



Regulatory barriers to the set up and growth of renewable energy communities

Lessons learnt from LocalRES, recommendations from BRIDGE Regulatory WG Action 2

Karine Laffont-Eloire

Karine.laffont@dowel.eu

DOWEL Innovation

15/06/23



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

Outline



Presentation of LocalRES: objectives and demonstrations



Regulatory barriers encountered by the demos and way forward



Recommendations from BRIDGE



Conclusions: lessons learnt and good practices

Presentation of LocalRES

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

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

► **4 years** (1/5/2021 to 31/3/2025)

Project Consortium

8 Countries

Spain	Finland
Austria	Italy
France	Ireland
Belgium	Germany

20 Partners

6 RTOs	1 UNIV.
2 LARGE	4 PUBLIC
1 COOP.	*3 3rd
5 SMES	PART.
1 ASSOC.	

4 Demo sites

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

Ispaster (Spain)



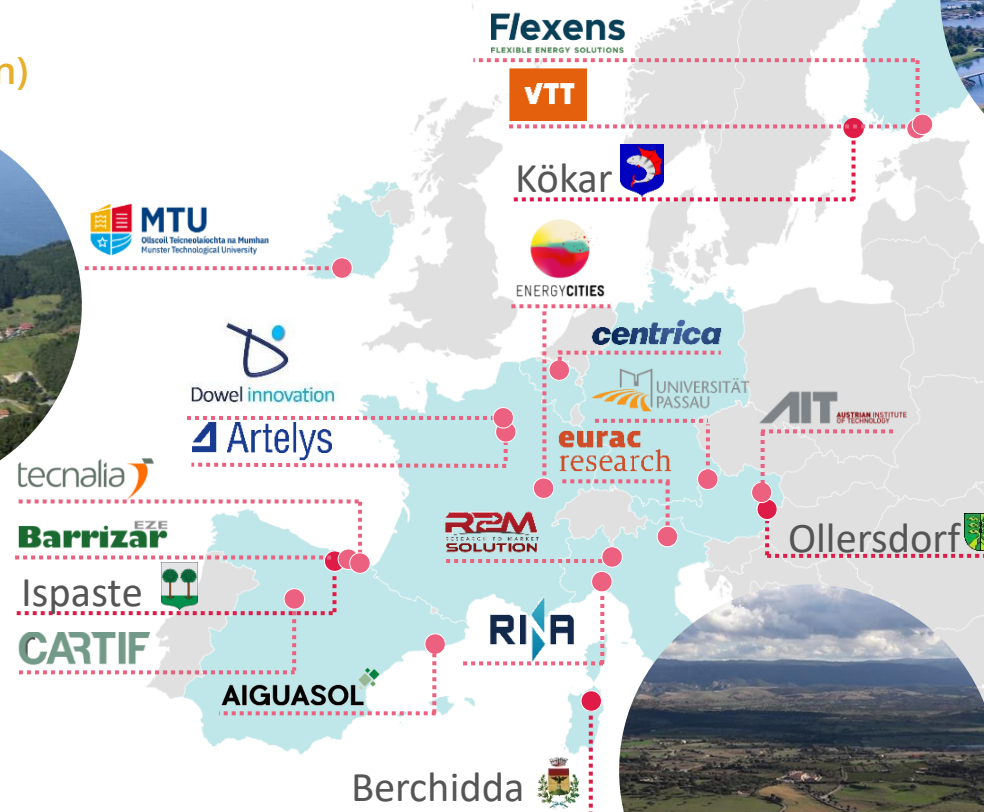
Kökar (Finland)



Ollersdorf (Austria)



Berchidda (Italy)⁶



Kökar

Archipelago municipality, Åland islands, Finland

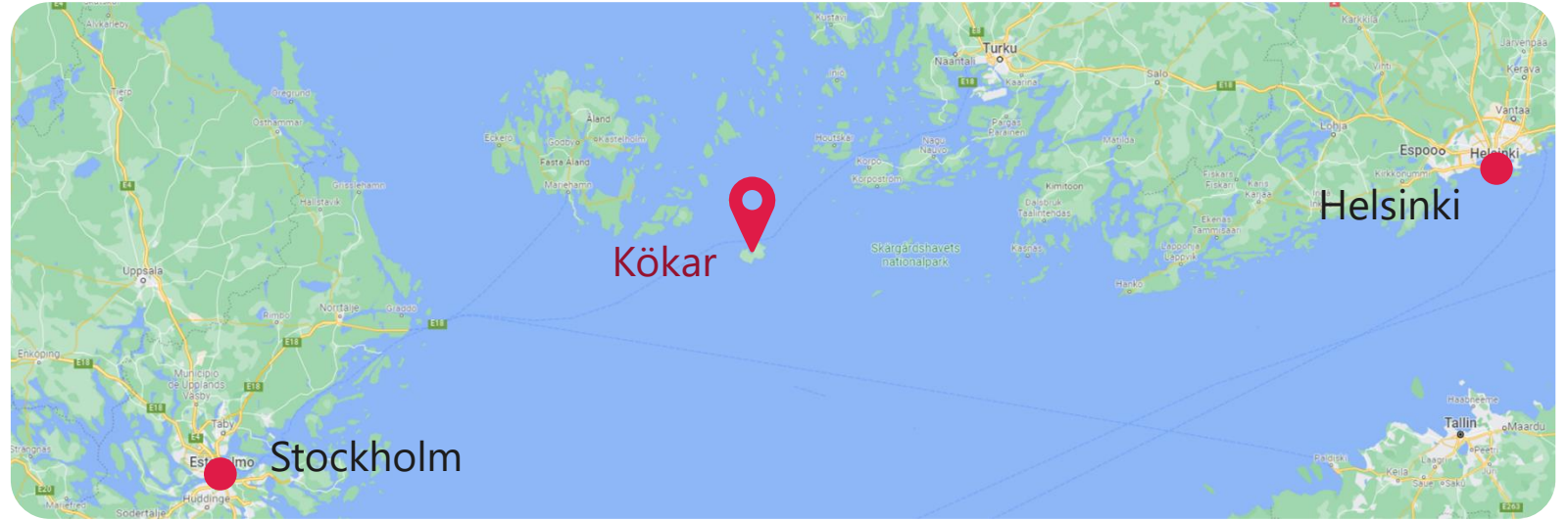
- **POPULATION:** 234 INHABITANTS
- **OBJECTIVES:**
 - MINIMIZE BLACKOUTS
 - 100% RENEWABLE (2030: 60%)
- MEMBER OF **CE4EUI**
- **COMMUNITY-BASED** MANAGEMENT
- SPECIFIC **“WORKING GROUP”**
- **PUBLIC BUILDINGS & HOUSEHOLDS**

TEAM

Kökar Kommun



Flexens
FLEXIBLE ENERGY SOLUTIONS



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

TEAM

Ollersdorf municipality



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

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



Regulatory barriers encountered by the demos and way forward

What we reviewed in our regulatory analysis

EU Directives & Regulations



Renewable Energy Directive – RED II

Electricity Market Directive - EMDII

Other relevant texts:

- Directive on Alternative Fuels Infrastructure
- Energy Performance of Buildings Directive
- Energy Efficiency Directive



National laws transposing EU Directives and other relevant laws (e.g. on CSC)



EU Electricity Network Codes



Market codes

Capacity Allocation & Congestion Management
Electricity Balancing

Operation codes

Emergency and Restoration

+ national approaches for the procurement of frequency reserve, voltage control, black start
(technology and size limitations, minimum bid size requirements)

+ review of deliverables from EU-funded projects
(CoordiNET, IElectrix, INTERFACE, eCREW, ...)
Peer-reviewed papers
Position Papers from ENTSO-E
Presentations from ACER

Regulatory gaps identified for each Use Case (as of April 2022)

Regulatory topic	Sub-topic	Ispaster UC	Kökar UC	Ollersdorf UC	Berchidda UC
Renewable Energy Communities	Collective self-consumption	●	NA	●	●
	Aggregated Energy trading	NA	NA	NA	●
	P2P Energy trading	NA	NA	●	●
	Energy storage (behind the meter)	●	●	NA	●
	Electric flows optimisation	NA	NA	●	●
eVs	Public charging points	●	●	●	●
	V2G	NA	NA	NA	●
Heating supply	DH operation and integration of RES	●	NA	NA	NA
	Sale of waste heat to DH	NA	NA	NA	NA
	DH balancing (thermal DR)	●	NA	NA	NA
	P2H / H2P	●	●	●	NA
Grid services provided to system operators	Voltage control	NA	NA	NA	NA
	Frequency control	NA	NA	NA	NA
	Black start	NA	●	●	NA
	Congestion management	NA	●	NA	●

● No gap identified: the service can be provided by the REC

● The service can be provided within the REC but cannot be offered to System Operators

● The service cannot be provided as initially foreseen

Synthesis across the demos

Barriers



- P2P trading pointless endeavour in practice for a REC in Austria
- Enabling framework for RECs not defined yet in SP and FI
- Opposition to the project of a local minority resulting in a legal process in Kokar
- Increased costs of technologies



Demo adjustment



- The blockchain P2P approach in Ollersdorf needs to be adapted or transferred to another demo: still in discussion
- The demo in Kokar might be pursued outside of the project due to planning incompatibilities

Enablers



- Strong support from the municipalities and the mayors
- Support from local DSO in IT
- Energy prices
- Climate awareness
- Previously funded EU Projects & local Projects



Main achievements so far



- Extensive citizen engagement in all demos
- Development of future scenarios for decarbonisation as well as options for new business models
- Data collected to instantiate the tools
- Creation of legal entity of REC in Ollersdorf
- Real time sensors installed in Ollersdorf for flex activation and black-out prevention
- Extension of DH in Ispaster, EV charging infrastructure available and selection of location for new PV

Recommendations from BRIDGE Regulatory WG Action 2

What is BRIDGE ?

A European Commission initiative which unites Horizon 2020 and Horizon Europe Smart Grid, Energy Storage, Islands, and Digitalisation Projects to create a **structured view of cross-cutting issues** which are encountered in the demonstration projects and may constitute an obstacle to innovation



4 Working Groups:

Data management

Business models






Consumer & citizen
engagement

Regulations



Action 2: Energy Communities

Barriers identified by participants in Action 2

 REGULATION	Processes (incl. technical regulations) for REC & CEC are not fully defined in national regulations yet. 1
	The CEC and REC concept as defined in EU regulation still has to be fully implemented in many MS 2
	Complex interactions with DSOs due to the lack of clear processes or standards
	Smart Meter roll-out and their functionalities vary in countries
	No overarching regulations for cross-sector projects (electricity/heat/mobility)
	Grid services cannot for now be traded directly by the REC to the system operators as network codes are not adequate
 VALUE CHAIN/ MARKET	Flexibility markets are not mature enough or hardly accessible for Energy Communities because of minimum bid size requirements 3
	The participation of aggregators is not yet fully allowed in all EU countries 4
 FINANCIAL	Lack of clarity on how financial benefits from providing services should be split among the members of the community
	High relative cost of equipment for demand response
 TECHNICAL	Technologies necessary for communities to provide services (such as actuators or other solutions needed to aggregate capacity) are most of the time not installed
	Lack of common interoperability & data management processes/ standards, dataspace, platforms and interfaces for data exchanges between stakeholders 5
 SOCIAL	Difficulties for customers to accept the installation of many monitoring assets unless there is a clear chance of economic savings
	Low social acceptability of technology (RES, smart meters, heat pumps), with consumers focussing on security of delivery, comfort, stable energy prices

Recommendations 1/2

► Energy Communities

- **Raise awareness of national regulators:** Projects should be encouraged to invite regulators from Member States to national project events, and to participate to their regular events to expose and discuss the challenges related to regulation
- **Request Member States to properly define in national regulations the legal figure of RECs and CECs,** their capabilities, their responsibilities, and the respective roles of market participants and relevant actors (including DSOs) so as to clearly set the rules and create a level-playing field
- **Launch supporting actions looking into enabling framework & tools for Energy Communities,** with the aim of producing handbooks on how to set up communities and provide services (taking into account lessons learnt and good practices from EU projects) as well as providing detailed advice to national governments on how to improve technical regulations & processes



Recommendations 1/2

- ▶ **Grid services & flexibility markets**
 - ▶ **Streamline the set-up of regulatory sandboxes** to develop, test, compare and assess the effectiveness of innovative local flexibility markets concepts so as to reassure stakeholders
 - ▶ **Design technology-neutral flexibility products and markets** (with clear roles and responsibilities) that consider the participation of all type of flexibility providers, including Energy Communities, and ensure a level playing field for all participants. Attention should also be paid to price signals and flexibility activation, to make sure they are coherent and that they enable the design of compensation mechanisms
 - ▶ **Enable independent aggregators to bid into all markets** without any pre-determined arrangements with suppliers/BRPs



Conclusions

Lessons learnt on regulatory topics

- ▶ EU directives on Energy Communities may be transposed but it doesn't mean the public authorities are ready to implement them (i.e. enabling frameworks are required, also the support from the DSO is needed)
- ▶ In some cases the transposition may be very "conservative", hindering the development of communities
- ▶ National laws and EU Directives are still evolving on the topics of energy communities, energy sharing and aggregation
- ▶ Even when all the traffic lights are green on the regulatory side, this doesn't prevent an initiative to be slowed down by local opposition
- ▶ There is a long way to go to have RECs as a true market player able to offer flexibility and other grid services

Good practices

- ▶ On regulation:
 - ▶ Follow closely the evolution of national regulations, frameworks and procedures related to Energy Services and to the provision of grid services
 - ▶ Include the local DSO in the consortium to ensure support
 - ▶ Request regulatory sandboxes where relevant and possible
- ▶ On technical and financial aspects
 - ▶ Define (realistic) digitalisation requirements for legacy equipment in advance (at proposal stage if possible) and make sure costs will be covered
- ▶ On social acceptance:
 - ▶ Develop a clear engagement strategy
 - ▶ Emphasise non-financial benefits
 - ▶ Lead by example and get support from “Local heros”
- ▶ Share lessons learnt 😊



Thank you for your attention!

Questions?



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

