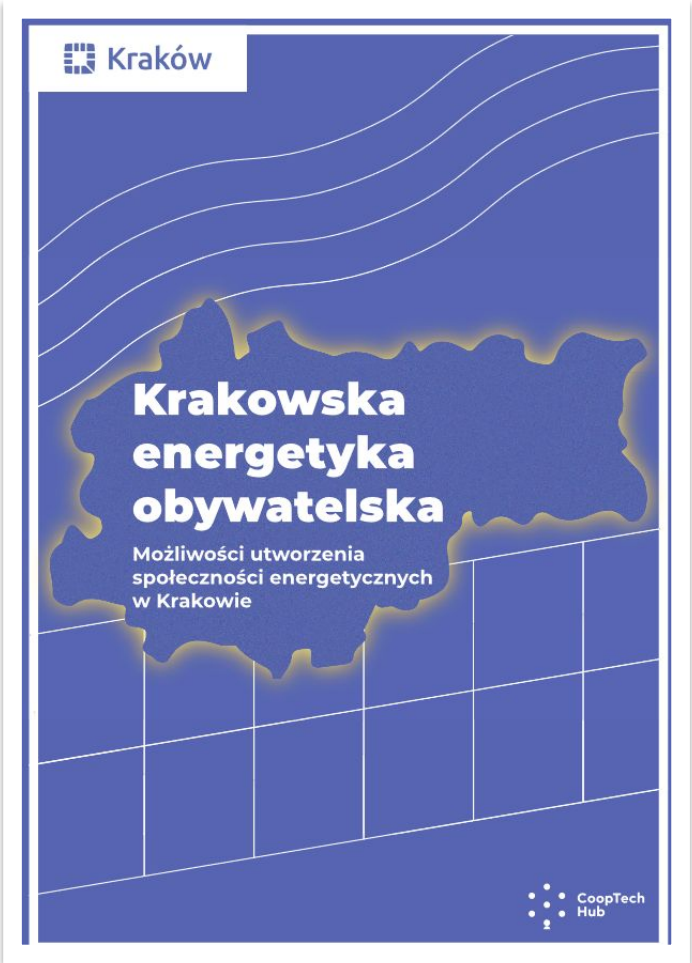
More will be created soon!

comanage

City of Krakow - collective prosumer

- The City of Krakow held a series of workshops on energy communities. It was attended by representatives of cooperatives and housing communities, residents, as well as administrators of public buildings.

- The result of these meetings is a report with examples discussed in detail, based on analyses of the profitability of investments in renewable energy, implemented on the basis of energy community models.



Report available (PL) HERE

comanage

Municipality of Niepołomice - EPAH project

- The municipality of Niepolomice is participating in a technical support program for local governments interested in combating energy poverty. The program is run by the Energy Poverty Advisory Hub (EPAH).

- The goal of this program in the case of the municipality of Niepolomice is to develop a model for establishing an energy cooperative that takes into account the energy poor.

- There is also to be a practical guide and service point where residents can get expert advice on setting up and running a cooperative.

comanage

New communities?

- Municipality of Zielonki
- Municipality of Niepołomice
- Municipality of Kocmyrzów – Luborzyce
- Municipality of Mogilany

comanage

Number of energy communities

66+ Energy Clusters

- Energy clusters are not required to register until last change in the law
- 66 received the Pilot Energy Cluster Certificate as part of the competition organized by the Ministry of State Assets in 2017 and 2018.

41 Energy Cooperatives

- Cooperatives must be registered with the National Agricultural Support Center
- By 13th of September 2024, 41 cooperatives had been registered, 141 members, 174 installations, 7.3 MWe capacity

comanage

Kraków Metropolitan Area

Project COMANAGE

Developing a transnational governance and holistic integrated services framework supporting the sustainability of European energy communities

comanage

Co-funded by the European Union

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them.

Needs and challenges

Identified barriers:

- Citizens' **lack of confidence** in energy communities' potential to succeed
- The absence of **public contact points** for engaged citizens to seek advice from
- Public authorities' **lack of knowledge** of the ins and outs of governing energy communities
- **Legal barriers** inhibiting cooperation between citizens and public entities
- The **misconception** that there can be a standardised management strategy for all energy communities across Europe

comanage

Kraków Metropolitan Area

What is COMANAGE going to do?

COMANAGE aims to tackle the main governance and management barriers and challenges faced by citizen-led and public-participated energy communities' projects.

This will be accomplished by creating a methodological and operational **Management Structure for Energy Communities** and equipping public authorities involved in energy community projects with a set of integrated services, support mechanisms and tools to facilitate the management and administration of energy communities and other forms of civic energy initiatives, ensuring their growth and sustainability in the medium and long term:

Toolkit

The **final goal** of the project :

- ❑ to ensure that energy community projects that have already been setup can take off and grow in the medium and long term.
- ❑ to encourage and stimulate the uptake of new community-owned energy projects

comanage

Kraków Metropolitan Area

PROJECT COMANAGE

Duration of the project
November 1, 2022 - October 31, 2025

Project budget
Total project value: €1,708,731.80
Co-financing: €1,623,295.23 (95%)

comanage

Kraków Metropolitan Area

SUSTAINABLE PLACES 2024

PARTNERS

Knowledge Providers Partners

ecoserveis

Co-opAbility INSTITUTE

AISFOR

anese

Pilot cases

AMB

Metropolia Krakowska

ANCI · LAZIO
Associazione Nazionale Comuni Italiani
al servizio dei Comuni del Lazio

Communication, Dissemination, Replication, and ICT providers

metropolis

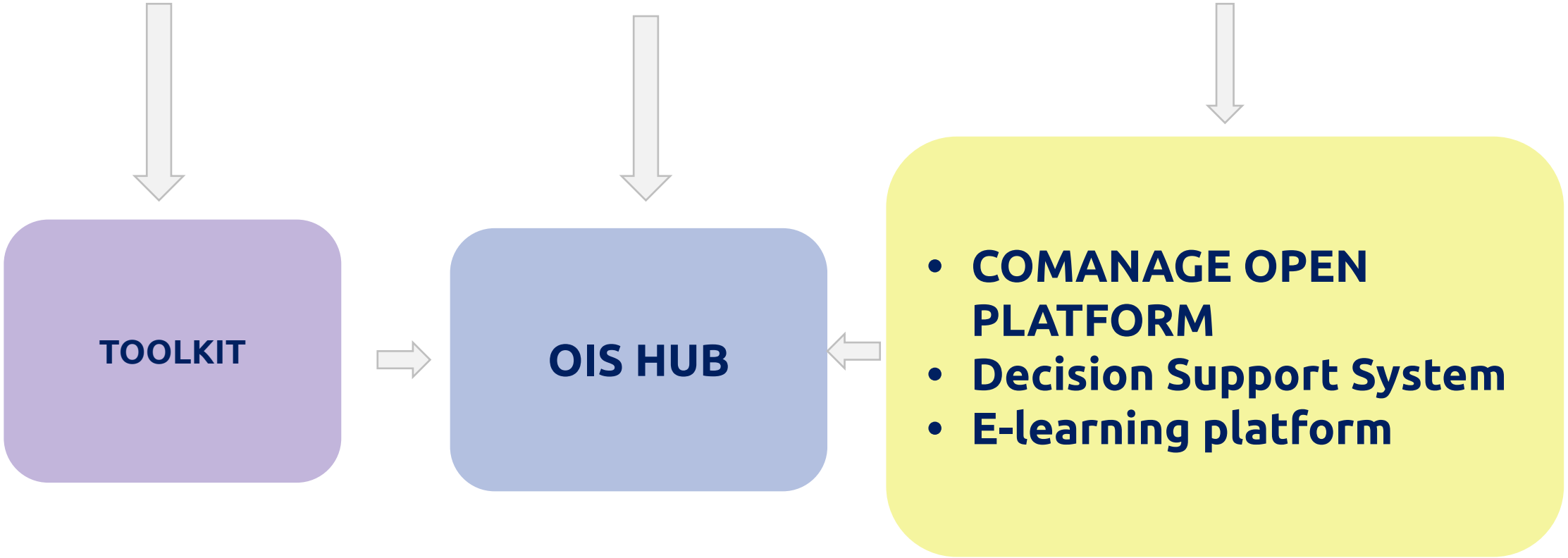
REVOLVE

spindox DIGITAL SOUL

comanage

Kraków Metropolitan Area

Main products of the project



comanage

Kraków Metropolitan Area

TOOLKIT

Administration and Law	Statute of the energy cooperative
	Model lease agreement for private roof/grounds
	Model power purchase/sale agreement
Engagement of citizens	10 principles of participation - equality, inclusion
	Plan for resident involvement
	Plan to combat energy poverty
Promotion	Promotional videos on energy communities
	Promotional materials
Finance	Business development tool for energy communities
Technical	Billing model for energy cooperative members

comanage

Kraków Metropolitan Area

What is the COMANAGE Open Platform?

The COMANAGE Open Platform (OPC) is an online platform that will bring together content and tools developed under the project to spur the creation of energy communities.

OPC consists of 3 main components:

TOOLKIT

E-learning platform

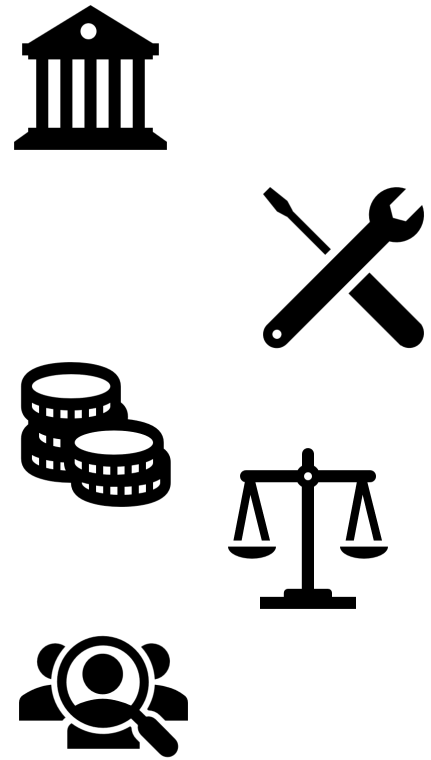
Decision Support System (DSS)

comanage

Kraków Metropolitan Area

What will the e-learning platform include?

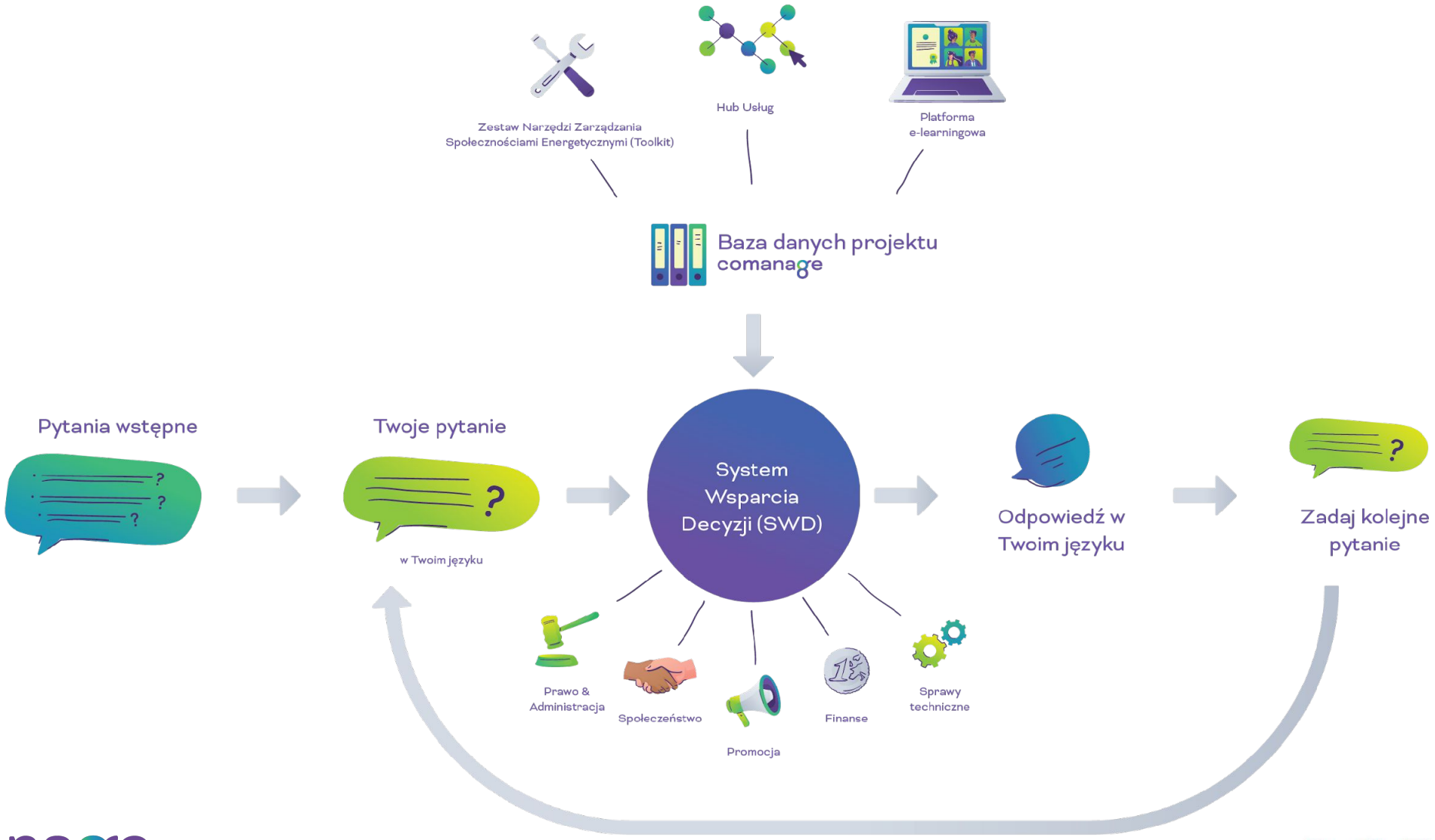
- Introduction
- Technical matters
- Business Models and Financing
- Law and Administration
- Engagement and promotion



comanage

Metropolia Krakowska

Decision Support System



comanage

Metropolia Krakowska

Metropolia Krakowska

Identified barriers

comanage

Co-funded by the European Union

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them.

Identified barriers and needs - COMANAGE activities

Telephone surveys were conducted with local MK government employees to identify barriers and needs for the creation and operation of energy communities.

Źródło: pixabay.com

Identified barriers and needs - COMANAGE activities

Lack of universal, developed procedures for the establishment and operation of an energy cooperative (cooperation with the energy supplier and distribution network operator)

Lack of knowledge about how to balance energy in an energy cooperative

Lack of knowledge of how to raise funds for investment in energy communities

The problem with funding your own experts

Convincing residents of the benefits of participating in energy communities

Need to benefit from good practices of functioning energy communities

Lack of theoretical and technical knowledge of how energy communities function

Barriers and needs identified - COMANAGE actions

Metropolia Krakowska

Lack of universal, developed procedures for the establishment and operation of an energy cooperative (cooperation with the energy supplier and distribution network operator)

Statute of the energy cooperative

Model lease agreement for private roof/grounds

Model power purchase/sale agreement

comanage

Barriers and needs identified - COMANAGE actions

Metropolia Krakowska

Lack of knowledge about how to balance energy in an energy cooperative	Creation of an energy balancing tool for the energy cooperative by a technical expert.
The problem with funding your own experts	Cooperation with a legal expert and a technical expert in the COMANAGE project.

comanage

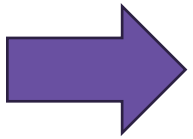
Barriers and needs identified - COMANAGE actions

Metropolia Krakowska

Lack of knowledge of how to raise funds for investment in energy communities

Lack of theoretical and technical knowledge of how energy communities function

Need to benefit from good practices of functioning energy communities



E-learning platform with information on financial programs aimed at energy communities

E-learning platform with information on the legal framework and technical aspects of the operation of energy communities

E-learning platform with information on Polish and European good practices of energy communities

comanage

comanage

SUSTAINABLE PLACES 2024

Thank you for your attention!

Bartłomiej Smenda

Specialist, Team for Environment and Spatial Management

Email: bartlomiej.smenda@metropoliakrakowska.pl

Phone: +48 575 190 339

LinkedIn page of the project:

https://www.linkedin.com/company/comanage-proje

iew=all

Co-funded by the European Union

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them.

SUSTAINABLE PLACES 2024

“One-stop shops' potential in the energy transition”

The life BECKON project

Iván Aranda- R2M
25/09/2024

Co-funded by the European Union

LIFE BECKON

Boosting **E**nergy **C**ommunities massive deployment by equipping local authorities with comprehensive technical assistance coo**K**bo**O**k, integrated services and capacity buildi**N**g

Main Objective

- Facilitate the creation, maintenance and replication of Energy Communities in Europe

For whom?

- Public authorities, promoters and Local Action Groups

The LIFE-BECKON team

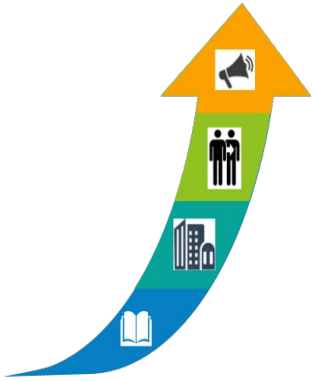
Technical Assistance and Replication

SUSTAINABLE PLACES 2024

Ávila, ES

Copenhagen, DK

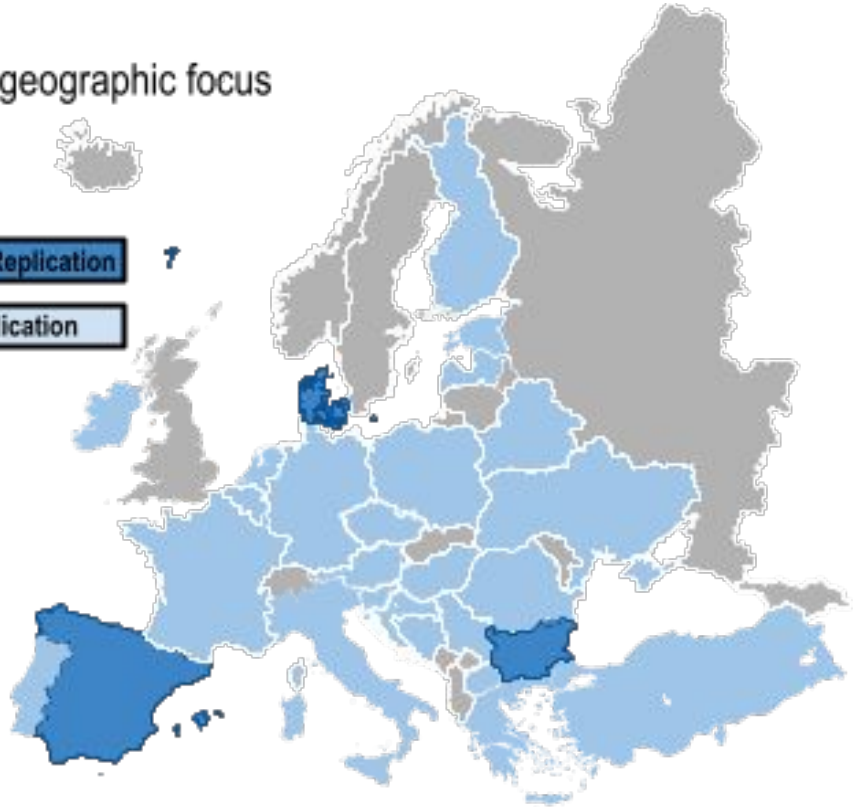
Sofia, BG



LIFE-BECKON geographic focus

Validation & Replication

Targeted Replication



LIFE-BECKON

Technical Assistance and Replication

Replication via an extensive network of municipalities and country champions

1. Launch of 25 ECs in demonstration areas
2. Call for replication for delivery TA to 15 ECs
3. Engage with >30 authorities to replicate support mechanisms

What?

- Sharing of best practices and knowledge
- Adaptation of the OSS to local contexts and needs

THE CONCEPT

How?

1. Step-by-step Guidance (“Cookbook”)

1. Capacity Building

1. One-Stop-Shop Platform

One-Stop-Shop Platform

SUSTAINABLE PLACES 2024

Guidance hub

Training hub

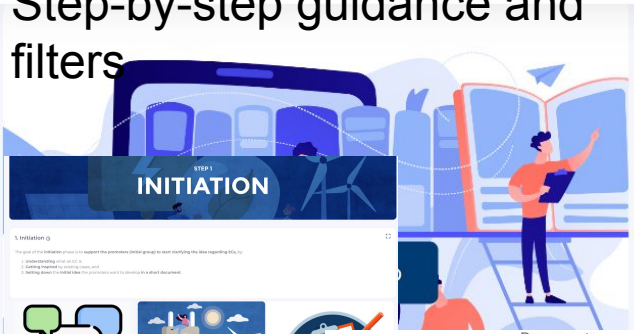
Opportunity hub

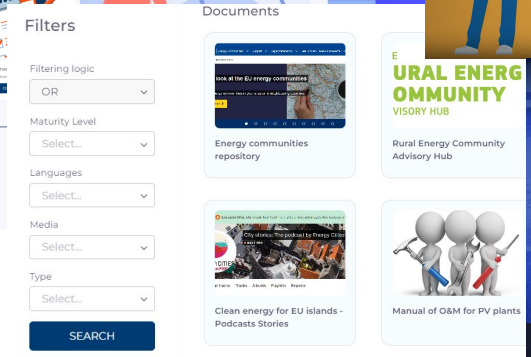
Life Beckon

Stimulates and boosts the deployment of ...

Navigating:

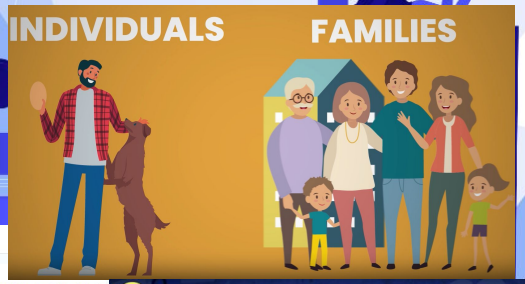
Step-by-step guidance and filters



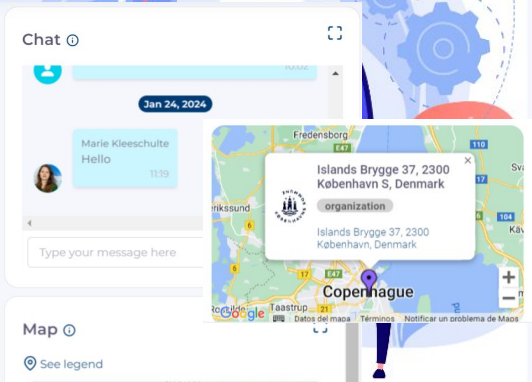


Learning space:

Training videos, workshops and more!



Matchmaking for EC Promoters & Tech&Service Providers.



WHY OSS?

SUSTAINABLE PLACES 2024

One-Stop Shops are a **game-changer** in the energy sector, centralising information, resources and services related to the energy transition.

- Simplifying complex processes - Allow to link and understand all dimensions together.
  - OSS enable citizens, energy communities and businesses to easily access technical, financial and regulatory advice to implement renewable energy, energy efficiency and electrification projects.
- Access to finance - Comprehensive financial approach
  - By bundling services, OSS can help unlock finance, manage grants and streamline access to European and national funds, reducing financial barriers to project development.
- Administrative support - Reduce bureaucratic barriers
  - The procedures and regulations surrounding renewable energy or energy efficiency are often complex. One-stop shops provide a unified service where users can receive technical and legal support, reducing the administrative burden.

Join the OSS

SUSTAINABLE PLACES 2024

SUSTAINABLE PLACES 2024

Unlock exclusive access to our platform! 📲

Scan the QR code and join Life-Beckon now to connect with a community of innovators and explorers.

THANK YOU!

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Co-funded by the European Union

Energy Communities 2050: Renewables, Citizens, and Collective Self-Consumption

Wednesday 25/09/2024 – 14:00 – 17:30

SUSTAINABLE PLACES 2024

Part 1: "Technologies and user engagement"

Part 2: "Regulations and barriers"

Energy communities as a tremendous opportunity to change the energy transition paradigm:

Stakes, barriers and opportunities for a transformational energy patterns

Stéphane POUFFARY
Chief Executive Officer
ENERGIES 2050

@FEDECOM_project @FEDECOM-project https://fedecom-project.eu/

FEDECOM - FEDErated "system of systems" approach for flexible and interoperable energy COMmunities

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

Stéphane POUFFARY

CEO ENERGIES 2050 - FEDECOM consortium member

Stéphane POUFFARY is the founder and the Chief Executive Officer of ENERGIES 2050, a network and an association active, for more than 25 years in over 70 countries. Stéphane has been working internationally for over 35 years. He is a specialist in climate change, energy and territorial transition.

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

Prosumers at the center but regulatory and technical realities remain the main determinants

ECs and RECs question all traditional modes of production and consumption. To achieve Europe's climate and renewable energy targets, a real transformational process across the entire energy value chain is needed from producers (grid operators to distributors to technology providers) to consumers of energy so called “prosumer” in addition to the needed legal framework and financial mechanisms.

The European projects presented here, as well as so many best practices implemented everywhere, make it possible to question the challenges and to demonstrate the solutions of tomorrow.

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

FEDECOM in few words:
FEDErated "system of systems" approach for flexible and interoperable energy COMmunities

SUSTAINABLE PLACES 2024

4-year Horizon Europe Project (2022-2026)

17 European Partners

7 Countries (Spain, Germany, Switzerland, United Kingdom, Serbia, Belgium, France)

@FEDECOM_project

@FEDECOM-project

https://fedecom-project.eu/

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

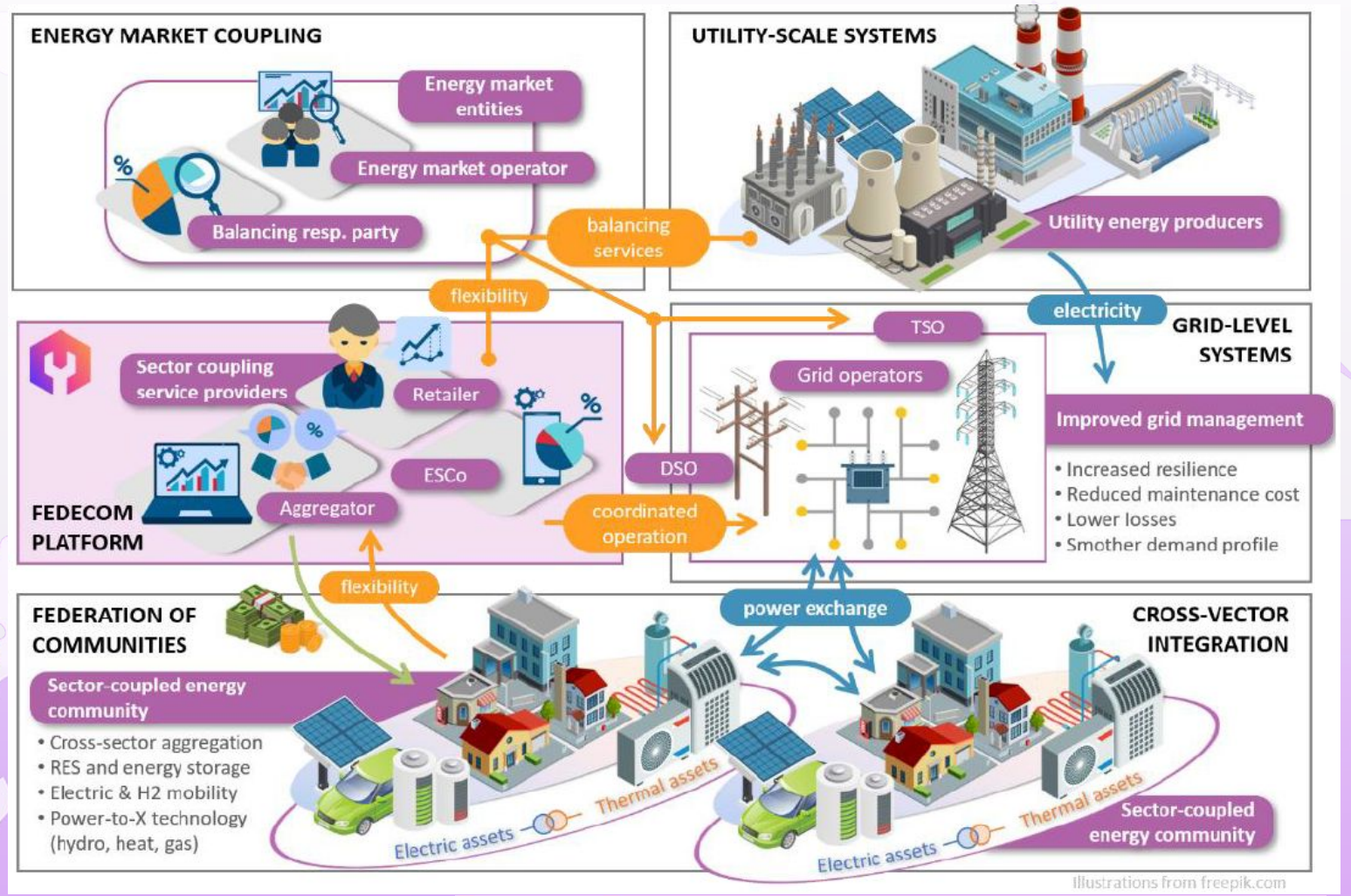
FEDECOM project – Main objectives

1. Develop and deploy a cloud-based platform for sector coupling, distributed generation and storage, high demand flexibility services and improvement of RES hosting.
2. Validate the solution in 3 large-scale pilots across Europe in different technical, market and climate contexts
3. Develop viable plans for large-scale replication of “follower” communities

This project has received funding from the European Union’s Horizon Europe programme under Grant Agreement No. 101075660

FEDECOM platform

- Communities produce and consume energy and exchange surplus
- Increase range by Intra- and Inter-Community exchange
- Aggregate data to anticipate production / consumption
- Cloud based platform with predictive, modelling and optimisation capabilities
- Cost-optimisation and flexible energy systems
- Measure – Forecast – Optimise - Control - Trade



@FEDECOM_project @FEDECOM-project https://fedecom-project.eu/

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

FEDECOM contribution

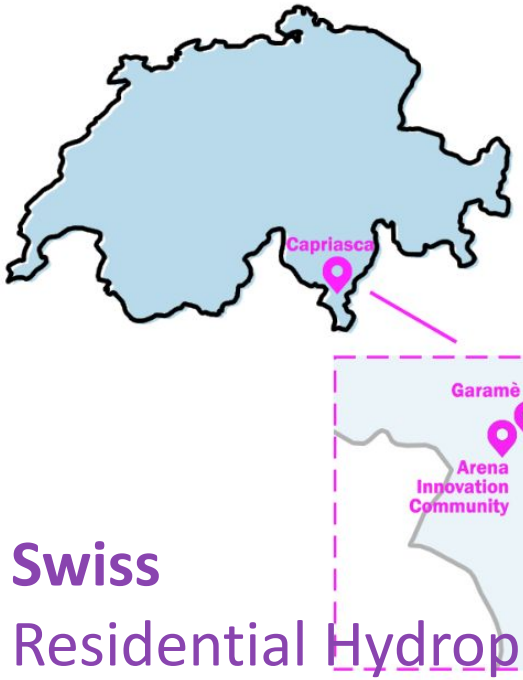
Community – RES exchange and flexibility management

- Various communities are exchanging energy
- Push towards added renewable production and consumption
  - More renewable production (solar, hydro, wind, …)
  - Locally consumed by using inertial consumption (heat pumps, e-mobility, batteries, …)
  - Power to X opportunities (P2Gas, P2Heat, P2Hydro)
  - Locally exchanged by sharing in a local community
  - Exchange inter-communities on a national level but also on a cross-border level
- Transaction and payment validated and secured via blockchain

- ✔ Increase RES production in energy mix
- ✔ Energy savings
- ✔ reduce GHG emissions and grid congestion
- ✔ € reduction to consumers, more revenue for prosumers

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

FEDECOM 3 large-scale pilots



Swiss
Residential Hydropower Federation

Spain
Virtual Green Hydrogen Federation of communities

Benelux – Netherlands -
Cross-country E-Mobility Federation

@FEDECOM_project @FEDECOM-project https://fedecom-project.eu/

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

Challenges are numerous but solutions will provide answers to the whole energy sector at large:

- Turnkey regulatory solutions are needed with low barriers (EU regulation not yet implemented in the member states) and awareness campaign are needed
- Grid integration of diverse decentralized renewable energy technologies, intermittency (energy management, but also short and long term energy storage systems), infrastructure limitations, and the need to consider flexibility in consumption not only in production
- Encourage and empower consumers/prosumers with user-centric solutions to enhance energy efficiency, addressing issues such as resistance to behavioral change, technology adoption, energy-flexible behaviors and measuring the impact of user behavior on energy efficiency.

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

The 5 Pillars of Change

1 - Technological Integration and Grid Management

- **Challenge:** The shift towards decentralized energy production (e.g., renewable energy communities, prosumers) places significant strain on the current grid infrastructure, which was designed for centralized, large-scale power generation.
- **Innovation Need:** Smart grid technology, real-time energy management, and digital solutions are required to handle variable renewable energy (e.g., solar, wind) and to balance supply and demand efficiently. Additionally, large-scale energy storage solutions must be developed to handle intermittent energy production.
- **Stakeholders:** Grid operators, technology developers, and policymakers need to collaborate on upgrading infrastructure to be more flexible and resilient.

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

The 5 Pillars of Change

2 - Regulatory and Policy Frameworks

- **Challenge:** Energy markets and regulations are still largely designed for traditional, centralized energy production. Prosumers and renewable energy communities often face regulatory barriers, such as complex permitting processes, grid connection rules, and restrictive energy tariffs.
- **Innovation Need:** Policies need to be updated to encourage decentralized energy production, ensure fair market access for small producers, and incentivize prosumer participation. Simplifying administrative processes and creating clear, supportive legal frameworks is essential.
- **Stakeholders:** Governments, regulatory bodies, energy companies, and consumer organizations must work together to create policies that align with the goals of inclusivity and decarbonization.

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

The 5 Pillars of Change

3 - Financing and Investment Challenges

- **Challenge:** While renewable energy costs have declined, the upfront capital investment required for decentralized energy projects, such as rooftop solar, energy storage, and microgrids, can be a barrier, especially for low-income communities or individuals.
- **Innovation Need:** New financing models, such as community-based funding, green bonds, or peer-to-peer energy trading platforms, must be developed to enable widespread participation in the energy transition. Innovative ownership models, like cooperatives or shared ownership structures, can also help distribute the financial burden.
- **Stakeholders:** Financial institutions, governments, and local communities need to collaborate on creating accessible funding solutions that incentivize participation from all socioeconomic levels.

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

The 5 Pillars of Change

4 - Consumer Engagement and Behavioral Change

- **Challenge:** Prosumers play a key role in the energy transition, but widespread adoption is hindered by a lack of awareness, technical knowledge, and engagement in energy production. Many consumers remain passive energy users and may be resistant to behavioral changes needed for efficient energy consumption.
- **Innovation Need:** Empowering consumers through education, user-friendly technology, and transparent information about energy consumption is critical. Additionally, platforms for prosumer participation, such as demand-response systems and real-time energy monitoring apps, need to be developed and widely adopted.
- **Stakeholders:** Governments, NGOs, tech companies, and energy providers must focus on educating consumers and making energy systems more interactive and accessible.

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

The 5 Pillars of Change

5 - Equity and Social Inclusion

- **Challenge:** Ensuring that all segments of society can participate in and benefit from the low-carbon energy transition is critical. There is a risk that marginalized or low-income communities could be left behind if they lack the resources or infrastructure to engage in renewable energy production.
- **Innovation Need:** Policies must ensure equitable access to renewable energy technologies, including subsidies or incentives for low-income households. At the same time, community-driven energy projects should be supported to ensure that the benefits of renewable energy (lower bills, local ownership) are widely shared.
- **Stakeholders:** Social equity organizations, governments, and energy developers need to focus on inclusive policies that make the energy transition accessible for all, while ensuring that energy poverty is addressed

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660

Workshop: Energy Communities 2050: Renewables, Citizens, and Collective Self-Consumption

- How to follow the Project: https://fedecom-project.eu/

@FEDECOM_project

@FEDECOM-project

This project has received funding from the European Union's Horizon Europe programme under Grant Agreement No. 101075660