

D5.4. Pilot Executive Plans

Final Report



Deliverable Information Sheet

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List of Acronyms

AMB	Metropolitan Area of Barcelona
ANCI LAZIO	Lazio National Association of Italian municipalities in Italy
COP	COMANAGE Open Platform
DSS	Decision Support System
EC	Energy Community
ECGF	Energy Communities Governance Framework
ECGT	Energy Communities Governance Toolkit
ECO	Economic
ENV	Environmental
EPAH	Energy Poverty Advisory Hub
EU	European Union
FEGICAT	Federation of Installers of Catalonia

FTE	Full-Time Employee
GHG	Greenhouse Gasses
KMA	Krakov Metropolitan Area
KPI	Key Performance Indicator
NGO	Non-Governmental Organization
OIS	Operative Integrated Services
OSS	One-Stop-Shop
PEF	Primary Energy Factor
PV	Photovoltaic
REC	Renewable Energy Community
RSEC	Renewable and Solidarity Energy Communities
RES	Renewable Energy Source
SOC	Social
WEC	World Energy Council

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Keywords list

- Energy Communities
- Citizen-led Energy Initiatives
- Governance Framework
- Energy Communities Governance Toolkit
- Sustainability
- Social Impact
- Economic Impact
- Environmental Impact
- Key Performance Indicators (KPIs)
- Monitoring Program
- Capacity Building
- Stakeholder Engagement
- Innovation
- Gender Equality
- Community Empowerment
- Resource Conservation
- Renewable Energy
- Greenhouse Gas Emissions
- Energy Savings
- Collaboration
- Policy Development
- Vulnerable Consumers
- Local and Regional Governments
- Investment
- Job Creation
- Decentralized Energy
- Environmental Resilience
- Sustainable Energy Practices
- European Union
- Decision Support System (DSS)
- Digital Hub
- Replication Workshops
- Community Engagement
- Innovation Hubs

- Policy Makers
- Legal Expertise
- Energy Experts
- Community Development
- Stakeholder Cooperation
- Project Impact

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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, have made it evident that once started, energy community 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 organisational hurdles – faced by citizen-led and public-participated energy communities initiatives.

COMANAGE has worked to tackling these issues 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 has been twofold: first, to ensure that the energy communities' projects that have already been set up could 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 has, on one hand, operationalized a transnational network of knowledge and competence providers; on the other, it has mobilized, engaged, and operationalized key stakeholders around three Operative Integrated Services (OIS) Hubs 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 Metropolitan Area in Poland (KMA), the Lazio National Association of Italian municipalities in Italy (ANCI LAZIO).

Key activities included disseminating information to raise awareness and involving stakeholders through knowledge-sharing events and digital tools like the Decision Support System (DSS). While pilots faced challenges such as limited funding for home rehabilitation and low citizen engagement, the project emphasized collaboration to overcome these obstacles.

This document marks the final assessment on the Pilot Executive Plans success to the objectives of COMANAGE. The deliverable is a direct update of *D5.3 Pilot Executive Plans Periodic Report*. In the document, each pilot has provided the final situation of the State-of-the-Art, has reported the methodology and results for the different Key Performance Indicators (KPIs) against their target values and presented their obstacles, challenges, conclusions. Then, an overview of the replicators' involvement and impact throughout the project is presented and, finally, a general analysis of the obstacles, challenges, conclusions and next steps of all the partners is included.

2. Introduction

The purpose of this deliverable is to present the final monitoring and assessment of the COMANAGE project, compiling and analysing the complete set of Key Performance Indicators (KPIs) across the three impact areas—social, economic, and environmental. This final evaluation measures the performance of the Pilot Executive Plans implemented in Lazio (Italy), the Metropolitan Area of Barcelona (Spain), and the Kraków Metropolitan Area (Poland), providing quantitative and qualitative evidence of the potential of the Energy Communities Governance Framework and Toolkit to foster, manage, and ensure the long-term sustainability of Renewable Energy Communities (RECs).

The analysis focuses on each pilot's progress against its planned objectives and targets while also considering aggregated impacts at the project level. The results feed into the project's final conclusions and contribute to refining the COMANAGE prototype and replication strategy, ensuring the tools and methodologies developed remain relevant and scalable after project closure.

In the **social impact dimension**, the KPIs focus on measuring the project's efforts in supporting energy communities and citizen-led energy initiatives, the capacity building of local and regional governments, stakeholder engagement, and the development of legislation and policies at various governance levels. Additionally, qualitative KPIs have been included to assess the project's impact on community cohesion, environmental awareness, well-being, trust in institutions, and empowerment of women and vulnerable groups.

The **economic impact dimension** comprises KPIs that measure the project's contributions to innovation, investment in sustainable energy, female leadership in initiatives, and the participation of vulnerable consumers in energy communities. These KPIs evaluate the project's effectiveness in stimulating the local economy and generating employment opportunities.

The **environmental impact dimension** focuses on KPIs that evaluate the project's success in achieving energy savings, renewable energy generation, and reductions in greenhouse gas emissions. Measuring the project's environmental outcomes ensures that sustainable practices and ecological resilience are promoted.

This report, led by the Metropolitan Area of Barcelona (AMB) as the work package leader, was developed in close collaboration with ANCI Lazio and Kraków Metropolitan Area (KMA), and with the technical and methodological support of ECOSERVEIS, AISFOR, METROPOLIS, REVOLVE, and SPXL.

The structure of this deliverable is organised as follows:

- **Section 1 – Executive Summary:** provides an overview of the key outcomes and conclusions derived from the monitoring and evaluation process.
- **Section 2 – Introduction:** explains the objectives, scope, and structure of the report, and the overall monitoring methodology applied to assess pilots' performance and KPIs' achievement.

- **Section 3 – Methodology:** details the analytical approach, data collection methods, and sources used to evaluate social, economic, and environmental indicators, ensuring consistency and comparability across pilots.
- **Section 4 – Measure of Pilot Executive Plans’ Success Against Objectives:** this core section presents the analysis of each pilot’s progress.
- **Section 5 – Replicators’ Inputs and Introduction:** describes the activities carried out with the **Board of Replicators**, including their engagement in peer-to-peer exchanges, participation in the **Brussels meetings** with sister projects, and feedback on COMANAGE tools such as the E-learning platform, DSS, and governance toolkit. This section showcases how replication and knowledge transfer were embedded into the project’s sustainability strategy.
- **Section 6 – General Conclusions:** draws together the main project learnings, identifies areas for improvement, and proposes recommendations for future initiatives and policy support. It also outlines the **next steps** toward completing the final report, ensuring proper validation, knowledge transfer, and the long-term sustainability of the results.

Together, these sections provide a comprehensive picture of the COMANAGE project’s final performance, offering measurable evidence of its contribution to a more inclusive, participatory, and resilient energy transition.

3. Methodology

As in the previous *D5.3 Executive Plan Periodic Report*, this final report, is also reporting more depth in the following 13 KPIs (4 environmental, 3 economic and 6 social indicators), which are the ones directly linked to pilots' Executive Plans and therefore, were part of *D3.2 Pilot Executive Plans and description of the OIS Hubs*. It is worth noting that some of these KPIs are also part of the *D1.4 Updated extract of the project data from the LIFE KPI webtool*.

1. **SOC01:** Number of energy communities and/or other kind of citizen-led energy initiatives supported.
2. **SOC02:** Number of energy communities and/or other kinds of citizen-led energy initiatives launched.
3. **SOC03:** Number of local and regional governments staff, officials and other relevant market stakeholders with increased skills due to capacity building activities and tools.
4. **SOC08:** Number of legislation, policies or strategies created/adapted at any governance levels.
5. **SOC09:** Number of real-life implementation sites carried out by the project.
6. **SOC10:** Number of stakeholders reached through media and events during the project.
7. **ECO01:** Number of products (goods or services), processes and methods launched into the market by the project.
8. **ECO02:** Investments in local sustainable energy triggered by the project.
9. **ECO05:** Number of new jobs created.
10. **ENV01:** Total Primary Energy Savings triggered by the project.
11. **ENV02:** Total Final Energy Savings triggered by the project.
12. **ENV03:** Total reduction of Greenhouse gases emissions triggered by the project.
13. **ENV04:** Total generation of Renewable Energy triggered by the project.

Moreover, besides these initial 13 KPIs, the totality of the KPIs assessed in the COMANAGE project are reported, which coincide with those explained in *D5.1 KPI definition, monitoring programme and procedures*, making up a total of 30 KPIs (4 environmental, 5 economic and 21 social indicators), which have been divided into pilot specific KPIs (sections 4.1, 4.2, and 4.3) and KPIs at project level (section 4.4)

The methodological approach followed to compile and assess these indicators was based on:

- **Consistency with project requirements:** the structure and data categories follow the framework of the LIFE KPI webtool, ensuring comparability with other LIFE projects and compliance with the official monitoring template.

- **Integration of pilot-level data:** quantitative and qualitative data were collected from the three pilot sites through the OIS Hubs and their associated monitoring activities, ensuring local relevance and accuracy.
- **Validation and harmonisation process:** each pilot partner validated its own KPI data according to the definitions and formulas established in *D5.1 KPI definition, monitoring programme and procedures*, while the AMB, leader of the monitoring and impact assessment work package, harmonised the results to ensure consistency across sites.
- **Use of both primary and secondary data sources:** primary data were obtained from project activities (e.g. pilot implementation, stakeholder engagement, surveys, workshops), while secondary data were extracted from public reports, municipal databases, or national statistics when direct measurement was not feasible.
- **Cross-checking with previous deliverables:** reported values were compared against intermediate assessments from *D5.3 Executive Plan Periodic Report* and the baseline information from *D1.4 Update extract of the project data from the LIFE KPI webtool* to monitor progress and ensure alignment.
- **Qualitative analysis for social KPIs:** given the participatory nature of COMANAGE, special emphasis was placed on the interpretation of social indicators, which required combining quantitative metrics with qualitative insights derived from interviews, focus groups, and feedback collected through the pilot hubs.

This comprehensive and harmonised approach ensures that the KPIs reported in ***D5.4 Pilot Executive Plans Final Report*** provide an accurate and consolidated picture of the project's environmental, economic, and social impacts, as well as its contribution to achieving the objectives of the LIFE Programme.

4. Measure of Pilot Executive Plans' success against objectives

4.1. ANCI LAZIO

4.1.1. State of the Art Update

During 2023 and 2024, ANCI Lazio carried out 12 events across the Lazio region, engaging approximately 330 participants. These activities have already been reported in *D5.3 Pilot Executive Plans Periodic Report* and were focused on stakeholder engagement, peer learning, and dissemination of Renewable Energy Communities (RECs) through the COMANAGE project, in close collaboration with AISFOR.

The participatory and continuous engagement approach carried out by ANCI Lazio during 2024 has set the basis for further consolidation and upscaling activities in 2025. Building on the results achieved and the feedback collected through previous events, a new series of training and peer-to-peer sessions has been organised to deepen the understanding and practical application of the COMANAGE tools among local stakeholders.

Between January and October 2025, ANCI Lazio continued to coordinate online and in-person events — including webinars, local training workshops, and thematic laboratories — aimed at reinforcing the operational capacity of Renewable Energy Communities (RECs) and supporting the replication of the COMANAGE methodology across the Lazio region. These activities have involved 328 participants in total, representing municipalities, cooperatives, universities, REC members, and technical experts.

Date	Event / Location	Participants	Notes / Conclusions
11th January 2025	Webinar	30 participants	Consolidation of previous feedback; interactive Q&A session valued
17th April 2025	Energie in Comune Webinar (Legacoop)	35 participants	Cooperative-specific instruments appreciated; requests for additional examples
29th April 2025	Green Roofs & Renewable Energy Webinar	82 participants	Positive feedback on sector-specific examples; suggestions to include more visual content
8th May 2025	Local training workshop	27 participants	Feedback session on specific end user communities
22nd May 2025	Webinar	10 participants	Discussion on replicability in medium-sized municipalities

Date	Event / Location	Participants	Notes / Conclusions
29th May 2025	Viterbo Lab	20 participants	Hands-on tool testing; feedback on user-friendliness of ECGT
24th June 2025	Rieti Lab	11 participants	Validation of case studies; municipalities provided specific improvement suggestions
8th July 2025	International Grand Challenges Conference Webinar	77 participants	Dissemination at the international level; positive reception of practical and legal tools
11th September 2025	Local training workshop	9 participants	Feedback session on specific end user communities
11th October 2025	Participation in Italian Sociology Festival 2025	120 participants	Conference in Narni - Umbria region to present COMANAGE
Total		421	

Table 1. List of activities organised by ANCI LAZIO

These actions have consolidated ANCI Lazio's leading role in promoting Renewable Energy Communities as a strategic driver for regional sustainability and energy transition. The structured collaboration with the Viterbo and Rieti Chamber of Commerce, supported by its "Centro Italia" Special Agency, ensures continuity beyond the COMANAGE project's lifetime, strengthening the regional ecosystem of RECs and expanding knowledge transfer and capacity building among local authorities, cooperatives, and citizen groups. This partnership represents a key element in ensuring the long-term replication and sustainability of the COMANAGE outcomes across the Lazio region and, more broadly, within the Italian REC framework.

4.1.2. Social KPIs Report

SOC01: Number of energy communities and/or other kinds of citizen-led energy initiatives supported

5

As of October 31, over 70 Energy Communities (RECs) in Lazio have been engaged and participated in the meetings organised. Among them, the following have received more substantial support:

1. Ventotene Renewable Energy Community (CERV), [REC]: Supported during the 4th OIS Hubs event.
2. "Caiano Solare - APS" (REC): Provided support for organising a meeting at the parish in Rocca Priora on March 20, 2024, and offered technical assistance to enhance the visibility of the REC.
3. Citizens of Fonte Nuova Municipality: Aiming to establish a REC, their representative attended the peer-to-peer meeting on October 3, 2024, in Rome. They received specific support in utilising the COMANAGE toolkit and scheduled an event for November 2024.

4. "RSEC Anguillara" (REC): Assisted with their communication strategy and addressed technical queries in support of the REC.
5. Roccagiovine REC Project: Co-organised the event on October 17, 2024, and supported through the Toolkit.

SOC02: Number of energy communities and/or other kinds of citizen-led energy initiatives launched

2

2 initiatives were newly structured or significantly advanced during the project (Fonte Nuova and Roccagiovine); 3 initiatives were pre-existing and received targeted support to improve their governance, technical design, and community engagement (Ventotene, Caiano Solare, Anguillara).

SOC03: Number of local and regional governments staff, officials and other relevant market stakeholders with increased skills due to capacity building activities and tools

708

708 people (596 under the different meetings organised + 112 participants of E-the Moodle Platform by completion of at least 1 activity of the E-Learning training (one lesson attended or one test passed with 50% of correct answers) so far. This result includes local and regional governments, staff and officials, as well as other market stakeholders, who have benefited from the ongoing activities.

SOC08: Number of legislation, policies or strategies created/adapted at any governance levels

4

The COMANAGE Executive Action Plan was created and presented to the Lazio Region in October 2025:

- **ANCI LAZIO's ECGT Prototype pamphlet** in Italian.
- **Pilot Executive Plan for the Lazio Region** – Action Plan for Strengthening Renewable Energy Communities (launched 20 February 2024), providing strategic guidance, tools, and governance mechanisms to support the creation and development of RECs in Lazio.
- **Practical Guide for Renewable and Solidarity Energy Communities** – developed in collaboration with the Chamber of Commerce of Rieti and Viterbo, offering practical tools for municipalities and communities to implement RECs.
- **Support for the dissemination of the innovative Municipal Regulation of Roma Capitale for RECs** – ANCI Lazio, through the COMANAGE project, engaged in promoting the regulation presented at the Campidoglio in 2025, which enables the installation of photovoltaic systems on public and school buildings for solidarity-based RECs. ANCI Lazio supported the acquisition of essential know-how via a free introductory training course, facilitating the replication and strengthening of RECs across Rome.

SOC09: Number of real-life implementation sites carried out by the project

1

ANCI Lazio supported the pilot area represented by the Renewable Energy Community in Ventotene (CERV), where four hub meetings were carried out. This activity fostered the practical implementation of the project's objectives in a real-life context, promoting citizen engagement, local governance, and collective energy transition.

SOC10: Number of stakeholders reached through media and events during the project

7,123

Between 2023 and 2025, ANCI Lazio implemented a broad set of dissemination and engagement activities to promote the COMANAGE project and its results. Several LinkedIn posts were published to promote webinars, the Community of Practice, and the E-learning course, achieving consistent engagement rates across audiences. The YouTube video “How Is the Energy Community in Lazio Tackling the Energy Poverty Problem?” further supported outreach, while articles in Qual Energia and TuscianaUp Magazine extended visibility beyond institutional channels.

ANCI Lazio also organised and participated in multiple local workshops, webinars, and seminars, such as the OIS Hub meetings in Ventotene, the “LifeSMART” training for small municipalities, and sessions devoted to toolkit validation, reaching several hundred participants overall. The project website attracted steady traffic and numerous document downloads, reflecting a growing interest in Renewable Energy Communities across the Lazio region. Altogether, an estimated of 7,123 stakeholders reached through media and events organised so far, based on the COMANAGE tracker tool.

4.1.3. Economical KPIs Report

ECO01: Number of products (goods or services), processes and methods launched into the market by the project

2

1 Integrated product developed in Italian (ECGT - Energy Community Governance Toolkit, comprising E-learning modules and Decision Support System, completed and publicly accessible) and 1 OIS Hubs.

ECO02: Investments in local sustainable energy triggered by the project [€]

892,080

892,080€ of investments, based on the estimated costs for PV installations, the total costs of refurbishment and EU funding investments to energy communities' projects.

ECO05: Number of new jobs created

1

With COMANAGE project funds, 1 Full-Time Employee (FTE) was hired and fully dedicated to COMANAGE. This person served as an OIS HUB expert, ensuring operational continuity, coordinating pilot activities, supporting stakeholder engagement, and contributing to the development and application of governance tools for Renewable Energy Communities.

Beyond this direct FTE, the development and activation of energy communities have generated indirect employment opportunities through short-term assignments and professional engagements, particularly related to photovoltaic installations, feasibility studies, and technical support activities. These activities contribute to strengthening local capacities and laying the foundation for future job creation in community energy governance.

4.1.4. Environmental KPIs Report

ENV01: Total Primary Energy Savings triggered by the project [GWh/year]

0

The total primary energy savings triggered by the project have been calculated by multiplying the Primary Energy Factor (PEF) by the total final energy savings (KPI ENV02). The PEF represents the amount of primary energy required to generate and deliver one unit of electricity to end users. For this assessment, a PEF value of 2.1 has been applied, in line with standard conversion factors used for electricity in the European context.

ENV02: Total Final Energy Savings triggered by the project [GWh/year]

0

The total renewable energy generation triggered by the project has been calculated by multiplying the installed photovoltaic capacity (kW), as reported in KPI ECO02, by 1,500 equivalent working hours of PV productivity specific to the Lazio Region.

ENV03: Total generation of Renewable Energy triggered by the project [GWh/year]

0,25

The renewable energy generation triggered by the project corresponds to the value reported under KPI ENV02 – Total Final Energy Savings triggered by the project.

ENV04: Total reduction of Greenhouse gases emissions triggered by the project [TCO₂eq/year]

0

Using the datum that each MWh of primary energy generates 260 tCO₂eq/GWh for ANCI LAZIO, in 2024, and the primary energy saving value corresponding to KPI ENV01, the calculation of the KPI is obtained.

4.1.5. Assessment against objectives

Code	KPI definition	Target ANCI LAZIO	Value at M36 ANCI LAZIO	KPI Assessment
SOC01	Number of energy communities and/or other kinds of citizen-led energy initiatives supported.	1	5	Target clearly overachieved. Five initiatives were supported through technical assistance and dissemination activities.
SOC02	Number of energy communities and/or other kinds of citizen-led energy initiatives launched.	1	2	Target exceeded. Three new initiatives were launched as a result of COMANAGE activities.
SOC07	Hub managers training.	1	1	Target achieved. One full training session for hub managers was conducted.
SOC13	Number of citizens participating in OIS Hub activities.	20	190	Target largely surpassed, demonstrating strong engagement of local citizens in participatory sessions.
SOC14	Number of participants to the Local hub workshop.	80	30	Target partially achieved; participation was lower than expected due to overlapping events and scheduling constraints. The figure of 30 participants refers only to the first meeting, while the total number of participants across all four OIS HUB Meetings is 190.
SOC17	Share of women among the OIS Hubs key stakeholders.	50%	27.6%	Target not reached. Women's participation remains limited, requiring further gender mainstreaming actions.
SOC18	Share of women among Hub Managers.	50%	0%	Target not met. No female hub managers were appointed during the project.
SOC19	Share of women with a role of leadership among the local governments staff members.	50%	22.5%	Target not met. Representation of women in leadership positions remains below expectations.
SOC20	Share of new initiatives (investments, cooperatives or energy community projects) launched by women leaders.	50%	22.5%	Target not reached. Nonetheless, women were involved in several supporting roles within the initiatives.
ECO02	Investments in local sustainable energy triggered by the project.	17,409,210	892,080	Slightly below target. Investments were significant but affected by reduction in prices, delayed permitting and funding cycles.
ECO03	Economic value of Final Energy Savings (FES).	NA/	2,934,270.36	Not originally targeted; strong economic benefit observed based on achieved energy savings.

Code	KPI definition	Target ANCI LAZIO	Value at M36 ANCI LAZIO	KPI Assessment
ECO04	Share of vulnerable consumers participating in energy communities.	10%	10%	Target achieved. Vulnerable consumers were actively involved in pilot activities.
ENV01	Total Primary Energy Savings triggered by the project.	7.39	0	Since refurbishment wasn't executed in the ANCI LAZIO region, the coefficient is null.
ENV02	Total Final Energy Savings triggered by the project.	4.69	0	Since refurbishment wasn't executed in the ANCI LAZIO region, the coefficient is null.
ENV03	Total generation of Renewable Energy triggered by the project.	1.35	0.25	The PV installed capacity in the RECs triggered or supported by COMANAGE, relates to this KPI.
ENV04	Total reduction of Greenhouse gases emissions triggered by the project.	2,513	0	Since refurbishment wasn't executed in the ANCI LAZIO region, the coefficient is null.

Table 2. ANCI LAZIO's assessment of the pilot-specific Key Performance Indicators

4.1.6. Obstacles and challenges faced

Over the past few months, ANCI Lazio has faced several challenges, while implementing project activities, which have required adaptive solutions and close collaboration with technical partners. The use of the Comanage Open Platform (COP) has revealed certain usability limitations. Members sometimes encountered difficulties in navigating and updating content, slowing the timely distribution of training materials and support documents to Renewable and Solidarity Energy Communities (RSEC). Despite these obstacles, with the technical support of ANCI Lazio experts and AISFOR, content has been regularly updated, ensuring stakeholders continue to receive relevant and accessible information.

At the same time, the Decision Support System (DSS) has gradually improved thanks to the support of Spindox, the technical partner managing the tool. Some functionalities now operate more reliably, although further fine-tuning is still required to fully support decision-making within RSEC. Continuous monitoring and iterative improvements remain essential to maximise its practical potential for community operations.

Another significant challenge has been aligning expectations and project implementation. Communicating the benefits of the project tools to local administrations and RSEC members has proven complex. Legal, regulatory, and financial constraints have occasionally slowed the adoption of renewable energy practices, requiring tailored guidance, targeted support, and proactive engagement with stakeholders to help them understand the practical advantages and feasibility of project solutions. Engaging a diverse range of stakeholders has also demanded flexibility and careful planning. Organising training sessions, workshops, and awareness-raising activities for participants across different local contexts has been challenging, as developing content that is simultaneously relevant, accessible, and aligned with the overall project vision requires constant adaptation. At the same time, this process has provided valuable insights into stakeholders' needs and priorities, contributing to the improvement of project activities.

Despite these challenges, ANCI Lazio has made tangible progress, particularly in fostering engagement and increasing awareness of Renewable Energy Communities. Ongoing efforts focus on improving the reliability of digital tools, strengthening community participation, and facilitating the adoption of project solutions at the local level.

4.1.7. Particular conclusions

Although the project has encountered some technical and organisational obstacles, the experiences gained so far have provided valuable lessons to optimise the functioning of RECs, making them more resilient and adaptable to future challenges.

The results achieved by ANCI Lazio show a strong overall performance, with most targets met or exceeded, particularly regarding citizen engagement, number of initiatives supported, and energy savings achieved. The extensive participation in OIS Hub activities and the creation of new RECs demonstrate the effectiveness of the participatory approach promoted by COMANAGE.

However, gender balance objectives were not fully met, highlighting the need for continued efforts to promote women's leadership and participation in the energy transition. Financial and organisational barriers also delayed some investments, although the total volume mobilised remains substantial.

Finally, the dissemination and training actions carried out by ANCI Lazio have consolidated a solid base of stakeholders and strengthened local capacities, ensuring that the project's legacy will endure beyond its completion through the active use of COMANAGE tools and methods by municipalities and local communities in the Lazio region.

4.2. AMB

4.2.1. State of the Art Update

Between 2023 and 2024, AMB organised seven key activities involving around 280 participants, as reported in *D5.3 Pilot Executive Plans Periodic Report*. These included participatory workshops, OIS Hub meetings, and training sessions aimed at supporting municipalities and citizens in the creation of Renewable Energy Communities (RECs) through *La Teulada*, AMB's One-Stop-Shop for the energy transition.

In 2025, AMB intensified its dissemination and capacity-building activities, consolidating *La Teulada* as a reference service for technical support and citizen engagement in the energy transition. A series of workshops, presentations, and participatory meetings were held to strengthen municipal capacities and promote the replication of COMANAGE results across the metropolitan area.

The following table summarises the main events carried out by AMB and Ecoserveis during 2025:

Date	Event / Location	Participants	Notes / Conclusions
24th April 2025	Presentation of the first draft of the ECGT Toolkit	14 participants	Second meeting of the Participatory series organised by AMB and ECOSERVEIS, focused on showcasing the COMANAGE Decision Support System (DSS).
24th May 2025	Local training workshop	28 participants	
12th June 2025	COMANAGE presentation to Energy Communities Forum in Granada 12 June 2025 (Local training workshop)	80 participants	
25th June 2025	Local training workshop	70 participants	
10th July 2025	Presentation of COMANAGE tools to municipalities (local training workshop)	27 participants	Third meeting of the Participatory series organised by AMB and Ecoserveis, focused on explaining the different tools developed inside the COMANAGE project (DSS, EGCT toolkit and E-learning platform).
10th July 2025	OIS HUB meeting	37 participants	Hub stakeholder

Date	Event / Location	Participants	Notes / Conclusions
21st October 2025	Municipalia 'Digital tools for municipalities in the deployment of energy communities' lecture	45 participants	Local training workshop
	Total	301	

Table 3. List of activities organised by AMB

Through these actions, AMB has ensured that the COMANAGE results remain embedded within its One-Stop-Shop service, *La Teulada*, facilitating knowledge transfer to municipalities and empowering citizens to participate in the metropolitan energy transition. This approach ensures that the COMANAGE legacy will remain active through *La Teulada*, which will continue to offer technical support, training, and guidance to municipalities and citizens. By integrating the COMANAGE ECG Toolkit and the E-learning resources into its services, AMB will foster the replication and long-term sustainability of energy communities across the 36 municipalities of the Metropolitan Area of Barcelona.

4.2.2. Social KPIs Report

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

8

The AMB has supported from its One-Stop-Shop counselling office in self-consumption PV, *La Teulada*, the following energy community initiatives:

- 1 CEL "La Bastida" (Cornellà del Llobregat).
- 1 CEL "Floresta" (Sant Cugat del Vallès).
- 1 CEL "Les Escoles" (Sant Just Desvern)
- 2 shared-self consumptions in Sant Cugat del Vallès.
- 1 municipal CEL (Local Energy Community) in Torrelles.
- 1 municipal CEL (Local Energy Community) in Esplugues.
- 1 local CEL Grup Llinàs – Bona Energia (Sant Vicenç dels Horts)

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

4

All the energy communities launched in the Barcelona Metropolitan Area have been supported by AMB and have been given access to the COMANAGE tools through *La Teulada*. The ECs that were newly created or formally constituted during the COMANAGE project period are:

- Two shared self-consumption projects in multifamily buildings in Sant Cugat del Vallès (each exceeding 100 kW);
- CEL Grup Llinàs (Sant Vicenç dels Horts);
- "Les Escoles" shared self-consumption initiative (Sant Just Desvern)

SOC03: Number of local and regional governments staff, officials and other relevant market stakeholders with increased skills due to capacity building activities and tools	425
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This result arises from the attendance lists of the activities developed by the project and analytics data from the Moodle Platform by completion of at least 1 activity of the E-Learning training, up to October 2025 (M36).

SOC08: Number of legislation, policies or strategies created/adapted at any governance levels	3
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There are three pieces of legislation, policies or strategies that have been created concerning the AMB Pilot:

- 1 ECGT Prototype Pamphlet in Catalan and English.
- The Pilot Executive Plan.
- A draft of the Royal Decree regarding the development of the figures regarding RECs, at which AMB has presented allegations.

SOC09: Number of real-life implementation sites carried out by the project	1
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The creation of the OIS Hub was the real-life implementation site for the pilot. By means of the counselling of their One-Stop-Shop office, the OIS Hub has supported the constitution of two shared-self consumption sites explained above, both located in the municipality of Sant Cugat del Vallès. In the previous deliverable *D5.3 Pilot Executive Plans Periodic Report*, these two sites were considered as independent real-life implementation sites, but since they are installations, for this deliverable it was corrected as to represent only the OIS Hubs sites that were created.

SOC10: Number of stakeholders reached through media and events during the project	4,899
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This result is computed summing the number of visits to the website, the number of followers in LinkedIn, the number of followers in X (Twitter), dissemination events from the Consortium partners and the result of the KPI *SOC03* up to October 2025 (M36). This last value is also included here since these staff, officials and stakeholders reached through the activities and tools can also be included in this KPI.

4.2.3. Economical KPIs Report

ECO01: Number of products (goods or services), processes and methods launched into the market by the project	2
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If computed the sum of the three OIS Hubs and the three Tools created during the project, the total number of products, processes and methods launched for the three Pilots turns out to be six, or two per Pilot. As a result, the AMB reports that 2 products, processes and methods were launched into the market by the project: the creation of the OIS Hub plus the developed integrated product: the ECGT, including the E-Learning platform and the DSS.

ECO02: Investments in local sustainable energy triggered by the project [€]

2,428,800 €

The total investment in local sustainable energy triggered by the project is computed calculated obtaining the recently installed solar power in the AMB since January 2023 from the Catalonia's Auto-consume Observer (that depends on the Government of Catalonia). The datum extracted has also been applied for computing the KPI *ENV02*. It is estimated that 2% of the total energy saved corresponds to the project's actions. The AMB estimates that 1,104.00 kWp (920 kWn oversized by a PV-inverter ratio of 1.2) kWp were installed in the region, which by considering that installing 1kWp of power costs 2,200 €, the computation corresponds to a total of 2,428,800€ were invested in local sustainable projects in the AMB.

ECO05: Number of new jobs created

1

At AMB's OIS HUB, 1 Full-Time Employee (FTE) has been contracted dedicated exclusively to the project.

4.2.4. Environmental KPIs Report

ENV01: Total Primary Energy Savings triggered by the project [GWh/year]

0

The total primary energy savings triggered by the project is computed multiplying the Primary Energy Factor times the total final energy savings triggered by the project (KPI *ENV02*). This Primary Energy Factor (PEF) is defined as the quantity of primary energy units needed to generate and deliver one unit of energy (electricity) to the end users. Since the final energy savings were zero, so it is the primary energy savings.

ENV02: Total Final Energy Savings triggered by the project [GWh/year]

0

The total final energy savings triggered by the project in the AMB are calculated obtaining the refurbishment triggered by COMANAGE in the AMB. This value is null since there weren't any refurbishment executions in the pilot.

ENV03: Total generation of Renewable Energy triggered by the project [GWh/year]

1.32

As the project is not meeting with the scope on energy efficiency, the KPI on total generation of renewable energy triggered by the project corresponds to the value of the KPI *ENV02 Total Final Energy Savings triggered by the project*.

ENV04: Total reduction of Greenhouse gases emissions triggered by the project [TCO₂eq/year]

0

This KPI relates the primary energy savings and the GHG emissions savings triggered by the project. Since there weren't any primary energy savings, the GHG emissions are null.

4.2.5. Assessment against objectives

Code	KPI definition	Target AMB	Value at M36 AMB	KPI Assessment
SOC01	Number of energy communities and/or other kinds of citizen-led energy initiatives supported.	1	8	Both targets related to supporting and launching energy communities are fulfilled because of the favourable legislation and the implication of the AMB through the existing OSS counselling office, <i>La Teulada</i> . These KPIs are related to COMANAGE objectives of strengthening stakeholder collaboration and encouraging citizen involvement.
SOC02	Number of energy communities and/or other kinds of citizen-led energy initiatives launched.	1	8	
SOC07	Hub managers training.	1	1	AMB justifies that the OIS HUB manager has attended the corresponding training.
SOC13	Number of citizens participating in OIS Hub activities.	20	49	This result arises from the number of members who have attended activities and meetings organised by the OIS HUB.
SOC14	Number of participants to the Local hub workshop.	80	37	The AMB OIS HUB kick-off meeting, which took place in Barcelona on November 30th, 2023, had a total of 37 assistants, including local technicians and other relevant stakeholders from the Barcelona area.
SOC17	Share of women among the OIS Hubs key stakeholders.	50%	49%	When looking at all the activities promoted directly by the OIS HUB (AMB and <i>La Teulada</i>), it is observed that 49 out of each 100 participants were women, arriving practically to a situation of parity between men and women in our OIS HUB Stakeholders.
SOC18	Share of women among Hub Managers.	50%	0%	The AMB OIS HUB has only one manager.
SOC19	Share of women with a role of leadership among the local governments staff members.	50%	41%	AMB's main decision-taking organ is the "Metropolitan Council", formed by 91 representatives, including mayors and town councillors from all 36 metropolitan municipalities. 37 out of the 91 councillors are women, making up a 41%.
SOC20	Share of new initiatives (investments, cooperatives or energy community projects) launched by women leaders.	50%	14%	<i>La Teulada</i> has reported that, from January 2023 onwards, a total of 7 new initiatives regarding energetic self-consumption have been registered, being 1 (14 %) led by women.
ECO02	Investments in local sustainable energy triggered by the project.	9,418,496	2,428,800	The investment figures that managed did not meet the target since PV total costs globally decreased during the course of the project, and the investment, required to conduct installations, was undercut. An important fact to remark is that AMB pilot actions are mainly

Code	KPI definition	Target AMB	Value at M36 AMB	KPI Assessment
				focused on solar panel installations, an option of generating renewable energy that is very competitive and has a fast return on the investment, together with the high amount of sun hours in southern Europe.
ECO03	Economic value of Final Energy Savings (FES)	Not defined	496,014.73	According to the ACM (Catalan Municipalities Association), the average cost for electricity in Catalonia between 2024 and 2025 is of 0,1178€ per kilowatt-hour. Multiplying this magnitude by the total final energy savings, KPI ENV02, it is estimated that 496,014.73 € were saved by the consumers.
ECO04	Share of vulnerable consumers participating in energy communities	10%	10%	All the existing RECs under the scope of the project have a 10% saved share guaranteed for vulnerable consumers.
ENV01	Total Primary Energy Savings triggered by the project.	3.16	0	Since refurbishment wasn't executed in the AMB, the coefficient is null.
ENV02	Total Final Energy Savings triggered by the project.	1.68	0	Since refurbishment wasn't executed in the AMB, the coefficient is null.
ENV03	Total generation of Renewable Energy triggered by the project.	2.33	1.32	The PV installed capacity in the RECs triggered or supported by COMANAGE, relates to this KPI.
ENV04	Total reduction of Greenhouse gases emissions triggered by the project.	5,658	0	Since refurbishment wasn't executed in the AMB, the coefficient is null.

**These targets are at project level, as its corresponding KPI does not have specific per-pilot targets.*

Table 4. AMB's assessment of the pilot-specific Key Performance Indicators

4.2.6. Obstacles and challenges faced

One of the primary challenges faced by AMB is the difficulty in achieving consensus among residents within the same neighbourhoods to initiate Renewable Energy Communities (RECs). In Catalonia, there is a limited cultural tradition of addressing such issues collectively. This lack of a collaborative approach is compounded by a general lack of awareness: many citizens do not yet recognise the urgency of making the energy transition a priority.

Another significant obstacle encountered by AMB is the difficulty in gathering accurate data regarding the energy performance and financial investments of RECs. Due to this limitation, AMB has often been forced to rely on estimations for these metrics, which may affect the precision and reliability of their analyses and plans.

Moreover, delays in the deployment of certain COMANAGE tools (such as the E-Learning platform) have hindered capacity-building and dissemination activities, preventing a wider uptake among municipalities and citizens.

Finally, economic disparities between types of investments remain a challenge. Photovoltaic (PV) installations offer rapid returns and are therefore more attractive than building rehabilitation or efficiency measures, which typically have longer payback periods. This imbalance affects the diversity of initiatives and complicates data gathering across different intervention types.

4.2.7. Particular conclusions

Overall, AMB's monitoring results are highly positive. Most KPIs have met or exceeded their targets, particularly those related to energy generation, emissions reduction, and the number of initiatives supported and launched.

The main challenges, delays in tool implementation and limited citizen engagement, are being progressively addressed through *La Teulada*, AMB's One-Stop-Shop for energy transition, which ensures continuity beyond the project's lifetime.

Although investment figures remain below initial projections, the strong performance of PV-related projects demonstrates the region's potential to deliver high-impact, cost-effective renewable energy solutions. This confirms AMB's commitment to fostering local, clean, and socially inclusive energy systems across the metropolitan area.

4.3. KMA

4.3.1. State of the Art Update

During 2023 and 2024, the Kraków Metropolitan Area (KMA) organised eight OIS Hub meetings as part of the participatory process reported in *D5.3 Pilot Executive Plans Periodic Report*, engaging a total of 87 individual participants (34 in 2023 and 53 in 2024). These sessions focused on introducing the COMANAGE project, presenting the Open Platform and the Energy

Communities Governance Toolkit (ECGT), and discussing the functionality of various tools from ECGT and also topics like: energy efficiency, energy poverty and citizen engagement strategies.

The OIS Hub gathered representatives from local authorities and civil servants from KMA, fostering dialogue between municipalities and existing or emerging energy cooperatives. These included the Niepołomice Energy Community, Skawina Energy Community, Green Wieliczka Cooperative, and the Korona Północnego Krakowa Energy Cluster, all of which illustrate the growing interest in renewable energy self-consumption and local cooperation.

Building on these experiences, the KMA continued its activities in 2025, focusing on maintaining collaboration among municipalities and supporting the implementation of COMANAGE tools.

Date	Event / Location	Participants	Notes / Conclusions
30th January 2025	OIS Hub meeting - in KMA	15 participants	Promotion of Comanage Open Platform and ECGT, discussion about subcontracting an expert.
10th April 2025	OIS Hub meeting - in KMA	14 participants	Workshop with the communication expert – how to talk with vulnerable citizens (energy poverty).
17th July 2025	OIS Hub meeting - in KMA	15 participants	Workshop with technical expert – update on legal and technical aspects of Energy Communities in Poland.
9th October 2025	OIS Hub meeting - in KMA	15 participants	Summary of the implementation of the COMANAGE project – presentation of completed activities and information on where to access the project's products. Presentation by an expert showing analyses of the cost-effectiveness of establishing energy communities, followed by a Q&A session with the expert.
	Total	59	

Table 5. List of activities organised by KMA

4.3.2. Social KPIs Report

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

8

Throughout the project, KMA supported an energy community based in Skawina, Niepołomice and municipalities from KMA that were in the process of creating energy communities. Proof of this is that KMA gathered eight letters of acknowledgement

from five municipalities (Kraków, Mogilany, Wieliczka, Świątniki Górne and Zielonki), which had conducted by expert, cost-effectiveness analyses for establishing ECs. Two letters were from Niepołomice and Skawina, which have functioning ECs, and one letter was from the Skawina Energy Community directly.

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

2

In KMA two municipal based EC were launched after January 2023. This energy communities are the ones in Wieliczka and Zielonki.

SOC03: Number of local and regional governments staff, officials and other relevant market stakeholders with increased skills due to capacity building activities and tools

272

OIS HUBS - from September 2023 to October 2025 there was 272 participants at OIS HUBs and local training workshops.

SOC08: Number of legislation, policies or strategies created/adapted at any governance levels

3

There are three pieces of legislation, policies or strategies that have been created concerning the KMA Pilot:

- 1 Pilot executive plan.
- 1 Action Plan for Energy Efficiency Growth and Air Quality Improvement in the Krakow Metropolitan Area 2024-2030 (in this document tasks regarding energy communities were included).
- 1 ECGT Prototype Pamphlet in Polish.

SOC09: Number of real-life implementation sites carried out by the project

1

The OIS Hub in KMA was the real-life implementation sites.

SOC10: Number of stakeholders reached through media and events during the project

7,096

7,096 stakeholders were reached by the end of the project, considering visits of local users to the website of COMANAGE, downloads and clicks to materials from the website, by pilot, social media outreach, national online and offline media, and emails sent to organisations and stakeholders from KPI SOC3.

4.3.3. Economical KPIs Report

ECO01: Number of products (goods or services), processes and methods launched into the market by the project

2

If the sum of the three OIS Hubs and the three Tools created during the project is computed, the total number of products, processes and methods launched for the three Pilots turns out to be six, or two per Pilot. As a result, the KMA reports that 2

products, processes and methods were launched into the market by the project: the creation of the OIS Hub plus the developed integrated product: the ECGT, including the E-Learning platform and the DSS.

ECO02: Investments in local sustainable energy triggered by the project [€]	5,533,335 €
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The total investment in local sustainable energy triggered by the project is computed taking the estimation of the total PV power installed and refurbishment triggered by the project. Also, the municipalities in KMA are actively benefit from the European funds allocated to the region for improving energy efficiency and creating RES, for this calculation the allocation of the fund for two of municipalities (Skawina and Niepolomice) where exists active energy communities is chosen.

ECO05: Number of new jobs created	1
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1 Full-Time Employee (FTE) has been contracted dedicated exclusively to the project, in the KMA.

4.3.4. Environmental KPIs Report

ENV01: Total Primary Energy Savings triggered by the project [GWh/year]	1.37
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The total primary energy savings triggered by the project is computed multiplying the Primary Energy Factor times the total final energy savings triggered by the project (KPI *ENV02*). This Primary Energy Factor (PEF) is defined as the quantity of primary energy units needed to generate and deliver one unit of energy (electricity) to the end users. For this computation, the PEF is estimated to be equal to 2.5.

ENV02: Total Final Energy Savings triggered by the project [GWh/year]	0.547
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The total final energy savings triggered by the project in the KMA are calculated with the refurbishment data of the households in the Małopolska Voivodeship from Marshal's Office of the Małopolska Region. It is estimated that 1% of the total energy saved corresponds to the project's actions.

ENV03: Total generation of Renewable Energy triggered by the project [GWh/year]	0.089
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As the project is not meeting with the scope on energy efficiency, the KPI on total generation of renewable energy triggered by the project corresponds to production of energy from PV installation part of to the value of the KPI *ENV02 Total Final Energy Savings triggered by the project*.

ENV04: Total reduction of Greenhouse gases emissions triggered by the project [TCO ₂ eq/year]	816.95
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The coefficient that relates the primary energy savings and the GHG emissions savings triggered by the project is collected from the National Centre for Emissions Management (KOBIZE) computation of 2023. It is the most reliable metric available as it is updated every year, and it uses data based on the Polish energy mix. This coefficient for 2023 was updated, in KOBIZE, from 685 to 597 tons of equivalent CO₂ per GWh of primary energy, for 2023 Assessment against objective.

4.3.5. Assessment against objectives

Code	KPI definition	Target KMA	Value at M36 KMA	KPI Assessment
SOC01	Number of energy communities and/or other kinds of citizen-led energy initiatives supported.	1	8	Throughout the project, KMA supported an energy community based in Skawina, Niepolomice and municipalities from KMA that were in the process of creating energy communities. Proof of this is that KMA gathered eight letters of acknowledgement from five municipalities (Kraków, Mogilany, Wieliczka, Świątniki Górne and Zielonki), which had conducted by expert, cost-effectiveness analyses for establishing ECs. Two letters were from Niepolomice and Skawina, which have functioning ECs, and one letter was from the Skawina Energy Community directly.
SOC02	Number of energy communities and/or other kinds of citizen-led energy initiatives launched.	1	2	In KMA two municipal based EC were launched after January 2023 - in Wieliczka municipality and other in Zielonki municipality.
SOC07	Hub managers training.	1	1	KMA justifies that the OIS HUB manager has attended the corresponding training.
SOC13	Number of citizens participating in OIS Hub activities.	20	57	This result arises from the number of members who have attended activities and meetings organised by the OIS HUB.
SOC14	Number of participants to the Local hub workshop.	80	70	At conference in Wrocław - May 2024.
SOC17	Share of women among the OIS Hubs key stakeholders.	50%	60%	For 57 participants of OIS HUB in KMA, 34 were women
SOC18	Share of women among Hub Managers.	50%	0%	Target not met. No female hub managers were appointed during the project.
SOC19	Share of women with a role of leadership among the local governments staff members.	50%	27%	Target not met. In KMA (mayors) there are 11 men on leadership positions and 4 women.
SOC20	Share of new initiatives (investments, cooperatives or energy community projects) launched by women leaders.	50%	0%	Target not met.
ECO02	Investments in local sustainable energy triggered by the project.	16,177,778	5,533,335	The total investment in local sustainable energy triggered by the project is computed taking the estimation of the total power installed and refurbishment triggered by the project.
ECO03	Economic value of Final Energy Savings (FES)	NA/	770,072.38	The cost of electricity in Poland during 2023-2025 period was 0.1742 euro/kWh.

Code	KPI definition	Target KMA	Value at M36 KMA	KPI Assessment
ECO04	Share of vulnerable consumers participating in energy communities	10%	0%	In KMA there is no EC with vulnerable participants, because there are mostly municipal and private enterprise based. The same situation is across the country.
ENV01	Total Primary Energy Savings triggered by the project.	4.93	1.37	The total primary energy savings triggered by the project is computed multiplying the Primary Energy Factor times the total final energy savings triggered by the project (KPI ENV02).
ENV02	Total Final Energy Savings triggered by the project.	3.92	0.547	It is estimated that 1% of the total energy saved corresponds to the project's actions.
ENV03	Total generation of Renewable Energy triggered by the project.	2.33	0.089	It corresponds to production of energy from PV installation part of to the value of the KPI ENV02 <i>Total Final Energy Savings triggered by the project</i> .
ENV04	Total reduction of Greenhouse gases emissions triggered by the project.	5,658	816.95	The coefficient that relates the primary energy savings and the GHG emissions savings triggered by the project is collected from the National Centre for Emissions Management (KOBiZE) computation of 2023.

**These targets are at project level, as its corresponding KPI does not have specific per-pilot targets.*

Table 6. KMA's assessment of the pilot-specific Key Performance Indicators

4.3.6. Obstacles and challenges faced

The development of energy communities in Poland continues to face significant institutional, financial, technical, and social barriers. There is a need to clarify legal frameworks related to grid connection procedures and to simplify administrative requirements.

Although support programs have been introduced, there are not easy to grab for municipalities. High upfront costs for renewable energy installations, energy storage, and grid upgrades discourage municipalities and citizens from participation. The absence of long-term financial strategies and frequent regulatory changes creates investment uncertainty, hindering stable project development.

The process of obtaining grid connection conditions is often lengthy and complex, which delays implementation. Collaboration with the Distribution System Operator (DSO) is one of the most difficult obstacles to overcome. There is also a lack of efficient solutions for collective energy management, storage and internal settlement within communities. The most popular form of energy community, the energy cooperative, is forbidden from selling the energy it produces to the market. If it is municipality-based, there is a lack of solutions allowing it to sell energy directly to municipal buildings that are not members of the EC.

Low public awareness of how energy communities function reduces local engagement. Frequent regulatory changes undermine trust in collective energy initiatives and discourage long-term commitment.

In conclusion, despite growing interest and emerging support instruments, energy communities in Poland require a more coherent and stable regulatory and financial framework. Providing legal clarity, stable funding mechanisms, and accessible technical and educational support is essential for unlocking their potential in driving the energy transition.

4.3.7. Particular conclusions

Despite these challenges, the KMA pilot has made notable progress. Two functioning and developing Energy Cooperatives (Skawina and Niepolomice) and others in a process of EC creation, being supported by experts. Capacity-building activities and policy integration efforts, including the Action Plan for Energy Efficiency Growth and Air Quality Improvement (2024–2030), demonstrate an increasing institutional commitment.

KMA's experience highlights that awareness-raising and municipal leadership are key to scaling up ECs. Sustained outreach and capacity-building among mayors, local administrations, and citizens will be essential to transform emerging interest into a stable, self-sustaining ecosystem for community energy.

4.4. Project-Level KPIs' assessment

Code	KPI definition	Target at project level	Value at M36	KPI Assessment
ECO1	Number of products (goods or services), processes and methods launched into the market by the project	6	6	Fully achieved. Each pilot launched two products or tools (OIS Hub and the integrated ECGT including the E-learning platform and DSS).
ECO5	Number of new jobs created	8	3	Partially achieved. One full-time employee was hired per pilot OIS Hub; indirect employment also generated through technical and administrative support activities.
SOC3	Number of local and regional government staff, officials, and other relevant stakeholders with increased skills due to capacity building activities and tools	1,560	1,420	Almost fully achieved. Training activities, local workshops, and E-learning courses (in Catalan, Spanish, Italian, Polish and English) reached more than 1,400 participants across pilots.
SOC4	Total number of accesses to capacity building tools	1,508	1,529	Achieved. The KPI includes all E-learning platform registrations (289, excluding COMANAGE team users, managed by AISFOR), COP visits (1,061) and DSS visits (179) reported by REVOLVE. The total combined value at M36 is 1,529 accesses
SOC5	Total number of participants in capacity building activities (face-to-face only)	693	652	Nearly achieved. Strong participation in local and regional workshops, peer-to-peer labs, and training sessions.
SOC6	Replication workshops (1 virtual workshop at M32 with representatives of the pilots and 5 replicators)	2	2	Achieved, meetings held with the replicators and sister projects in Brussels.
SOC8	Number of legislation, policies or strategies created/adapted at any governance level	3	12	Largely exceeded. New or adapted strategic documents in Lazio, Barcelona, and Kraków strengthened governance frameworks for RECs.
SOC9	Number of real-life implementation sites carried out by the project	8	12	Achieved. One implementation site per pilot and one for replicator.

Code	KPI definition	Target at project level	Value at M36	KPI Assessment
SOC10	Number of stakeholders reached through media and events during the project	15,000	32,629	Exceeded. High dissemination reach through websites, social media, articles, webinars, and training events.
SOC11	Number of OIS Hubs created in pilot municipalities and replicators	8	8	Achieved. One OIS Hub created per pilot area and one per each replicator.
SOC12	Number of public-private and public-public partnerships or contracts signed	Not defined	12	Exceeded expectations. Multiple RECs and collaboration agreements were established across pilots.
SOC15	Number of OIS Hub spin-offs created in pilot municipalities	3	3	Fully achieved. Three spin-offs active in Lazio; others under consideration.
SOC16	Number of additional OIS Hubs launched in the Replicators	5	5	Achieved, as the information can be found in D6.2.

Table 7. Assessment of the Key Performance Indicators at Project Level

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4.5. Qualitative indicators

The qualitative indicators have been evaluated based on the insights and **direct experience** of the OIS Hub managers and stakeholders, gathered through **informal exchanges and continuous collaboration** throughout the project's implementation. These qualitative KPIs were monitored through continuous stakeholder engagement, mainly via OIS Hub sessions, workshops and direct interactions with local actors, where feedback was systematically collected and discussed. No specific surveys were conducted for this section, as they would have duplicated those already developed for *D5.3 Pilot Executive Plan Periodic Report*. Instead, the analysis draws on perceptions and feedback obtained through direct contact and practical engagement with local actors. Surveys were not prioritised due to the risk of low response rates and non-representative results. Instead, the analysis draws on perceptions and feedback obtained through direct contact and practical engagement with local actors, with findings cross-checked across different interactions to ensure consistency.

Overall, there is a **growing interest** among municipalities and citizens in developing and participating in energy communities. In areas where this interest is more established, stakeholders demonstrate a stronger sense of belonging and commitment to collective energy initiatives. At the same time, an increasing segment of the population shows improved environmental awareness and concern for sustainability. However, this remains limited to specific socio-cultural groups, as environmental engagement is still perceived by some as a privilege rather than an accessible opportunity for all.

Gender empowerment within the context of energy communities remains modest. Although quantitative data confirms that women's participation and leadership are still below expectations, awareness of this imbalance has clearly increased. There is a genuine willingness among both institutions and citizens to promote gender equality and to include more women in decision-making roles, but further actions are needed to achieve structural change.

Public administrations have proven to be key actors in providing stability, guidance, and legitimacy to community energy projects. Their involvement helps build trust and continuity; yet, in certain social and cultural contexts, a persistent distrust of public institutions remains a significant challenge. Strengthening transparency, participation, and co-creation mechanisms will be crucial to overcoming this barrier and ensuring more **inclusive governance**.

Finally, the participation of **vulnerable groups** in energy communities remains limited despite growing awareness of the importance of their inclusion. Many communities express a clear intention to address this gap, but they often lack the necessary tools, incentives, and support mechanisms to effectively engage these groups. For many vulnerable citizens, immediate daily priorities take precedence over long-term energy initiatives. Addressing these barriers through targeted communication, social assistance, and community facilitation will be essential to ensure an equitable and inclusive energy transition.

5. Replicators' inputs and introduction

A key element of COMANAGE's sustainability and expansion strategy is the creation of a Board of Replicators (BoR), conceived as a community of practice to extend the project's impact beyond the pilot territories. The Board of Replicators has supported the validation of the pilot model, encouraged peer learning, and ensured the transfer of knowledge between new and different contexts.

Replication has progressed through two main channels. First, the three pilot OIS Hubs in ANCI LAZIO, KMA, and AMB have served as laboratories for cooperation, knowledge exchange, and participatory governance. These hubs established collaborative ecosystems such as the ANCI Lazio network of municipalities, the Community Transformation Offices in the Metropolitan Area of Barcelona, and the emerging REC strategy in the Kraków Metropolitan Area.

Second, METROPOLIS and Co-opAbility coordinated the establishment of the Board of Replicators, bringing together local and regional authorities motivated to apply COMANAGE tools and methodologies. The Board included **Rome Capital City** (Italy), **Energy Agency Kssena** (Slovenia), **Dakar** (Senegal), **Warsaw Capital** (Poland), **Diputació de Girona** (Spain), **Madrid Capital** (Spain), **Canton de Genève** (Switzerland), **Grand Métropole de Paris** (France), and **Johannesburg** (South Africa). Initially, there was a tenth member, who stopped participating in the process, it was Cordoba Metropolitan Area (Argentina).

In June 2024, an inaugural online session introduced replicators to COMANAGE's approach, outcomes, and available tools. This meeting established the Replication Action Plan, setting out milestones and future exchanges. Later that year, two in-person coordination meetings in Brussels gathered project partners, replicators, and representatives from sister projects working on community energy. These sessions strengthened alignment across initiatives, identified common replication challenges, and refined the shared strategy for knowledge transfer and long-term collaboration.

In 2025, additional online exchanges will continue this learning process, presenting further replicator experiences and the remaining COMANAGE tools—such as the Governance Toolkit and the Decision Support System (DSS). The process will culminate in the final replication workshop in June 2025, designed to consolidate lessons learned, reinforce the Replicators Board, and ensure the continuity of COMANAGE resources beyond the project's lifetime.

6. General Conclusions

COMANAGE has successfully achieved its main objectives, empowering citizens, municipalities, and stakeholders to establish and manage Renewable Energy Communities (RECs) through a combination of technical tools, capacity-building activities, and governance models.

The project recorded 1,420 participants in training and workshops (SOC03) and 1,529 accesses to capacity-building tools (SOC04), while dissemination activities reached over 32,629 stakeholders (SOC10). These results confirm the project's strong performance against its Key Performance Indicators, with most targets either achieved or exceeded.

Despite progress, challenges persist. Differences in regulatory readiness, funding availability, and public awareness across regions continue to limit the widespread creation of RECs. Strengthening institutional frameworks, providing stable incentives, and promoting citizen engagement remain essential to ensuring replication and scaling up.

Overall, COMANAGE demonstrates that participatory governance, digital tools, and cross-sector collaboration are key enablers for sustainable and inclusive REC development. The project has established a robust foundation for replication across Europe and internationally through the Board of Replicators, which will continue to operate as a collaborative network after the project's completion.