



D7.6 Final Publishable report



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LIST OF ACRONYMS

AMB	Àrea Metropolitana de Barcelona
ANCI	Associazione Nazionale dei Comuni italiani - Lazio section
BoR	Board of Replicators
COP	COMANAGE Open Platform
DSS	Decision Support System
ECs	Energy Communities
ECGT	Energy Communities Governance Toolkit
ESCO	Energy Service Company
EUSEW	European Sustainable Energy Week
KMA	Kraków Metropolitan Area
OIS	Operative Integrated Services
OSS	One Stop Shop
RECs	Renewable Energy Communities
SMEs	Small and Medium Enterprises

KEYWORDS LIST

- Energy Communities
- Pilot regions
- Governance
- Local authorities
- Stakeholder engagement
- Sustainability

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1. Executive summary

The main objective of the **COMANAGE project** has been to facilitate the creation and consolidation of energy communities across Europe, addressing the governance barriers that often prevent their sustainable development. These barriers include legal, administrative, financial, social, and organisational challenges faced by both citizen-led and public initiatives. Through the implementation of pilots in three European regions - Metropolitan Area of Barcelona (Spain), ANCI Lazio (Italy) and Krakow Metropolitan Area (Poland) - the project has tested a set of tools, services, and methodologies aimed at strengthening the role of local authorities and community actors in the promotion of these citizen initiatives.

Over 36 months, the consortium has developing and testing practical solutions including an open digital platform that includes:

- *a comprehensive governance toolkit,*
- *an accessible and modular training programme, and*
- *a decision support system (DSS)*

These resources have been designed to be replicable and adaptable to different regional and national contexts, ensuring long-term impact beyond the project's end.

This report summarises the key results obtained both within each pilot and from the replicator cities, highlights the principal lessons learned, and offers both recommendations for policymakers and a replicability strategy to extend the influence of the project well beyond its conclusion.

2. Introduction

In recent years, the concept of energy communities has gained prominence as an essential tool to accelerate a just, inclusive and decentralised energy transition. These communities allow citizens, local authorities, and other stakeholders to collectively produce, manage, and consume energy in a democratic and sustainable way.

However, many of these initiatives face structural and administrative difficulties that prevent their scaling up and long-term sustainability. The COMANAGE project was born to respond to these challenges by focusing on strengthening local governance as a key element for energy communities to take off, consolidate and expand.

Throughout its duration, COMANAGE has followed a structured roadmap addressing these needs, beginning with an initial diagnosis and establishment of pilot hubs, moving through co-creation of tools and methodologies, implementation phases, institutional capacity building, and culminating in replication of successful results. This comprehensive and systemic approach reflects the project's commitment to creating a holistic framework for the governance and management of citizen-led and public-participated energy communities.

The schematic below illustrates the COMANAGE project's journey and guiding logic, which has informed all consortium actions and supports clear visualisation of its integrated approach.

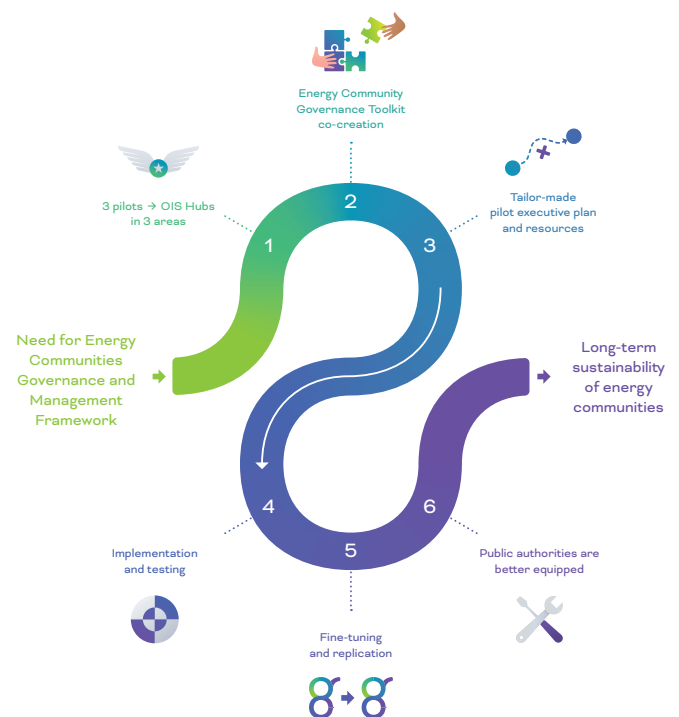


Figure 1 COMANAGE Concept visual

This final report, designed to be both informative and accessible, presents the main outcomes obtained throughout the project, including experiences from the pilots, tools developed, recommendations and replication strategies. It aims to share the knowledge acquired with other regions, public authorities, community agents and actors interested in promoting new models of community energy governance and management.

3. Pilots

Local pilots have been at the heart of COMANAGE. Across three diverse territories - the Metropolitan Area of Barcelona (Spain), the Lazio Region through ANCI Lazio (Italy), and the Krakow Metropolitan Area (Poland) - the project has been able to put its tools, methodologies and approaches into practice, adapting them to real contexts with different needs.

Each pilot has worked closely with local authorities, citizens and other key stakeholders to foster the creation and strengthening of energy communities, addressing governance barriers and finding solutions adapted to each reality.

The following sections summarise the main achievements of each pilot, the challenges encountered, the tools applied, and the replication opportunities identified along the way.

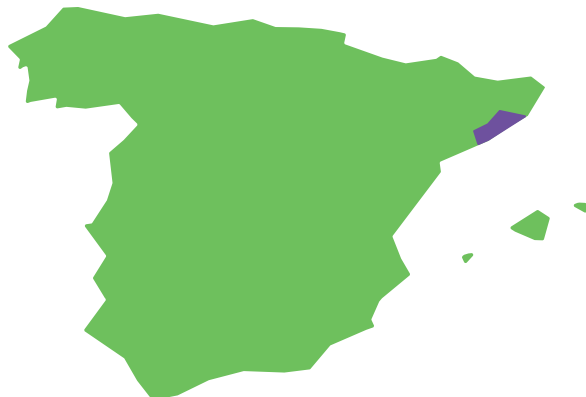


Metropolitan Area of Barcelona (AMB)

The Metropolitan Area of Barcelona (AMB), comprising 36 municipalities and over three million inhabitants, served as one of the three COMANAGE pilot regions. Its main objective was to strengthen the role of local authorities in the creation and support of energy communities, with a strong focus on citizen engagement, legal guidance, and technical assistance. By means of a One-Stop Shop (OSS), called *La Teulada*, counselling has been possible. *La Teulada* is a metropolitan service for citizen advice on photovoltaic self-consumption, however, it is not only addressed to citizens but also to neighbour communities, small businesses and enterprises.

AMB pilot aimed to improve local knowledge of energy communities, promote collaboration among stakeholders, and provide tailored support tools and services to help municipalities and citizens transition to shared renewable energy models. Special emphasis was placed on monitoring progress, raising awareness, and ensuring that the developed resources could be scaled up across the entire metropolitan area.

Encouraging active citizen involvement in decision-making processes and the implementation of energy-related activities was clearly a challenge for the pilot. While the general population is aware of climate change and the need to transition towards a cleaner energy system, there remains a lack of information and dissemination regarding the potential for citizens to initiate new projects that allow them to produce their own renewable energy and quickly recover their investment. Disseminating all the materials generated by the project is key to encouraging citizens to move forward towards Renewable Energy Communities (RECs).


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DE BARCELONA
SPAIN

WHAT HAS BEEN ACHIEVED

As of June 2025, a total of 6 municipalities - *Sant Cugat, Viladecans, Sant Just Desvern, Sant Feliu, El Papiol* and *Barberà* - have actively involved in the development of the COMANAGE project. This includes testing of tools and materials, providing feedback to AMB, and launching AMB's One Stop Shop (OSS) counselling service, *La Teulada*.

The scope of *La Teulada* has expanded in recent months, incorporating the COMANAGE-developed tools into its daily operations, to cover all 36 municipalities in the AMB - representing a core pilot objective. This expansion could potentially reach over the three million citizens in the metropolitan area through the Operative Integrated Services (OIS) HUB alone.

In addition, an E-learning course and the DSS were developed to strengthen internal capacity across metropolitan municipalities. The course introduces key concepts such as energy communities, local governance, legal frameworks, and

digital tools. It serves as a foundational training resource for public servants and energy transition officers, enabling them to engage more effectively in energy community development and citizen engagement strategies. Meanwhile the development of the DSS included the creation of a comprehensive repository of documents, such as FAQs, official-source guides, and other relevant materials on energy communities. If continuously updated, this repository will not only enhance the usefulness of the DSS but also support long-term knowledge sharing. Together, these outcomes contribute not only to the operational success of *La Teulada*, but also to establishing a sustainable support infrastructure for citizen-led energy initiatives across the AMB territory.

The COMANAGE tools were customised to support the definition of energy communities, aiding in the choice of a business model and guidance through the main economic and financial aspects to consider when developing a project. This includes the promotion of shared self-consumption models, with a focus on facilitating collective solar installations and unlocking their potential in urban environments. In events and workshops, the tools developed have proven particularly useful for identifying legal, financial and spatial feasibility, improving municipal-level decision-making, and streamlining administrative processes. Hence, **legal and financial tools were considered as key outputs.**

- The **legal tools** were developed as **ready-to-use legal templates**, based on the analysis of identified demands in the field, and on the feedback collected from the Operational Integrated Services (OIS) Hubs' meetings. Users can customize these legal documents by inputting specific information and adjusting the content to align with their unique requirements and operational needs. Furthermore, the documents provide guidance on clear instructions and practical examples to help users understand the purpose of each document and how to adapt them effectively. In regions like AMB, where the energy community sector is growing, the circumstances required more complex templates to address specific issues, such as long-term governance and internal financing mechanisms. The conceived documents are the following:

1. *Statutes of a Consumers and Users Cooperative (model)*
2. *Statutes of an Association (model)*
3. *Regulation of Internal Regime of an Energy Community*
4. *Contract template for leasing of private rooftop*
5. *Template for municipal tax incentive*
6. *Agreement for the inclusion of vulnerable households*

- To guarantee economic viability of specific energy community initiatives, the pilot developed several **financial tools**, unified in a single online tool, including: the design of a business model using a Model Canvas, the identification of key features in the model, the economic data assessment and the financial reports with multi-scenario analysis, all within the energy community context. This tool aims to help Energy communities' financial structure, evaluate revenues, costs, and risks, and ensure the long-term economic sustainability of their business model.

AMB believes that the development of the Energy Communities Governance Toolkit (ECGT), the DSS, and the E-Learning platform have the potential to enhance the knowledge and

skills of community members in energy management and sustainable practices - a core objective of the project.

Moreover, the monitoring and evaluation of the pilot's performance throughout the project has clearly been an important objective - not only due to the related responsibilities, but also because of the value of possessing relevant data and information on the project's evolution. Having a standardized dashboard provided by *La Teulada*, containing data such as the number of assessments and new REC initiatives, has been instrumental in quantifying progress and measuring the project's impact within the pilot's HUB.

Through the COMANAGE project, AMB has successfully strengthened collaboration with key stakeholders, including local authorities and community organisations within the pilot area. The various workshops and events organised brought together stakeholders to share experiences, enabling to deepen AMB's engagement with them and continue advancing the goals related to Renewable Energy Communities.

AMB has taken advantage of its participation in national and international events in the energy sector to raise awareness of the COMANAGE project and its Operational Integrated Services (OIS) HUB. As part of the project, AMB engaged a group of 35 stakeholders — all municipal staff working on energy-related topics across the metropolitan area. Through a series of sessions, AMB introduced the COMANAGE tools, gathered feedback, and explored how these digital solutions could support their daily work in planning, managing, and monitoring local energy initiatives. This engagement was essential to ensure the tools are user-oriented, relevant, and tailored to the needs of public administration professionals.

Finally, it was key to facilitate knowledge sharing within the COMANAGE consortium and with external stakeholders, to ensure continuous improvement.

REPLICABILITY POTENTIAL

AMB believes that there is a high replicability potential beyond the Metropolitan Area. On the one hand, one of the project's replicators is the Province of Girona, located near the AMB. The Province of Girona counts with both rural and urban administrations, which are well-positioned and willing to replicate the model in the future. Moreover, since the province of Girona is in Catalonia, it allows for knowledge sharing and common local challenges to be addressed. On the other hand, the Municipality of Madrid is also part of the project replicators, which allows to not only replicate and test the COMANAGE tool more widely, but also to both collect inputs and different leaning and experiences from a different Spanish context.

The AMB pilot has developed all tools and materials both in Catalan and Spanish, this multilingual approach allows the project to reach other regions of Spain and potentially Spanish-speaking stakeholders in Central and South America, where there are over 400 million native Spanish speakers - as well as in other Spanish-speaking regions worldwide.

ANCI Lazio

ANCI Lazio, the regional association of municipalities in the Lazio region of Italy, participated in COMANAGE to empower local administrations - particularly smaller and rural ones - in the uptake and management of energy communities. Acting as a bridge between municipalities, institutions and citizens, the pilot focused on building local capacity, reducing legal, organisational and administrative barriers, and encouraging knowledge-sharing among municipalities.

The pilot aimed to tailor the COMANAGE tools to the specific governance and administrative realities of the region, enabling municipalities to play an active role in the energy transition through inclusive and community-driven approaches.

WHAT HAS BEEN ACHIEVED

In the Lazio region, the Italian pilot area of COMANAGE, ANCI Lazio, in collaboration with AISFOR, co-created the Italian version and adaptation of the Energy Community Governance Toolkit (ECGT). This toolkit comprises legal templates, FAQs, and practical guidance on communication, stakeholder engagement, social inclusion, legal frameworks, and procedural aspects - all specifically tailored to the Italian context and the governance realities of the Lazio region. The pilot included several local and regional activities, such as co-design workshops in the provinces of Viterbo and Rieti, which brought together municipalities, citizens, cooperatives, local businesses, and technical experts to map challenges and opportunities in the creation and development of Renewable Energy Communities (RECs).

A key component of the pilot was the series of “Hub Meetings” held with the energy community of Ventotene - considered a flagship example in the Lazio region. These meetings served both as opportunities for peer learning and as a way to reflect on concrete needs and pathways for other communities to follow. Drawing on the Ventotene experience, the pilot promoted



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ITALY

the replication of good practices through a participatory and capacity-building approach.

Another notable achievement was the development of a step-by-step guide for energy communities: a **gamified tool** created in collaboration with the Chamber of Commerce of Rieti and Viterbo, taking the form of a “*Game of the Goose*”. This tool outlines 21 progressive steps that a renewable energy community can follow to grow and strengthen itself over time. The steps are designed to help communities identify their current stage and navigate the necessary actions to move forward, providing both a strategic vision and practical guidance. The game has proven to be an innovative and accessible way to engage local actors - including administrators, associations, cooperatives, and citizens - in the energy transition. It has been actively used during training and awareness-raising sessions across the region.

In addition to in-person activities, the pilot also delivered a series of capacity-building events in collaboration with Lazio Region, aimed at increasing awareness and technical knowledge among public officials, technical staff, and community representatives. These training sessions helped participants understand the regulatory framework, governance models, and financial instruments available to support energy communities.

To ensure the widest possible outreach and long-term usability, a free online training course was developed and promoted by AISFOR within COMANAGE and is now available on the project's digital platform. This E-learning path, accessible to all interested users, offers a structured and modular overview of the key elements for creating and managing renewable energy communities.

The following key outputs were produced as part of the Lazio pilot:

- *Energy Community Governance Toolkit – legal, technical and communication templates, FAQs, and guidance tailored to the Italian and regional context;*
- *Gamified step-by-step guide – a board game outlining 21 development steps for energy communities, co-designed with the Chamber of Commerce of Rieti and Viterbo;*
- *Co-design workshops and Hub Meetings – participatory formats to facilitate peer learning and bottom-up planning with local actors;*
- *Free online training course – hosted on the COMANAGE platform, providing a comprehensive and self-paced learning path.*

These tools and actions reinforced the pilot's commitment to knowledge transfer and laid a solid foundation for further replication beyond the project's duration.

REPLICABILITY POTENTIAL

The experience developed in Lazio highlights the importance of combining technical support, institutional cooperation, and local empowerment to make renewable energy communities viable and inclusive - even in areas with limited administrative capacity or geographical constraints. Thanks to its modular and adaptable structure, the Energy Community Governance Toolkit (ECGT) offers a concrete and flexible set of tools that can be easily transferred to other Italian regions and European territories facing similar challenges. Its content is grounded in real needs identified through direct engagement with municipalities and stakeholders, ensuring high usability and contextual relevance.

Beyond the toolkit, the pilot introduced innovative facilitation tools and participatory methods that guide communities through a structured development path. These approaches have been effectively applied in local training activities to help stakeholders assess their progress, identify priorities, and plan next steps. This participatory framework not only fosters local ownership and engagement but also serves as a replicable model for stakeholder involvement and capacity building.

Moreover, the integration of COMANAGE outputs into a formal regional action plan - developed collaboratively with regional authorities and partners - demonstrates how pilot-level initiatives can be scaled and aligned with broader policy frameworks and funding mechanisms. This strategic embedding increases the potential for long-term impact and offers a clear roadmap for other regions aiming to replicate the initiative within their own institutional and regulatory environments.

Thanks to the concrete and adaptable tools developed and tested in the Lazio pilot, already outlined in the previous section, other regions can now access ready-to-use resources and methodologies that lower the barriers to replication and accelerate implementation.

Krakov Metropolitan Area (KMA)

The Krakow Metropolitan Area (KMA), which brings together 15 municipalities in southern Poland, has as the main objective to create a favourable environment for the development operation of local energy communities, addressing common legal, technical, financial, and social barriers.

To this end, KMA worked closely with local governments and engaged external experts to co-develop practical tools and tailored resources. These were designed to support municipalities in initiating and managing energy community initiatives in a structured and sustainable way. Knowledge and good practices were shared through thematic meetings and consultations with representatives of member municipalities, reinforcing the capacity of local actors.

Close cooperation was established with key stakeholders, including municipal authorities and both existing and emerging energy communities, to ensure the relevance and applicability of the developed solutions. In parallel, efforts were undertaken to raise awareness about the project's objectives and to communicate its progress and outcomes through various information channels.

WHAT HAS BEEN ACHIEVED

As part of the pilot implementation, a comprehensive set of legal tools was developed to support the establishment of inclusive and sustainable energy communities. The tools were designed to address the common challenges faced by municipalities in the transition to renewable energy and in setting up energy communities. Standardized templates and tailored legal guidelines were created to help overcome barriers such as complex regulatory frameworks. The tools were intended to ensure that the benefits of renewable energy are accessible to all societal groups, thereby supporting both social equity and environmental sustainability.



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The following documents were developed:

- *Model statute of an energy community, with explanatory notes*
- *Model energy sales contract, with explanatory notes*
- *Model energy lease agreement, with explanatory notes*

All documents were prepared by a legal expert from the Frank Bold Foundation, under the COMANAGE budget. The expert's experience in energy communities ensured that the tools were professionally developed and aligned with the Polish legal framework.

Throughout the project, KMA organized a series of meetings to bring together municipal representatives and relevant stakeholders. Several of these meetings included experts' presentations, which enhanced knowledge exchange and improved the practical understanding of energy community development among participants.

During the implementation, additional needs were identified in the area of technical support. To address these two complementary documents were developed:

- *Energy billing model for energy communities*
- *Guidelines: How to become a prosumer and next steps toward establishing an energy community*

The Energy billing model tool was created by a technical expert to help municipalities and communities navigate the growing complex of administrative and technical requirements related to shared energy consumption.

Additionally, a comprehensive set of **energy community models** were created, tailored to the legal, technical, and organisational conditions of KMA municipalities. These models include practical, step-by-step guidance for municipal authorities on how to establish and operate an energy community (energy cooperative or cluster), using the tools developed through COMANAGE project.

An **energy analysis methodology** was also developed, covering key elements such as reactive power compensation, tariff group optimisation, contracted power selection, energy consumption variability, and green certificate mechanisms. Its aim was to identify opportunities for energy optimisation at the municipal level.

Structured energy management was identified as the first necessary step towards improving energy efficiency in municipalities. Based on the pilot results, establishing energy communities—in the form of cooperatives or energy clusters—was presented as a natural next step. The use of renewable energy sources, as the foundation of energy communities, was promoted as a key component of this approach.

All developed materials - including legal templates, energy community models and analytical tools - were made available to stakeholders via the COMANAGE Open Platform (COP).

In parallel, a second expert was engaged to provide **training for municipal staff** focused on communication methods with residents affected by energy poverty. The training aimed to equip municipal staff with the necessary skills to effectively reach vulnerable groups with information on available support schemes and the benefits of participating in energy communities.

At the conclusion of the project, KMA engaged an expert to develop feasibility studies for establishing energy communities in five selected municipalities within their region. Subsequently, the expert conducted workshops for each of the selected municipalities. During these workshops, the expert discussed the findings and recommendations resulting from the analysis and provided substantive information on energy cooperatives and energy clusters. The expert was also tasked with updating the legal documents from the Polish pilot and creating new ones related to energy clusters. This work aimed to bring all materials in line with current legislation while assisting municipalities in forming new energy communities.

REPLICABILITY POTENTIAL

The solutions and methodologies developed by KMA have strong potential for replication in other regions, particularly those with similar administrative or legal contexts.

- *The legal templates can be adapted to different national regulations and provide a clear, accessible starting point for new energy communities.*
- *The technical tools, including the billing model and prosumer guidelines, address common barriers faced by municipalities across Europe and can be reused with minimal adjustment.*
- *The energy community models offer practical, step-by-step instructions that other local governments can follow to create their own initiatives.*
- *The energy analysis methodology is highly transferable and can support energy planning and optimisation in various municipal settings.*

4. COMANAGE Open Platform

Throughout the project, COMANAGE has developed an open and integrated platform that makes available to public authorities, practitioners and interested communities a set of digital tools and resources to facilitate the governance, implementation and sustainability of energy communities.

This platform includes three main components: an **Energy Communities Governance Toolkit (ECGT)**, an **E-learning training programme**, and a **Decision Support System (DSS)**. Each has been co-designed with partners and tested in local pilots, thus ensuring its practical applicability and adaptability to different contexts.





COMANAGE Energy Communities' Governance Toolkit (ECGT)

The EC Governance Toolkit is a practical guide composed of methodologies, templates, checklists and real-life examples that support local governments and community actors in the creation and management of energy communities. It is designed to:

- Accompany the entire life cycle of an energy community (from initial idea to operation).
- Address technical, financial, legal, social, and dissemination aspects.
- Facilitate inclusive and transparent decision-making.
- Available online in several languages (IT, PL, EN, CAT, and ES) the Toolkit is adapted to local contexts and updated based on the pilots' experience.



Figure 2 Categories under the ECGT



COMANAGE Training Program and E-learning platform

The COMANAGE training programme is delivered through an open-access E-learning platform, designed to build capacity among key stakeholders involved in the development of energy communities. The platform is available in five languages -English, Catalan, Spanish, Italian, and Polish - and remains accessible beyond the project's duration.

The training is aimed at:

- *Technical staff of municipalities*
- *Local and regional policy makers*
- *Citizens*
- *Emerging or future energy communities*

The course is structured into **five thematic modules** covering:

- *Introduction to energy communities;*
- *Technical aspects;*
- *Business models and financing;*
- *Legal and administrative frameworks;*
- *Citizen participation, governance and communication.*

E-Learning Course

PAVING THE ROAD TO SUCCESS WITH ENERGY COMMUNITIES

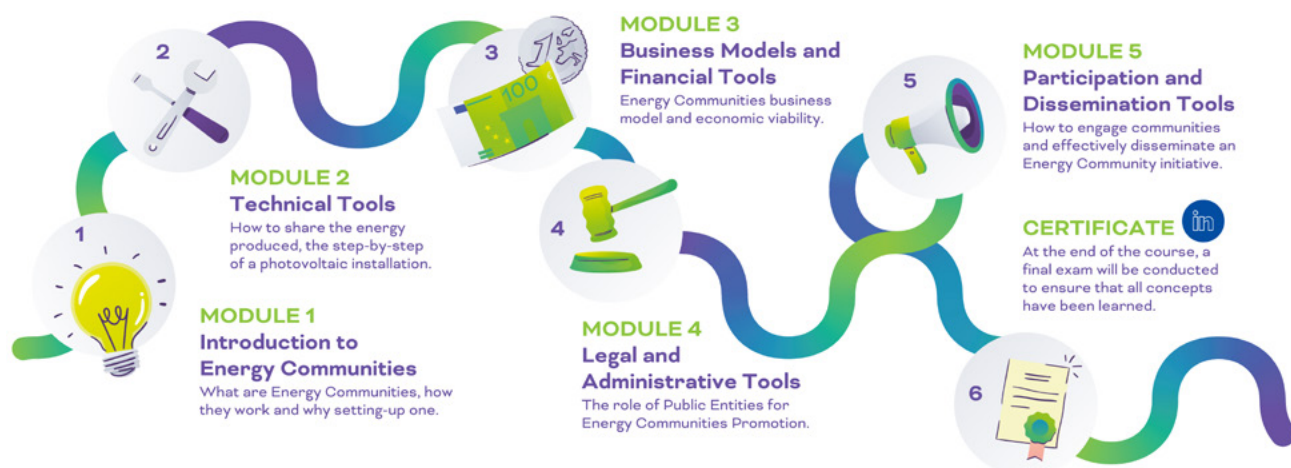


Figure 3 Structure of E-Learning Course modules

The content is modular and self-paced, with lessons tailored to both general European contexts and specific national realities in the pilot regions. As a matter of fact, the course's structure consists in a common contents base provided in English, which has been then deepened with Pilots' countries specific information provided in their national language. Each module includes interactive materials such as narrated presentations, quizzes, hyperlinks to extra resources, and practical case studies. The COMANAGE course is flexible and none of the modules is mandatory. Nevertheless, a certificate of completion is issued upon finishing all required fulfilment criteria.

The platform is designed to be intuitive and user-friendly, allowing participants to learn at their own rhythm, access resources anytime, and revisit content when needed.

- *More than 260 users have already enrolled in the COMANAGE course.*

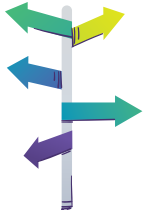
Antonio Castaldi
District Energy Technician
Banco dell'Energia Foundation

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I started the COMANAGE course to deepen my understanding of energy communities. As energy is often invisible to citizens, the course provided clear, practical insights that helped me grasp complex topics. I especially appreciated the simple and effective communication style.

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Figure 4 Testimony of the E-learning course by a real user



COMANAGE Decision Support System (DSS)

The DSS is an open-access digital tool designed to support both local authorities and citizens in making informed decisions on how to create or strengthen energy communities in their territory. Drawing on data collected and validated by project partners, the DSS provides tailored guidance through a conversational AI assistant that helps users navigate the selection and application of the most appropriate governance models, services, and tools.

It offers:

- *Technical, economic, and social feasibility insights*
- *Customised scenarios based on local data inputs*
- *AI-powered support for interpreting results and planning next steps*

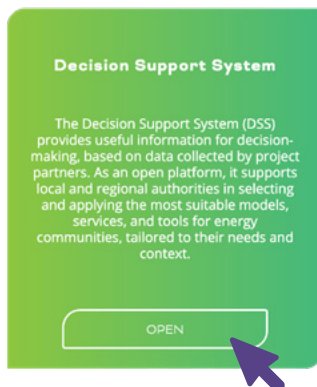


Figure 5 Website captures of the Decision Support System

5. Stakeholder engagement and dissemination



PARTICIPATORY APPROACH AND CO-CREATION

Since the very beginning COMANAGE has been committed to a participatory approach, actively involving local stakeholders in the design and implementation of energy community solutions. Through the three pilots, key actors, such as local authorities, organised citizens, cooperatives, energy companies and third sector entities were identified and mobilised. This participatory model was inspired by principles aligned with *Theory U*, (Scharmer, 2009) which encourages deep stakeholder engagement, collective reflection, and co-creation of innovative solutions emerging from shared understanding and dialogue. This collaboration was materialised through a series of both face-to-face and digital activities, such as:

- *Local training workshops developed and tailored to the needs and interests of stakeholders in each pilot area. For example, the ANCI Lazio pilot hosted a workshop in Ventotene to co-design key project components, fostering mutual learning and ownership.*
- *The OIS Hub stakeholder workshops, pivotal in engaging stakeholders in the collaborative development of the Decision Support System (DSS), the E-learning platform, and the Energy Communities Governance Toolkit (ECGT). These workshops provided stakeholders with a platform to define purposes, features, content, and training materials, ensuring the tools' relevance and effectiveness in local contexts.*

MULTI-CHANNEL COMMUNICATION AND DISSEMINATION STRATEGY

The project dissemination strategy combined digital channels and face-to-face actions to maximise reach and impact a wide and diverse audience:

- *Active presence on social media, particularly LinkedIn (<https://www.linkedin.com/company/comanage-project>), where targeted campaigns for each pilot were launched to promote the E-Learning course in each of the pilots' languages.*
- *Regular dissemination through newsletters and the project website (<https://comanage.spindoxlabs.com>), sharing news, videos, photos, and downloadable materials to keep the community informed and engaged.*
- *Participation in major international and national events such as the Smart City Expo World Congress 2023 and 2024, III European Energy Communities Congress 2024, Sustainable Places 2024, and the GENERA International Energy and Environment Fair 2024, which provided platforms to showcase progress and connect with specialised audiences and policymakers.*

TAILORED COMMUNICATION OF PROJECT TOOLS

Specific communication strategies were implemented to promote the project's key tools:

- The Energy Communities Governance Toolkit (ECGT) was promoted via articles, social media campaigns linking the barriers ECs faced and how the COMANAGE Toolkit can help, online and in-person webinars.
- The Training Programme was promoted through promotional videos and social media campaigns, regular updates on new modules and platform features, partnerships with industry experts through quotes based on real-world experience, and project partners testimonial videos reflecting on the challenges encountered during the content development process of the tool, and virtual and in-person events introducing the E-learning platform.
- The Decision Support System (DSS) was disseminated through articles, online and in-person webinars addressing identified needs, social media posts, and close collaboration with public administrations through workshops where the tool was introduced.

STRATEGIC COLLABORATION AND LESSONS LEARNED

COMANAGE strengthened its impact through collaborations with **other European projects** focused on energy communities with whom strategic synergies and shared content were generated. Highlights of joint actions included:

- A joint event with LIFE sister projects which enhanced shared visibility that brought together more than 340 people both in person and online.

- A policy session at European Sustainable Energy Week (EUSEW) 2025, attended by over 100 participants, where it was discussed how EU policy can unlock the full potential of energy communities.
- Production of a **joint policy report** providing a comprehensive analysis of current regulatory environments and offering actionable recommendations to support community energy initiatives across Europe.
- The Board of Replicators served not only as a dissemination channel but as a strategic collaboration platform, where participating cities actively contributed insights, contextual feedback, and adaptation proposals. Rather than passively receiving COMANAGE tools, replicator cities co-shaped the replication process, enriching the project with diverse perspectives and enhancing the relevance and scalability of its methodologies.

These collaborations have strengthened the collective message of the project ecosystem, contributed to greater coherence in policy recommendations, and amplified the impact at the European level. Moreover, collaboration extended further through the COMANAGE **Board of Replicators** (BoR) - an external community of practitioners (explained in more detail in the following sections) which not only shared the materials developed within the project and replicated the tools but also played a key role in testing and challenging the project's resources.

Through a well-coordinated blend of local engagement, multi-channel dissemination, and strategic partnerships, COMANAGE has established a robust model of stakeholder involvement and communication that ensures the project's sustainability, replicability, and visibility at both local and European levels.

6. Main challenges and lessons learnt

This table outlines the main challenges encountered across the various components of the COMANAGE project, along with the solutions implemented and the key lessons learnt during the process. These insights offer practical guidance for future initiatives focused on training programmes, legal and technical tools, community engagement strategies, and digital platforms related to Renewable Energy Communities (RECs).

FOCUS AREA	CHALLENGE FACED	HOW IT WAS ADDRESSED	LESSON LEARNT
Training programme	- Harmonization of structure and material - Users' negative feedback - Risk of low registration number	- A good structure of common and tailored contents - All partners collaborated in improving the material - Strong communication campaigns	The key to the training success is to keep the contents trustful (meaning a constant update) and accessible. Also, linking the contents with a playful communication campaign helps the increasing of active subscribers. Eventually, the strong bond with the other COMANAGE tools (hyperlinks to the tools) ensure both harmonization and an interactive learning.
Legal and technical tools	Addressing complex legal frameworks in different national contexts in an easy-to-understand manner	Created adaptable templates (statutes, FAQs, comparative schemes) validated by legal experts	Providing modular, adaptable legal content ensures usability across diverse national systems. Taking the time to understand the real needs to provide valuable tools.
Participation Promotion Plan	Risk of low community engagement and lack of visibility for RECs	Developed a flexible promotional strategy with visual identity and storytelling approaches	Effective promotion must combine emotional engagement, clarity, and integration with training and legal support.
Practical Guide for REC creation (in Italy)	Making the guide accessible and relevant to different types of communities	Co-designed with local actors; used plain language, visual layout, and step-by-step logic	Co-design and simplification increase the practical usefulness and ownership of the tool.
COMANAGE Open Platform	Limited usability of the back end for uploading tools and news	Detailed usability instructions and technical review were provided to Hub Managers	A user-friendly back office is essential to ensure long-term platform growth and engagement at pilot level
Decision Support System	Reliance on expert-based responses limited the scope of generated insights	Explored options to widen input sources and integrate stakeholder perspectives	Combining expert knowledge with broader community inputs strengthens the relevance and comprehensiveness of the results

Table 1 Key challenges and lessons learnt in COMANAGE

7. Recommendations



Based on the implementation experience of the COMANAGE project, this section presents a set of key recommendations across six thematic areas: stakeholder engagement, local hub organisation, tools development, policy, replicability, and sustainability. These insights are grounded in real-world pilot actions and exchanges with peer projects and aim to support the development of inclusive, community-led energy initiatives across Europe and beyond.

STAKEHOLDERS' ENGAGEMENT

Fostering **inclusive, transparent, and continuous dialogue** among all actors involved - from local administrations to citizens and technical experts - is essential to building meaningful and lasting energy communities. COMANAGE placed strong emphasis on participation grounded in collective well-being, drawing inspiration from CoopAbility's adaptation of Otto Scharmer's "Theory U". The project promoted deep listening, co-creation, and transformative collaboration.

COMANAGE implemented a **participatory methodology** structured in five sequential phases: co-initiating, co-sensing, co-presencing, co-creating, and co-evolving. Each phase was supported by tailored tools and practices such as empathy walks, peer coaching, sensing journeys, and role-playing techniques, that helped to overcome entrenched governance and organizational barriers, build understanding of diverse needs, stimulate shared ownership, and align action with shared values.

Recommendation: Use structured participatory approaches to ensure deep and inclusive engagement. Facilitation tools and dialogue processes should be adapted to local realities and designed to foster trust, ownership, and co-creation.

OIS HUB ORGANISATION

The COMANAGE pilots confirmed the value of establishing Open Innovation Spaces as **flexible, accessible hubs** for co-design, training, and knowledge exchange. When embedded within existing local structures, these hubs gained legitimacy and fostered long-term stakeholder collaboration. Moreover, the **OIS methodology** proved adaptable and scalable at a smaller scale, allowing individual Renewable Energy Communities (RECs) to use similar participatory methods in their own governance structures.

Recommendation: Local authorities and organisations should establish or integrate participatory spaces like OIS Hubs to promote collaboration, support training, and facilitate the emergence of energy communities.

TOOLS DEVELOPMENT

Practical, user-friendly, and adaptable tools - such as governance toolkits, legal templates, and facilitation guides - played a central role in addressing legal, technical, and administrative barriers. Making these tools accessible, including from a language and usability perspective, proved crucial to ensuring wide adoption. Complex or overly technical resources may not be very attractive for users. Pilots showed that **modular design and flexibility** allow tools and methodologies to be tailored to different local contexts and needs.

Recommendation: Develop tools that are practical, accessible, and easy to adapt. Consider co-design processes and usability testing to ensure relevance and user-friendliness.

POLICY

Strong **coordination with regional and national authorities** is crucial to align pilot initiatives with broader sustainability and energy goals, unlocking funding and institutional support. As part of COMANAGE's policy outreach, several contributions were developed:

- A **joint policy report**, co-authored with LIFE Tandems, ConnectHeat, and LIFELoop, offered a comparative overview of national legislative frameworks for energy communities in 11 EU countries, highlighting policy and offering practical recommendations for inclusive, citizen-led renewable energy initiatives.
- Two policy briefs targeted specific challenges faced for the Energy Communities and the Local Authorities:
 - **"Escaping the pilot trap: how can local authorities support scalable energy communities in Europe's metropolises?"** focused on the issue of the "pilot trap", explains how COMANAGE project was designed to offer solutions to overcome it. More precisely, it explains how energy communities can support Europe's energy transition while reducing costs and boosting local economies. Despite significant EU funding, most initiatives remain small and dependent on subsidies, a problem addressed by the COMANAGE project through governance tools, decision support systems, and training. Pilot projects in Barcelona, Krakow, and Lazio showed strong results in creating new communities, mobilizing investments, and influencing policy but faced challenges such as resource gaps, regulatory complexity, and citizen distrust. The policy brief highlights that metropolitan authorities are key to scaling energy communities by enabling viable local markets, setting clear performance indicators, and building trust between citizens and private actors.

- **"How can metropolitan authorities address urban energy poverty through energy communities?"** focuses on the topic of energy poverty. More concretely, it explains that this urban phenomenon affects up to 16% of European households, and that energy communities can help by lowering costs, improving efficiency, and enabling citizen-led renewable energy generation. It highlights how the COMANAGE project supports this approach by providing governance tools, training, and inclusive social mechanisms to remove entry barriers and engage vulnerable groups, as shown by pilots, which created new communities, reached thousands of citizens, and facilitated access to funding. It concludes by offering guidance more specifically to policymakers and metropolitan actors.

Recommendation: Strengthen collaboration between local, regional, and national institutions to support the long-term scaling of energy communities. Policies should not only provide a clear legal framework but also empower local authorities to create enabling environments, reduce complexity, and build citizen trust, especially in metropolitan areas and vulnerable urban contexts.

REPLICABILITY

COMANAGE pilots demonstrated that **modular and flexible approaches** are essential for adapting tools, methodologies, and governance models to adapt to diverse local realities. By designing outputs such as the Energy Communities Governance Toolkit (ECGT), Decision Support System (DSS), OIS Hub methodology, and training programs as **building blocks**, the project ensured they could be selectively adopted or combined, depending on local needs, administrative capacities, and political frameworks, fostering its replication.

Moreover, the COMANAGE approach explicitly recognizes that **there is no one-size-fits-all solution**. The barriers to energy community development—ranging from legal uncertainty to low citizen awareness—are highly context-specific. As outlined in **D2.2 Energy Communities barriers, needs and best**

practices analysis, cities and regions differ widely in terms of technical capacity, policy environment, cultural attitudes, and levels of energy poverty. Hence, the COMANAGE framework places strong emphasis on **co-creation and local ownership**, ensuring that tools are not merely deployed, but embedded and co-shaped by the actors who use them.

To support **structured replication beyond the pilot cases**, the project created a **Board of Replicators** (2024 – 2025) bringing together representatives from 10 cities from Europe and beyond. These cities - some advanced in energy transition, others just beginning - joined a **peer-learning and mutual support framework** anchored in the COMANAGE methodology.

Through a series of **online exchanges and an in-person workshop**, pilot site leaders, municipal authorities, and energy community experts:

- *Presented detailed case studies from COMANAGE pilots (Barcelona, Krakow Metropolis, ANCI Lazio);*
- *Identified transferrable elements of COMANAGE outputs;*
- *Explored challenges such as grid access, citizen mobilization, and inter-departmental governance;*
- *Co-created initial roadmaps for implementing energy communities in their own contexts.*

While measurable impacts of these replication activities are still evolving, the exchanges have already laid the foundations for:

- *Context-aware adaptation of COMANAGE tools;*
- *Joint problem-solving around energy poverty, regulatory complexity, and administrative inertia;*
- *Long-term cooperation between municipalities facing similar transitions.*

The process also demonstrated the **added value of intercontinental**

dialogue, particularly with African cities that bring valuable perspectives on community-led energy initiatives in low-resource environments.

Recommendation: Replication should go beyond transferring tools, it must involve embedding collaborative governance cultures. Peer learning, context-aware adaptation, and international exchange can greatly support cities at different stages of their energy transition.

SUSTAINABILITY

Ensuring long-term impact requires that all digital tools developed are **open, user-friendly, easily to access, and regularly updated**. While COMANAGE has laid the groundwork in developing its tools and methodologies, ongoing maintenance is needed to fully realise their potential as enduring resources for renewable energy communities.

Recommendation: Invest in the long-term sustainability and visibility of digital and participatory tools. Ensure open access, continuous updates, and integration into local and regional planning processes.

INVESTMENTS

Economic opportunities are key to maintain sustainable business models, to reduce the reliance on public subsidies. ECs many times struggle triggering fundings, due to low investments returns, long execution timelines and complex regulation. COMANAGE's financial tools support this challenge, but there remains the objective to reframe energy communities as a financial opportunity. Data dissemination of positive results and financial models approached in COMANAGE pilots can have the impact on boosting investments and reduce perceived risks.

Recommendation: Promote financial models that showcase successful energy community projects.

Conclusions and recommendations to navigate these challenging situations have been shared with mitigation strategies such as raising awareness, communication and motivation campaigns, keeping transparency, promoting networking or public-private partnerships. Concerning the financial challenges, it was recommended to maintain energy's price stabilisation, create crowdfunding opportunities or create targeted subsidies and tax incentives to reduce the initial investment and operating costs of energy communities making them more financially viable and attractive to citizens and local actors.

Several upcoming reports, such as the Policy Recommendations Report and the Sustainability, Replication and Exploitation Plan, will provide more detailed guidance and reflections based on the implementation and policy outreach activities carried out by COMANAGE and its partners.

8. Sustainability and replication strategy



The COMANAGE project's sustainability and replicability strategy aims to scale and replicate its tools and resources to foster the adoption and dissemination of regional climate resilience pathways across Europe, with a long-term perspective that extends beyond the initial project duration.

As part of the strategy to accomplish the main objectives of the project of (1) ensuring that energy communities' projects that have already been set-up can take-off and grow in the medium and long term, and (2) encouraging and stimulating the uptake of new community and publicly owned energy projects, a Sustainability, Replication and Exploitation Plan (SRE) of the COMANAGE outputs is being developed.

An initial version of the SRE plan was done by the middle of the project and has been improved and along the implementation process. This plan aims at maximizing, ensuring, and sustaining the project impact outside of the consortium and beyond the project duration. Hence, the plan is divided into three main parts:

1. **A Roadmap for follow-up and Sustainability**, in which specific aspects like objectives and barriers, economic feasibility and technical factors related to the IT management of the ECGT, the E-learning platform, the DSS, and the OIS Hub methodology are outlined.
2. **Exploitation strategies**, which include the identification of relevant users, suitable transfer activities and Intellectual Property Management. This strategy also includes specific actions to ensure COMANAGE's longevity and legacy from a communication and dissemination perspectives.
3. **Replication actions**, focused on engaging other metropolitan areas and regional public authorities at EU level and beyond to continue sharing the COMANAGE results. Besides engaging new metropolitan areas and regional public authorities, actions to keep current engaged actors involved are also considered. The three pilot cases (Barcelona Metropolitan Area, Krakow Metropolis Association, and Lazio National Association of Italian Municipalities) have served as experiences and references, allowing for the standardization of methodologies, processes, governance frameworks, and best practices to facilitate replication in different contexts.
4. **High replicability potential beyond the three pilot hubs**: Concerning the Catalonia area where the AMB pilot hub is located, the Girona Provincial Council (member of the Board of Replicators) along with other rural and urban administrations, are well-positioned to replicate the model in the future, since the project has developed materials in both Catalan and Spanish significantly enhance its replicability. This multilingual approach allows the project to reach other regions of Spain and potentially Spanish-speaking stakeholders in Central and South America, where there are over 400 million native Spanish speakers - as well as in other Spanish-speaking regions worldwide.

The COMANAGE project in Lazio Region demonstrates a replicable model for developing renewable energy communities by combining technical tools, institutional collaboration, and community empowerment. Its modular Energy Community Governance Toolkit (ECGT) is adaptable to diverse regional contexts and grounded in real municipal needs. Participatory methods and facilitation tools tested in the pilot foster local ownership and can be easily transferred for stakeholder engagement and capacity building. Embedding the project's outputs into a formal regional action plan strengthens scalability and alignment with broader policy frameworks. Overall, the initiative offers ready-to-use resources that lower replication barriers and accelerate implementation in similar territories. A closer collaboration with the Metropolitan area of Rome capital, as member of the BoR has been established to replicate tools and services put in place in the ANCI Lazio pilot Hub.

Finally, the solutions and methodologies developed by KMA have strong potential for replication in other regions, particularly those with similar administrative or legal contexts. In this sense, the project allowed a closer exchange between the KMA and the Metropolitan area of Warsaw (member of the Board of Replicators) through different exchange meetings where both entities identified common challenges and initiatives that can inspire replication of tools and services.

As part of the replication strategy, the **Board of Replicators**, a concrete mechanism for structured replication, peer learning, and knowledge transfer has been set up. Through structured exchanges, coaching sessions, and collaborative planning, members have explored how to adapt and implement COMANAGE solutions in their own contexts - ensuring the project's legacy continues to grow beyond its original pilot sites. In a final in person meeting, members of the BoR have identified main challenges to set up a roadmap to implement

a supporting integrated public service addressed to the Energy Communities and Community-led energy projects. Those challenges have been classified in three main groups of discussion:

- *Inclusive stakeholder engagement*
- *Legal and financial challenges*
- *Political and institutional commitment*

Recommendation: *It is crucial to involve decision-makers and representatives from Public Authorities (PAs) to gain credibility and influence, amplifying the COMANAGE message and objectives within their jurisdictions*

As a way of mitigating the initially identified risk concerning the sustainability and replicability of the COMANAGE project, some strategies have been put in place, such as a monitoring system. Consequently, the COMANAGE available tools have been disseminated over not only the social media of the Pilot Hubs, but the replicators of the BoR. A sense of ownership has also been successfully spread over the stakeholders and replicators and their interest and motivation have been expressed through the satisfactory surveys that have been answered after the peer-learning and knowledge exchange process.

On the other hand, other barriers still persist for which mitigation strategies are being defined. Mainly the risk of lack of funds to maintain online resources and tools or the limitation of human resources for tools and resources maintenance after the project ends.

9. Conclusions



The COMANAGE project successfully demonstrated how participatory governance, adaptable tools, and strategic collaboration can empower cities and communities to lead the energy transition. By engaging stakeholders through the Theory U framework, developing user-friendly resources like the ECGT, DSS, and E-learning platform, and promoting replication through the Board of Replicators, COMANAGE created a scalable and context-sensitive model for renewable energy communities.

The project's multi-channel communication strategy and alignment with policy frameworks ensured visibility, relevance, and impact at both local and European levels. Key lessons highlight the value of co-creation, modular design, and continuous stakeholder engagement in overcoming legal, technical, and social barriers.

Ultimately, COMANAGE leaves a strong legacy: a replicable, inclusive methodology and a set of open, practical tools to support the long-term growth of citizen-led energy communities across diverse contexts, empowering them to become more inclusive and resilient.

10. COMANAGE Library



The COMANAGE Library is a curated collection of practical tools, guides, training resources, and policy insights designed to support the creation, governance, and replication of energy communities across diverse local contexts.

- *Pilots' leaflets:*
 - *AMB: COMANAGE-leaflet-CAT-DIGITAL-1.pdf / COMANAGE-leaflet-COP-CAT-DIGITAL*
 - *ANCI Lazio: COMANAGE-leaflet-IT-DIGITAL.pdf / COMANAGE-leaflet-COP-IT-DIGITAL*
 - *KMA: COMANAGE-leaflet-PO-DIGITAL-1.pdf / COMANAGE-leaflet-COP-PO-DIGITAL*
- *COMANAGE Infosheet – EU Context*
- *COMANAGE Open Platform – Energy Communities Governance Toolkit*
- *COMANAGE Open Platform – E-Learning course*
- *COMANAGE Open Platform – Decision Support System*
- *COMANAGE Joint Policy Report - Enabling Frameworks for Energy Communities: A State of Play*
- *Board of Replicators - Case studies*
- *Policy Recommendation briefs:*
 - *Policy-Brief_Energy-poverty.pdf*
 - *Policy-Brief_Escaping-the-pilot-trap.pdf*
- *Deliverable 2.2 - D2.2 EC barriers needs and best practices Resubmission*

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