

D3.2. Pilot Executive Plans and description of the OIS Hubs



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List of Acronyms

CERV	Ventotene's Renewable Energy Community
COP	COMANAGE Open Platform
CRS	Corporate Social Responsibility
DSS	Decision Support System
EC	Energy Community
ECGF	Energy Communities Governance Framework
ECGT	Energy Communities Governance Toolkit
ESM	Energy Services Manager
EU	European Union
FEGICAT	Federation of Installers of Catalonia
FES	Final Energy Savings
ISEE	Equivalent Economic Situation Indicator
KPP	Knowledge Providers Partners
OIS	Operative Integrated Services
OSS	One Stop Shop
OTCs	Oficinas de Transformación Comunitaria (Community Transformation Offices)
PA	Public Administration
PPP	Public-Private Partnerships
PV	Photovoltaic
REC	Renewable Energy Community

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Keywords list

- Executive Plans
- Energy Communities
- Operative Integrated Services Hubs

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1. Executive summary

Over the past years, several projects boosting energy communities have seen the light around the EU. The launch and implementation of these initiatives carried out -among others- by projects in which the members of the COMANAGE partnership participate, has made evident that once started energy communities' projects often struggle to take-off. The COMANAGE proposal originates from this experience, with the aim of tackling and counteracting the main governance and management barriers - including a series of legal, administrative, financial, social, and organizational hurdles - faced by citizen-led and public-participated energy communities' projects.

It will do so by creating a methodological and operational **Energy Communities Governance Framework (ECGF)**, and by equipping public authorities involved in energy communities' projects with a set of integrated services, supporting mechanisms and tools aimed at facilitating the management and governance of energy communities and other forms of citizen-led energy initiatives, ensuring their growth and sustainability in the medium and long term: the **Energy Communities Governance Toolkit (ECGT)**.

The final goal of the project will be twofold: first, to ensure that energy communities' projects that have already been set-up can take-off and grow in the medium and long term. Second, to encourage and stimulate the uptake of new community-owned energy projects. With this goal in mind, the project will on one hand operationalize a transnational network of knowledge and competence providers; on the other, it will mobilize, engage, and operationalize key stakeholders around three **Operative Integrated Services (OIS) Hubs** to be established in three Pilot Cases across the European Union (EU) represented in the consortium by the Metropolitan Area of Barcelona in Spain (AMB), the Krakow Metropolis Association in Poland (KMA), the Lazio National Association of Italian municipalities in Italy (ANCI LAZIO).

This report provides a **preliminary structure of the Pilots Executive Plans** within the COMANAGE project across Italy, Spain, and Poland, that will be executed by ANCI Lazio, AMB and KMA respectively. Serving as roadmaps, these plans will outline strategic steps, timelines, and measures to design the specific service that will be implemented within the project to support the development of energy communities. The **participatory co-design process** (M8-M14), developed in the *COMANAGE Governance Toolkit*, engaged AMB, KMA, and ANCI LAZIO, as well as the OIS Hubs members, following the Theory U methodology, with the support of ECO, Co-opAbility and AISFOR, laying the foundation for the Executive Plans, that will be deployed during a 15-months period.

While ANCI Lazio, KMA, and AMB followed a common structure for the elaboration of their Executive Plans, these will be adapted and tailored to suit their regional/national contexts, taking into consideration the different energy community development stage. Despite this, these plans will all aim to implement a **One Stop Shop (OSS) service**, embedding and integrating the COMANAGE tools in the already existing instruments, environment, and structures. This approach highlights the alignment of the three Pilots to provide accessible services to citizenship and public administration authorities, fostering a change in the energy model through the boosting and spreading of energy communities.

2. Introduction

This deliverable aims to provide a preliminary overview on how the Executive Plans will be deployed in the 3 COMANAGE piloting areas: Italy, Spain, and Poland. The plans outline the strategic steps, time-schedule, actions, and measures to be undertaken in the *Piloting and Testing* phase by each Pilot partner, tailoring their approach to the identified financial, social and communication tools, business models, organizational structures, and legal and administrative support services.

By using a participatory approach, the co-planning process involved active participation from AMB, KMA, and ANCI LAZIO staff, as well as the current members of the OIS Hubs. This collaborative effort is guided by methodologies and strategies established in both report *D2.3 Governance Toolkit Prototype* and *D3.1 OIS Hubs stakeholders' engagement and mobilization Plan*, with the support from the COMANAGE Knowledge Providers Partners (KPPs), ANESE, Co-opAbility Institute, ECOSERVEIS, and AISFOR who contributed with expertise in business models, organizational structures, legal and administrative aspects, and learning and capacity building, respectively. For every pilot the content is structured as follows:

- **Section 1** will summarise the main outcomes achieved during the initial period of the building up of the OIS Hub, background and the main lessons learnt from the OIS Hub meetings that serve as starting point for the definition of the future service(s) that have started to be designed in October 2023 and will be implemented until April 2025.
- **Section 2** will present the objectives to reach during the pilot activities and also a summary of the measurable targets to reach according to the COMANAGE KPIs elaborated in deliverable *D5.1 KPI definition, monitoring programme and procedures*.
- **Section 3** will present the stakeholders that will be involved in the activities of the OIS Hub.
- **Section 4** will explain in detail the service and tools that will be implemented by every Pilot.
- **Section 5** will focus on the activity plan, the main resources, timelines, and tools required.
- **Section 6** will highlight possible risks and provide mitigation measures.

3. Methodology

The methodology used to think and draft the Executive Plans is founded on a **co-creation approach**, specifically based on the Theory U framework. This comprehensive methodology is designed to empower stakeholders, engage Energy Communities (ECs) in metropolitan and regional areas, and facilitate their sustainable development and deployment. The structured and **participatory** nature of this methodology ensures that the Pilots' Executive Plans will be tailored to the specific needs and aspirations of each energy community in Italy, Poland, and Spain. Resulting from this co-creation process, the plans will be periodically monitored, and evaluated, ensuring a continuous refinement and alignment with the evolving needs and goals of the energy communities.

The **co-designing** and **planning** phases, that started in June 2023, served as the foundation for the development of the Executive Plans, during which, the COMANAGE partners worked together to create a prototype of the Energy Communities Governance Toolkit (ECGT). This toolkit has been conceived as a flexible framework that can be adapted to the unique contexts and needs of the three selected pilot cases. Representatives from the pilot cases and the KPPs have actively contributed to this co-creation process, providing diverse perspectives that shaped the ECGT prototype, ensuring its relevance and effectiveness for each pilot case. The baseline emphasizes the co-design process that led to the development of three Pilot Executive Plans. During this phase, the stakeholders have collaboratively brainstormed, ideated, and defined the specific actions, services, and tools that will be tested. Since the creation of the OIS Hubs, the steps showed in Figure 1 have been undertaken:



Figure 1. COMANAGE Executive Plan Journey

1. **Stakeholder mapping:** the pilots have conducted a thorough stakeholder analysis to identify all relevant actors in the energy community, including community members, local authorities, energy providers, NGOs, and businesses.
2. Develop a **stakeholder engagement strategy with the support of Co-opAbility** outlining how each stakeholder will be involved in the co-creation process.
3. Organization of different **workshops, using the Theory U tools with representatives** from the energy communities and public administration to collectively envision the desired future of their community's energy management, through the presentation and analysis of the COMANAGE products.
4. The Hub Executive Plans gathered the insights from the **co-creation process** with the regional stakeholders, to design the regional service(s) that will be strategically deployed in the three pilots' areas. This co-creation process started in the Consortium Meeting held in Athens in July 2023 aimed at defining:
 - New version/adaptation of the COMANAGE tools
 - Resource planning
 - Format (online, front office, mixed...)
 - Planning of actions
 - Targets and objectives to be reached by each pilot case
5. As a result of this, the three pilots have drafted and refined a **first version of the Hub Executive Plan** that will be presented in this document and periodically monitored and evaluated. The whole co-design process is showed in Figure 1 above.

4. Pilots Executive Plans

The Hub Executive Plans are formulated with the aim of **conceptualizing and organizing** specific activities and initiatives to execute and operationalise the *ad hoc* support services within the 3 pilot areas under the framework of the COMANAGE project.

These plans have been created upon the previously mentioned resources: the ECGT toolkit and the e-training, considered as the raw material for providing support to the municipalities during the pilot phase. Nevertheless, other resources, specifically the Decision Support System (DSS), and the COMANAGE Open Platform (COP) will be put in place later.

Throughout the reporting and monitoring stages, the progress will be detailed in *D4.4 Pilot Implementation Report*, and *D5.3 Pilot Executive Plans Periodic Report* and *D5.4. Pilot Executive Plans Final Report*, ensuring that replicability efforts are systematically documented, contributing to the overall evaluation of the project.

As a general remark, the Executive Plans presented herein can be considered as an initial attempt or a **first action plan** from which the pilot partners will build strong pillars. Hence, the plans will be refined and described with more information and detail as the piloting actions progress.

4.1. ANCI LAZIO

4.1.1. State of art of the OIS Hub

In Lazio, through the coordination of ANCI Lazio and with the support of AISFOR, the participatory process within the Italian OIS Hub, which laid the foundation of the Executive Plans, was characterized by 4 events, respectively on the following dates:

- **10 June 2023** – General presentation of the COMANAGE project at the Ventotene’s Renewable Energy Community (CERV);
- **10 September 2023** – Workshop to define the COMANAGE governance tool (ECGT) for energy communities;
- **7 October 2023** – Workshop to define the COMANAGE Decision Support System (DSS) and the Digital Hub;
- **30 November 2023** – Presentation of the draft of the OIS Hub – Lazio Executive Plan at the Assembly of the Coordination of Renewable and Social Energy Communities (RECSR) in Rome.

Overall, the **total number of people reached** during the co-creation phase of the OIS Hub in Lazio region was **305**, while **159 individuals took part into the 4 meetings** held in Ventotene and Rome. Among these, there were, 31 citizens, 36 non-profit organisations represented, 20 Public Administrations representatives, 18 SMEs, and 23 representatives of universities (among students and professors).

As a result of the participatory process, the ANCI Lazio OIS Hub, led by Hub Manager Gabriele Umberto Magni, has been formed with a diverse group of members. These include representatives from RECs established in the Lazio Region, mayors and city councillors from local municipalities, professors and students from the Sapienza University of Rome,

renewable energy experts, civil society organization representatives, sectoral agency delegates, entrepreneurs, SMEs, and citizens interested in participating in a REC. Currently, there are around **100 Renewable Energy Communities** initiatives starting across the region. In recent times, Lazio Region has provided RECs with economic support for the drafting of technical-economic feasibility studies aimed at the creation of ECs, both for those already established and those yet to be established. 1 million euros have already been allocated and for each application the support ranges from a minimum of 6,000 up to 13,000 euros.

The **Renewable Energy Community on the island of Ventotene** is among the most advanced ones in the region, having been established earlier than all others, in October 2021. Despite its early establishment, the community has encountered several barriers in the process of implementation and establishment of the energy plants, which it is still trying to resolve thanks also to the valuable contribution of the COMANAGE project. It is important to note that the COMANAGE consortium recognizes that the Ventotene REC is not in a metropolitan area. However, the challenges identified in the report *D2.2 Energy Communities barriers needs, and best practices analysis* are found to be common and shared among the RECs either existing or in the process of creation within Lazio and the main metropolitan areas. The reality of Ventotene, also given its geographic and social structure, fully represents the challenges that the majority of RECs in Lazio are encountering in their establishment and implementation processes. The members of the Ventotene REC have reached more than 50 and have been very active in the co-creation process involving the OIS Hub during the period June-November 2023. For such reasons, and despite Ventotene's REC peculiarities, it is considered a noteworthy example and could provide valuable insights that will potentially benefit the upcoming REC initiatives and hence was chosen as a **representative pilot case** for Lazio.

Concerning the **main challenges**, it is worth mentioning that the lack of implementation of a national decree related to energy communities remains the biggest challenge to manage for the RECs in Lazio as well as in Italy. RECs have a common goal, that is to say providing affordable renewable energy to their members, thus fighting energy poverty, instead of prioritizing economic profit like a traditional energy company. On the other hand, the fundamental opportunity represented by the pilot in Lazio is offered by the presence of ANCI Lazio which, covering the entire regional made up of **378 municipalities**, is able to respond to the needs of the entire territory.

First idea of ANCI Lazio service definition

The starting point of the Executive Plan for Lazio region and hence of the prospective service that will be tested and launched by ANCI Lazio, has been shaped significantly by the COMANAGE Energy Communities Governance Toolkit (ECGT) and its adaption based on the inputs received during the participatory process of the OIS Hub meetings. The ECGT is a comprehensive resource, divided into **five strategic components**: legal, social, communication, technical and financial tools. Focusing on these components during the 4 OIS Hubs meetings, ANCI Lazio with the support of AISFOR, posed the questions in table below to the participants in order to brainstorm and collaboratively approach the instruments needed for its tailored version.

Key Questions emerged during the participatory process	
	How to improve the quality of RECs management?
	How do you imagine an ideal Energy Community should operate?
	What services do Energy Communities support?

Table 1. Key Questions posed by ANCI Lazio to OIS Hub meetings participants

As a result of this collective process, the critical elements highlighted and summarized below, have been considered as starting points for the design of a solid service in Lazio region.

Legal Tools

- Templates for statutes, articles of incorporation and rules of procedure for RECs.
- Guidance on legal and regulatory issues/questions (e.g. choice of the most suitable legal form, new and current legislation¹)
- Guidance on how to deal with the Energy Services Manager (ESM)², in accessing incentives and non-repayable funding.
- Provide information on the establishment of Public-Private Partnerships (PPP) for RECs.
- Provide the possibility of transversal training and awareness raising on RECs issues through a free e-learning platform.
- Provide a database on good practices for the implementation of municipal tax benefits, with a section on tips, questions, and answers for the adaptation of tax measures.

Social tools

- Assess and ensure compliance with the statutory and regulatory objectives of RECs, including through the development of a set of RECs social impact indicators.
- Offer a social perspective when founding an association, a social cooperative or other non-profit organization dedicated to RECs.
- Promotion tools for the inclusive energy transition.
- A *Wizard*³ software capable of measuring the degree of maturity of the RECs and the possible steps for its inclusive and sustainable growth.

Communication tools

- Shared Calendar
- Internal and External Communication through the COMANAGE Decision Support System (DSS)
- Visuals for Communication and Participation Plans.

¹ (December, 1st 2023) [New Decree on self-consumption](#) of renewable energy and the decree awaiting to be published in the Official Gazette.

² (in Italian GSE) the GSE is an Italian company controlled by the Ministry of Economy and Finance, which offers economic incentives to produce electrical energy from renewable sources and carries out initiatives to promote the culture of using energy that is compatible and sustainable with the environment. GSE plays a central role in the promotion and development of renewable resources in Italy.

³Online tool composed by some questions that provide orientation.

Financial tools

- Guidance/strategies for the financing and co-financing of RECs.
- Identification and monitoring of incentives, tenders, and opportunities for reliable PPPs.
- Facilitate feasibility studies for REC investments.
- Guidance/support on financial soundness in the design of RECs considering the socio-environmental commitment and the Corporate Social Responsibility (CSR) model of the private partner selected.

Technical tools

- Mapping of RECs.
- Interaction with the Lazio Region and the "RECs" Network.
- Consumption Calculator Tool.
- Digital assistant for RECs orientation through the DSS.

This whole list of needs that emerged during the OIS Hub meetings was slimmed down and served to develop and plan appropriate solutions and tools to respond to the challenges reported by the participants. The **5 priorities** in the table below have been used as baseline to sketch the **ANCI Lazio Executive Plan**.

Prioritization of emerged ideas	Nº
Support tool for the development of Communication and Participation Plans for RECs.	1
Platform designed to streamline the financing or co-financing of RECs through public-private partnerships (PPPs), incorporating a verification system to assess the economic, social, and environmental reliability of private entities.	2
Mapping tool for the census and registration of established RECs, simplifying the identification and engagement of interested parties. The RECs map will include specific founding characteristics (e.g., publishing criteria for incentive distribution) to create a clear distinction between social, environmental, and economic areas, fostering initiatives like solidarity projects like ISEE ⁴ or promoting conscious consumption.	3
Coordination tool for RECs, enabling the visualization of specific objectives for each REC and facilitating the development of specialized capabilities, turning each into a reference point for others on specific solutions and topics.	4
Model for developing REC statutes and internal regulations.	5

⁴ In Italy, the ISEE declaration (Equivalent Economic Situation Indicator) is a document that certifies the financial situation of someone applying for benefits and advantages under favorable conditions.

Table 2. Priorities pinpointed during the OIS Hub Meetings

4.1.2. General objectives and target groups

The 4 OIS Hub meetings dedicated to Energy Communities in Lazio with a main focus on the Ventotene REC, had various objectives aimed mainly at **supporting the development and growth** of these communities and the tailoring of the support service that will be co-created with the COMANAGE partners.

One of the primary goals was to **promote the opportunities** that RECs offer, for instance including vulnerable groups, using Otto Scharmer's Theory U methodology. Additionally, another objective was **sharing knowledge about best practices in managing and promoting energy communities** and engaging in discussions about relevant regulatory and legal issues. The meetings also sought to foster collaboration among ECs, local institutions, private companies, and industry experts.

The **main target groups** included active members of both Ventotene and other RECs in Lazio, including the existing energy communities' network in the region. Furthermore, essential were the representatives of local institutions, professionals in the renewable energy sector, non-profit organizations interested in sustainability and inclusion⁵ and citizens interested in participating or learning more about energy communities' initiatives.

The OIS Hub meetings were thought as a **forum for exchanging ideas**, laying the groundwork for the upcoming COMANAGE training (scheduled for March 2024) and the establishment of networks aimed at fostering a sustainable energy future in Lazio region. The identified target groups will remain unchanged across the project's implementation activities.

Specific goals to be achieved during the piloting activities

The ANCI Lazio activities and their specific goals, as foreseen in the Executive plan, are listed below:

1. Involvement and awareness of local communities:

- a. Objective: raise awareness and engage local communities in Lazio region focusing on the benefits and opportunities related to the participation in Energy Communities and the contribution offered to them through the COMANAGE tools.
- b. Key activity: in February 2024, a meeting is scheduled at the Lazio Region to **host a comprehensive information session**. This session, which will be recorded and made accessible for those unable to participate on the scheduled day, aims to disseminate the COMANAGE Executive Plan, engage members of existing energy communities and encourage the creation of new ones.

2. Legal and regulatory compliance:

- a. Objective: promoting a safe, inclusive, and conducive environment for the development of ECs, to ensure that they adhere to relevant legal and regulatory frameworks.
- b. Key Activity: provide legal assistance, workshops, and resources to assist energy communities in addressing legal requirements and RECs compliance. Through the COMANAGE Open Platform (COP), the 378 municipalities of Lazio region will access the documentation (statutes, regulations, etc.)

⁵ 74 NGOs were contacted and invited by ANCI Lazio to represent vulnerable groups.

developed by the legal expert contracted by AISFOR, who will be also in charge of answering questions from the Municipalities.

3. Capacity building:

- a. Objective: improve the ability of community members to actively contribute and manage the operations of energy communities.
- b. Key activity: in March 2024, the e-learning program will be offered primarily to local authorities and representatives of RECs in Lazio. The aim is to equip EC members with the knowledge and essential skills for an effective participation in RECs and the optimal use of tools through the COMANAGE digital platform.

4. Collaboration with local authorities:

- a. Objective: establish effective collaboration between ECs and local authorities in Lazio region to create an environment conducive to sustainable energy initiatives.
- b. Key activity: creation of dialogue spaces between energy communities and local government representatives to align objectives and streamline processes necessary for an optimal REC management.

5. Promoting inclusion:

- a. Objective: ensure that Energy Communities in Lazio region are inclusive and accessible to a wide range of community members, promoting social equity.
- b. Key activity: communication strategies will be implanted with COMANAGE partners and other stakeholders to encourage participation of underrepresented groups and embed principles of inclusivity into community governance structures.

6. Technology integration:

- a. Objective: create synergies with other projects and integrate digital solutions into the COMANAGE portal to improve the efficiency and effectiveness of EC operations in the Lazio region, and beyond.
- b. Key activity: continuous development of the pilot digital platform, the DSS and communication tools to facilitate information exchange and collaboration within energy communities.

7. Monitoring and evaluation:

- a. Objective: establish a robust monitoring and evaluation framework to evaluate the impact and success of piloted energy communities.
- b. Key activity: definition of KPIs including the use of the digital platform, conducting regular evaluations, and collecting feedback to measure social, economic, and environmental results.

These 7 specific objectives aim to guide the pilot activities in Lazio towards the creation of sustainable, well-informed, and participatory Energy Communities. It will also be important to be able to make adjustments based on the evolution of the needs and dynamics of the community and in particular with regard to the regulatory panorama expected for 2024.

Parameters and KPIs to assess the success

The **expected KPIs**, as defined in the deliverable *D5.1. KPI definition, monitoring program and procedures*, fixed for the pilot territory of Lazio, are shown below:

SOC01 - Number of energy communities and/or other kind of citizen-led energy initiatives supported - 1

SOC02 - Number of energy communities and/or other kind of citizen-led energy initiatives launched - 1

Figure 2. Social KPIs for ANCI Lazio

While, for the specific KPIs related to the Executive Plans, ANCI Lazio has estimated the following figures:

ENV02 - Total Final Energy Savings (FES) triggered by the project - **Estimated: 4.688 MWh/y**

ENV03 - Total generation of Renewable Energy (RE) triggered by the project - **Estimated: 1.344 MWh/y**

Figure 3. Executive Plans related KPIs for ANCI Lazio

The Table below sums up the updated figures of the Pilot.

Technical Assumptions	Anci-Lazio KPI
Estimated energy savings (MWh/hh*y)	0,96
Energy residential PV power (kW)	3,73
Load factor	0,14
Energy residential PV power for single household - 30% (kW)	1,12
PV energy produced for a single household (MWh/year)	1,37
Citizens directly engaged (0,2%)	11.760
PV installed through Lazio municipalities (kW)	1.096
Households/Stakeholders directly engaged through the COP	4.900
Estimated cost of 3kW PV installation (€)	7.000
Estimated costs for PV installation (€/household)	2.611
Carbon emissions (gCO ₂ eq/kWh)	340

Table 3. General KPIs for ANCI Lazio

It is hypothesized that these numbers can be achieved by reaching 20% of the Municipalities of Lazio (which in total correspond to 378).

4.1.3. Stakeholders involved in the actions

Among the key stakeholders identified in deliverable *D3.1 OIS Hubs stakeholders' engagement and mobilization Plan*, RECs, community members and local authorities, will play a central role in the implementation of the Executive Plan.

Stakeholder	Role/responsibilities
COMANAGE partners	Provide expertise and resources to support the development of Energy Communities (ECs).
EC members	Actively participate in capacity building programs and support through the Decision Support System (DSS).
Local authorities	Create a supportive environment and facilitate public-private partnerships collaborating with the other stakeholders.

Table 4. Stakeholders involved in the implementation of ANCI Lazio Executive Plan

Different **communication and collaboration strategies** will be employed to engage stakeholders effectively, through the organization of regular meetings and information sessions. A multi-channel approach, including online platforms and community events, will ensure broader participation.

EC members will be involved through **transparent and inclusive processes**, encouraging their involvement in the planning and execution of activities. **Feedback mechanisms**, such as surveys and focus groups, will be used to gather information, ensuring that RECs evolve in line with community needs and aspirations. The whole objective is to create a collaborative ecosystem in which stakeholders contribute synergistically to the success and sustainability of Energy Communities in the Lazio region.

4.1.4. Service implementation

The service that will be implemented in the Lazio Region has been shaped as a **One Stop Shop (OSS)** following a phased approach. It will begin with an **awareness campaign**, followed by **community engagement platforms**, will incorporate **capacity-building programs, legal support**, and foresees **collaboration with local authorities**.

The introduction of digital tools will facilitate an effective communication and decision-making. Regular monitoring and evaluation will ensure the alignment with the project objectives and KPIs. This phased process is expected to contribute to enhanced community involvement, increased awareness, streamlined regulatory compliance, and improved decision-making within ECs. While the benefits include community empowerment and sustainable practices, potential challenges involve overcoming resistance to change and navigating evolving regulatory landscapes, requiring adaptive strategies and ongoing stakeholder collaboration.

ANCI Lazio is actively working to support Energy Communities (RECs) by collaborating with partners to provide a range of services during the experimental phase. The key activities and services being developed include:

- Providing a guided procedure to help select the most appropriate legal structure for each REC.

- Offering answers to legal and regulatory questions through FAQs gathered from meetings and ongoing dialogue between ANCI Lazio, AISFOR, and the RECs.
- Providing guidelines for correctly interacting with GSE (Gestore dei Servizi Energetici) to access incentives and grants.
- Sharing information on the establishment of Public-Private Partnerships for RECs.
- Offering guidance and orientation to understand the new decree on renewable energy self-consumption, including expected incentivized tariffs and grant contributions (lectures).
- Encouraging participation in the COMANAGE training program via a free e-learning platform.
- Hosting a database of best practices for implementing local fiscal benefits, with suggestions, questions, and answers for adapting fiscal measures.
- Inviting the use of the DSS (Decision Support System) and promoting its continuous improvement over time.
- Developing a tool to assess and ensure compliance with the statutory and regulatory objectives of RECs, including the creation of a set of social impact indicators.
- Providing guidelines for establishing a REC.
- Offering customizable tools for promoting inclusive energy transition.
- Defining a guided tool capable of measuring the maturity level of a REC and outlining possible steps for its inclusive and sustainable growth.
- Creating a shared calendar of events related to RECs to establish a common and recognized platform for information sharing and peer-to-peer support.

4.1.5. Activities Planning & resources

The Gantt chart below presents an initial overview of ANCI Lazio's plan to execute and implement the pilot activities within the timeframe from January 2024 (M15) to April 2025 (M30), also including the period between June and December 2023 (M8 - M14), focused on the 4 OIS Hub meetings and the preparatory work, previously outlined, for the execution phase.

	M8 M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30
Hub Meetings																	
Toolkit																	
Training																	
DSS																	

Table 5. Anci Lazio Executive Plan timeline

The timeline presented in Table 5 identifies the major milestones and activities that will be deployed to design the ANCI Lazio Pilot **One Stop Shop**, the integrated service RECs that will be available both **online** and **offline**.

The **COMANAGE Open Platform (COP)** will serve as an online hub for data management, collaboration, and user engagement, allowing RECs to share information, organize events and monitor environmental impact. This platform will adapt to various REC sizes and resource levels, integrating a mapping tool for territorial identification. Technical and legal support, together with educational programs involving local schools, will be essential parts of the service. This open structure fosters synergies with sister projects such as SUN4ALL, enriching the user experience. The ongoing legal and administrative support ensures compliance with evolving regulations. While COMANAGE's communication approach facilitates effective promotion through different channels, emphasizing the autonomy and improvement of REC communication strategies, both online and offline.

Concerning the **human resources** needed, local and regional institutions could internally deploy staff with expertise in legal, communication, and technical areas to directly assist RECs and manage the toolkit in the long term. However, some specialized activities, such as the legal advice and some advanced communication services, may be outsourced to external professionals during and after the COMANAGE project completion. The key resources will include legal experts, IT professionals for online environments, communication experts, and data collection specialists.

As for the **non-human resources**, specific tools (e.g., CRUISE, RECON) will provide additional support. The online platform, communication, events, financial support, technical tools, and coordination and monitoring aspects can be handled by local or regional institutions collaborating with RECs. The DSS and the overall COMANAGE services may be incorporated by regional institutions or acquired by non-profit entities for continued maintenance.

A sustainability plan, developed in collaboration with the COMANAGE partners, will ensure the continued operation and development of the One Stop Shop service beyond the project's completion. The internalization and outsourcing of specific resources are contingent on their complexity and the ongoing support needed for the REC activities. The coordination and monitoring of REC activities can be managed by local or regional institutions, such as ANCI Lazio, in collaboration with stakeholders. Regular evaluations at six-month intervals and at the end of project will ensure alignment with predefined key performance indicators and sustainability goals.

4.1.6. Risk Assessment and Mitigation

The implementation of the integrated service One Stop Shop through the COP will address challenges in program and strategy implementation. The challenges and the mitigation actions foreseen by ANCI Lazio are as follows:

1. **The awaiting of the implementation of a decree** in Italy, which emphasizes the importance of tools maintaining adherence to evolving regulations.
2. **Limited information about available funds** will be mitigated by the COMANAGE financial support tool.
3. **Active community involvement** will require effective communication, addressed through customizable materials provided by COMANAGE.
4. **Technical challenges** will be addressed by the forum, best practices, and the DSS.
5. **Educating communities about RECs opportunities is an ongoing institutional challenge**, met by the COMANAGE digital platform's training course and tailored materials.
6. **Coordinating activities between RECs and local institutions** will be facilitated by the COMANAGE platform's cooperation network and fostering cooperation among RECs through the platform's network.
7. **Impact assessment** requires a monitoring system that will be provided by COMANAGE.
8. Handling sensitive information demands attention to **data security and privacy**.
9. **Ensuring REC economic viability** will need careful financial planning, and **climate change adaptation** will be crucial for renewable energy resource management. Strategies to manage these challenges include maintaining

regulatory compliance through the DSS and legal support, leveraging financial tools for viability, using tailored communication materials.

4.1.7. Replication Potential

To expand the replication potential and to reach a greater number of municipalities, a space of **dialogue** was first initiated **with Lazio Region**, setting a date for public sharing of the Executive Plan created through the participatory process. Furthermore, the identification the **Community of Ventotene as best practice**, could act as a model for other municipalities. The COMANAGE platform will also be used to enhance the best practices adopted in Europe, allowing RECs to establish synergies, creating a network of interconnected communities, encouraging the spreading of best practices and the replication of successful REC models.

Moreover, the **COMANAGE training** provided by AISFOR and accessible through the COP, is designed to enhance the **learning experience for energy communities' members**. As an integral component of the dashboard design within the COMANAGE platform, efforts will be directed towards creating a visually impactful representation. This representation aims to effectively illustrate the economic, social, and environmental advantages associated with RECs. The overarching goal is to provide a compelling narrative for potential replicators, encouraging a wider adoption and participation in REC initiatives.

The possibility of exploring the **integration of technologies for real-time monitoring of energy production and consumption**, optimizing RECs operations, will also facilitate the measurement of progress of the RECs adhering to the COMANAGE platform. At the communications level, **synergies with ongoing initiatives** focused on renewable energy and sustainable communities, like the COMANAGE sister project Sun4All with its communities of Practice Sezze and Unité des Communes valdôtaines Grand-Paradis or the usage of tools (e.g., CRUISE, RECON) will be promoted to bring insights and practices into the local context. Furthermore, the interest of the City of Rome and a preliminary contact established with the City of Bologna can be potential replicators at the national level.

4.2. AMB

4.2.1. State of art of the OIS Hub

Currently, there are no public-led operational energy communities in the Metropolitan Area of Barcelona. However, this does not imply a lack of interest or potential of spreading. On the contrary, there are around **20 initiatives** in various stages: some of them are under consideration, others in the process of creation, or in the early stages of the project.

AMB organized, with the support of Ecoserveis, an event on **November 30, 2023**, targeting energy transition officers from the municipalities within the Barcelona metropolitan area. During this OIS Hub session, which was led by Marcel Camps, the Hub manager, participants were invited to provide feedback and suggest improvements and additional functionalities that they believed would be beneficial for the tools available on the COMANAGE open platform.

The members involved in the OIS Hub meeting, included **23 public servants** from 17 different municipalities and **11 employees** from the AMB, including officers from the energy transition office and the environmental education office. In addition, a representative from the Federation of Installers of Catalonia (FEGICAT) and Km0 Energy, a local energy promoter, were brought to present projects they have been working on related to energy communities, with the aim of empowering the different municipalities in implementing and promoting similar initiatives. The AMB OIS Hub is integrated by public servants of the 36 municipalities that form the Barcelona Metropolitan Area.

AMB faces a unique challenge in terms of photovoltaic (PV) installations due to the presence of multi-family buildings poses difficulties, and a fragmented social fabric, which make the creation and development of energy communities challenging. This distinctive context adds complexity to the establishment of energy projects in the area.

The AMB pilot initially intended to organize four OIS Hub Meetings, nevertheless, only one comprehensive meeting took place. This deviation is due to an internal resources' reallocation within AMB and the need to avoid overwhelming the OIS participants which are civil servants, usually overloaded at the end of the year. Despite the change and to mitigate the situation, AMB was able to plan the meeting in advance counting with a successful participation rate, allowing for a more comprehensive analysis on how COMANAGE products align with the final service, La Teulada.

However, AMB plans to reschedule the remaining three meetings to focus on providing feedback on the outcomes of the tailoring process. In future meetings, the co-creation process will be focused in concise tools clearly presented to the municipalities.

First idea of AMB service definition

The primary concept behind the definition of the AMB service within COMANAGE can be framed in the already existing project "**La Teulada**." La Teulada is designed as a comprehensive **One Stop Shop (OSS)** service incorporating both an on-site service and an online assistance platform. The core objective of this initiative is to offer support and guidance regarding solar energy to residents in all **36 municipalities** within the metropolitan area of Barcelona. This service was created in the framework of the H2020 project UPSTAIRS, which was focused on accelerating the *creation* of energy communities. The service has had a very good acceptance and has grown and evolved into 9 local offices to complement the core online service. COMANAGE will complement and enrich this service by integrating to the current resources (which are focused on boosting the creation of ECs) new services and tools for a deeper accompaniment to the ECs for ensuring its *sustainability and good governance*.

The **online component of the OSS** allows residents to access assistance through a dedicated website or a specified phone number, ensuring ease of access for those seeking information or support. After the initial contact, detailed information is gathered for each case, addressing the specific inquiries of the user. Each case undergoes a meticulous examination, with information being communicated and discussed through video calls, video calls or face-to-face meetings. To elaborate a personalized report some crucial information has been collected specifically related to the type of building, the address, the electrical consumption, and future energy needs. La Teulada comprises a total of **9 physical OSS spaces**, including 5 provided by AMB and 4 by municipalities of the metropolitan area. The users of La Teulada are personally received by a technician, after having pre-scheduled an appointment. The **overall goal** within the project is to integrate this service with various tools developed within COMANAGE, aiming to enhance and broaden the scope of the service, benefiting both municipalities and the general public.

All the tools developed within the OIS Hub will be integrated in La Teulada. The OSS will be the main communication channel between AMB, and citizens and other users interested in energy communities. La Teulada will integrate and promote the use of the COMANAGE tools across the region as part of the selection of services they offer.

La Teulada (OSS) and the OIS Hub are two different entities that work with the same objectives. Where La Teulada is a tactical and executive institution that helps citizens transition to clean energy and promotes energy communities in a daily basis and has its own structure, the OIS Hub works like a board of experts that advises and designs tools together with the COMANAGE project with and holistic and strategic perspective.

4.2.2. Objectives and target groups

AMB focuses on **fostering collaboration and engagement** among the 36 municipalities that constitute the metropolitan area of Barcelona. By establishing a framework for close collaboration, sharing resources, and implementing consistent strategies, we aim to encourage the creation and long-term sustainability of energy communities.

The **primary target group** is the **population** residing in the 36 municipalities, specifically segmented as it follows:

1. **Civil servants:** engaging municipal decision-makers is vital for implementing sustainable energy projects effectively at the local level.
2. **General population:** involving residents and community members directly in energy community initiatives.
 - a. Aware citizens will be involved through specific actions focused on increasing engagement and participation.
 - b. non-aware citizens will be involved through raising awareness campaigns and educational initiatives to promote sustainable energy practices.

These strategies just outlined for the aforementioned segments can help to ensure a targeted and effective outreach that resonates with the diverse needs and awareness levels within the community.

Specific goals to be achieved during the piloting activities

During the deployment of the piloting activities, AMB aims to fulfil the following goals:

1. Encourage **active involvement of citizens** in decision-making processes, and implementation of energy-related activities.

2. Enhance the **knowledge** and **skills** of community members in energy management and sustainable practices.
3. Establish an **efficient system** for **monitoring** and **evaluating** the pilot performance.
4. **Strengthen collaboration** with key stakeholders such as local authorities, energy providers, and community organizations.
5. **Raise awareness** about COMANAGE, the Catalan Pilot and its benefits among the target audience.
6. Establish a **framework** that aligns with legal requirements and promotes a smooth service implementation process.
7. Create a **comprehensive repository** of **documents** and **lessons learned**.
8. Facilitate **knowledge sharing** within the COMANAGE team and with external stakeholders for continuous improvement.

Parameters and KPIs to assess the success

Regarding the scope of the AMB service, the intention is to **extend the support services to all municipalities within the metropolitan area**. The strategy involves a balanced perspective, recognizing that not all KPIs may be achievable, yet there is a commitment to exceeding expectations whenever possible. This approach ensures that the support services remain open and scalable, accommodating the diverse needs of the municipalities in the metropolitan area. The aim is to reach a balance between ambition and attainability in the mission to provide comprehensive support services.

The **expected KPIs**, as defined in the deliverable *D5.1. KPI definition, monitoring program and procedures*, fixed for AMB, are those showed in Fig.4 and Table 6, respectively.

SOC01 - Number of energy communities and/or other kind of citizen-led energy initiatives supported - 1

SOC02 - Number of energy communities and/or other kind of citizen-led energy initiatives launched - 1

Figure 4. Social KPIs for AMB

Technical Assumptions	AMB KPIs
Estimated energy savings (MWh/hh*y)	0,66
Energy residential PV power (kW)	3,94
Load factor	0,16
Energy residential PV power for single household - 30% (kW)	1,18
PV energy produced for a single household (MWh)	1,66
Citizens directly engaged (0,2%)	6.400
Households directly engaged	2.560
Households participating in PV installation (20%)	512
Estimated cost of 3kW PV installation (€)	7.000
Estimated costs for PV installation (€/household)	2.758
Carbon emissions (gCO2eq/kWh)	340

Table 6. KPIs for AMB

While as for the specific KPIs related to the Executive Plans AMB aims to reach the following figures:

ENV02 - Total Final Energy Savings (FES) triggered by the project: **1.679 MWh/y**

ENV03 - Total generation of Renewable Energy (RE) triggered by the project: **233 MWh/y**

Figure 5. KPIs related to the Executive Plans for AMB

4.2.3. Stakeholders involved in the actions

The AMB service will target equally Energy Communities, citizens, and municipalities (civil servants and local authorities). These stakeholders will have different roles and responsibilities during the piloting actions as it is showcased in the table that follows:

Stakeholder	Role/responsibilities
Energy Communities members	Actively engage in community capacity-building programs, using tools like the Decision Support System (DSS) to enhance their knowledge while contributing to the success of energy initiatives.
Citizenship	They are the final target of the project. Foster community engagement by staying informed about energy projects, participating in local discussions, and supporting the broader objectives of sustainable and community-led energy initiatives.
Civil servants and local authorities	Create an enabling environment for energy communities by facilitating public-private partnerships and collaborating with various stakeholders. This includes implementing policies that support sustainable energy initiatives and coordinating efforts to enhance community participation.

Table 7. Stakeholders involved in the implementation of AMB Executive Plan

To ensure the active engagement of EC members in the piloting activities, AMB is planning to deploy different communication actions:

- 1. Traditional communication channels** such as press releases, newsletters, and informational brochures will be distributed across local municipalities.

2. Simultaneously, recognising the power of **digital platforms**, social media communications, webinars, and online forums will be used both to connect with a wider audience to show the utility of the tools developed in the project.
3. **Collaborations with local media outlets**, both print and digital, will serve as additional conduits to disseminate information. Moreover, targeted events, including workshops and community meetings will be arranged to directly interact with stakeholders.
4. The **engagement tools** designed within the COMANAGE project will be used by the EC members.
5. Finally **informal word-of-mouth** communication will be used among civil servants.

4.2.4. Service implementation

La Teulada represents a comprehensive resource hub that consolidates essential tools and knowledge to facilitate the implementation of PV energy and the establishment of energy communities. Serving as an OSS, La Teulada will integrate the DSS, the ECGT, and the e-learning platform. This cohesive approach will allow access to critical information and support mechanisms, creating a centralized space for individuals, municipalities, and organizations involved in energy initiatives. La **Teulada's overarching goal** is to simplify the process of PV energy adoption and energy community spreading. Using the existing structure, this integrated hub will optimize efficiency and accessibility, ensuring that stakeholders can navigate resources and take impactful steps towards sustainable energy practices. To create and develop the OSS service, AMB will embed and integrate the COMANAGE tools in La Teulada as illustrated in Figure 6. Starting from the existing resources from La Teulada (e.g. previous training developed within the UPSTAIRS project, which needs updating in addition to adding new topics for ECs long-term sustainability), the new tools developed within COMANAGE that provide this innovative and complementary focus on long term sustainability and governance will be integrated as follows:

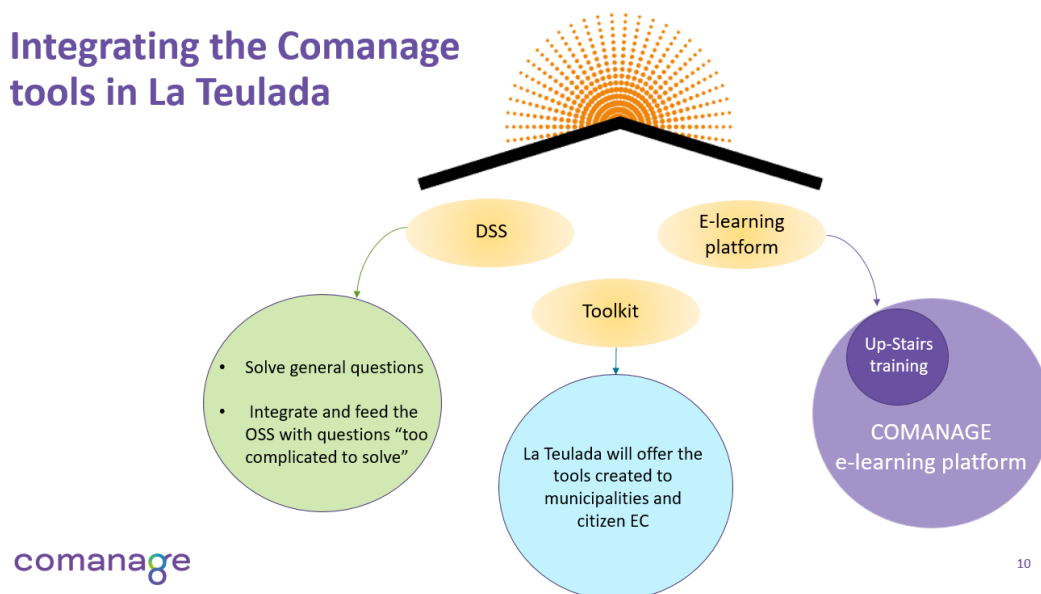


Figure 6. Integration of COMANAGE tools in La Teulada

In this sense, the DSS, ECG Toolkit and eLearning Platform, as it is possible to see in the Figure 7 below, will be integrated within La Teulada's already existing website <https://lateulada.amb.cat/>, which is active since March 15, 2023.



Figure 7. COMANAGE tools embedded in La Teulada webpage

Each tool has been designed to address a specific need within the project context. The variety of tools can meet a wide range of needs related to the formation of energy communities.

The implementation of the **DSS** will cater to general questions from citizens, providing information on energy-related topics, policies, and available services. It will initially serve as the primary channel for addressing simpler inquiries. Subsequently, in a second phase, it will be customized to collect information from citizens, including the option to schedule a time for personal advice.

The **eLearning platform** compiles information relevant to energy communities. This educational resource, accessible through the website, will offer courses, guides, and materials to support community members and stakeholders in understanding and participating in energy initiatives. This platform, accessible through La Teulada website, will offer a range of courses, guides, and materials covering key aspects of energy communities. The modules will be structured to provide in-depth insights into the technical, economic, legal, and participatory dimensions of energy projects. From understanding European and national regulatory frameworks to delving into advanced topics like the electric market, legal considerations, and collaborative business models, the platform aims to equip users with the knowledge and tools needed to actively contribute to and sustain energy communities. Each module will include online quizzes for self-assessment, ensuring a comprehensive understanding of the material. AMB goal is to foster informed and empowered participants who can effectively engage in, initiate, and support the growth of energy communities.

Finally, the **ECGT** aims to equip organizations and public workers with the necessary resources to effectively assist citizens in navigating the creation and management of energy communities. Despite the toolkit will not be directly linked to the La Teulada website, the 36 municipalities of AMB will have access to it, as well as any other citizen whether they reside or not in the metropolitan area of Barcelona.

The OSS designed by AMB with the implementation of the COMANAGE tools, aims to contribute to the project objectives and KPIs⁶ as it follows:

1. **Increased citizen engagement (SOC01, SOC02):** The integration into <https://lateulada.amb.cat/> will ensure easy access, encouraging citizen engagement and participation in energy community initiatives.
2. **Educational support (SOC01, ENV01, ENV02):** The eLearning platform will contribute to the COMANAGE educational goals, enhancing citizen knowledge on energy-related topics and promoting sustainable practices.
3. **Efficient decision-making (SOC01, SOC02, ENV01):** The DSS will support citizens in making informed decisions by providing prompt and reliable information on energy matters, facilitating smoother community-driven initiatives.
4. **Capacity building (SOC01, ENV01):** The eLearning Platform will serve as a valuable resource for building the capacity of community members and stakeholders, aligning with the COMANAGE capacity-building goals.
5. **Toolkit for organizational assistance (SOC01, SOC02, ENV01, ENV02):** The Toolkit will support organizations in providing effective assistance to citizens, contributing to the successful establishment and management of energy communities.
6. **Collaborative information exchange (SOC01, SOC02, ENV01, ENV02):** Different ways will foster collaboration, information exchange, and mutual learning, supporting stakeholder engagement and project objectives.

Benefits and potential challenges

The integration of COMANAGE tools into <https://lateulada.amb.cat/> offers significant **benefits** for stakeholders in energy community projects. This integration will provide a centralized hub for easy access to resources and information, encouraging informed decision-making. The Decision Support System (DSS) and eLearning Platform on the website empowers citizens with valuable insights and educational resources. Additionally, the Toolkit, accessible to all 36 municipalities, supports organizations in aiding citizens through the energy community creation and later management stages.

However, some people may face **difficulties** due to digital barriers, limiting their engagement. Encouraging the widespread use of the tools may be a challenge and will require effective promotion. Providing public workers and community members with instructions and support that enables them to use the tools efficiently could minimize the problem. Regular maintenance and updates are needed to keep digital platforms working well. Moreover, presential support may also be used to properly comprehend the COMANAGE tools and their potential.

4.2.5. Activities Planning & resources

The Gantt chart below presents an initial overview of AMB's plan to execute and implement the pilot activities within the timeframe from January 2024 (M15) to April 2025 (M30), also including the period between June and December 2023 (M8 - M14), focused on the OIS Hub meetings and the preparatory work for the execution phase.

⁶ Set in the D5.1 KPI definition, monitoring programme and procedures.

	M8 M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30
Hub Meetings																	
Toolkit																	
Training																	
DSS																	

Table 8. AMB Executive Plans timeline

As previously mentioned, the OSS will undoubtedly be available in an **online format**, and as such, all tools will be prepared for online use. However, a **physical OSS** will still be essential as it holds significant value for people, specifically for those who face digitalization barriers. Both formats will need to be integrated, with a greater emphasis on the digital component due to its greater impact potential.

In terms of **human resources**, AMB will require a skilled team comprising technicians, developers, trainers, and communication specialists. Whilst regarding the **non-human resources**, the essential aspects will include software development tools for creating digital solutions, graphic materials, training materials for educational purposes, and a reliable digital infrastructure to support the COMANAGE operations.

An important aspect to take into consideration is that **La Teulada has been already internalized** by AMB and is currently an in-house service. Hence AMB aims to internalize all the tools that will be developed and tailored within the COMANAGE project to expand the OSS offer.

Considering possible **outsourcing needs**, in the case of AMB, the legal services should be subcontracted for supporting activities, as foreseen in the project budget that accounts for the procurement of legal services when needed.

Finally, in order to ensure an effective **follow-up and monitoring process** for the established KPIs, AMB will implement the following plan:

- **Phase 1** (After 6 months – June 2024): Assess progress according to the initial KPIs and refine strategies as necessary.
- **Phase 2** (Upon completion of the timeline – April 2025): Conduct a final evaluation, assessing the overall impact, and concluding the documentation process.

4.2.6. Risk Assessment and Mitigation

Among the potential risks that could occur during the pilot activities, AMB has pinpointed six primary challenges, each accompanied by proposed mitigation actions as outlined below:

1. **User adoption:** Encouraging widespread adoption of the tools may be challenging, leading to a low engagement from residents and other stakeholders.

Mitigation action: Implement effective communication strategies, conduct raising awareness campaigns, and offer incentives to boost user participation.

2. **Training:** Inadequate training for civil servants and community members may hinder effective tool utilization.
Mitigation action: Provide support during the whole training period and offer user-friendly training materials.
3. **Maintenance and updates:** Insufficient attention to the service progress and continuous updates may lead to system vulnerabilities and reduced effectiveness.
Mitigation action: Allocate dedicated resources for regular maintenance, conduct periodic updates, and ensure scalability for future enhancements even after the project completion.
4. **Community engagement:** Fostering active participation within the Digital Hub may face low engagement levels so the pilots identified that the development of the Digital Hub was not deemed necessary. This decision was based on the recognition that it could potentially replicate existing digital spaces or platforms already integrated by the pilots, thus making it redundant and not serving the project's intended scope.

Mitigation action: Focus on integrating and connecting the features of the pilots' existing digital spaces or platforms into the space designated for the Digital OIS Hub within the COMANAGE Open Platform. This solution will ensure connection between different existing platforms while giving them more visibility to maximise their use.

5. **Integration challenges:** Integrating La Teulada service with the COMANAGE tools may encounter technical and operational challenges within the webpage.
Mitigation action: Coordination meetings, together with testing, and clear protocols will be created between organizations to ensure the correct compatibility between COMANAGE webpage and La Teulada.
6. **Community resistance:** Some community members may resist adopting the new tools or participating in energy initiatives.
Mitigation action: Conduct community outreach campaigns, address concerns through effective communication, and highlight the benefits of the initiatives.

4.2.7. Replication Potential

As part of the COMANAGE initiative, an active collaboration with other **Oficinas de Transformación Comunitaria (OTCs)**, which can be translated to English as *Community Transformation Offices*, awardees will be maintained to expand the impact and foster a collaborative ecosystem. These OTCs, serving as physical and virtual spaces, share the common goal of promoting and supporting community-led energy initiatives. The synergies created through inter-OTC partnerships enhance the potential for knowledge exchange, best practice sharing, and collective problem-solving. Through strategic partnerships with other OTCs, COMANAGE envisions hosting joint events, workshops, and knowledge-sharing sessions. These interactions aim to create a network of expertise, allowing OTCs to learn from each other's experiences and successes. Furthermore, collaborative efforts can identify common challenges and collectively develop solutions that benefit the broader community energy landscape.

Replication efforts extend beyond individual municipalities to encompass the broader national and regional context. COMANAGE, in collaboration with other OTCs, will actively engage in outreach efforts at both the national and regional levels. This involves liaising with **supramunicipal bodies** such as the Diputació de Barcelona (Barcelona Council) or Diputació de Girona (Girona Council) and partnering with large municipalities that have the potential to significantly amplify the replication potential of the project.

On the other hand, the **involvement of decision-makers and Public Authorities (PA) representatives** is crucial for gaining credibility and influence. By actively engaging with these stakeholders, the representatives not only gain access to valuable insights and resources but also benefits from their ability to amplify the COMANAGE message and objectives within their respective jurisdictions.

4.3. KMA

4.3.1. State of art of the OIS Hub

In Poland, the participatory process within the OIS Hub, which is formed by civil servants in Kraków Metropolis Association and led by Bartłomiej Smenda (Hub Manager) was characterized by 4 meetings, respectively on the following dates:

- **22 September 2023** – introduction to the COMANAGE project, presentation of the objectives and expected results of the project. Presentation and workshop of the Energy Communities Governance Toolkit - ECGT.
- **27 October 2023** - presentation of the COMANAGE Open Platform and specific session about EC legal aspects.
- **8 November 2023** – presentation of the COMANAGE products timeline, with a specific session focused on energy poverty, the Energy Poverty Advisory Hub (EPAH) and energy demand in Poland.
- **8 December 2023** – presentation of the COMANAGE products for the citizen involvement: the Participation Plan and Energy Poverty Tackling Plan.

Overall, the **total number of participants** in the OIS Hub in Kraków Metropolis Area was **34**. The **members** of the OIS Hub were mainly civil servants and local authorities operating in the Kraków Metropolis Area. Within the Krakow Metropolis Area there are two energy cooperatives made up entirely of local government entities, one cooperative made up of private entrepreneurs and an energy cluster made up from several municipalities.

1. The **Niepołomice Energy Community** is a wholly municipal energy cooperative, consisting of: Niepołomice Municipality, Infrastruktura Niepołomice sp. z o.o. and the Cultural Centre in Niepołomice. The cooperative's power supply installations are located on members' buildings, which are public buildings. The reason for setting up the cooperative is the desire to reduce costs (partial exemption from fees for the cooperative), which will allow funds to be raised for the further development of RES in the Niepołomice municipality. The cooperative has completed registration with the relevant authorities.
2. The **Skawina Energy Community** is another cooperative made up entirely of municipal entities: Skawina Municipality, the Skawina Regional Museum, and the Skawina Municipal Public Library. It is in the early stages of registration. As with the energy community in Niepołomice, the reason for setting it up is to be able to obtain better energy prices for public buildings.
3. The **Energy Community "Green Wieliczka"** is a cooperative founded by three local entrepreneurs, the reason for the establishment of the cooperative is the surplus production from RES on the premises of the enterprises. Currently, the surpluses are fed back into the grid with an unfavourable settlement for the producers. The creation of the cooperative results in the possibility of balancing the production and benefiting from fee exemption. The cooperative is in the final stages of registration and plans to seek new members.
4. Finally, the **Energy Cluster "Korona Północnego Krakowa"** consists of four municipalities bordering the city of Kraków to the north – municipality of Zielonki, municipality of Kocmyrzów - Luborzyca, municipality of Igołomia-Wawrzeńczyce and municipality of Wielka Wieś. The cluster is a form of inter-municipal cooperation and serves as an aid to obtain financing for RES investments.

The Polish Hubs meetings have brought to light some key aspects:

- Hub participants have shown a strong interest in the topic of energy communities, mainly **energy cooperatives**. This is directly linked to the high electricity prices affecting local authorities. As a result, municipalities are looking

for ways to reduce their energy bills, but also to invest in renewable energy sources to increase their energy self-sufficiency.

- **Energy poverty** is also an important issue that municipalities are facing. Local authorities see energy communities as a way to achieve goals as reduction of energy costs, energy self-reliance, and reduction of energy poverty; currently energy cooperatives in Poland are exempt from numerous charges which bring direct profit to their members.
- However, **energy communities are still something new in Poland**, so there is a lot of uncertainty among local governments. This is due to the lack of knowledge of the topic among civil servants, but also to the lack of simple and available solutions that local governments could directly use.

The presence of three energy cooperatives among the members of OIS Hub is a very good opportunity to create a **platform for knowledge exchange and cooperation** between local governments.

It is also worth mentioning that OIS Hub participants include representatives of the city of **Krakow**, one of the largest cities in Poland and the only **urban commune** among the participants. Unfortunately, the current law does not allow the establishment of energy cooperatives in cities, as it is limited only to urban-rural and rural areas. Another form of community that the city of Krakow is also planning to implement is the **collective prosumer**⁷, so it is important to take into account the needs of all OIS Hub participants as the tools will be provided to all municipalities involved.

First idea of the service definition

In defining the service, the brainstorming session brought together members of the OIS Hub to share their experiences in creating and managing energy communities. They provided valuable feedback on the tools being developed in the project, discussing how these tools could be transformed into practical services. This collaborative exchange created a valuable space for sharing knowledge and addressing challenges related to energy communities, as well as broader issues concerning energy and air quality.

As highlighted, KMA considers fundamental, for a solid service definition, the following aspects:

1. Providing the necessary **knowledge** about energy communities, especially energy cooperatives, to participants.
2. Providing **expert support** to all OIS Hub participants.
3. Promoting and sharing **the COMANAGE products** (Toolkit, DSS, E-Learning, Open Platform), thus filling the knowledge gap among participants.

To expand the potential of COMANAGE products and activities, KMA will invite to its Energy Forums and provide information and access to the ECGT, the COP and other COMANAGE products to all municipalities of KMA and others interested stakeholders.

4.3.2. Objectives and target groups

The purpose of the KMA Executive Plan is to plan how assistance will be provided to local governments to **create new** and **support** the **functioning** of existing energy communities. This will be achieved by ensuring that the tools and products

⁷ Collective prosumer in Poland is a concept that shows some similarities with the energy cooperatives. Nevertheless, it takes place in cities and specially in multi apartments buildings. Currently, there is only one working collective prosumer in Poland.

created in the COMANAGE project will be appropriately made available to local governments not only during the project implementation but also after its completion.

Two groups of participants can be distinguished:

- The first one consists of **municipalities** that have or are **currently creating energy communities**.
- The second one consists of those **municipalities** that have shown **interest** but have not yet made this decision or lack appropriate knowledge about energy communities.

The first group should be provided with support at an appropriate substantive level, responding to their specific needs by making experts available to them to a certain extent, without neglecting the second group. The second group should be trained and informed about the benefits and initial aspects of starting an energy community. Information about the available tools of the COMANAGE project should be made available to both groups. Considering these two different target groups, the **specific goals** to be achieved during the piloting activities are as follows:

- Providing support for the further development of existing energy communities
- Providing support and first aid in the creation of new energy communities

Parameters and KPIs to assess the success

As foreseen in the COMANAGE project, **KMA aims to achieve** the social KPIs in the box below. It is important to acknowledge that these targets are particularly ambitious, considering the current early stage of development and spreading of energy communities in Poland.

SOC01: Number of energy communities and/or other kind of citizen-led energy initiatives **supported** in the Krakow Metropolis Area – **1**

SOC02: Number of energy communities and/or other kind of citizen-led energy initiatives **launched** in the Krakow Metropolis Area – **1**

Figure 8. Social KPIs for KMA

Specific KPIs related to the Executive Plans:

ENV02 - Total Final Energy Savings (FES) triggered by the project: **3.920 MWh/y**

ENV03 - Total generation of Renewable Energy (RE) triggered by the project: **233 MWh/y**

Figure 9. KPIs related to the Executive Plans for KMA

In this context, it is crucial to consider the unique characteristics of the city of Krakow and the current regulatory framework, which currently hinders the creation of energy cooperatives in urban areas. This is viewed as a critical barrier

for the development of RECs in Krakow. However, due to recent legislative changes, there is now a possibility to establish the previously mentioned collective prosumers in Krakow. This also poses quite a significant challenge considering that is a brand-new concept in Poland. Despite these considerations, the fact that the target group includes all 15 municipalities within the Krakow Metropolis, coupled with the expressed interest from local governments in energy communities, and the well-received service presented during the OIS Hub meetings leads KMA to be confident in the successful achievement of the specified KPIs.

4.3.3. Stakeholders involved in the actions

The main stakeholders involved in the piloting actions will be mainly citizens, community members, energy providers, public authorities at both municipal and regional levels. They will play a central role in the implementation of the Executive Plan.

Stakeholder	Role/responsibilities
Citizens	They can create energy communities with the help of local authorities
Publicly owned energy operator	The operator is responsible for the transmission of electricity in Poland and plays a critical role in the country's economy. It is also specified in the Energy Law
Public authority - Municipality	The public authority has a strong commitment to topics related to renewable energy sources and low-emission transport
Public authority - Municipality	This public authority has established an energy cooperative (a Polish type of energy community), consisting only of municipal units
Public authority - Municipality	Searching for innovative solutions
Public authority - Municipality	They are motivated to follow the example of others and utilize the residents/organizations that have renewable energy sources
Public authority - Municipality	They are planning to establish an energy community
Public authority - Regional Public Administration office	Plan laws at the regional level, e.g., the air protection program for the Malopolska region and the development strategy for the region
Legal and technical experts	Providing knowledge to the participants of the OIS Hub

Table 9. Stakeholders involved in the implementation of the KMA Executive Plan

Communication and engagement strategies

During the deployment of the OIS Hub meetings, **communication** with participants took place mainly via e-mail, information about the meeting date and the planned agenda was sent to the invitees sufficiently in advance. During the meetings, face-to-face communication took place. After each OIS Hub meeting, the related information was posted on the LinkedIn profile of the Krakow Metropolis. Also, after the event, participants had the opportunity to evaluate the event, propose changes and submit questions to the expert using an online form.

In future activities, communication with stakeholders will follow a similar pattern. Information on scheduled meetings or the availability of COMANAGE products will be distributed by email. A LinkedIn profile will also be used to contact stakeholders with posts about meetings held and tools and products available.

The members of the OIS Hub included members of the three ECs established in the Krakow Metropolis. They **participated** in the meetings where they were able to benefit from the knowledge of experts and tools created within the COMANAGE project. Their presence was also important because they served as a good practice for other local governments and residents who are not convinced yet about energy communities or are only at the initial stage of establishing energy communities.

In the prospective activities, EC members will be informed like other stakeholders. It is also planned to involve them in the testing of tools as part of the operation of their EC. Which will ensure their involvement through the possibility of direct benefit.

4.3.4. Service Implementation

KMA's Executive Plan will be focused on the definition, implementation, and deployment of a **One Stop Shop (OSS)**, as the main service. This will be done as follows:

- KMA will organize meetings with COMANAGE project stakeholders, to be held as part of the **Energy Forum** which is organized as part of KMA's other activities.
- During these events, the COMANAGE **project tools** prepared by the project partners **will be presented and reviewed** by the participants. It is planned that the meetings of the so-called Energy Forum will take place every quarter.
- It is also planned **to sub-contract a technical expert** as foreseen in the project budget, for the implementation of the Executive Plan. The presence of an expert at Energy Forum meetings will help to work with municipalities to respond to their specific technical problems and concerns. The willingness to continue working with the technical expert was expressed by the municipalities at the last OIS HUB meeting.

In addition, the stakeholders will be notified of updates and implementations of new tools via personal emails and LinkedIn posts. KMA staff familiar with the COMANAGE project will moderate and assist municipalities by sharing information about the project and its products. On the KMA website in the project description a link will be added to the COMANAGE project page of the COP platform, this will allow easy access for those interested.

The COP after the duration of the project will be moved to the KMA website where there are currently thematic forums for KMA members. In summary, the One Stop Shop service will be implemented at the KMA through the following means:

1. **Meetings** during the **Energy Forum** for direct interaction with stakeholders and consultation of COMANAGE project products.
2. Ensuring **collaboration between the technical expert and the stakeholders**, both during the Energy Forum and also individually to overcome technical barriers specific to each municipality.
3. **Informing and communicating** with stakeholders beyond the Energy Forums, through emails and posts on LinkedIn.

Conducting regular sessions with stakeholders, keeping them informed about the latest developments in the COMANAGE project, providing access to COMANAGE project tools, and collaborating with technical experts will help overcoming obstacles such as limited understanding of energy cooperatives and other energy communities, as well as the absence of tools for establishing and managing energy communities.

Benefits and potential challenges

Among the benefits identified by KMA, the following are the main ones:

- **Streamlined communication:** The service facilitates efficient communication between KMA and pilots' stakeholders. Having a centralized point of contact (One Stop Shop) can reduce confusion and enhance coordination.
- **Regular stakeholder engagement:** The Energy Forum meetings provide a structured platform for stakeholders to engage, discuss, and review the COMANAGE tools. This regular interaction helps to maintain active collaboration.
- **Expert assistance:** Sub-contracting a technical expert to address specific technical issues demonstrates a proactive approach to problem-solving. This can lead to quicker resolutions and improved project outcomes.
- **Tailored assistance to municipalities:** The presence of a technical expert at the Energy Forum meetings reflects a commitment to addressing the unique technical problems and concerns of municipalities, fostering a more tailored and effective support system.
- **Convenient access to information:** Integrating the COP platform within the KMA website provides an easily accessible and centralized repository for information related to the COMANAGE project.

The deployment of activities could also bring some challenges to the smooth management and execution of the plan.

- **Expert availability:** Depending on the availability of the contracted technical expert, there may be challenges in maintaining consistent support. Contingency plans and clear communication should be in place.
- **Stakeholder engagement:** Sustaining stakeholder engagement over the long term can be challenging. Efforts should be made to keep stakeholders actively involved.
- **Ensuring participation:** Encouraging active participation in Energy Forum meetings and the Digital Hub requires continuous efforts. The challenge is to make these platforms engaging and valuable for all stakeholders involved.

4.3.5. Activities Planning & Resources

The Table below outlines the timeline of activities KMA will carry. Specifically, during each Energy Forum KMA aims to show a specific set of tools of the ECGT, explaining how it works and encouraging municipalities to use it. Furthermore, once the Training is ready, KMA intends to present it on one of the Energy Forums already scheduled. To broaden the public KMA will promote the ECGT and the training on their social media channels.

	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30
Energy Forum																	
Toolkit																	
Training																	
DSS																	
Expert commitment																	

Table 10. KMA Executive Plans timeline

The OSS will be accessible in both **online and offline formats**. The Energy Forum will primarily take place on-site, with the meetings occurring at the KMA headquarters. In the case that organising the meeting onsite is not feasible, a single online meeting will be arranged. The expert's participation will be both online and offline, including his/her involvement in the Energy Forum as well as assisting municipalities in preparing the necessary activities tailored to their specific conditions. While, online, stakeholders will have access to dedicated tools such as the ECGT, the e-training and the DSS.

Concerning the **human resources** needed, it will be necessary to involve municipal staff in cooperation with KMA staff to work together to create new energy communities and help develop existing communities. As for the **non-human resources**. Financial support, technical tools for new and existing energy communities, and coordination and monitoring aspects can be handled by municipalities in collaboration with KMA. The overall COMANAGE services will be incorporated into the KMA website after the end of the project.

As for the possibility of internalizing some services, the Energy Forum meetings are an in-house service planned among other KMA activities. Whilst, considering possible **outsourcing needs**, the support of a subcontracted expert will be needed in, should be subcontracted to support on the implementation of technical aspects, as foreseen in the project budget that accounts for the procurement of legal services when needed.

4.3.6. Risk Assessment and Mitigation

KMA has identified the following **potential risks** that can trigger the timely and smooth deployment of piloting activities: lack of stakeholder engagement, inadequate communication, failure of alignment between COMANAGE tools and stakeholders' expectations, and political turnover. For each of them, the KMA team has foreseen some **mitigation action** to perform in advance:

1. Lack of stakeholder involvement

- Clearly communicate the advantages and benefits of using the COMANAGE product.
- Provide regular updates on the positive impact and value it brings to stakeholders.
- Use engaging communication materials, such as best practices, or success stories, to showcase tangible benefits.

2. Inadequate communication

- Tailor communication to be clear, concise, and easily understandable by all stakeholders.

- Create platforms or forums that encourage stakeholders to speak freely, share their thoughts, and ask questions.
 - Foster an environment that values open dialogue and diverse perspectives.
- 3. Failure to align COMANAGE tools with stakeholder expectations**
- Work closely with stakeholders to understand their specific needs and expectations.
 - Regularly engage in feedback sessions, surveys, and usability testing to confirm that the COMANAGE product aligns with stakeholder requirements.
 - Prioritize ongoing collaboration throughout the development process.
- 4. Local elections in 2024: change in decision-making politicians**
- Proactively engage with stakeholders, to showcase the positive impact and benefits that COMANAGE proposes for their municipalities.
 - Provide comprehensive case studies and evidence of successful implementations to secure support beyond political transitions.

4.3.7. Replication Potential

The Krakow Metropolitan Area comprises the city of Krakow and 14 surrounding municipalities. These municipalities share the border with other municipalities creating an additional circle. This configuration creates potential replicators for the COMANAGE project. As new energy communities emerge in the KMA area, municipalities in the Malopolska region will be able to see the benefits. Hence, the materials and products created in the COMANAGE project will also be made available to them if they express such an interest.

To extend the reach to a greater number of municipalities, some collaborative opportunities and synergies have been explored by Metropolis and Co-opAbility, considering the possible replication potential within the country. As a result, the City of Warsaw will be a key participant on the COMANAGE Replicators Board, an aspect that is expected to contribute to the dissemination of the already existing interest in energy communities throughout the country.

5. Conclusions

This report is an important document that links together different work packages and upcoming reports within the COMANAGE project. Revolving around the definition of a specific action plan derived from the creation of the OIS Hub Meetings and taking into consideration the strategies outlined in deliverable *D3.1. OIS Hubs stakeholders' engagement and mobilization Plan*, it serves as the foundation for the implementation of the One Stop Shop service that will be deployed in the Piloting and Testing phase and in the Monitoring and Impact Assessment phase. Designed on the COMANAGE Theory U framework, delineated in the document *D2.1 Energy communities' holistic framework and collaborative methodology* and considering the specific challenges outlined in deliverable *D2.2. EC barriers needs and best practices analysis*, this document provides the strategic ground for the practical implementation of pilots' actions and strategies.

The link between this report and the *Piloting and testing* phase, lays on the development and launch of both the e-learning platform and course and the DSS platform, main products of the COMANAGE Project and the proper implementation of the pilots' activities.

Beyond this, this report also lays the groundwork for the *Monitoring and Impacts Assessment* phase as it helps refining strategies for monitoring and evaluating the project's impact, by following the KPIs presented in deliverable *D5.1 KPI definition, monitoring programme and procedures*, and ensuring a holistic approach to a pilot's implementation which is consistent with the COMANAGE goals and objectives.

As a bridge between the operational phases (Piloting and Testing and Monitoring and Impacts Assessment) and the overarching project strategy (Sustainability, Replication, and Exploitation), this deliverable casts light on possible risks and the mitigation actions that could be undertaken to allow a continuous and effective spreading and development of energy communities in the three pilots areas. In this sense, the last section of every Pilot Executive Plan outlines the possible replicators in the area or replication potential of the activities that will be deployed, connecting to the upcoming deliverable *D6.1 Sustainability, Replication and Exploitation Plan* and the current search METROPOLIS is doing to engage metropolitan areas to replicate COMANAGE products and best practices.