UP-STAIRS Uplifting Energy Communities.

Final Publishable Summary

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List of acronyms

AMB- Barcelona Metropolitan Area

ARM- Association of Rhodope Municipalities

CCC- Cork City Council

CEC- Citizens Energy Community

DSO- Distribution System Operator

EE- Energy Efficiency

ESV- OÖ Energiesparverband

KPI- Key Performance Indicator

IC- Implementation Champion

OSS- One-Stop-Shop

REC- Renewable Energy Community

RES- Renewable Energy Sources

TSO- Transmission System Operator

1. Executive summary

The objective of the UP-STAIRS project was to accelerate the creation of energy communities by developing flexible and iterative business model frameworks for One-Stop-Shops (OSS) on local collective actions that support stakeholders in working together.

In this way, UP-STAIRS facilitated citizen participation in the energy transition and supported them in becoming prosumers. To this end, several One-Stop-Shops (OSSs) have been set up in five different pilot regions across the EU in Austria, Bulgaria, Ireland and Spain.

Nonetheless, prior to the opening of these One-Stop-Shops, it was necessary to design the framework of the services that they would offer to the citizens, which included in-person and virtual engagement through the UP-STAIRS Digital Platform. Furthermore, it was required to train appropriately the energy experts that would assist the citizens in the OSSs, known as UP-STAIRS Implementation Champions (ICs).

This report presents the main outcomes from UP-STAIRS and provides EU and national policy recommendations regarding the establishment of energy communities based on the lessons learnt and the barriers faced during the project entire life cycle.

2. UP-STAIRS OSS Business Model Framework

A One-Stop-Shop (OSS) is defined as a service point, where many services are offered, so that customers can get all the information they need in one place. The design of the UP-STAIRS Energy Service OSS Framework was based primarily on the most relevant outputs from a structured review of 25 previous EU-funded OSS research projects and 18 business cases. This process was followed by several focus groups and brainstorming among the UP-STAIRS partners to define the necessary elements for the operation of the service in the OSS and develop the corresponding Business Model Canvas.

During the first stage, all the similarities among the UP-STAIRS pilots were identified in order to design a common and standardised baseline for the establishment of an OSS to support community energy actions and facilitate its replication across other EU jurisdictions.

The main features considered in the design of this common business model framework included the structure (i.e. online and/or in-person assistance, number of staff, costs, etc.), the population and geographical scope, the stakeholders network and the services offered to citizens, as shown in Figure 1 below:

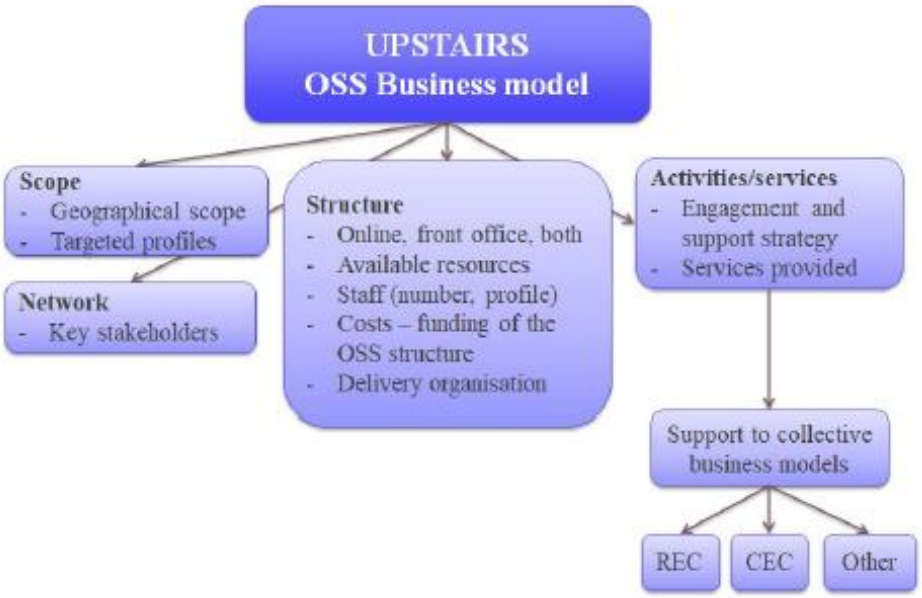


Figure 1: Main elements considered in the design of the UP-STAIRS OSS Business Model

In addition to these features, all the steps for the deployment of the UP-STAIRS OSS were structured in three different phases: the pre-service phase; prior to the implementation of the measures, the service phase; during the implementation of the measures assessed, and the post-service phase; after the implementation of the measures. These stages are reflected in the scheme below (Figure 2), together with the sub-stages and elements that are encompassed in each phase.

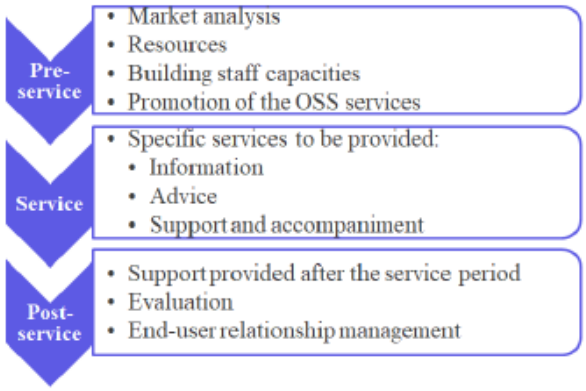


Figure 2: Phases of the UP-STAIRS OSS Service Implementation

The experience in UP-STAIRS demonstrated how setting up an OSS, targeting citizens highly rely on regional particularities (e.g. economic, political, social, etc.). However, many common aspects can be taken into account to guide the first steps to design the business model framework for an OSS in a given jurisdiction. Thus, the main steps identified in UP-STAIRS to be developed regionally (or locally) for the implementation of similar OSS in other EU countries or regions can be summarised as follows:

1. The market analysis. Identifying the specific added value and current market gaps that the OSS will cover in their region.
2. The end-users / target groups definition that the OSS service will primarily target.
3. The definition of the communication and Collective Engagement Strategy that each OSS will follow in order to reach the defined targets.

4. The specific services to be provided, defining which level of involvement will be offered by the OSS in each service category defined, according to their own goals and available resources.
5. The specific staff and resources to be allocated, including also the available infrastructure, and the digitalisation aspects of the service.

As a result, the common services proposed for all the UP-STAIRS OSS that set the baseline for the subsequent tailoring of the pilots can be summarised as illustrated in Figure 3:

1. Financial advice. Details about available grants and funds, as well as financial institutions that can support energy actions.
2. Organisational support. Characterization of staff members that will support the households.
3. Technical support. Including the articulation of technical proposals where different alternatives are presented or the development of a detailed technical report and its corresponding cost assessment. This technical support also includes a follow-up on the implementation of the measures proposed.
4. Legal support. It details if the service is provided internally or by external parties, specifies the administrative forms that the staff will provide and describes the legal framework that will be used to support the energy action.
5. Follow-up services. Such as impact assessment, social acceptability assessment, etc.
6. Facilitation and mediation services. To support the potential conflicts or agreements among the parties involved in the collective actions.

Figure 3: General service structure for the UP-STAIRS OSS

3. UP-STAIRS OSS: Experience from the OSS pilots

After the definition of the UP-STAIRS Common Business Model Framework, the context of each pilot was assessed through Implementation Champion (IC) feedback, individually through questionnaires, the review of previous success cases and specific adaptation sessions.

To this end, it was necessary to analyse the different target profiles in every pilot, in order to decide the structure of the services in each of the OSSs, as well as the topics that should be addressed. Furthermore, a SWOT analysis of the community energy plan was carried out for each pilot, in addition to a more specific collective community engagement strategy for each region.

Once the OSSs were open in all the pilot regions (after receiving the appropriate IC training), a monitoring process started taking place quarterly, with the purpose of following up on the KPIs achieved. These KPIs include people outreached and involved by the OSS in each pilot, energy to be saved, PV energy to be produced and installed, associated investments, and for the pilots addressing energy efficiency measures, building area to be refurbished.

Cork City (Ireland)

Cork City Council (CCC) was the responsible partner for leading the actions in Cork City pilot (located in the south of Ireland) during the UP-STAIRS project. With a population around 0.21 M inhabitants, the predominant type of measures covered are energy efficiency measures (including home renovation) and to a lesser extent, renewable technologies, constituted mainly by PV and in some cases, heat pumps. Both single and multi-family buildings were targeted, although the former type is much more common in Ireland.

One physical OSS was open in the city centre, where two ICs have provided in-person assistance to the citizens. This OSS has been known as the Home Energy Upgrade Office (HEUGO) (Figure 4). Additionally, the OSS offered online and personalised advice from the ICs through the UP-STAIRS Digital Platform.

Figure 4: UP-STAIRS One-Stop-Shop (HEUGO) in Cork City

The outcomes reached by the OSS of the Cork City pilot by the end of the project are collected in Table 1:

Table 1: Summary of KPIs achieved in Cork City pilot

Parameter	Unit	Value
People outreached	Number	6,905
People involved	Number	816
Energy (to be) saved ***(incl. from behavioral changes)***	kWh/year	8,643,735
PV energy (to be) produced	kWh/year	920,400
Building area refurbished (only for pilots doing EE in buildings)	m^2	101,691
PV energy installed	kWp	1,416
Associated investments	Euro	3,315,000

Barcelona Metropolitan Area (Spain)

The Office of Energy Transition in Barcelona Metropolitan Area (AMB) has been the lead organisation for the activities carried out in the Barcelona pilot. The metropolitan area of Barcelona consists of 36 municipalities and 3.2 M inhabitants.

During the project, a total of 9 OSSs were opened and operational in 9 different municipalities under the name of “La Teulada” (the rooftop in Catalan). The main type of measures addressed are PV solar panels on industrial and, especially, residential rooftops, mostly in multi-family buildings. Moreover, advice is provided on low and no cost energy efficiency measures, including consumer behaviour good practices.

All the OSSs in AMB combine in person and virtual advice to citizens (by telephone, email, etc.). Three staff members rotated among the OSSs throughout the week and arranged the appointments with the citizens in advance.

Figure 5: OSS open in Viladecans, one of the AMB municipalities

Table 2 shows the KPIs achieved in the pilot of Barcelona Metropolitan Area by the end of the project:

Table 2: Summary of KPIs achieved in Barcelona Metropolitan Area

Parameter	Unit	Value
People outreached	Number	1550
People involved	Number	274
Energy (to be) saved ***(incl. from behavioral changes)***	kWh/year	n/a
PV energy (to be) produced	kWh/year	93,204,243
Building area refurbished (only for pilots doing EE in buildings)	m^2	n/a
PV energy installed	kWp	69,040
Associated investments	Euro	103,560,270

Upper Austria Region (Austria)

ESV, the Upper Austrian Energy Agency, has led all the activities taking place in this pilot throughout the UP-STAIRS project, covering the whole territory of the Upper Austria region, which has a population of approximately 1.5 M people.

The predominant type of measures promoted and advised during this time has been the implementation of renewable energy sources (RES) in buildings through energy community support services, with the aim of establishing renewable energy communities (REC).

The physical OSS has been set-up in the ESV office, where their workers Implementation Champions provide onsite and virtual attention through telephone, emails, etc.

During the course of the project, the OSS in Upper Austria has received over 1,100 individual consultations for energy communities and more than 3,100 participants in their engagement events, which constitute a key activity of the OSS. These engagement activities included 19 events organised by ESV dedicated to energy communities (conferences, workshops, courses, etc.) as well as further training and detailed information in the context of more than 40 other events.

The results achieved in the pilot of Upper Austria by the end of UP-STAIRS are presented in Table 3:

Table 3: Summary of KPIs achieved in Upper Austria

Parameter	Unit	Value
People outreached	Number	37,909
People involved	Number	4,355
Energy (to be) saved ***(incl. from behavioral changes)***	kWh/year	n/a
PV energy (to be) produced	kWh/year	8,140,000
Building area refurbished (only for pilots doing EE in buildings)	m^2	n/a
PV energy installed	kWp	8,140
Associated investments	Euro	8,140,000

Municipality of Asenovgrad (Bulgaria)

The Municipality of Asenovgrad (ASEN) has been the responsible organisation to develop all the activities corresponding to the OSS pilot in Asenovgrad in Bulgaria in UP-STAIRS. Located on the southeast area of Plovdiv (the third largest city in Bulgaria), it has a population of approximately 67k inhabitants.

The main goal of Asenovgrad Municipality as UP-STAIRS pilot has been the implementation of energy efficiency measures and RES in concrete prefabricated multifamily buildings, which constitutes the most common type of residential building in Bulgaria, usually at risk of energy poverty. With regard to renewable energy technologies considered, they have focused on solar PV and biomass boilers.

The only OSS open has been set up in the same municipality building, providing mostly onsite advice to citizens.

The results reached in Asenovgrad Municipality by the end of the project are shown in Table 4:

Table 4: Summary of KPIs achieved in Asenovgrad Municipality

Parameter	Unit	Value
People outreached	Number	19,674
People involved	Number	7,309
Energy (to be) saved ***(incl. from behavioral changes)***	kWh/year	9,608,390
PV energy (to be) produced	kWh/year	n/a
Building area refurbished (only for pilots doing EE in buildings)	m^2	227,374
PV energy installed	kWp	n/a
Associated investments	Euro	13,520,000

Rhodope Region (Bulgaria)

The Rhodope Region was the last pilot to join the UP-STAIRS project programme, being set up in the last stage of the project. The aim of this new addition was to replace the former pilot of Brunnthal, based in Germany, which had to leave the project as there was no interest from local stakeholders in opening and running of the OSS in the municipality. This was due primarily to a change in government and consequent changes to the regulatory environment in the local region.

The Association of Rhodope Municipalities (ARM) has been the organisation leading all the UP-STAIRS actions in this new pilot. The pilot includes 11 different municipalities in the Rhodope Region, in the south of Bulgaria and has an estimated population of 192 k people. This pilot drew from a pre-existing OSS, focussed on the public sector, from a previous project: Rhodoshop. The scope of Rhodoshop OSS used to be the public sector, but since they joined UP-STAIRS, their focus was switched to the private residential sector, tackling mainly energy efficiency and home renovation measures in multifamily, but also single family buildings. Some of the residential buildings are made by prefabricated panels, while others are constructed from bricks. The Rhodoshop pilot was also supporting energy from renewable sources as well.

The majority of the assistance was provided to citizens by phone, email, etc. Supporting these activities is the ARM/Rhodoshop physical office to provide onsite advice. The consultations are mainly focused on leveraging support from two programmes:

1. Support for sustainable energy renovation of the residential building stock – phase 2
2. Support for energy from Renewable Sources in the households.

Table 5 shows the KPIs reached in the Rhodope Region since they joined UP-STAIRS as a pilot:

Table 5: Summary of KPIs achieved in the Rhodope Region

Parameter	Unit	Value
People outreached	Number	4,617
People involved	Number	3,011
Energy (to be) saved ***(incl. from behavioral changes)***	kWh/year	3,521,675
PV energy (to be) produced	kWh/year	n/a
Building area refurbished (only for pilots doing EE in buildings)	m^2	60,497
PV energy installed	kW	n/a
Associated investments	Euro	6,224,018

4. UP-STAIRS Digital Platform

The aim of the UP-STAIRS Digital Platform was to enable collaboration between citizens, implementation champions (the consultants or energy experts who assist citizens in the OSSs) and other stakeholders from the pilots to support the growth of energy communities through collective action in RES and energy efficiency (EE) measures.

To this end, the UP-STAIRS Digital Platform offers a variety of use cases and mechanisms to support different groups of stakeholders. These use cases are focused on retrieving information on EE/ RE projects, learning about collective action, assessing the effects of different collective actions, meeting and communicating with or between ICs and citizens and facilitating the formation of energy communities.

Furthermore, the UP-STAIRS Digital Platform has been programmed in a responsive design, so that it can be accessed from different devices (desktop, mobile, tablet, etc.), responding to the user's behaviour based on the screen size, platform or orientation.

The UP-STAIRS Digital Platform can be reached either through its general landing page, where it is possible to choose among all the pilot regions (Figure 6) (http://www.upstairs-energy.com) or through the pilot specific URLs, which are directly linked to the content from the pilots' OSS.

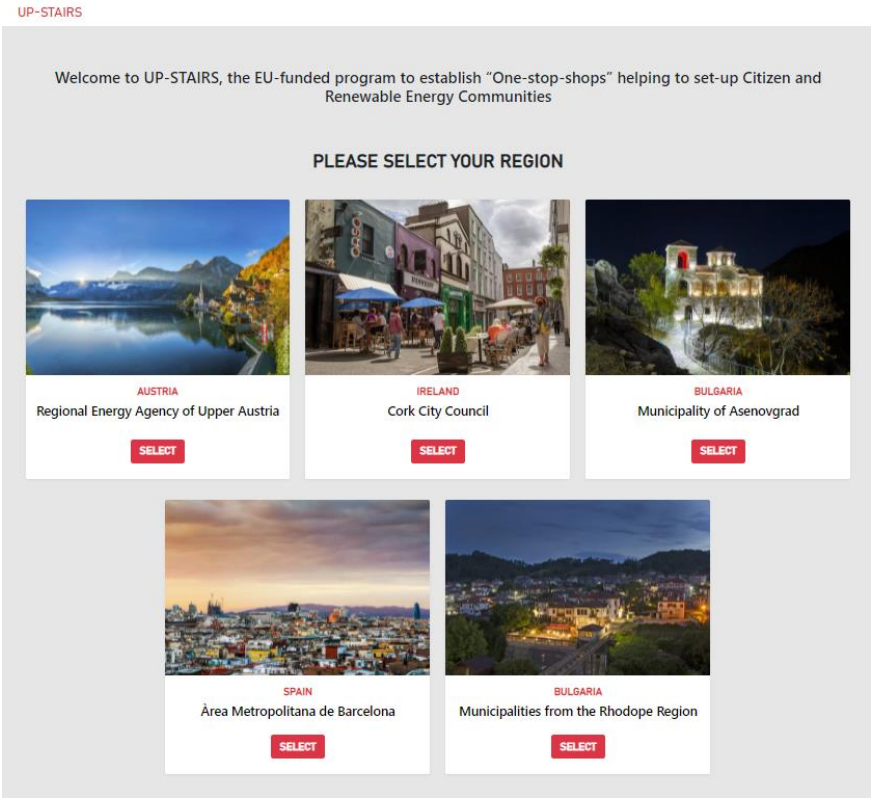


Figure 6: UP-STAIRS Digital Platform landing page

The UP-STAIRS Digital Platform is divided in two different areas:

1. Pre-registration. When citizens visit the platform without being registered. They can collect information on community energy, read about the OSS services, find contact e-mail addresses, telephone numbers and other OSSs details. All this information is available in English as well as in the pilot local language (Figures 7 and 8).

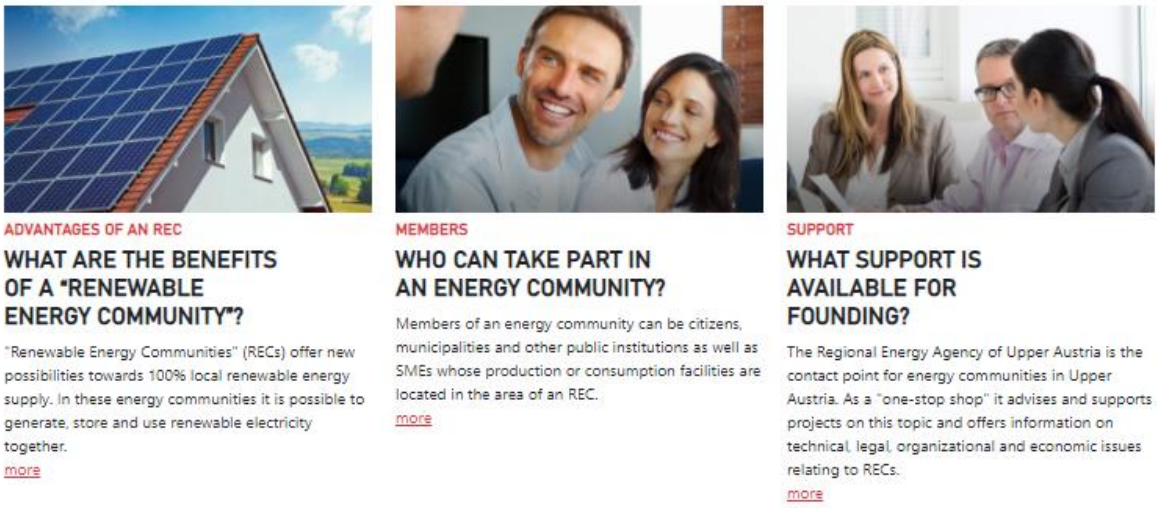


Figure 7: Information on the Upper Austria site in the pre-registration area

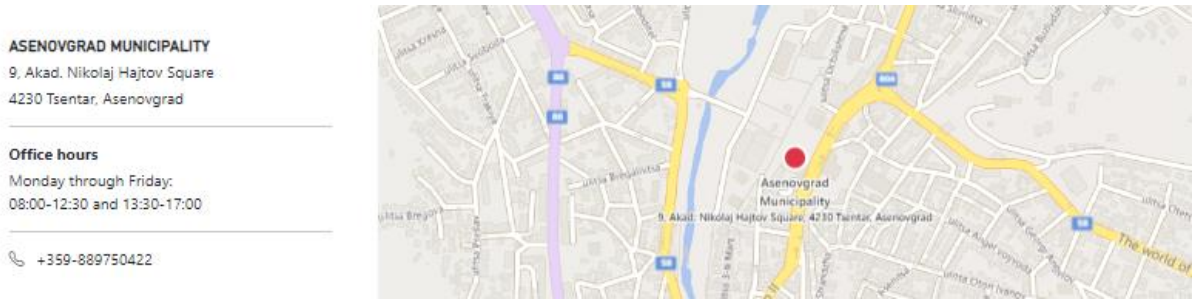
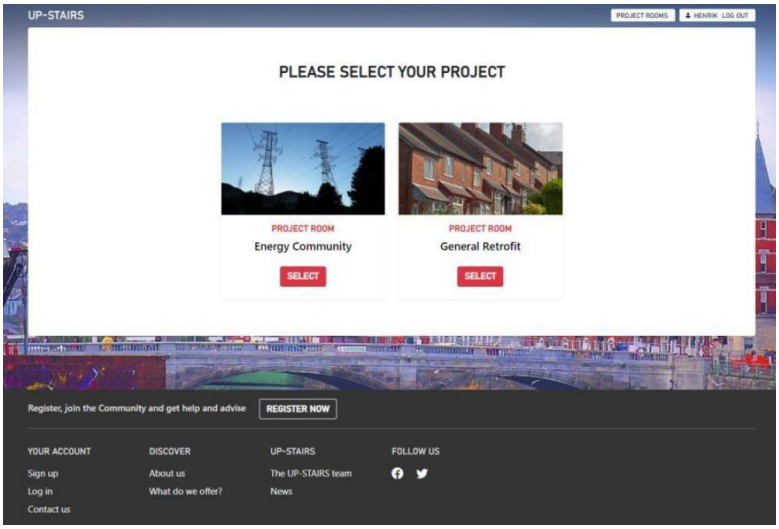
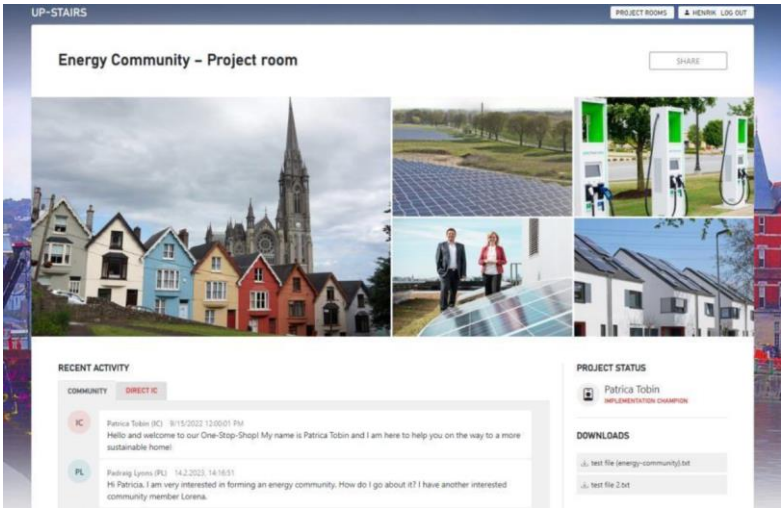


Figure 8: Information on the Asenovgrad OSS in the pre-registration area

2. Post-registration. After undertaking the registration process successfully (available in the namesake button), which only takes a few minutes, citizens will be able to log in the UP-STAIRS Digital Platform. This will allow them to be onboarded into the so-called project rooms, where citizens and Implementation Champions will be able to discuss (individually and together) on a chat not only about their ongoing community energy initiatives, but also on their different possibilities to start new projects (Figures 9 and 10).





Figures 9 and 10: Examples of project room and chat on the Cork City site

The UP-STAIRS Digital Platform will not be further developed or used by the pilot regions of the UP-STAIRS project. Nevertheless, the replication and scaling strategy outlines how the Digital Platform could be used, replicated and scaled in the future if needed.

5. Policy recommendations and lessons learnt

Energy communities (ECs) can be understood as a way to organise collective energy actions around open, democratic participation and governance and the provision of benefits for the members or the local community, supporting the involvement of citizens in the energy system.

The Clean Energy Package (CEP) specifically recognises two categories of community energy initiatives as “energy communities” in European legislation: Citizen Energy Communities (CECs) and Renewable Energy Communities (RECs). Both of them are legal entities, based on open and voluntary participation and encompass natural persons, SMEs and local authorities, including municipalities. Their main purpose is to provide environmental and social community benefits for their members and shareholders or to the local areas where they operate.

RECs are allowed to produce, consume, store and sell renewable energy. Moreover, RECs’ members can share renewable energy within the community. On the other hand, CECs may be involved in energy generation, distribution, supply, consumption, aggregation, energy storage, energy efficiency services, charging services for electric vehicles or provide other energy services to its members or shareholders. Thus, RECs can be considered, in many respects, as a subtype of CECs.

In spite of the efforts from many, but not all, member states on transposing the European legislation with regard to energy communities into their national frameworks, there are still many barriers in place for the planning and implementation of community energy projects.

For this reason, in UP-STAIRS, the national legal frameworks from the pilot countries involved in relation to energy communities have been thoroughly reviewed. Furthermore, a number of focussed workshops, which included expert attendees on these topics (policy makers, TSO and DSO representatives, local and regional authorities…), as well as the own experience of the OSS, have provided significant contributions to the identification of barriers, lessons learnt and policy recommendations at EU and regional level.

Table 6 provides a summary of the most significant barriers and challenges that have been identified in all the UP-STAIRS pilot regions (or most of them) since the beginning of the project to foster the establishment of energy communities. Depending on the stage of OSS development and the regulatory environment for energy communities in each jurisdiction, some of them were overcome, some remained unresolved and new ones appeared.

Table 6: Barriers detected in UP-STAIRS OSS and solutions proposed

OSS Formation Stage	
Barrier	**Proposed solution**
Lack of clear and detailed legislation on collective actions and energy communities	Prepare an overall OSS business model that can be tailored for each region, taking into account the most important aspects and available capabilities. Coordinating the OSS through a single platform common to all pilot regions
Lack of support or capacity to support OSS from authorities	Introduction of comprehensive cooperation between OSS and municipalities/local authorities
Creation of OSS with appropriate staff to provide comprehensive support to citizens	Training of employees in technical, organisational, administrative and financial aspects. Cooperation of OSS with relevant authorities and other stakeholders
Lack of sufficient knowledge among citizens and lack of willingness to cooperate	Conducting awareness campaigns, meetings with residents, dissemination events, involvement of community groups, information materials
OSS Development Stage	
Barrier	**Proposed solution**
Lack of relevant legislation	Creating clear and easy-to-understand legislative frameworks that enable the development of energy communities
Lack of willingness from DSOs to cooperate	Formalise the participation of DSOs in the creation and development of energy communities
Lack of trust from citizens in community energy, OSS activities and authorities	Presenting success stories and benefits of participating in OSS and community energy activities. Creating more incentives, mainly financial
Still not sufficient awareness of the citizens	Educating citizens in economic, legal and technical areas of the energy field. More information materials and engagement events.
OSS Operation Stage	
Barrier	**Proposed solution**
No appropriate legislation or too new, being still unknown	Creating easy-to-understand and comprehensive legislation that focuses on energy communities
Excessive paperwork related to both the creation of collective actions and energy communities, as well as to get funding	Preparing easy-to-read and detailed instructions for creating collective actions and energy communities, reducing the number of documents needed by residents
Ownership issues when establishing the energy community	Information on the organisational forms of energy communities, providing different alternatives. Facilitation and mediation services.
Lack of appropriate tools that could facilitate the management of projects related to energy communities	Creating a unified system or other type of (digital) platform to manage several energy communities in a country or city/region to avoid information gaps and ambiguities
Limited area covered by OSSs activities	Expand OSS operations or create new service desks in different regions
Problems with online attention with some population groups	Deliver OSS services both in-person and online

As stated above, the experience in UP-STAIRS has shown how the lack of an adequate, easy-to-understand and harmonised legislation with respect to energy communities has been the most relevant and persistent barrier identified across all the pilot regions, if somewhat less of a factor in Upper Austria, during all the stages of the OSS set-up and operation. Therefore, apart from the lack of financial resources and the lack of awareness from citizens in matters related to the energy field, the lack of an appropriate legislative framework has been identified as the barrier that most hinders citizens capability to get involved in community energy projects.

For this reason, UP-STAIRS recommends that all EU Member States clearly define the role of energy communities in the energy transition and implement the following provisions into their national legislations:

1. Rules for the creation of energy communities, including organisational, administrative and legal aspects;
2. The role of energy communities and their implementation through OSS, including obligations and rights;
3. The role of individual stakeholders in the set-up and running of collective actions, including ownership and decision-making aspects;
4. Creating specific funds and grant schemes available to energy communities and collective actions;
5. Opportunities for energy communities to obtain funding and operate, managing their own resources within the community;
6. Education related to energy efficiency and renewable energy sources for collective actions;
7. Introduce nationwide strategies related to energy communities, but flexible enough to be adapted to regional conditions;
8. Description of cooperation of DSOs with energy communities, in order to formalise and accelerate the grid connection process. This will need to take the form of regulatory support by regulators to DSOs to ensure that the appropriate incentives are in place for DSOs to support the development of energy communities as well as concurrently support the development of privately/commercially funded renewable energy developments. Most regulatory environments at present incentivise DSOs to connect large single-point connected privately owned renewable energy developments;
9. The development of technologies, including digital tools, which will facilitate the management and integration of all community energy projects;
10. Monitoring of the activity, not only to ensure that the funds are used for the declared objectives, but also to assess their functioning and evaluate their potential for improvement;

6. Dissemination and communication in UP-STAIRS: resources

Project Website

UP-STAIRS developed an up-to-date and user-friendly project website (https://www.h2020-upstairs.eu/) as the main public repository of the project, including partner information, objectives and results. The website aimed to inform external parties and, in general, all target audiences about the project developments and outcomes achieved in UP-STAIRS.

The project website has been managed and updated by ESV for the entire duration of the project. However, all the partners have contributed to the website by providing relevant information, especially concerning the dissemination events in which UP-STAIRS has been represented and further details on the pilot regions and the OSS.

In this way, the website contains the following information:

- Brief description of the project, objectives and expected impacts.
- Information on the pilot regions and the OSS.
- Project publications and results: public deliverables, links to the UP-STAIRS Digital Platform and dissemination material (flyers, leaflets, factsheets, videos, etc.).
- News and events representing UP-STAIRS.
- Contact details from all the partners and people involved in the project.

Social Media

UP-STAIRS has a social media presence on LinkedIn and, in a lesser extent, on Twitter to ensure project dissemination to a broader variety of audience. Social media has been used as a tool to share the project progress and, especially, to announce and promote events such as workshops, meetings or conferences.

Both Twitter and LinkedIn accounts were established at the beginning of the project. Since then, UP-STAIRS content has been posted regularly to increase outreach.

Training Material

All the modules developed for the training of Implementation Champions in UP-STAIRS (both general and pilot specific) have been posted on the UP-STAIRS Digital Platform and will be available also on the UP-STAIRS website after the project ends. Likewise, the recordings of the training in the pilot of Cork (the only one in English language); will be published together with the aforementioned materials and the guidelines for the creation of OSS to promote energy communities.