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D6.3 RESULTS OF ECOEMPOWER PILOT SITES AND RECOMMENDATIONS – FIRST VERSION

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EXECUTIVE SUMMARY

This deliverable presents the first version of the results obtained from the ECOEMPOWER pilot sites and provides a preliminary set of recommendations based on the ongoing monitoring and evaluation activities carried out within Task 6.3 “Evaluation tests”. The aim of this document is to assess, in a structured and measurable way, the first effects achieved through the ECOEMPOWER support mechanisms in the pilot sites, from energy, environmental, social and economic perspectives.

Monitoring activities are carried out on the 15 pilot sites (3 Energy Communities per 5 Regional Ecosystems) using the methodology and indicators defined in D6.1 and taking as reference the baseline established in D6.2. The monitoring process includes both quantitative and qualitative analyses, based on data collection from regional partners through shared templates, interviews, workshops, and the analysis of monitoring and communication systems.

Deliverable 6.3 focuses on the intermediate results gathered up to Month 28 of the project and provides an overview of the main outcomes and trends emerging from the pilot sites. The results are compared with the baseline to assess the early impacts of the ECOEMPOWER One Stop Shops (OSSs) and related services.

The deliverable also introduces the continuous monitoring system adopted within WP6 – Testing project support mechanisms in pilot sites, outlining the data collection frequency, tools and collaboration mechanisms between partners. A preliminary set of recommendations is proposed to optimise the ongoing activities and improve the performance of the pilot sites in the following phases of the project.

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1 Introduction

The purpose of Task 6.3 "Evaluation tests" is to monitor and assess the effects achieved in the ECOEMPOWER pilot sites through the implementation of the project's support mechanisms. These mechanisms, delivered mainly via the One Stop Shops (OSSs), integrate technical, social, policy and economic tools designed in WP2, WP3, WP4 and WP5.

The monitoring and evaluation process aims to measure the evolution of each pilot site against the baseline conditions defined in D6.2, by analysing data in four main dimensions:

- **Energy**;
- **Environmental**;
- **Social**;
- **Economic**.

This deliverable (D6.3) is the first version of the evaluation report. It describes the monitoring system implemented, presents preliminary results and trends, and formulates initial recommendations for the optimisation of pilot site activities and OSS operations.

1.1 Objectives of the deliverable

The specific objectives of this deliverable are:

- To present the methodology and system for monitoring the pilot sites' progress;
- To provide a first assessment of the results achieved so far in each pilot site with respect to the baseline;
- To identify strengths, weaknesses and barriers encountered during the implementation of the OSSs and Energy Communities;
- To propose a preliminary set of recommendations to improve the effectiveness and replicability of ECOEMPOWER support mechanisms;
- To prepare the ground for the final evaluation (D6.4), which will include the complete analysis and impact assessment at project completion, both for pilot sites and OSSs.

The reference month for the collection of the data and information monitored in this deliverable is Month 28 (December 2025).

1.2 Structure of the deliverable

The document is structured as follows:

- **Chapter 1 – Introduction:** provides the objectives, scope and relation of this deliverable to other project activities.
- **Chapter 2 – Methodology for monitoring and data collection:** describes the monitoring framework, data collection process and frequency, and collaboration among partners.

- **Chapter 3 – Preliminary results of pilot sites:** summarises the main results collected so far across the different Regional Ecosystems and key performance areas.
- **Chapter 4 – Recommendations and next steps:** outlines proposed actions to enhance ongoing monitoring, strengthen community engagement and optimise OSS functioning.
- **Chapter 5 – Conclusions:** summarises findings and next steps for WP6.

1.3 Relation with other activities in ECOEMPOWER

This deliverable is a direct continuation of 'D6.2 – Baseline in the pilot sites' and builds upon the methodological framework established in 'D6.1 – Definition of evaluation criteria'.
The monitoring and evaluation activities described here are central to WP6, feeding into subsequent tasks, in particular T6.4 (Analysis of results and final evaluation).

Furthermore, D6.3 maintains strong interactions with other Work Packages:

- **WP2 (ICT platform):** the monitoring system integrates data streams and interfaces developed under WP2 for automatic data collection and analysis;
- **WP3 (Social engagement and capacity building):** monitoring of social KPIs;
- **WP4 (Policy and business models):** collection of information on governance and economic impacts;
- **WP5 (One Stop Shops):** continuous feedback loop on the performance and utilisation of OSS services.

2 Methodology for data collection

The monitoring of ECOEMPOWER pilot sites is carried out through a structured and harmonised process, ensuring consistency across all regional ecosystems and comparability with the baseline defined in D6.2.

2.1 Monitoring Framework

The monitoring system is designed to capture both quantitative indicators (KPIs) and qualitative feedback. It is based on the following components:

1. **Baseline comparison:** Each monitored indicator is compared to the baseline data (D6.2);
2. **Regular data collection:** Partners provide updated information using shared templates aligned with the D6.1 evaluation framework;
3. **Cross-dimensional analysis:** Integration of social, energy, environmental and economic aspects to identify correlations and synergies;
4. **Continuous feedback:** Regular review of results within WP6 meetings and interaction with regional partners to validate data and discuss progress.

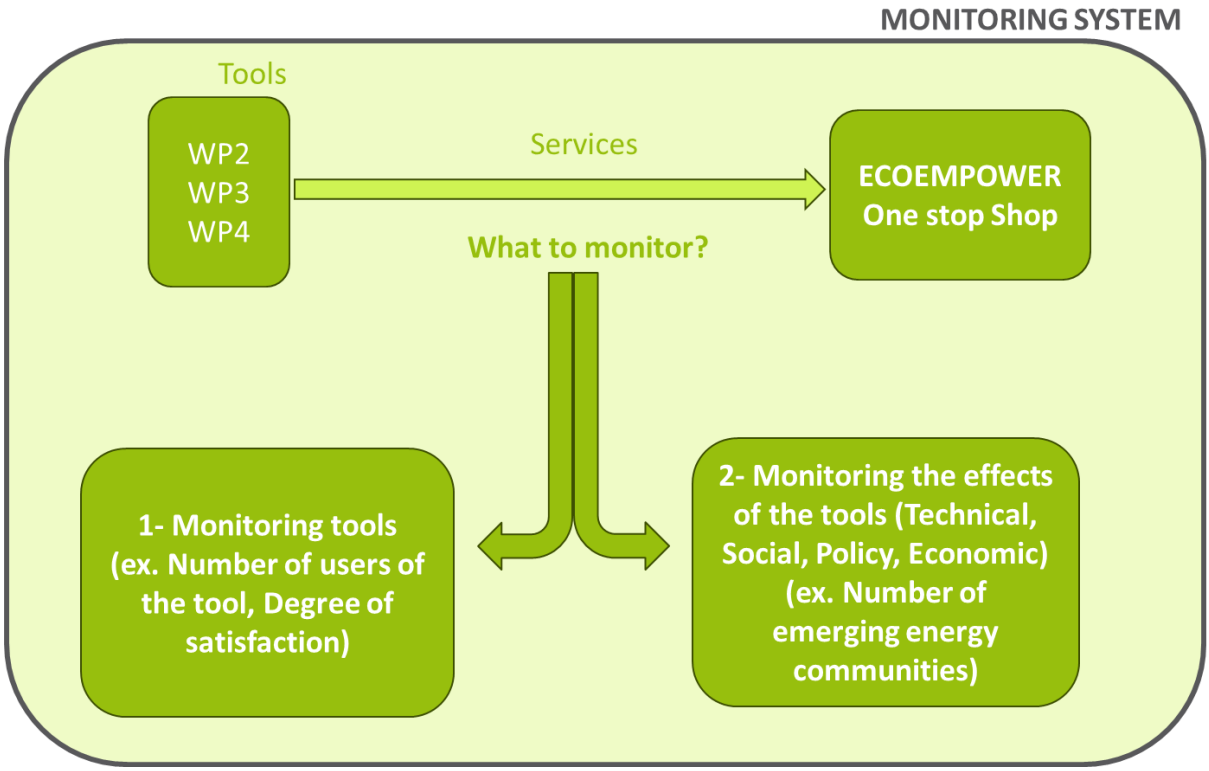


Figure 1 - Monitoring System

2.2 Data collection tools and frequency

Two main data categories are monitored:

A. Social and organisational data (every 6 months)

Collected through surveys in collaboration with WP3, workshops, interviews and local OSS records, covering:

- Number of citizen-led initiatives supported/created;
- Citizens participating in energy communities;
- Stakeholders with improved skills;
- Jobs created (FTE);
- Workshop participation;
- Gender and age diversity.

B. Technical, economic and environmental data (every 12 months)

Collected through metering, local data systems and partner-provided reports, including:

- Primary and final energy demand [GWh/year];
- Renewable energy generation [GWh/year];
- Investments in sustainable energy [M€];
- Reduction of GHG emissions [tCO_2/year].

SOCIAL	EC QUALITY AND MATURITY	OSS EVALUATION	ECONOMIC	ENVIRONMENTAL	ENERGY
Number of citizen-led initiatives supported and/or created [#]	Engagement of a core team	Number of operational integrated service hubs at the end of the project [#]	Investments in sustainable energy [M€]	Reduction of GHG emissions [tonCO2]	Final energy savings [GWh]
Number of citizens taking part in energy communities [#]	Management	Number of users of physical OSSs [#]	Development of local community energy investment pipelines [M€]		Primary energy savings [GWh]
Number of actors with increased skills in the area of community energy [#]		Number of users of virtual OSSs [#]	Cost of reducion of GHG emissions [€/tonCO2]		Renewable energy generation [GWh]
Number of jobs created in FTE [FTE]		Overall satisfaction for physical OSSs [Likert scale]	Ratio of public investment against private investment [%]		RES self-consumption level [%]
Overall satisfaction for Ecs [likert scale]		Overall satisfaction for virtual OSSs [Likert scale]	Electricity bill reduction [€/kWh]		Flexibility – Storage size [kW and kWh]
Number of people partecipating workshops [#]					
Diversity in the distribution of people involved in the EC [%]					

Figure 2 – KPIs divided into categories

2.3 Collaboration mechanisms and data validation

To ensure data quality and harmonisation:

- **Shared templates** are distributed and updated according to monitoring needs;
- **Monthly coordination meetings** allow partners to present updates on pilot site progress;
- **Bilateral meetings** between FBK and regional ecosystems for alignment on the various data collection activities;
- **Pilot board meetings** are held to highlight achievements, issues, and planned activities;
- **Data cross-checking** is conducted between FBK (WP6 leader) and Regional Ecosystems to ensure consistency and completeness;

The monitoring process is iterative and adaptive, allowing for refinement of indicators and methods as the project evolves.

A key point concerns two specific KPIs: EN1 'Primary energy savings' and EN2 'Final energy savings'. Given that we are operating within the context of energy communities, the activities, proposals and assets involved are designed to increase local electricity consumption (Final energy demand) and, consequently, the energy required to generate it (Primary energy demand). For this reason, these energy demands are set to increase, not decrease, and consequently the values of the associated 'Savings' KPIs would become negative. For this reason, the decision was made to keep these values at 0, at least for this initial assessment phase.

3 Preliminary results of pilot sites

3.1 Regional Ecosystem #1 (RE1): Autonomous Province of Trento (ITALY)

3.1.1 Description of Regional Ecosystem

Regional Ecosystem #1 (RE1) is located in the Autonomous Province of Trento (PAT) and is supported through the OSS Trentino. The ecosystem involves a diverse set of actors, including municipalities, local electricity consortia, schools, citizens, local businesses, and cooperative networks (notably the Federation of Trentino Cooperatives). RE1 activities focus on enabling and supporting Energy Community initiatives by combining technical guidance, legal and organisational support, and community engagement actions. In addition to the three pilot initiatives, the OSS provides continuous support to other emerging RECs and municipal initiatives across the province through regular calls, emails, and bilateral meetings, reinforcing the broader regional enabling environment and contributing to a pipeline of projects beyond the pilot boundaries.

3.1.2 Pilot sites overview and implementation status

Below are two tables: the first presents, in sequence, the LIFE KPIs monitored across the different pilot sites within the regional ecosystem; the second provides an overview of the pilot sites, detailing the KPIs and indicating whether they have been implemented within the project framework or externally (particularly relevant for the ECOEMPOWER site).

			RE1: TRENTINO (ITALY)									
LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE1.1: Fassa Valley	RE1.1: Fassa Valley	RE1.2: Levico Terme	RE1.2: Levico Terme	RE1.3: Valle dei Laghi	RE1.3: Valle dei Laghi	tot RE1 pilots (RE1.1+RE1.22+RE1.3	TOT achieved	triggered KPIs in RE1	TOT RE1 (totRE1 pilots+triggered KPIs in RE1)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.02	0	0.05	0	0.2	0	0.27	**0**	0	0.27
2. Final Energy Savings in GWh/year	EN2	End of the project	0.01	0	0.03	0	0.11	0	0.15	**0**	0	0.15
3. Renewable Energy Generation in GWh/year	EN3	End of the project	0.4	0.08	0.2	0.07	1	0.2	1.6	**0.35**	0	1.6
4. GHG emissions in tCO2eq/year	ENV1	End of the project	87	17.08	49	14.95	236	42.7	372	**74.73**	0	372
5. Investments in sustainable energy in mEUR	ECO1	End of the project	0.28	0.1	0.26	0.1	2.1	0.3	2.64	**0.5**	0	2.64
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	1	1	0	1	1	3	**2**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	9	5	2	5	15	15	**26**	0	15
11. Employment FTE	SOC4	End of the project	2	0	2	0	14	0	18	**0**	0	18
12. Citizens taking part in energy communities	SOC_2	End of the project	100	10	300	0	1100	50	1500	**60**	0	1500

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE1.1 - Val di Fassa		RE1.2 - Levico Terme		RE1.3 - Valle dei laghi		RE1.1 - Val di Fassa		RE1.2 - Levico Terme		RE1.3 - Valle dei laghi	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]	no	no	no	yes*	yes	no	yes	no	no	yes*	yes	no
EC Members	0	0	0	0	40	0	10	0	0	0	50	0
Implemented assets (PV, Hydro, Wind etc.) [#]	0	0	1	1	0	0	PV	0	0	0	2*	0
Implemented assets [kW]	0	0	70*	80	0	0	80	0	0	0	200**	0

*= There is an existing energy community under the primary substation (that includes the municipal boundaries) but without having seat in the municipality and with not many members living in the municipality

**= In the planning stage

RE1.1 – Val di Fassa

The Val di Fassa pilot is driven by students from the Ladin School (Fassa), who proposed establishing a REC centred on the school and nursery. Within ECOEMPOWER, the OSS provided:

- Detailed explanation of REC mechanisms and operational rules;
- Coordination with promoters and the local electricity consortium to define the plant characteristics;
- Support to identify the most suitable legal form and assistance in drafting the statutes/articles of association;
- Capacity building on legal and administrative aspects of operating a REC.

A photovoltaic plant of 80 kW has been installed on the roof of a church. The plant was built and financed by the local electricity consortium and made available under full control for the local REC. The associated investment is estimated at €100,000, carried by the consortium (i.e., not directly by the REC). At the time of reporting, the legal entity has been established and the plant is operational; the OSS is supporting the registration process on the GSE portal to enable the REC to become fully operative. Energy consumption data are not yet available because the REC is not fully operative; the team is considering a first estimation/simulation focusing on the municipality of San Giovanni di Fassa, although the REC is eligible to operate under the Moena primary substation.

Intermediate monitoring signal: this pilot shows the most advanced "implementation readiness", with a functioning plant and an established legal entity, while the main remaining step is the formal activation through the national registration process.

RE1.2 – Levico Terme

The Municipality of Levico Terme explored the development of a photovoltaic system and evaluated the establishment of an energy community primarily to reduce municipal energy costs. During ECOEMPOWER, the OSS supported:

- Clarification of national mechanisms for energy exchange and sharing (RED II implementation framework);

- Dialogue with existing/emerging initiatives under the same primary substation to assess potential aggregation;
- Technical and administrative support to municipal staff and technicians;
- Public engagement and regular meetings with the municipality.

After assessment, the municipality identified the most suitable configuration as "remote self-consumption with exchange through the grid", a configuration under the Italian regulatory framework (DM 414/2023) that uses the same virtual energy sharing calculation rules and incentive mechanisms as RECs, but with a single beneficiary user. This approach is considered particularly attractive for complex municipal metering configurations and for the goal of reducing public energy expenditure, freeing resources for social purposes.

The municipality commissioned the design of a PV system of approximately 70 kW; design completion is expected by 2026, with an estimated investment of €100,000 in municipal funds. Data collection includes municipal building electricity consumption (latest available: 1.12 GWh in 2023) and a broader reference consumption (27.8 GWh/year) to reflect the potential scope of the configuration.

Intermediate monitoring signal: strong progress on governance/decision-making and technical planning, while implementation and measurable energy outputs are expected in later phases.

RE1.3 – Valle dei Laghi

In Valle dei Laghi, three municipalities expressed interest in establishing an energy community, while local citizens and businesses formed a cooperative legal entity. ECOEMPOWER support included:

- Stakeholder activation and facilitation, including involvement of the Federation of Trentino Cooperatives for legal entity creation;
- Advice on PV plant proposals and evaluation of suitable areas;
- Participation in and organisation of local events;
- Capacity building activities, including a dedicated course on energy themes for farmers and forestry workers, with 15 people trained.

The group is currently working to identify PV assets totalling 200 kW among local companies suitable for inclusion in the energy community. This scale corresponds to an estimated investment of €300,000, expected to be mobilised by private individuals and enterprises. At this stage, the configuration is still being defined; therefore, consumption has been provisionally referenced to the combined total consumption of the three municipalities (44.2 GWh/year).

Intermediate monitoring signal: organisational consolidation (legal entity created) and active pipeline building for first assets; quantitative energy/environmental outcomes will depend on asset realisation and monitoring availability.

3.1.3 Preliminary KPI results and trends

Based on the RE1 KPI reporting (pilot sites only), the intermediate outcomes up to Month 28 indicate:

- Renewable energy generation enabled/activated: 0.35 GWh/year currently reported against an end-of-project reference value of 1.6 GWh/year (≈ 22 % of the expected end value).
- GHG emission reductions: 74.725 tCO_2eq/year currently reported against 372 tCO_2eq/year (≈ 20 %).
- Investments in sustainable energy mobilised: 0.5 M€ currently reported against 2.64 M€ (≈ 19 %).
- Implementation sites: 2 pilots with measurable implementation progress reported against 3 planned (≈ 67 %).
- Skills / people trained: 26 people trained against an end-of-project reference of 15 (≈ 173 %, already above the reference value), confirming strong early performance on capacity building.
- Citizens participating in energy communities: 60 currently reported against 1500 expected at project end (≈ 4 %), consistent with the fact that some initiatives are still not fully operative and/or are in planning stages.

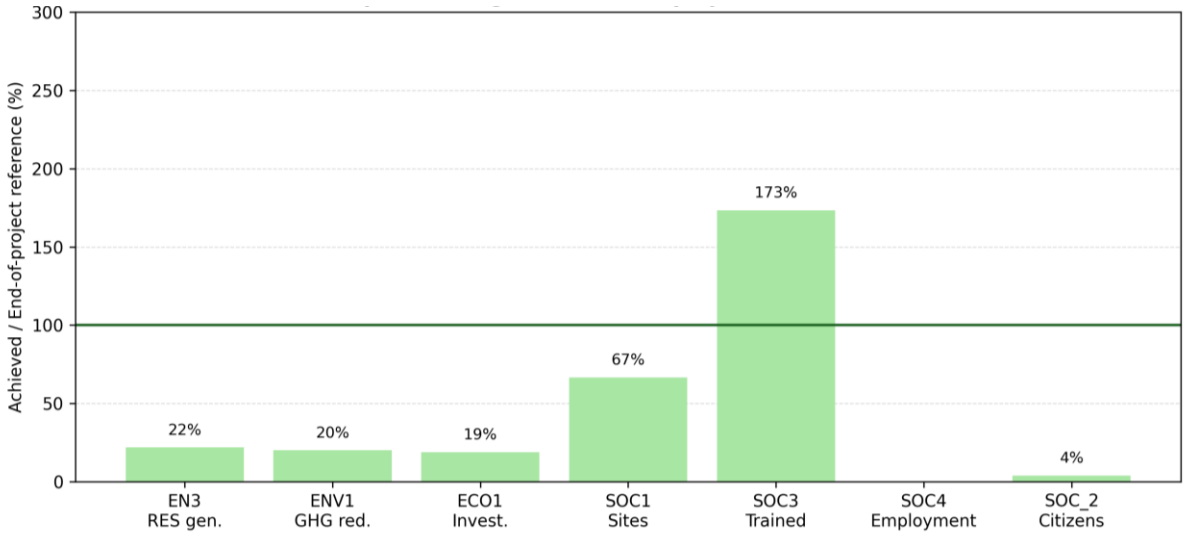


Figure 3 - RE1 pilots – Progress vs end-of-project reference (M28)

Data gaps and interpretation note: for some pilots (notably Val di Fassa and Valle dei Laghi), consumption and operational sharing data are not yet available because the REC configuration is still being finalised or the REC is not fully operative (e.g., pending GSE registration). Therefore, early monitoring is more robust on organisational readiness, training and asset pipeline, while full energy and environmental KPIs will strengthen once metering and operational data streams are consolidated.

3.1.4 Additional initiatives supported by OSS Trentino (beyond pilot sites)

The OSS provides continuous support to citizens, organisations and municipalities contacting the service via events and the website. RE1 also reports engagement with several emerging RECs and municipal initiatives (e.g., Köncert; TECER; NOS energia; Vallagarina and Sarca; Greenland; Energia Nuova Vallarsa; Solidale Trentina; municipalities of Trento and Rovereto; and additional schools interested in replicating the Val di Fassa model). Across these initiatives, PAT estimates a pipeline of approximately 4 MW installed or under activation by existing renewable energy communities.

3.1.5 Key barriers and lessons learned

The early monitoring highlights several cross-cutting aspects relevant for RE1:

- Administrative activation steps (e.g., registration processes) can delay the transition from “assets installed” to “REC fully operative”, affecting availability of operational energy sharing and consumption data.
- Configuration selection matters: in Levico Terme, choosing remote self-consumption with exchange through the grid represents a pragmatic path for municipalities with complex metering and budget-driven objectives, potentially enabling faster implementation while preserving comparable virtual sharing mechanisms.
- Monitoring readiness needs early planning: several energy/environmental KPIs depend on timely access to metering and on a clear definition of the operational perimeter (primary substation vs municipality boundaries), which should be addressed as early as possible.

3.2 Regional Ecosystem #2 (RE2): Auvergne-Rhone-Alpes and Grand Est (FRANCE)

3.2.1 Description of Regional Ecosystem

Regional Ecosystem #2 (RE2) covers Auvergne-Rhône-Alpes and Grand Est and is supported through the One-Stop Shop services implemented by Association des Centrales Villageoises (ACV). The ecosystem builds on consolidated citizen-led energy structures and supports the development and replication of collective self-consumption and renewable energy projects. OSS services combine regulatory guidance, technical and contractual support, assistance on fundraising and bankability, as well as capacity building (including communication and internal organisation), with the objective of accelerating project maturity and facilitating replication across territories.

3.2.2 Pilot sites overview and implementation status

Below are two tables: the first presents, in sequence, the LIFE KPIs monitored across the different pilot sites within the regional ecosystem; the second provides an overview of the pilot sites, detailing the KPIs and indicating whether they have been implemented within the project framework or externally (particularly relevant for the ECOEMPOWER site).

			RE2: AURA-Gran Est (FRANCE)									
LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE2.1 Eau et Soleil du Lac	RE2.1 Eau et Soleil du Lac	RE2.2 VercorSoleiL	RE2.2 VercorSoleiL	RE2.3 Centrales Villageoises de Vezouze-en-Piemont	RE2.3 Centrales Villageoises de Vezouze-en-Piemont	tot RE2 pilots (RE2.1+RE2.2+RE2.3)	TOT achieved	triggered KPIs in RE2	TOT RE2 (totRE2 pilots+triggered KPIs in RE2)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.05	0	0.04	0	0.05	0	0.14	**0**	0	0.14
2. Final Energy Savings in GWh/year	EN2	End of the project	0.03	0	0.02	0	0.03	0	0.08	**0**	0	0.08
3. Renewable Energy Generation in GWh/year	EN3	End of the project	1.1	0.117	5.21	0.51	5.5	0.402	11.81	**1.029**	0	11.81
4. GHG emissions in tCO2eq/year	ENV1	End of the project	58	6	267	26.1	283	20.57	608	**52.67**	0	608
5. Investments in sustainable energy in mEUR	ECO1	End of the project	1.26	0.15	7.15	0.02	7	0	15.41	**0.17**	0	15.41
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	1	1	1	1	1	3	**3**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	100	5	80	5	50	15	**230**	0	15
11. Employment FTE	SOC4	End of the project	9	0	50	0.8	49	0	108	**0.8**	0	108
12. Citizens taking part in energy communities	SOC_2	End of the project	300	25	200	18	300	19	800	**62**	0	800

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE2.1 Eau et Soleil du Lac		RE2.2 VercorSoleiL		RE2.3 Centrales Villageoises de Vezouze-en-Piemont		RE2.1 Eau et Soleil du Lac		RE2.2 VercorSoleiL		RE2.3 Centrales Villageoises de Vezouze-en-Piemont	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]		yes		yes		yes		yes		yes		yes
EC Members	25	0	6	0	12	0		0		0		0
Implemented assets (PV, Hydro, Wind etc.) [#]	2	0	0	0	0	0		0	2	0	6	0
Implemented assets [kW]	141	0	0	0	0	0		0	212.5	0		0

RE2.1 – Eau et Soleil du Lac

Eau et Soleil du Lac has been supported by the OSS to strengthen its organisational framework and enable collective self-consumption projects. Within ECOEMPOWER, the OSS:

- Supported the amendment of corporate statutes to include collective self-consumption projects in the corporate purpose;
- Provided guidance on the criteria to be recognised as a social and solidarity economy enterprise;
- Supported the implementation of an initial collective self-consumption project (regulatory guidance and initial feasibility work);
- Assisted the organisation in improving internal organisation and task distribution among members through a dedicated internal seminar;
- Facilitated knowledge exchange at consortium level through experience sharing.

Thanks to the OSS tools and support, Eau & Soleil du Lac developed two new solar photovoltaic projects with a total investment of €150,000. Together with existing installations, these projects bring the organisation's total electricity generation to 0.117 GWh in 2024. In parallel, activities organised by Eau et Soleil du Lac contributed to improving local awareness and knowledge: 80 people enhanced their understanding of renewable energies and citizen energy through public meetings and school workshops.

RE2.2 – VercorSoleiL

The OSS supported VercorSoleiL in carrying out its first collective self-consumption operation and consolidating its development pathway. Within ECOEMPOWER, the OSS:

- Provided support in understanding and applying the regulatory framework for collective self-consumption;
- Supported fundraising actions and helped the organisation meet bank requirements regarding shareholder current account agreements;
- Strengthened communication efforts through the design and financing of educational panels near production sites and at consumers' premises, explaining energy sharing mechanisms and supporting

membership growth;

- Delivered capacity building actions on communication to help the community recruit new volunteers and members.

Thanks to the OSS tools and support, VercorSoleiL developed a new solar photovoltaic project with a total investment of €20,000. Together with existing installations, this contributes to 0.51 GWh of electricity generation in 2024. In parallel, community outreach and internal working activities contributed to local capacity building: 55 people improved their knowledge of renewable energies and citizen energy. The pilot also reports the involvement of a part-time employee (0.4 FTE) supporting operational activities.

RE2.3 – Centrales Villageoises de Vezouze-en-Piémont

The OSS supported Centrales Villageoises de Vezouze-en-Piémont in setting up its first collective self-consumption project and preparing scale-up options. Within ECOEMPOWER, the OSS:

- Assisted in drafting sales contracts with consumers and in identifying a balance manager;
- Supported the preparation of a fundraising campaign, including drafting the Summary Information Document required prior to launch;
- Produced and financed educational panels for production and consumption sites involved in the collective self-consumption operation;
- Monitored the development of a ground-mounted photovoltaic project led by an external member company, where the pilot could potentially invest.

The first collective self-consumption project represents an installed capacity generating 0.402 GWh/year, with a reported total investment of €20,000. In parallel, 30 people enhanced their knowledge of energy communities through bilateral meetings organised with emerging groups and local authorities.

3.2.3 Preliminary KPI results and trends

Based on RE2 KPI reporting for the three pilots, the intermediate results up to Month 28 indicate:

- Renewable Energy Generation (EN3): 1.029 GWh/year achieved vs 11.81 GWh/year end-of-project reference (≈ 8.7%).
- GHG emissions reduction (ENV1): 52.67 tCO_2eq/year achieved vs l608 tCO_2eq/year (≈ 8.7 %).
- Investments mobilised (ECO1): 0.17 M€ achieved vs 15.41 M€ (≈ 1.1 %).
- Implementation sites (SOC1): 3 achieved vs 3 planned (100 %).
- Skills / people trained (SOC3): 230 achieved vs 15 reference (already above the reference value).
- Employment (SOC4): 0.8 FTE achieved vs 108 FTE (≈ 0.7 %).
- Citizens taking part (SOC_2): 62 achieved vs 800 (≈ 7.8 %).

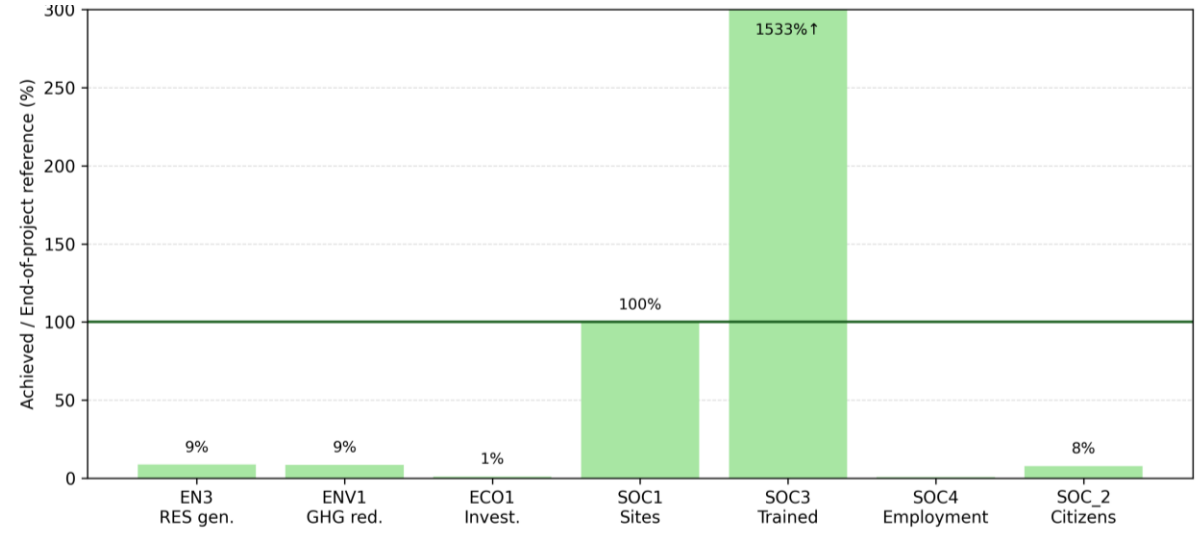


Figure 4 – RE2 pilots – Progress vs end-of-project reference (M28)

Interpretation at this stage should consider that RE2 pilots are already active (all three implementation sites are reported), while the scale-up to end-of-project reference levels for generation, investment, employment and citizen participation typically depends on longer development cycles (fundraising, contracting, grid connection and replication to additional assets/users). In contrast, capacity building actions and training-related indicators can increase faster and are already showing strong early performance.

3.2.4 Additional initiatives supported by OSS (beyond pilot sites)

Beyond the pilots, the OSS implemented multiple initiatives enabled by ECOEMPOWER to strengthen the regional enabling ecosystem, including: networking and mentoring for emerging collectives; dedicated trainings on citizen involvement, internal organisation and communication; consolidation of partnerships to address grid-connection issues (including cooperation with the DSO ENEDIS); and replication-oriented actions through bilateral presentations and open webinars targeting emerging groups and local authorities.

3.2.5 Key barriers and lessons learned

The early monitoring highlights three recurring elements in RE2:

- Collective self-consumption projects require substantial regulatory and contractual support (contracts, compliance, balance management), where OSS assistance is a key enabling factor.
- Fundraising and bankability represent a critical bottleneck; targeted support on documentation and financial arrangements improves readiness and reduces delays.
- Communication and visibility tools (training and on-site educational panels) represent practical levers to increase understanding of energy sharing and support recruitment of new members.

3.3 Regional Ecosystem #3 (RE3): Allgau (GERMANY)

3.3.1 Description of Regional Ecosystem

Regional Ecosystem #3 (RE3) is located in the Allgäu region in Germany and is supported through the OSS services coordinated by eza! (in cooperation with regional actors). The ecosystem builds on the presence of established energy cooperatives and emerging groups and focuses on enabling energy communities through a combination of strategic advisory support to cooperative boards and municipalities, citizen engagement and awareness-raising, and preparatory work on data and technical requirements for future energy sharing (including the role of smart meters). RE3 includes both consolidated cooperatives with existing renewable assets and a pilot where the energy community is still under formation.

3.3.2 Pilot sites overview and implementation status

Below are two tables: the first presents, in sequence, the LIFE KPIs monitored across the different pilot sites within the regional ecosystem; the second provides an overview of the pilot sites, detailing the KPIs and indicating whether they have been implemented within the project framework or externally (particularly relevant for the ECOEMPOWER site).

LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE3: Allgau (GERMANY)									
			RE3.1 Elektrizitätswerke Hindelang eG	RE3.1 Elektrizitätswerke Hindelang eG	RE3.2 Eppishausen and Kirchheim	RE3.2 Eppishausen and Kirchheim	RE3.3 Altlandkreis Füssen	RE3.3 Altlandkreis Füssen	tot RE3 pilots (RE3.1+RE3.2+RE3.3)	TOT achieved	triggered KPIs in RE3	tot RE3 (tot RE3pilots+ triggered KPIs in RE3)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.36	0	0.04	0	0.55	0	0.95	**0**	0	0.95
2. Final Energy Savings in GWh/year	EN2	End of the project	0.19	0	0.02	0	0.29	0	0.5	**0**	0	0.5
3. Renewable Energy Generation in GWh/year	EN3	End of the project	2.31	0	3.85	16.6	3.85	0.6	10.01	**17.2**	0	10.01
4. GHG emissions in tCO2eq/year	ENV1	End of the project	777	0	1202	5163	1286	186.6	3265	**5349**	0	3265
5. Investments in sustainable energy in mEUR	ECO1	End of the project	3	0	5	8	5	0.6	13	**8.6**	0	13
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	1	1	1	1	0	3	**2**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	4	5	38	5	0	15	**42**	0	15
11. Employment FTE	SOC4	End of the project	21	0	35	0	35	0	91	**0**	0	91
12. Citizens taking part in energy communities	SOC_2	End of the project	2000	0	200	4	3000	6	5200	**10**	0	5200

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE3.1 Elektrizitätswerke Hindelang eG		RE3.2 Dorfenergie eG		RE3.3 - Elektrizitätswerke Reutte		RE3.1 Elektrizitätswerke Hindelang eG		RE3.2 Dorfenergie eG		RE3.3 - Elektrizitätswerke Reutte	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]		yes		yes	no	no		yes		yes	no	no
EC Members		330		134		0		330		134		0
Implemented assets (PV, Hydro, Wind etc.) [#]		7		4		0		7		4		0
Implemented assets [kW]		532		80		0		532		80		0

RE3.1 – Elektrizitätswerke Hindelang eG

In Bad Hindelang, the energy cooperative owns several renewable assets, including three hydropower plants (approximately 4.8 GWh/year in total) and four rooftop PV installations (approximately 0.16 GWh/year). During the project duration, several attempts to install additional assets were explored but did not materialise. This is linked to (i) the overall economic situation of the cooperative and (ii) the limited availability of suitable spaces for renewable energy projects in the local alpine context, as well as technical constraints affecting PV feasibility in mountainous terrain.

Within ECOEMPOWER, support focused on strengthening the strategic and enabling conditions for further development, including high-level exchanges with cooperative leadership and local public actors. Key topics addressed included the future potential of smart meters for energy sharing, identification of feasible project opportunities, and organisational challenges such as generational change and participation within cooperatives. At this stage, the pilot remains characterised by a strong existing asset base but limited short-term expansion potential, with the OSS aiming to support opportunity scouting and readiness for future energy sharing regulation.

RE3.2 – Dorfenergie eG

This pilot site owns four rooftop PV installations generating approximately 0.7 GWh/year. The cooperative has taken a formal decision to co-develop a 16.6 MW open-space PV project with a total investment of approximately €8 million, shared with other stakeholders; Dorfenergie's share corresponds to 12% (reported as 1992 kW relevant capacity for ECOEMPOWER). Construction is planned to start in 2026 and be completed in 2027, meaning that the main energy generation impact from this new asset is expected beyond the current monitoring period.

Within ECOEMPOWER, the OSS supported the cooperative and local stakeholders through structured exchange and advisory activities aimed at clarifying cooperation expectations, exploring professionalisation options, and preparing for post-EEG opportunities, including future energy sharing. In parallel, the OSS supported broader regional networking among neighbouring cooperatives and local stakeholders to discuss shared challenges and joint opportunities (e.g., cooperative-municipal utility models, organisational/legal aspects, and future-oriented themes such as energy sharing). Overall, the pilot shows strong potential for scale-up through a major planned investment, while measurable operational outcomes will materialise mainly in subsequent project phases.

RE3.3 – Elektrizitätswerke Reutte

In the Füssen/Reutte area, a group of private actors (including hotels, a clinic, and agricultural stakeholders) is exploring the creation of an energy sharing initiative by pooling existing rooftop PV capacities. A 24-hour dataset with 15-minute resolution was collected and analysed, showing that the current generation portfolio would not sufficiently cover the stakeholders' demand. Based on this assessment, the initiative would require additional renewable capacity of more than 600 kWp to reach a configuration compatible with higher self-sufficiency; a reference investment for achieving this scale (e.g., via open-space PV) is estimated at around €600,000.

At present, this is the RE3 pilot where an energy community is still in formation. The OSS support has focused on conceptualisation (business models, legal and financial planning), data-based modelling of potential energy sharing configurations, and stakeholder aggregation. A potential cooperation pathway is also being explored with a neighbouring initiative (Bürgerenergie Ostallgäu), with the objective of joining efforts and increasing scale and citizen participation. Based on the current mobilisation, the pilot expects the establishment of an energy community before the end of the project.

3.3.3 Preliminary KPI results and trends

Based on the RE3 KPI reporting for the three pilots, intermediate results up to Month 28 indicate:

- Renewable Energy Generation (EN3): 17.2 GWh/year achieved vs 10.01 GWh/year end-of-project reference.
- GHG emissions reduction (ENV1): 5,349.2 tCO_2eq/year achieved vs 3,265 tCO_2eq/year reference.
- Investments mobilised (ECO1): 8.6 M€ achieved vs 13 M€ reference.
- Implementation sites (SOC1): 2 achieved vs 3 planned.
- Skills / people trained (SOC3): 42 achieved vs 15 reference.
- Employment (SOC4): 0 FTE achieved vs 91 FTE reference.
- Citizens taking part (SOC_2): 10 achieved vs 5200 reference.

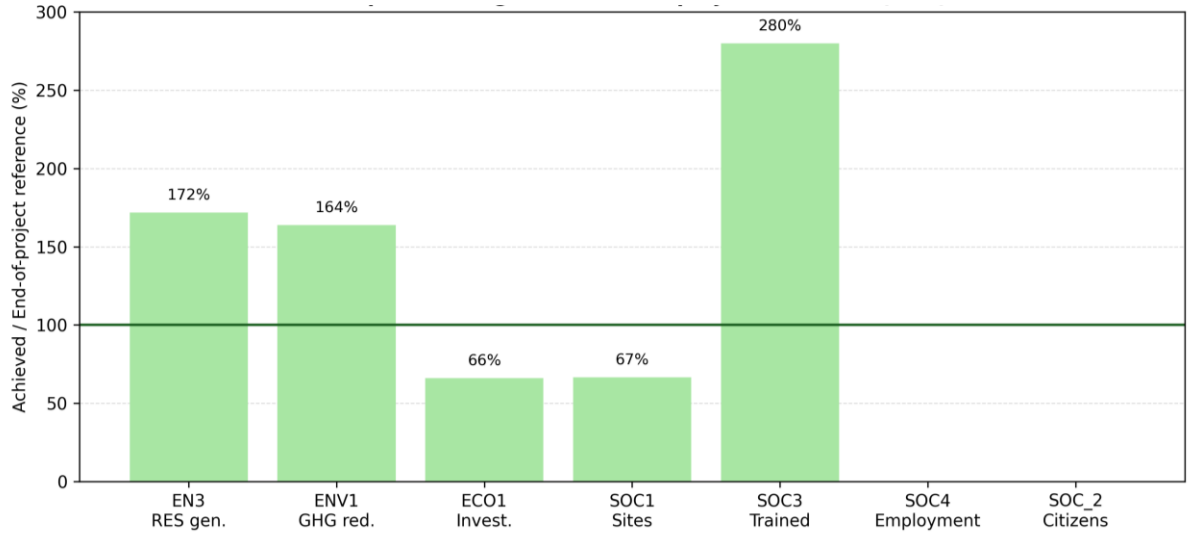


Figure 5 – RE3 pilots – Progress vs end-of-project reference (M28)

At this stage, RE3 includes both operational activities and initiatives that have been formally confirmed and are expected to be implemented in the near future (e.g., large-scale PV developments with construction planned in the next years). In line with the monitoring approach adopted in WP6, these confirmed developments are accounted for within the KPI computation, as they represent committed progress enabled and/or consolidated during the project timeframe. As implementation advances, the monitoring will progressively integrate more operational and metered data, strengthening the robustness of energy and environmental indicators and supporting a clearer comparison across pilot sites.

3.3.4 Additional initiatives supported by OSS (beyond pilot sites)

Beyond the pilot sites, the OSS has engaged with additional regional stakeholders and initiatives, including exchanges with Bürgerenergie Ostallgäu and neighbouring energy communities around Eppishausen. These interactions support replication and the exploration of more efficient shared organisational approaches (e.g., pooling administrative and coordination efforts across communities), with the aim of strengthening the regional enabling ecosystem for energy communities and energy sharing.

3.3.5 Key barriers and lessons learned

Key cross-cutting points emerging from RE3 include:

- Scarcity of suitable areas and technical constraints (particularly in alpine contexts) can significantly limit short-term deployment of new RES assets even where communities are mature and motivated.
- Economic feasibility and investment timing influence whether additional assets can be realised within project timelines; some high-impact investments (e.g., open-space PV) may materialise beyond the current monitoring horizon.
- Readiness for energy sharing requires early attention to smart metering and data availability; dedicated support is needed to help cooperatives and emerging groups translate interest into actionable models.
- Volunteer-based cooperative structures face challenges linked to professionalisation and generational change, which can affect implementation capacity and long-term sustainability.

3.4 Regional Ecosystem #4 (RE4): Prague (CZECH REPUBLIC)

3.4.1 Description of Regional Ecosystem

Regional Ecosystem #4 (RE4) is located in the Zlín region and is supported through the OSS operated by the Regional Energy Agency (EAZK). The Czech pilots differ from other ecosystems because they primarily involve municipal administrative/public buildings. As a result, the pilots focus on energy sharing among municipal entities (public building portfolios) rather than direct household participation. Energy communities in the Czech Republic can also be formed exclusively by municipalities and other public entities, which is consistent with the configuration of the RE4 pilots. In this context, KPI12 (citizens taking part in energy communities) is reported as zero at this stage, as households are not directly involved in the current pilot operations. The City of Zlín plans to involve households in the future; however, since the community has been established only recently, these actions remain planned for the next steps.

3.4.2 Pilot sites overview and implementation status

Below are two tables: the first presents, in sequence, the LIFE KPIs monitored across the different pilot sites within the regional ecosystem; the second provides an overview of the pilot sites, detailing the KPIs and indicating whether they have been implemented within the project framework or externally (particularly relevant for the ECOEMPOWER site).

			RE4: Zlin (CZECH REPUBLIC)									
LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE4.1: Mikroregion Vlčnov	RE4.1: Mikroregion Vlčnov	RE4.2: Město Slavičín	RE4.2: Město Slavičín	RE4.3: Město Zlín	RE4.3: Město Zlín	tot RE4 pilots (RE4.1+RE4.2+RE4.3)	TOT achieved	triggered KPIs in RE4	tot RE4 (totRE4pilots+triggered KPIs in RE4)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.0146	0	0.0365	0	0.0912	0	0.1423	**0**	0	0.1423
2. Final Energy Savings in GWh/year	EN2	End of the project	0.0077	0	0.0192	0	0.048	0	0.0749	**0**	0	0.0749
3. Renewable Energy Generation in GWh/year	EN3	End of the project	0.22	0	0.14	0	0.3	0.094	0.66	**0.094**	0	0.66
4. GHG emissions in tCO2eq/year	ENV1	End of the project	96.052	0	61.124	0	130.98	41.04	288.16	**41.04**	0	288.16
5. Investments in sustainable energy in mEUR	ECO1	End of the project	0.27	0	0.34	0	0.44	0.15	1.05	**0.15**	0	1.05
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	0	1	0	1	1	3	**1**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	1	5	0	5	2	15	**3**	0	15
11. Employment FTE	SOC4	End of the project	1.89	0.5	2.38	0.5	3.08	1.5	7.35	**2.5**	0	7.35
12. Citizens taking part in energy communities	SOC_2	End of the project	80	0	200	0	500	0	780	**0**	0	780

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE4.1 Vlčnov		RE4.2 Slavičín municipality		RE4.3 City of Zlín		RE4.1 Vlčnov		RE4.2 Slavičín municipality		RE4.3 City of Zlín	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]	no	no	no	no	no	no	no	no	no	no	yes	no
EC Members	-	-	-	-	-	-	-	-	-	-	9	-
Implemented assets (PV, Hydro, Wind etc.) [#]	-	8	-	3	-	1		-		-	5	-
Implemented assets [kW]	-	172	-	139,5	-	55		-		-	149	-

RE4.1 – Vlčnov microregion

In Vlčnov, OSS support focused on exploring the potential evolution towards a structured Energy Community and improving the municipality's capability to manage energy sharing as an "active customer". The support included targeted one-to-one exchanges with the municipal leadership and representatives to discuss future EC development options, flexibility opportunities, and possible pathways for citizen participation in energy sharing. In parallel, technical and administrative aspects of the current operational model were reviewed, including adjustments related to the allocation key settings. The pilot also reports that one part-time employee is dedicated to addressing energy sharing topics within the municipality.

RE4.2 – Slavičín municipality

In Slavičín, OSS activities supported strategic planning for enhanced local energy collaboration and the potential development of an Energy Community. The support included bilateral exchanges with municipal leadership focused on EC development pathways, flexibility and future participation options. In addition, exchanges with the municipal heating plant operator were carried out to explore possible zones for energy sharing in the municipality and assess technical and operational feasibility. The pilot reports that one part-time employee is dedicated to addressing the issue of energy sharing within the municipality.

RE4.3 – City of Zlín

In Zlín, OSS support contributed to advancing the city's Energy Community development and preparation of renewable energy investments to strengthen the future portfolio for municipal energy sharing. One-to-one exchanges supported the strategic framework for EC development and flexibility options, as well as cooperation planning among municipal entities. The OSS also supported preparation work for a major PV investment (a 722 kW photovoltaic plant planned at the Zlín ZOO) and provided technical and organisational support to define sharing mechanisms and operational tools. Training was also delivered to relevant municipal stakeholders on the use and modification of an Excel-based monitoring tool used to set and monitor sharing between sources and consumers. Zlín reports 1.5 FTE dedicated to addressing energy sharing within the municipality.

3.4.3 Preliminary KPI results and trends

Based on RE4 KPI reporting for the three pilots, intermediate results up to Month 28 indicate:

- Renewable Energy Generation (EN3): 0.094 GWh/year achieved vs 0.66 GWh/year end-of-project reference (≈ 14 %).
- GHG emissions reduction (ENV1): 41.04 tCO_2eq/year achieved vs 288.156 tCO_2eq/year reference (14 %).
- Investments mobilised (ECO1): 0.15 M€ achieved vs 1.05 M€ reference (≈ 14 %).
- Implementation sites (SOC1): 1 achieved vs 3 planned (≈ 33 %).
- Skills / people trained (SOC3): 3 achieved vs 15 reference (≈ 20 %).
- Employment (SOC4): 2.5 FTE achieved vs 7.35 FTE reference (≈ 34 %).
- Citizens taking part (SOC_2): 0 achieved vs 780 reference (0 %).

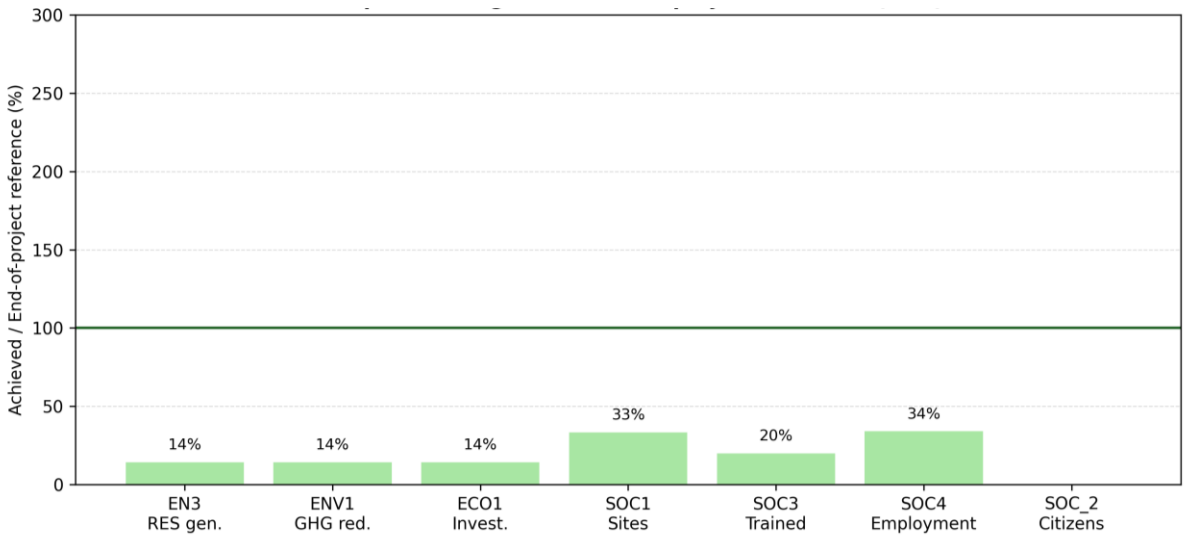


Figure 6 – RE4 pilots – Progress vs end-of-project reference (M28)

The RE4 pilots are currently in an early implementation phase, where progress is mainly associated with organisational set-up, governance arrangements and the operational preparation of municipal energy sharing among public buildings. Compared to other Regional Ecosystems, RE4 shows a lower level of maturity at this intermediate stage, also because the ecosystem joined the project activities later, resulting in a shorter effective implementation period. In addition, the reference baseline for RE4 is anchored to the year 2024, and several measures require additional time to translate preparatory actions (e.g., portfolio definition, allocation key settings, monitoring tools and PV project preparation) into measurable energy and environmental outcomes. Nevertheless, a number of developments have been confirmed and are expected to materialise in the near future (including PV deployment and operational sharing tools in Zlín) and are therefore accounted for within the KPI framework as committed progress consolidated during the project period. As implementation advances, the

monitoring will progressively incorporate a larger share of operational and metered data from municipal assets and sharing arrangements, strengthening the robustness of energy and environmental indicators.

3.4.4 Additional initiatives supported by OSS (beyond pilot sites)

Beyond the pilots, the OSS in the Zlín region carried out outreach and capacity-building actions to promote renewable energy and community energy approaches and to present OSS services to municipalities, entrepreneurs and other stakeholders. These actions supported awareness raising on legislative frameworks, practical approaches for sharing in municipal contexts, and the dissemination of good practices, contributing to the consolidation of the regional enabling environment for energy communities.

3.4.5 Key barriers and lessons learned

Key cross-cutting aspects emerging from RE4 include:

- The Czech pilot configuration is public-building driven, which accelerates municipal decision-making and implementation capacity but results in limited immediate household involvement (reflected in KPI12).
- Municipal energy sharing requires dedicated work on allocation keys, monitoring tools and operational procedures, which benefits from targeted OSS support and training.
- The measurable impact on energy and emissions is strongly linked to the timing of PV deployment and operational sharing activation, which is still progressing in the pilots.

3.5 Regional Ecosystem #5 (RE5): Central Greece (GREECE)

3.5.1 Description of Regional Ecosystem

Regional Ecosystem #5 (RE5) is located in Central Greece and involves three municipal areas: Domokos, Kamena Vourla, and Amfikleia. The pilots are characterised as non-established energy communities that are progressing towards formalisation while actively strengthening local awareness, governance readiness, and technical capacities for future collective self-consumption and energy sharing initiatives. Across the three municipalities, the local ecosystems have implemented a consistent set of engagement and capacity-building actions (educational sessions, promotional activities and collaboration with local organisations, including schools). These actions support the ECOEMPOWER objective of fostering local awareness, empowering citizens and local authorities, and building the foundations for future energy community initiatives in Central Greece.

3.5.2 Pilot sites overview and implementation status

Below are two tables: the first presents, in sequence, the LIFE KPIs monitored across the different pilot sites within the regional ecosystem; the second provides an overview of the pilot sites, detailing the KPIs and indicating whether they have been implemented within the project framework or externally (particularly relevant for the ECOEMPOWER site).

LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE5: Central Greece (GREECE)								
			RE5.1 Domokos	RE5.1 Domokos	RE5.2 Kamena Vourla	RE5.2 Kamena Vourla	RE5.3 Amfikleia	RE5.3 Amfikleia	tot RE5 pilots (RE5.1+RE5.2+RE5.3)	TOT achieved	triggered KPIs in RE5	tot RE5 (totRE5pilots+triggered KPIs in RE5)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.02	0	0.02	0	0.03	0	0.07	**0**	0	0.07
2. Final Energy Savings in GWh/year	EN2	End of the project	0.01	0	0.01	0	0.01	0	0.03	**0**	0	0.03
3. Renewable Energy Generation in GWh/year	EN3	End of the project	2.4	0.126	0.8	0	4	0.09	7.2	**0.216**	0	7.2
4. GHG emissions in tCO2eq/year	ENV1	End of the project	1155	30.2	388	0	1924	27.1	3467	**57.3**	0	3467
5. Investments in sustainable energy in mEUR	ECO1	End of the project	1.95	0.36	0.65	0	2	0.24	4.6	**0.6**	0	4.6
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	0	1	0	1	0	3	**0**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	5	5	0	5	1	15	**6**	0	15
11. Employment FTE	SOC4	End of the project	13	4	5	0	14	3	32	**7**	0	32
12. Citizens taking part in energy communities	SOC_2	End of the project	100	5	100	0	150	6	350	**11**	0	350

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE5.1 Domokos		RE5.2 Kamena Vourla		RE5.3 Amfikleia		RE5.1 Domokos		RE5.2 Kamena Vourla		RE5.3 Amfikleia	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]	no	yes	no	yes	no	yes	yes	yes	no	yes	yes	yes
EC Members		15		12		8	5	12		14	6	12
Implemented assets (PV, Hydro, Wind etc.) [#]		2 PV		2 PV		2 PV	1PV, 1storage	2 PV		2 PV	2 PV	2 PV
Implemented assets [kW]		100		110		100	90	120		100	100	90

RE5.1 – Domokos

Domokos is in an early development stage, focused on engaging local authorities, small businesses and citizens interested in renewable energy and collective self-consumption models. The local ecosystem began forming through cooperation between the municipality, local actors (including a farmers' cooperative) and regional energy experts.

During 2025, Domokos reports the implementation of one 90 kWp PV installation and one storage system in the context of the project. The pilot also reports for 2025 a renewable energy generation (0.126 GWh/year), with an estimated 30.2 tCO_2/year of avoided emissions. Sustainable energy investments are reported at 0.36 M€, driven by municipal actions and increasing private engagement.

On the social and organisational side, the pilot reports 5 people trained through educational and awareness sessions and 5 participating citizens. The employment impact is reported as 4 FTE, linked to part-time staff supporting energy sharing activities and pilot coordination. Overall, Domokos shows a clear evolution from awareness-raising towards small-scale implementation, with a strong focus on citizen engagement and internal capacity building.

RE5.2 – Kamena Vourla

Kamena Vourla builds on strong municipal interest in renewable energy transition and local resilience. Activities during 2025 focused on creating collaborations with local schools, small enterprises and municipal technical services to identify viable PV opportunities and strengthen local readiness. At this stage, the pilot reports that there is no established energy community in the context of the project.

Engagement and capacity-building actions remain central: educational activities and promotional actions contributed to increased local visibility and supported the development of learning materials for management and decision-making, alongside mentoring within the core team to strengthen understanding of cooperative models and energy literacy. These actions are laying the groundwork for a future legally established energy community.

RE5.3 – Amfikleia

In Amfikleia, the non-established community has progressed rapidly due to strong municipal commitment and early citizen involvement, also benefiting from synergies within the broader Central Greece ecosystem.

During 2025, Amfikleia reports the implementation of two PV installations (100 kWp) in the context of the project. The pilot reports for 2025 a renewable energy generation (0.09 GWh/year), with an estimated 27.1 tCO_2/year of avoided emissions. Sustainable energy investments are reported at 0.24 M€.

On the social and organisational side, the pilot reports 1 person trained (through educational/awareness sessions) and 6 participating citizens. Employment impact is reported at 3 FTE, arising from part-time staff supporting energy sharing activities and pilot coordination. Overall, Amfikleia demonstrates strong momentum towards the creation of a legally established energy community, supported by structured guidance and knowledge transfer on renewable energy systems and smart consumption practices.

3.5.3 Preliminary KPI results and trends

Based on RE5 KPI reporting for the three pilots, intermediate results up to Month 28 indicate:

- Renewable Energy Generation (EN3): 0.216 GWh/year achieved vs 7.2 GWh/year end-of-project reference (≈ 3.0 %).
- GHG emissions reduction (ENV1): 57.3 tCO_2eq/year achieved vs 3467 tCO_2eq/year (≈ 1.7 %).
- Investments mobilised (ECO1): 0.6 M€ achieved vs 4.6 M€ (≈ 13 %).
- Implementation sites (SOC1): 0 achieved vs 3 planned (0 %).
- Skills / people trained (SOC3): 6 achieved vs 15 (≈ 40 %).
- Employment (SOC4): 7 FTE achieved vs 32 FTE (≈ 22 %).
- Citizens taking part (SOC_2): 11 achieved vs 350 (≈ 3 %).

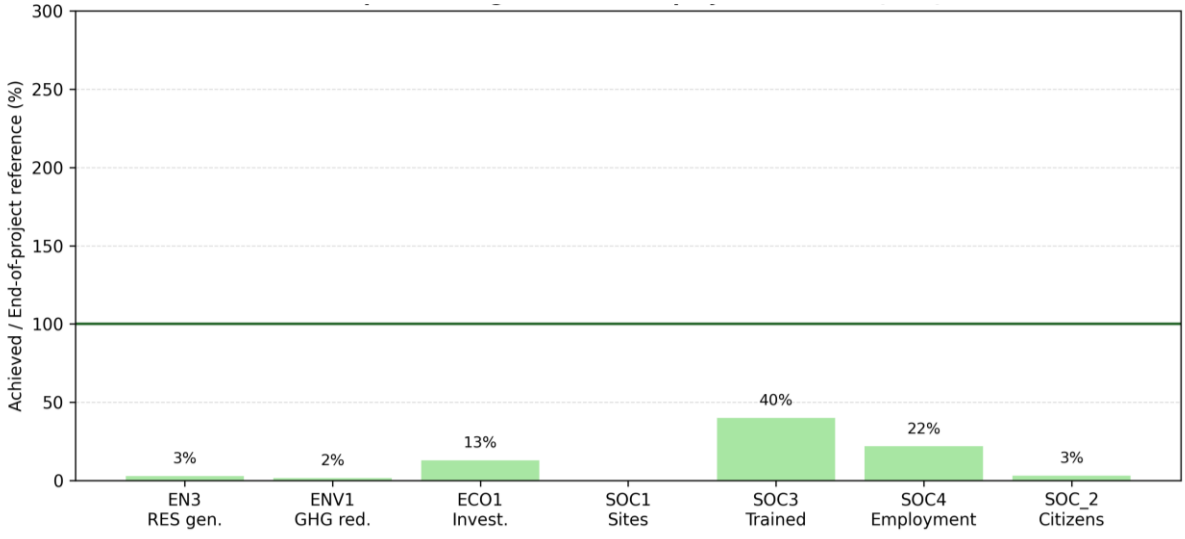


Figure 7 – RE5 pilots – Progress vs end-of-project reference (M28)

RE5 pilots are still in a phase where key outcomes are primarily linked to community mobilisation, skills development and the gradual transition from informal groups to operational configurations. While some pilots

already report initial investments and implementation steps (notably in Domokos and Amfikleia), wider impacts on energy generation, emissions reduction and citizen participation are expected to grow as initiatives move from early deployment to stable operation and wider membership uptake.

3.5.4 Additional initiatives supported by OSS (beyond pilot sites)

No additional initiatives were reported outside the pilot sites for RE5 during this monitoring period.

3.5.5 Key barriers and lessons learned

Key aspects emerging from RE5 include:

- The pilots are non-established communities, therefore progress depends on building governance and internal management capacity before full operationalisation.
- Early-stage initiatives can already mobilise investments and small-scale assets, but scaling membership and measurable energy impacts typically requires additional time and stable organisational structures.
- Continuous community engagement and cooperation with local organisations (including schools) represent effective levers to strengthen awareness and maintain momentum towards formalisation.

4 Cross-cutting analysis

This section provides a cross-cutting synthesis of the intermediate monitoring results at Month 28 (December 2025). Given the diversity of pilot typologies and national/regional regulatory contexts, the analysis focuses on relative progress (achievement vs end-of-project reference values) and on the interpretation of observed differences.

4.1 Pilot typologies and regulatory framework

A direct comparison of absolute KPI values across Regional Ecosystems is constrained by structural differences in pilot configurations and by national/regional regulatory frameworks. The ECOEMPOWER pilots span different typologies, including: (i) Energy Communities with operational assets and ongoing formalisation steps (RE2 and parts of RE1), (ii) cooperative-based initiatives combining legacy assets with limited siting options or long investment lead times (RE3), (iii) municipality-driven energy sharing among public buildings (RE4), and (iv) non-established communities progressing from mobilisation towards formalisation and early deployment (RE5). These contextual factors influence both the pace and the measurability of impacts, particularly for energy and environmental indicators, which depend on commissioning timelines, permitting processes, and operational sharing activation.

4.2 Cross-RE KPI progress at Month 28

Figure 8 compares KPI progress at Month 28 across the five Regional Ecosystems (the KPI progress is expressed as the ratio of the value achieved to the target end-of-project value, as a percentage). This representation supports comparability across heterogeneous contexts while preserving the diversity of trajectories. Several patterns emerge:

- Skills and capacity building can progress faster than infrastructure-based KPIs. In multiple ecosystems, early progress is visible in training and organisational readiness, reflecting the immediate effects of OSS support on awareness raising, governance preparation, and stakeholder mobilization.
- Citizen participation typically scales more slowly. Even where mobilisation is strong, translating engagement into membership and operational participation requires time and depends on the maturity of governance models and incentive structure.
- Energy and environmental impacts are strongly dependent on asset deployment cycles. Ecosystems with operational assets show earlier progress in generation and emissions-related indicators, while ecosystems dominated by pipeline developments, municipal procurement cycles, or pre-formalisation stages show delayed measurable impacts.
- Investments and operational outcomes may be temporally misaligned. In several cases, investments and confirmed developments precede commissioning; therefore, energy generation and emissions reduction indicators are expected to increase as projects move from preparation to stable operation.

Overall, the intermediate results confirm that ECOEMPOWER support mechanisms are producing measurable effects at Month 28, but with different "profiles" depending on the maturity stage, the regulatory setting, and the pilot typology. This cross-cutting interpretation supports the refinement of monitoring priorities towards the final evaluation (D6.4).

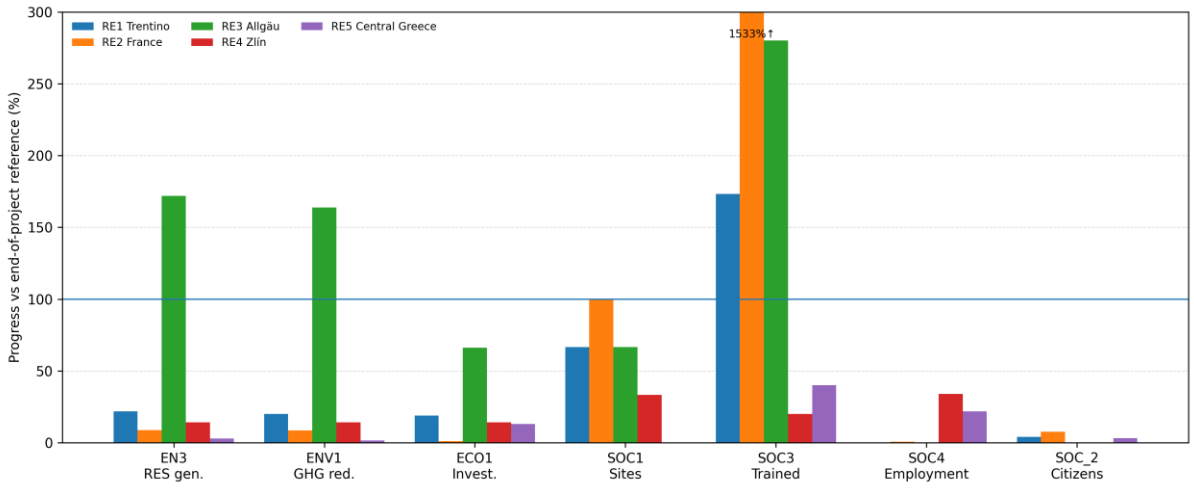


Figure 8 – KPI comparison across different Regional Ecosystems

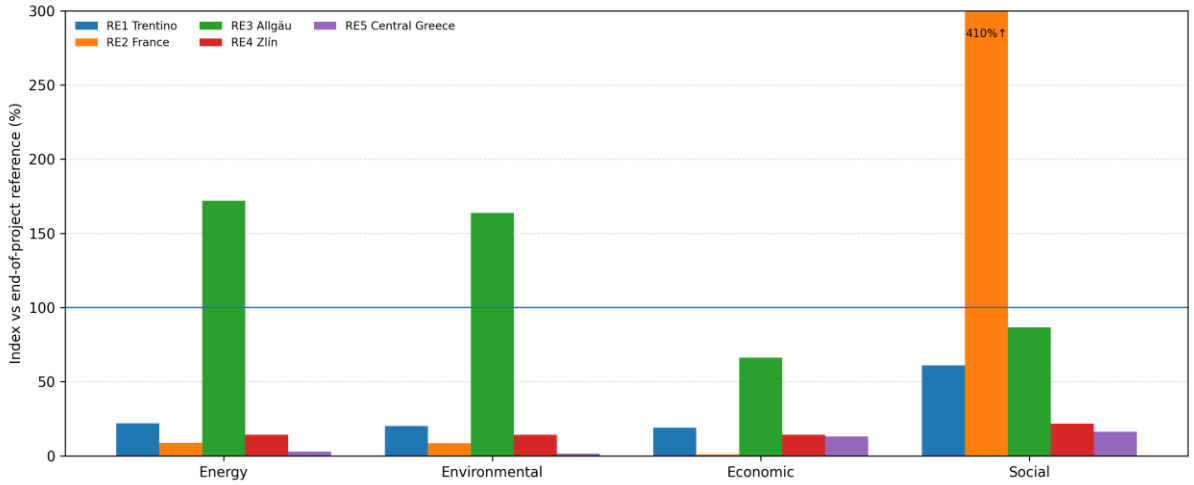
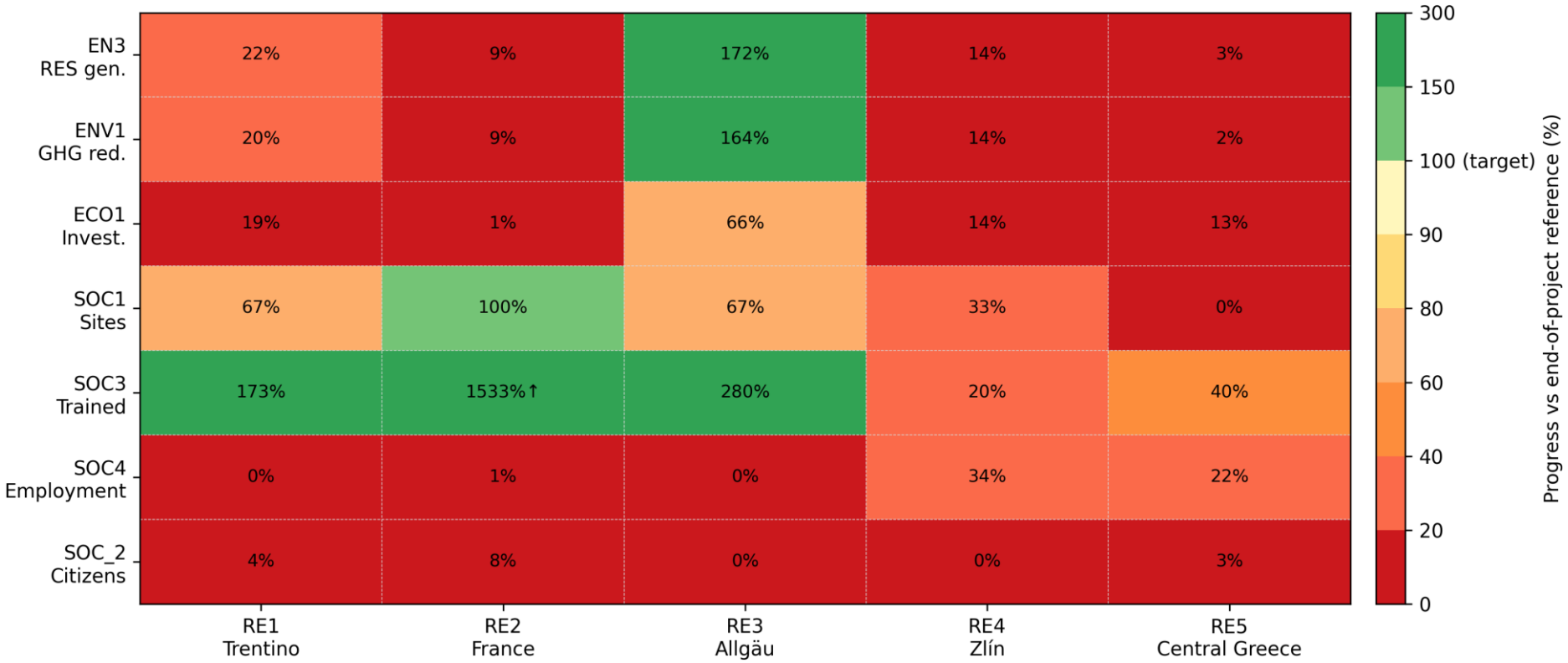


Figure 9 - Comparison of categories across regional ecosystems


EN3
RES gen.
ENV1
GHG red.
ECO1
Invest.
SOC1
Sites
SOC3
Trained
SOC4
Employment
SOC_2
Citizens
22%
9%
172%
14%
3%
20%
9%
164%
14%
2%
19%
1%
66%
14%
13%
67%
100%
67%
33%
0%
173%
1533%↑
280%
20%
40%
0%
1%
0%
34%
22%
4%
8%
0%
0%
3%
RE1
Trentino
RE2
France
RE3
Allgäu
RE4
Zlín
RE5
Central Greece
300
150
100 (target)
90
80
60
40
20
0
Progress vs end-of-project reference (%)

5 Conclusions

The Month 28 cross-cutting analysis confirms that the progress of the ECOEMPOWER Regional Ecosystems is strongly influenced by pilot maturity, governance arrangements, and national or regional regulatory conditions. While measurable energy and environmental impacts remain dependent on infrastructure deployment and asset commissioning timelines, earlier progress is consistently observed in capacity building, stakeholder mobilisation, and governance preparation. This suggests that support mechanisms such as the One-Stop-Shop approach play a critical enabling role in preparing communities for the operational phase.

In the final stage of the project, efforts should focus on translating organisational readiness and planned investments into operational energy sharing schemes and measurable impacts in terms of generation and emissions reduction. At the same time, continued attention to regulatory alignment, governance consolidation, and citizen participation will be necessary to ensure the sustainability and long-term functioning of the emerging energy communities. The diversity of pilot typologies represents an important source of policy-relevant insights, supporting the identification of replicable approaches and practical implementation pathways for community energy initiatives. The experiences across the Regional Ecosystems provide valuable evidence on how governance models, regulatory contexts, and levels of maturity influence the development of energy communities. These lessons will inform the final evaluation (D6.4) and support the broader replication and scaling of community energy models across Europe.

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List of Abbreviations

DoA	Description of Actions
DSO	Distribution System Operator
ESCO	Energy Service Company
GHG	GreenHouse Gas
ICT	Information and Communication Technology
KPI	Key Performance Indicator
OSS	One Stop Shop
PU	Public
POD	Point of Delivery
EC	Energy Community
RES	Renewable Energy Source
ToC	Table of Contents
WP	Work Package

FEBBRAIO 2026

D6.3 RISULTATI DEI SITI PILOTA ECOEMPOWER E RACCOMANDAZIONI – PRIMA VERSIONE

The project ECOEMPOWER - ECOsystems EMPOWERing at regional and local scale supporting energy communities receives funding from the European Climate, Infrastructure and Environment Executive Agency (CINEA) under Grant Agreement n°101120775.

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EXECUTIVE SUMMARY

Il presente documento presenta la prima versione dei risultati ottenuti dai siti pilota ECOEMPOWER e fornisce una serie preliminare di raccomandazioni basate sulle attività di monitoraggio e valutazione in corso svolte nell'ambito dell'attività 6.3 “Test di valutazione”. Lo scopo di questo documento è valutare, in modo strutturato e misurabile, i primi effetti ottenuti attraverso i meccanismi di sostegno ECOEMPOWER nei siti pilota, dal punto di vista energetico, ambientale, sociale ed economico. Le attività di monitoraggio vengono svolte nei 15 siti pilota (3 comunità energetiche per 5 ecosistemi regionali) utilizzando la metodologia e gli indicatori definiti nel D6.1 e prendendo come riferimento la linea di base stabilita nel D6.2.

Il processo di monitoraggio comprende analisi sia quantitative che qualitative, basate sulla raccolta di dati dai partner regionali attraverso modelli condivisi, interviste, workshop e l'analisi dei sistemi di monitoraggio e comunicazione.

Il Deliverable 6.3 si concentra sui risultati intermedi raccolti fino al mese 28 del progetto e fornisce una panoramica dei principali risultati e tendenze emersi dai siti pilota. I risultati vengono confrontati con la linea di base per valutare i primi impatti degli ECOEMPOWER One Stop Shop (OSS) e dei servizi correlati.

Il deliverable introduce anche il sistema di monitoraggio continuo adottato nell'ambito del WP6 - Test dei meccanismi di supporto al progetto nei siti pilota, delineando la frequenza di raccolta dei dati, gli strumenti e i meccanismi di collaborazione tra i partner. Viene proposta una serie preliminare di raccomandazioni per ottimizzare le attività in corso e migliorare le prestazioni dei siti pilota nelle fasi successive del progetto.

Ecosistema regionale #1 (RE1): Provincia Autonoma di Trento (ITALIA)

Descrizione dell'ecosistema regionale

L'Ecosistema Regionale n. 1 (RE1) è situato nella Provincia Autonoma di Trento (PAT) ed è supportato attraverso l'OSS Trentino. L'ecosistema coinvolge un insieme diversificato di attori, tra cui comuni, consorzi elettrici locali, scuole, cittadini, imprese locali e reti cooperative (in particolare la Federazione Trentina della Cooperazione). Le attività di RE1 si concentrano sull'abilitare e sostenere iniziative di Comunità Energetiche, combinando orientamento tecnico, supporto legale e organizzativo, e azioni di coinvolgimento della comunità.

Oltre alle tre iniziative pilota, l'OSS fornisce supporto continuo ad altre CER emergenti e a iniziative comunali in tutta la provincia attraverso chiamate regolari, email e incontri bilaterali, rafforzando il più ampio contesto regionale favorevole e contribuendo a una pipeline di progetti che va oltre i confini dei piloti.

Panoramica dei siti pilota e stato di implementazione

Di seguito sono riportate due tabelle: la prima presenta, in ordine, gli indicatori chiave di prestazione (KPI) del progetto LIFE monitorati nei diversi siti pilota all'interno dell'ecosistema regionale; la seconda offre una panoramica dei siti pilota, descrivendo in dettaglio gli indicatori chiave di prestazione e indicando se sono stati implementati nell'ambito del progetto o esternamente (aspetto particolarmente rilevante per il sito ECOEMPOWER).

			RE1: TRENTINO (ITALY)								
LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE1.1: Fassa Valley	RE1.1: Fassa Valley	RE1.2: Levico Terme	RE1.2: Levico Terme	RE1.3: Valle dei Laghi	RE1.3: Valle dei Laghi	tot RE1 pilots (RE1.1+RE1.22+RE1.3	TOT achieved	triggered KPIs in RE1	TOT RE1 (totRE1 pilots+triggered KPIs in RE1)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.02	0	0.05	0	0.2	0	0.27	**0**	0	0.27
2. Final Energy Savings in GWh/year	EN2	End of the project	0.01	0	0.03	0	0.11	0	0.15	**0**	0	0.15
3. Renewable Energy Generation in GWh/year	EN3	End of the project	0.4	0.08	0.2	0.07	1	0.2	1.6	**0.35**	0	1.6
4. GHG emissions in tCO2eq/year	ENV1	End of the project	87	17.08	49	14.95	236	42.7	372	**74.73**	0	372
5. Investments in sustainable energy in mEUR	ECO1	End of the project	0.28	0.1	0.26	0.1	2.1	0.3	2.64	**0.5**	0	2.64
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	1	1	0	1	1	3	**2**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	9	5	2	5	15	15	**26**	0	15
11. Employment FTE	SOC4	End of the project	2	0	2	0	14	0	18	**0**	0	18
12. Citizens taking part in energy communities	SOC_2	End of the project	100	10	300	0	1100	50	1500	**60**	0	1500

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE1.1 - Val di Fassa		RE1.2 - Levico Terme		RE1.3 - Valle dei laghi		RE1.1 - Val di Fassa		RE1.2 - Levico Terme		RE1.3 - Valle dei laghi	
Information	**in ECOEM POWER**	**outside ECOEM POWER**	**in ECOEM POWER**	**outside ECOEM POWER**	**in ECOEM POWER**	**outside ECOEM POWER**	**in ECOEM POWER**	**outside ECOEM POWER**	**in ECOEM POWER**	**outside ECOEM POWER**	**in ECOEM POWER**	**outside ECOEM POWER**
Energy community created [yes/no]	no	no	no	yes*	yes	no	yes	no	no	yes*	yes	no
EC Members	0	0	0	0	40	0	10	0	0	0	50	0
Implemented assets (PV, Hydro, Wind etc.) [#]	0	0	1	1	0	0	PV	0	0	0	2*	0
Implemented assets [kW]	0	0	70*	80	0	0	80	0	0	0	200**	0

*= Esiste già una comunità energetica nell'area della cabina principale (che comprende i confini comunali), ma senza sede nel comune e con pochi membri residenti nel comune

**= In fase di pianificazione

RE1.1 – Val di Fassa

Il pilota della Val di Fassa è promosso dagli studenti della Scuola Ladina (Fassa), che hanno proposto la costituzione di una CER incentrata sulla scuola e sull'asilo. Nell'ambito di ECOEMPOWER, l'OSS ha fornito:

- Spiegazione dettagliata dei meccanismi delle CER e delle regole operative;
- Coordinamento con i promotori e con il consorzio elettrico locale per definire le caratteristiche dell'impianto;
- Supporto per individuare la forma giuridica più adatta e assistenza nella redazione dello statuto/atto costitutivo;
- Attività di capacity building sugli aspetti legali e amministrativi della gestione di una CER.

Un impianto fotovoltaico da 80 kW è stato installato sul tetto di una chiesa. L'impianto è stato realizzato e finanziato dal consorzio elettrico locale e reso disponibile sotto pieno controllo alla CER locale. L'investimento associato è stimato in €100.000, sostenuto dal consorzio (cioè non direttamente dalla CER). Al momento della rendicontazione, il soggetto giuridico è stato costituito e l'impianto è operativo; l'OSS sta supportando il processo di registrazione sul portale GSE per consentire alla CER di diventare pienamente operativa. I dati sui consumi energetici non sono ancora disponibili perché la CER non è ancora pienamente operativa; il team sta valutando una prima stima/simulazione focalizzata sul Comune di San Giovanni di Fassa, sebbene la CER sia idonea a operare sotto la cabina primaria di Moena.

Segnale di monitoraggio intermedio: questo pilota mostra il livello più avanzato di "prontezza all'implementazione", con un impianto funzionante e un soggetto giuridico già costituito, mentre il principale passaggio ancora da completare è l'attivazione formale attraverso il processo nazionale di registrazione.

RE1.2 – Levico Terme

Il Comune di Levico Terme ha esplorato lo sviluppo di un impianto fotovoltaico e valutato la costituzione di una comunità energetica principalmente per ridurre i costi energetici comunali. Durante ECOEMPOWER, l'OSS ha supportato:

- Chiarimento dei meccanismi nazionali per lo scambio e la condivisione dell'energia (quadro di

attuazione RED II);

- Dialogo con iniziative esistenti/emergenti sotto la stessa cabina primaria per valutare una possibile aggregazione;
- Supporto tecnico e amministrativo al personale comunale e ai tecnici;
- Coinvolgimento pubblico e incontri regolari con il comune.

Dopo la valutazione, il comune ha individuato come configurazione più adatta l'"autoconsumo a distanza con scambio attraverso la rete", una configurazione prevista dal quadro normativo italiano (DM 414/2023) che utilizza le stesse regole di calcolo della condivisione virtuale dell'energia e gli stessi meccanismi di incentivazione delle CER, ma con un unico utente beneficiario. Questo approccio è considerato particolarmente interessante per configurazioni comunali di misura complesse e per l'obiettivo di ridurre la spesa energetica pubblica, liberando risorse per finalità sociali.

Il comune ha commissionato la progettazione di un impianto FV di circa 70 kW; il completamento della progettazione è previsto entro il 2026, con un investimento stimato di €100.000 di fondi comunali. La raccolta dati comprende i consumi elettrici degli edifici comunali (ultimo dato disponibile: 1,12 GWh nel 2023) e un più ampio consumo di riferimento (27,8 GWh/anno) per riflettere la potenziale portata della configurazione. **Segnale di monitoraggio intermedio**: forti progressi nella governance/processo decisionale e nella pianificazione tecnica, mentre l'implementazione e gli output energetici misurabili sono attesi nelle fasi successive.

RE1.3 – Valle dei Laghi

In Valle dei Laghi, tre comuni hanno espresso interesse a costituire una comunità energetica, mentre cittadini e imprese locali hanno costituito un soggetto giuridico in forma cooperativa. Il supporto di ECOEMPOWER ha incluso:

- attivazione e facilitazione degli stakeholder, incluso il coinvolgimento della Federazione Trentina della Cooperazione per la creazione del soggetto giuridico;
- consulenza su proposte di impianti FV e valutazione di aree idonee;
- partecipazione e organizzazione di eventi locali;
- attività di capacity building, incluso un corso dedicato ai temi energetici per agricoltori e operatori forestali, con 15 persone formate.

Il gruppo sta attualmente lavorando per identificare impianti FV per un totale di 200 kW tra aziende locali idonei a essere inclusi nella comunità energetica. Questa scala corrisponde a un investimento stimato di €300.000, che si prevede sarà mobilitato da privati e imprese. In questa fase, la configurazione è ancora in fase di definizione; pertanto, il consumo è stato provvisoriamente riferito al consumo totale combinato dei tre comuni (44,2 GWh/anno).

Segnale di monitoraggio intermedio: consolidamento organizzativo (soggetto giuridico creato) e costruzione attiva della pipeline dei primi impianti; gli esiti quantitativi energetici/ambientali dipenderanno dalla realizzazione degli impianti e dalla disponibilità del monitoraggio.

Risultati preliminary dei KPI e tendenze

Sulla base del reporting dei KPI di RE1 (solo siti pilota), i risultati intermedi fino al Mese 28 indicano:

- Generazione di energia rinnovabile abilitata/attivata: 0,35 GWh/anno attualmente riportati rispetto a un valore di riferimento di fine progetto di 1,6 GWh/anno (≈ 22 % del valore finale atteso).
- Riduzioni delle emissioni di gas serra: 74,725 tCO_2eq/anno attualmente riportate rispetto a 372 tCO_2eq/anno (≈ 20 %).
- Investimenti in energia sostenibile mobilitati: 0,5 M€ attualmente riportati rispetto a 2,64 M€ (≈ 19 %).
- Siti di implementazione: 2 piloti con progressi di implementazione misurabili riportati rispetto a 3 previsti (≈ 67 %).
- Competenze / persone formate: 26 persone formate rispetto a un valore di riferimento di fine progetto di 15 (≈ 173 %, già al di sopra del valore di riferimento), a conferma di una forte performance iniziale sul capacity building.
- Cittadini partecipanti alle comunità energetiche: 60 attualmente riportati rispetto ai 1500 attesi a fine progetto (≈ 4 %), coerentemente con il fatto che alcune iniziative non sono ancora pienamente operative e/o sono ancora in fase di pianificazione.

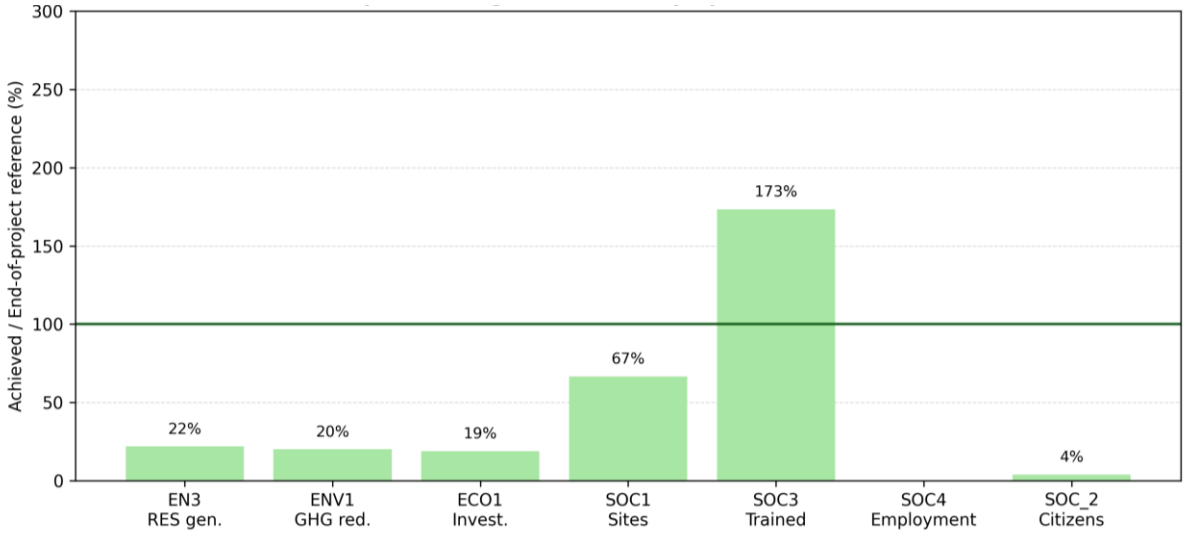

Figure 10 – Piloti RE1 – Avanzamento rispetto al valore di riferimento di fine progetto (M28)

Nota sulle lacune nei dati e sull'interpretazione: per alcuni piloti (in particolare Val di Fassa e Valle dei Laghi), i dati sui consumi e sulla condivisione operativa non sono disponibili perché la configurazione della CER è ancora in fase di finalizzazione oppure la CER non è ancora pienamente operativa (ad esempio, in attesa della registrazione al GSE). Pertanto, il monitoraggio iniziale è più solido sul piano della prontezza organizzativa, della formazione e della pipeline degli impianti, mentre i KPI energetici e ambientali completi si rafforzeranno una volta consolidati i flussi di dati di misura e operativi.

Ulteriori iniziative supportate da OSS Trentino (oltre i siti pilota)

L'OSS fornisce un supporto continuo a cittadini, organizzazioni e comuni che contattano il servizio tramite eventi e il sito web. RE1 riporta inoltre il coinvolgimento con diverse CER emergenti e iniziative comunali (ad esempio, Köncert; TECER; NOS energia; Vallagarina e Sarca; Greenland; Energia Nuova Vallarsa; Solidale Trentina; i comuni di Trento e Rovereto; e ulteriori scuole interessate a replicare il modello della Val di Fassa). Nell'insieme di queste iniziative, la PAT stima una pipeline di circa 4 MW installati o in fase di attivazione da parte di comunità energetiche rinnovabili esistenti.

Principali barriere e lezioni apprese

Il monitoraggio iniziale evidenzia diversi aspetti trasversali rilevanti per RE1:

- I passaggi di attivazione amministrativa (ad esempio, i processi di registrazione) possono ritardare la transizione da "impianti installati" a "CER pienamente operativa", incidendo sulla disponibilità dei dati operativi di condivisione dell'energia e dei consumi.
- La scelta della configurazione è importante: a Levico Terme, la scelta dell'autoconsumo a distanza con scambio attraverso la rete rappresenta un percorso pragmatico per i comuni con sistemi di misura complessi e obiettivi guidati dal bilancio, potenzialmente in grado di consentire un'implementazione più rapida preservando al contempo meccanismi comparabili di condivisione virtuale.
- La prontezza del monitoraggio richiede una pianificazione anticipata: diversi KPI energetici/ambientali dipendono da un accesso tempestivo ai dati di misura e da una chiara definizione del perimetro operativo (cabina primaria vs confini comunali), aspetti che dovrebbero essere affrontati il prima possibile.

Conclusioni

L'analisi trasversale al Mese 28 conferma che il progresso degli Ecosistemi Regionali di ECOEMPOWER è fortemente influenzato dal livello di maturità dei piloti, dagli assetti di governance e dalle condizioni normative nazionali o regionali. Sebbene gli impatti energetici e ambientali misurabili rimangano dipendenti dalla realizzazione delle infrastrutture e dalle tempistiche di messa in esercizio degli impianti, i progressi più precoci si osservano in modo costante nel capacity building, nella mobilitazione degli stakeholder e nella preparazione della governance. Ciò suggerisce che meccanismi di supporto come l'approccio One-Stop-Shop svolgano un ruolo abilitante cruciale nel preparare le comunità alla fase operativa.

Nella fase finale del progetto, gli sforzi dovrebbero concentrarsi sulla traduzione della prontezza organizzativa e degli investimenti pianificati in schemi operativi di condivisione dell'energia e in impatti misurabili in termini di generazione e riduzione delle emissioni. Allo stesso tempo, sarà necessario continuare a prestare attenzione all'allineamento normativo, al consolidamento della governance e alla partecipazione dei cittadini per garantire la sostenibilità e il funzionamento a lungo termine delle comunità energetiche emergenti. La diversità delle tipologie di pilota rappresenta un'importante fonte di evidenze rilevanti per le politiche pubbliche, supportando l'identificazione di approcci replicabili e di percorsi pratici di implementazione per le iniziative di energia comunitaria. Le esperienze nei diversi Ecosistemi Regionali forniscono elementi preziosi su come i modelli di governance, i contesti normativi e i livelli di maturità influenzino lo sviluppo delle comunità energetiche. Questi insegnamenti informeranno la valutazione finale (D6.4) e sosterranno la più ampia replicazione e diffusione dei modelli di energia comunitaria in tutta Europa.

ECOEMPOWER

ECOsystems EMPOWERing at regional and local scale supporting energy communities

Février 2026

D6.3 RÉSULTATS DES SITES PILOTES ECOEMPOWER ET RECOMMANDATIONS – PREMIÈRE VERSION

The project ECOEMPOWER - ECOsystems EMPOWERing at regional and local scale supporting energy communities receives funding from the European Climate, Infrastructure and Environment Executive Agency (CINEA) under Grant Agreement n°101120775.

Co-funded by the European Union

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RÉSUMÉ

Ce livrable présente la première version des résultats obtenus sur les sites pilotes ECOEMPOWER et fournit un ensemble de recommandations basées sur les activités de suivi et d'évaluation en cours menées dans le cadre de la tâche 6.3 « Tests d'évaluation ». L'objectif de ce document est d'évaluer, de manière structurée et mesurable, les premiers résultats obtenus grâce aux mécanismes de soutien ECOEMPOWER sur les sites pilotes, d'un point de vue énergétique, environnemental, social et économique. Les activités de suivi sont menées sur les 15 sites pilotes (3 communautés énergétiques dans 5 écosystèmes régionaux) à l'aide de la méthodologie et des indicateurs définis dans le document D6.1 et en prenant comme référence la base de référence établie dans le document D6.2.

Le processus de suivi comprend des analyses quantitatives et qualitatives, basées sur la collecte de données auprès des partenaires régionaux à l'aide de modèles communs, d'entretiens, d'ateliers et de l'analyse des systèmes de suivi et de communication.

Le livrable 6.3 se concentre sur les résultats intermédiaires recueillis jusqu'au mois 28 du projet et donne un aperçu des principaux résultats et tendances qui se dégagent des sites pilotes. Les résultats sont comparés à la base de référence afin d'évaluer les premiers impacts des guichets uniques ECOEMPOWER (OSS) et des services connexes.

Le livrable présente également le système de suivi continu adopté dans le cadre du WP6 – Test des mécanismes de soutien au projet sur les sites pilotes, en décrivant la fréquence de collecte des données, les outils et les mécanismes de collaboration entre les partenaires. Une série de recommandations préliminaires est proposée afin d'optimiser les activités en cours et d'améliorer les impacts des sites pilotes dans les phases suivantes du projet.

Écosystème régional n°2 (RE2): Auvergne-Rhône-Alpes et Grand Est (FRANCE)

Description de l'écosystème régional

L'Écosystème régional n°2 (RE2) couvre l'Auvergne-Rhône-Alpes et le Grand Est et bénéficie du soutien des services de guichet unique mis en œuvre par l'Association des Centrales Villageoises (ACV). L'écosystème s'appuie sur des structures énergétiques citoyennes déjà consolidées et soutient le développement et la réplication de projets de production d'énergies renouvelables. Les services de l'OSS combinent un accompagnement réglementaire, un appui technique, juridique et financier, et un appui en matière de communication (mobilisation, levée de fonds, gouvernance, organisation interne), avec pour objectif d'accélérer le développement des projets et de permettre leur réplication sur d'autres territoires.

Vue d'ensemble des sites pilotes et état d'avancement de la mise en œuvre

Vous trouverez ci-dessous deux tableaux : le premier présente, dans l'ordre, les indicateurs clés de performance (KPI) du projet LIFE suivis sur les différents sites pilotes au sein de l'écosystème régional ; le second offre une vue d'ensemble des sites pilotes, en détaillant les KPI et en indiquant s'ils ont été mis en œuvre dans le cadre du projet ou en dehors de celui-ci (ce qui est particulièrement pertinent pour le site ECOEMPOWER).

			RE2: AURA-Gran Est (FRANCE)									
LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE2.1 Eau et Soleil du Lac	RE2.1 Eau et Soleil du Lac	RE2.2 VercorSoleiL	RE2.2 VercorSoleiL	RE2.3 Centrales Villageoises de Vezouze-en-Piemont	RE2.3 Centrales Villageoises de Vezouze-en-Piemont	tot RE2 pilots (RE2.1+RE2.2+RE2.3)	TOT achieved	triggered KPIs in RE2	TOT RE2 (totRE2 pilots+triggered KPIs in RE2)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.05	0	0.04	0	0.05	0	0.14	**0**	0	0.14
2. Final Energy Savings in GWh/year	EN2	End of the project	0.03	0	0.02	0	0.03	0	0.08	**0**	0	0.08
3. Renewable Energy Generation in GWh/year	EN3	End of the project	1.1	0.117	5.21	0.51	5.5	0.402	11.81	**1.029**	0	11.81
4. GHG emissions in tCO2eq/year	ENV1	End of the project	58	6	267	26.1	283	20.57	608	**52.67**	0	608
5. Investments in sustainable energy in mEUR	ECO1	End of the project	1.26	0.15	7.15	0.02	7	0	15.41	**0.17**	0	15.41
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	1	1	1	1	1	3	**3**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	100	5	80	5	50	15	**230**	0	15
11. Employment FTE	SOC4	End of the project	9	0	50	0.8	49	0	108	**0.8**	0	108
12. Citizens taking part in energy communities	SOC_2	End of the project	300	25	200	18	300	19	800	**62**	0	800

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE2.1 Eau et Soleil du Lac		RE2.2 VercorSoleiL		RE2.3 Centrales Villageoises de Vezouze-en-Piemont		RE2.1 Eau et Soleil du Lac		RE2.2 VercorSoleiL		RE2.3 Centrales Villageoises de Vezouze-en-Piemont	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]		yes		yes		yes		yes		yes		yes
EC Members	25	0	6	0	12	0		0		0		0
Implemented assets (PV, Hydro, Wind etc.) [#]	2	0	0	0	0	0		0	2	0	6	0
Implemented assets [kW]	141	0	0	0	0	0		0	212.5	0		0

RE2.1 – Eau et Soleil du Lac

Eau et Soleil du Lac a bénéficié du soutien de l'OSS pour développer un premier projet d'autoconsommation collective et améliorer son organisation interne. Dans le cadre d'ECOEMPOWER, l'OSS a:

- Soutenu la modification des statuts de la société afin d'inclure les projets d'autoconsommation collective dans l'objet social;
- Fourni des orientations sur les critères permettant d'être reconnue comme entreprise de l'économie sociale et solidaire;
- Soutenu la mise en œuvre d'un premier projet d'autoconsommation collective (accompagnement juridique et premiers travaux de faisabilité);
- Accompagné le collectif dans l'amélioration de son organisation interne et de la répartition des tâches entre les membres grâce à un séminaire interne dédié;
- Facilité les échanges de connaissances au niveau du consortium à travers le partage d'expériences.

Grâce aux outils et à l'accompagnement de l'OSS, Eau & Soleil du Lac a développé deux nouveaux projets solaires photovoltaïques représentant un investissement total de 150 000 €. Avec les installations existantes, ces projets portent la production totale d'électricité de l'organisation à 0,117 GWh en 2024. Parallèlement, les activités organisées par Eau et Soleil du Lac ont contribué à améliorer la sensibilisation et les connaissances au niveau local : 80 personnes ont renforcé leur compréhension des énergies renouvelables et de l'énergie citoyenne grâce à des réunions publiques et des internventions en milieu scolaire.

RE2.2 – VercorSoleiL

L'OSS a soutenu VercorSoleiL dans la réalisation de sa première opération d'autoconsommation collective et dans la consolidation de sa trajectoire de développement. Dans le cadre d'ECOEMPOWER, l'OSS a:

- Fourni un appui pour comprendre et appliquer le cadre réglementaire de l'autoconsommation collective;
- Soutenu les actions de levée de fonds et aidé la société à répondre aux exigences bancaires concernant les conventions de comptes courants d'associés;
- Renforcé les efforts de communication par la conception et le financement de panneaux pédagogiques à proximité des sites de production et chez les consommateurs, expliquant les mécanismes de partage de l'énergie et soutenant la croissance du nombre d'adhérents; ainsi que d'un kakémono présentant les

missions de la société locale

- Mis en œuvre des actions de renforcement des capacités en communication afin d'aider la communauté à recruter de nouveaux bénévoles et membres.

Grâce aux outils et à l'accompagnement de l'OSS, VercorSoleiL a développé un nouveau projet solaire photovoltaïque représentant un investissement total de 20 000 €. Avec les installations existantes, cela contribue à une production d'électricité de 0,51 GWh en 2024. Parallèlement, les activités de sensibilisation de la société locale ont contribué au renforcement des capacités au niveau local : 55 personnes ont amélioré leurs connaissances sur les énergies renouvelables et l'énergie citoyenne. Le pilote signale également l'implication d'un salarié à temps partiel (0,4 ETP) soutenant les activités opérationnelles.

RE2.3 – Centrales Villageoises de Vezouze-en-Piémont

L'OSS a soutenu les Centrales Villageoises de Vezouze-en-Piémont dans la mise en place de leur premier projet d'autoconsommation collective et dans la préparation d'options de montée en échelle. Dans le cadre d'ECOEMPOWER, l'OSS a:

- Apporté un appui à la rédaction des contrats de vente avec les consommateurs et à l'identification d'un responsable d'équilibre;
- Soutenu la préparation d'une campagne de levée de fonds, y compris la rédaction du document d'information synthétique requis avant le lancement;
- Produit et financé des panneaux pédagogiques pour les sites de production et de consommation impliqués dans l'opération d'autoconsommation collective; et réalisé un flyer présentant le projet d'autoconsommation collective ;
- Suivi le développement d'un projet photovoltaïque au sol porté par une entreprise membre externe, dans lequel le pilote pourrait potentiellement investir.

Le premier projet d'autoconsommation collective représente une capacité installée générant 0,402 GWh/an, avec un investissement total déclaré de 20 000 €. Parallèlement, 30 personnes ont renforcé leurs connaissances sur les communautés énergétiques grâce à des réunions bilatérales organisées avec des groupes émergents et des autorités locales.

Résultats préliminaires des KPI et tendances

Sur la base du reporting des KPI de RE2 pour les trois pilotes, les résultats intermédiaires jusqu'au Mois 28 indiquent:

- Production d'énergie renouvelable (EN3) : 1,029 GWh/an réalisés contre une valeur de référence de fin de projet de 11,81 GWh/an (≈ 8,7 %).
- Réduction des émissions de GES (ENV1) : 52,67 tCO_2eq/an réalisées contre 608 tCO_2eq/an (≈ 8,7 %).
- Investissements mobilisés (ECO1) : 0,17 M€ réalisés contre 15,41 M€ (≈ 1,1 %).
- Sites de mise en œuvre (SOC1) : 3 réalisés sur 3 prévus (100 %).
- Compétences / personnes formées (SOC3) : 230 réalisées pour une référence de 15 (déjà au-dessus de la valeur de référence).

- Emploi (SOC4) : 0,8 ETP réalisés contre 108 ETP (≈ 0,7 %).
- Citoyens participant (SOC_2) : 62 réalisés contre 800 (≈ 7,8 %).

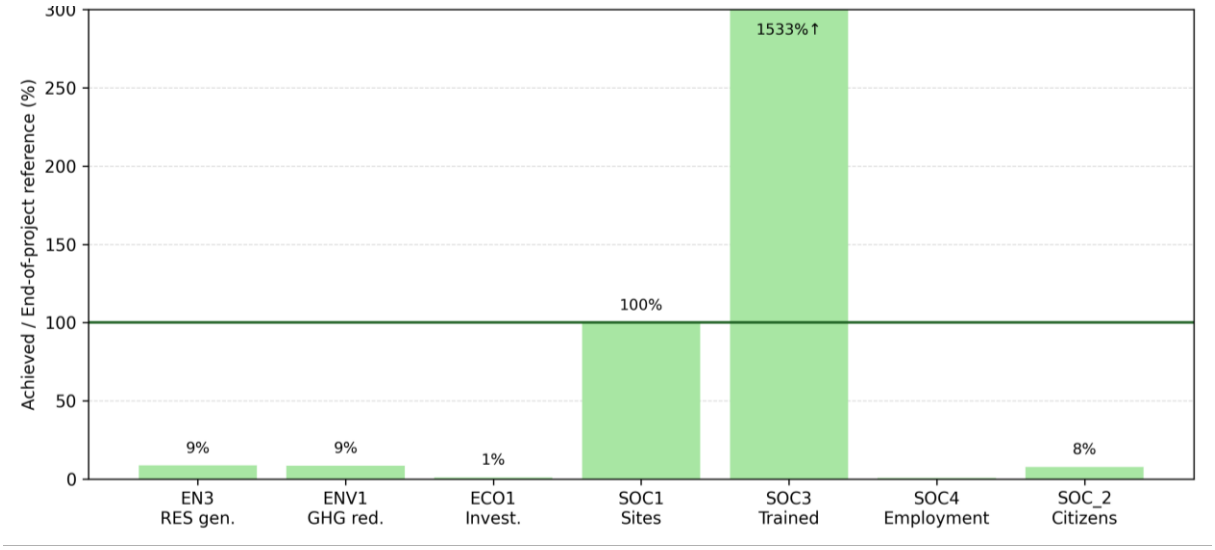

Figure 11- Pilotes RE2 – Avancement par rapport à la valeur de référence de fin de projet (M28)

L'interprétation à ce stade doit tenir compte du fait que les pilotes RE2 sont déjà actifs (les trois sites de mise en œuvre sont signalés), tandis que la montée en échelle vers les niveaux de référence de fin de projet en matière de production, d'investissement, d'emploi et de participation citoyenne dépend généralement de cycles de développement plus longs (levée de fonds, contractualisation, raccordement au réseau et réplication vers des actifs/utilisateurs supplémentaires). En revanche, les actions de renforcement des capacités et les indicateurs liés à la formation peuvent progresser plus rapidement et affichent déjà de bonnes performances précoces.

Initiatives supplémentaires soutenues par l'OSS (au-delà des sites pilotes)

Au-delà des pilotes, l'OSS a mis en œuvre plusieurs initiatives rendues possibles par ECOEMPOWER afin de renforcer l'écosystème régional, notamment : mise en réseau et système de parrainage pour des collectifs émergents ; formations dédiées à la mobilisation citoyenne, à l'organisation interne et à la communication ; consolidation des partenariats pour traiter les questions de raccordement au réseau (y compris la coopération avec le gestionnaire de réseau ENEDIS) ; et des actions orientées vers la réplication à travers des présentations bilatérales et des webinaires ouverts ciblant des groupes émergents et des autorités locales.

Principaux freins et enseignements tirés

Le suivi précoce met en évidence trois éléments récurrents dans RE2:

- Les projets d'autoconsommation collective nécessitent un soutien jurdique et financier important (contrats, conformité, gestion de l'équilibre), dans lequel l'assistance de l'OSS constitue un facteur clé de réussite.
- La levée de fonds et la capacité de financement représentent un goulet d'étranglement critique ; un soutien ciblé sur la documentation et les dispositifs financiers améliore la préparation et réduit les retards.
- Les outils de communication et de visibilité (formations et panneaux pédagogiques sur site) constituent des leviers concrets pour accroître la compréhension du partage de l'énergie et soutenir le recrutement de nouveaux membres.

Conclusions

L'analyse transversale au Mois 28 confirme que les progrès des Écosystèmes régionaux d'ECOEMPOWER sont fortement influencés par le niveau de maturité des pilotes, les dispositifs de gouvernance et les conditions réglementaires nationales ou régionales. Si les impacts énergétiques et environnementaux mesurables restent dépendants du déploiement des infrastructures et des calendriers de mise en service des actifs, les progrès les plus précoces sont observés de manière constante dans le renforcement des capacités, la mobilisation des parties prenantes et la préparation de la gouvernance. Cela suggère que des mécanismes de soutien tels que l'approche guichet unique jouent un rôle facilitateur essentiel dans la préparation des communautés à la phase opérationnelle.

Dans la phase finale du projet, les efforts devraient se concentrer sur la transformation de la préparation organisationnelle et des investissements planifiés en mécanismes opérationnels de partage de l'énergie, ainsi qu'en impacts mesurables en matière de production et de réduction des émissions. Dans le même temps, il sera nécessaire de continuer à accorder une attention particulière à l'alignement réglementaire, à la consolidation de la gouvernance et à la participation citoyenne afin de garantir la durabilité et le fonctionnement à long terme des communautés énergétiques émergentes. La diversité des typologies de pilotes représente une source importante d'enseignements utiles pour les politiques publiques, en soutenant l'identification d'approches réplicables et de voies pratiques de mise en œuvre pour les initiatives de communautés d'énergie. Les expériences menées dans les différents Écosystèmes régionaux apportent des éléments précieux sur la manière dont les modèles de gouvernance, les contextes réglementaires et les niveaux de maturité influencent le développement des communautés d'énergie. Ces enseignements alimenteront l'évaluation finale (D6.4) et soutiendront la réplication et le déploiement à plus grande échelle des modèles dde communautés d'énergie à travers l'Europe.

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ECOsystems EMPOWERing at regional and local scale supporting energy communities

Februar 2026

D6.3 ERGEBNISSE DER ECOEMPOWER-PILOTSTANDORTE UND EMPFEHLUNGEN – ERSTE FASSUNG

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EXECUTIVE SUMMARY

Dieses Dokument enthält die erste Version der Ergebnisse, die an den ECOEMPOWER-Pilotstandorten erzielt wurden, sowie eine Reihe vorläufiger Empfehlungen, die auf den laufenden Kontroll- und Bewertungsaktivitäten im Rahmen der Aufgabe 6.3 „Bewertungstests" basieren. Ziel dieses Dokuments ist es, die ersten Auswirkungen, die durch die ECOEMPOWER-Fördermechanismen an den Pilotstandorten erzielt wurden, aus energetischer, ökologischer, sozialer und wirtschaftlicher Sicht auf strukturierte und messbare Weise zu bewerten.

Die Überwachungsaktivitäten werden an den 15 Pilotstandorten (3 Energiegemeinschaften pro 5 regionale Ökosysteme) unter Verwendung der in D6.1 definierten Methodik und Indikatoren und unter Bezugnahme auf die in D6.2 festgelegte Basislinie durchgeführt.

Der Überwachungsprozess umfasst sowohl quantitative als auch qualitative Analysen, die auf der Datenerhebung von regionalen Partnern anhand gemeinsamer Vorlagen, Interviews, Workshops und der Analyse von Überwachungs- und Kommunikationssystemen basieren.

Das Ergebnis 6.3 konzentriert sich auf die bis zum 28. Monat des Projekts gesammelten Zwischenergebnisse und bietet einen Überblick über die wichtigsten Ergebnisse und Trends, die sich aus den Pilotstandorten ergeben. Die Ergebnisse werden mit der Basislinie verglichen, um die ersten Auswirkungen der ECOEMPOWER One Stop Shops (OSS) und der damit verbundenen Dienstleistungen zu bewerten.

Das Ergebnis stellt auch das im Rahmen von WP6 „Testen von Projektunterstützungsmechanismen an Pilotstandorten" eingeführte kontinuierliche Überwachungssystem vor und beschreibt die Häufigkeit der Datenerhebung, die Instrumente und die Kooperationsmechanismen zwischen den Partnern. Es wird eine vorläufige Reihe von Empfehlungen vorgeschlagen, um die laufenden Aktivitäten zu optimieren und die Leistung der Pilotstandorte in den folgenden Phasen des Projekts zu verbessern.

Regionales Ökosystem Nr. 3 (RE3): Allgäu (DEUTSCHLAND)

Beschreibung des regionalen Ökosystems

Das Regionale Ökosystem Nr. 3 (RE3) befindet sich in der Region Allgäu in Deutschland und wird durch die von eza! koordinierten OSS-Dienstleistungen (in Zusammenarbeit mit regionalen Akteuren) unterstützt. Das Ökosystem baut auf dem Vorhandensein etablierter Energiegenossenschaften und aufkommender Gruppen auf.Ein zentraler Fokus ist es, Energiegemeinschaften durch eine Kombination aus strategischer Beratungsunterstützung für Genossenschaftsvorstände und Kommunen, Bürgerbeteiligung und Sensibilisierung sowie vorbereitenden Arbeiten zu Daten- und technischen Anforderungen für künftiges Energy Sharing (einschließlich der Rolle intelligenter Messsysteme) zu ermöglichen. Der zweite Schwerpunkt der Arbeit liegt im Bereich Wärmegenossenschaften und der gezielten beratung von Kommunen, um bürgerliche Wärme zu begünstigen und zu unterstützen. RE3 umfasst sowohl konsolidierte Genossenschaften mit bestehenden erneuerbaren Anlagen als auch ein Pilotvorhaben, bei dem sich die Energiegemeinschaft noch in Gründung befindet.

Überblick über die Pilotstandorte und Umsetzungsstand

Nachfolgend finden Sie zwei Tabellen: Die erste Tabelle listet der Reihe nach die LIFE-KPIs auf, die an den verschiedenen Pilotstandorten innerhalb des regionalen Ökosystems erfasst werden; die zweite Tabelle bietet einen Überblick über die Pilotstandorte, wobei die KPIs im Einzelnen aufgeführt und angegeben wird, ob sie im Rahmen des Projekts oder extern umgesetzt wurden (besonders relevant für den ECOEMPOWER-Standort).

LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE3: Allgau (GERMANY)									
			RE3.1 Elektrizitätswerke Hindelang eG	RE3.1 Elektrizitätswerke Hindelang eG	RE3.2 Eppishausen and Kirchheim	RE3.2 Eppishausen and Kirchheim	RE3.3 Altlandkreis Füssen	RE3.3 Altlandkreis Füssen	tot RE3 pilots (RE3.1+RE3.2+RE3.3)	TOT achieved	triggered KPIs in RE3	tot RE3 (tot RE3pilots+ triggered KPIs in RE3)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.36	0	0.04	0	0.55	0	0.95	**0**	0	0.95
2. Final Energy Savings in GWh/year	EN2	End of the project	0.19	0	0.02	0	0.29	0	0.5	**0**	0	0.5
3. Renewable Energy Generation in GWh/year	EN3	End of the project	2.31	0	3.85	16.6	3.85	0.6	10.01	**17.2**	0	10.01
4. GHG emissions in tCO2eq/year	ENV1	End of the project	777	0	1202	5163	1286	186.6	3265	**5349**	0	3265
5. Investments in sustainable energy in mEUR	ECO1	End of the project	3	0	5	8	5	0.6	13	**8.6**	0	13
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	1	1	1	1	0	3	**2**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	4	5	38	5	0	15	**42**	0	15
11. Employment FTE	SOC4	End of the project	21	0	35	0	35	0	91	**0**	0	91
12. Citizens taking part in energy communities	SOC_2	End of the project	2000	0	200	4	3000	6	5200	**10**	0	5200

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE3.1 Elektrizitätswerke Hindelang eG		RE3.2 Dorfenergie eG		RE3.3 - Elektrizitätswerke Reutte		RE3.1 Elektrizitätswerke Hindelang eG		RE3.2 Dorfenergie eG		RE3.3 - Elektrizitätswerke Reutte	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]		yes		yes	no	no		yes		yes	no	no
EC Members		330		134		0		330		134		0
Implemented assets (PV, Hydro, Wind etc.) [#]		7		4		0		7		4		0
Implemented assets [kW]		532		80		0		532		80		0

RE3.1 – Elektrizitätswerke Hindelang eG

In Bad Hindelang besitzt die Energiegenossenschaft mehrere erneuerbare Anlagen, darunter drei Wasserkraftwerke (insgesamt etwa 4,8 GWh/Jahr) und vier Dach-PV-Anlagen (etwa 0,16 GWh/Jahr). Während der Projektdauer wurden mehrere Versuche unternommen, zusätzliche Anlagen zu installieren, die jedoch nicht realisiert wurden. Dies hängt zusammen mit (i) der allgemeinen wirtschaftlichen Situation der Genossenschaft und (ii) der begrenzten Verfügbarkeit geeigneter Flächen für Projekte im Bereich erneuerbare Energien im lokalen alpinen Kontext sowie mit technischen Einschränkungen, die die Machbarkeit von PV-Anlagen in bergigem Gelände beeinflussen.

Im Rahmen von ECOEMPOWER konzentrierte sich die Unterstützung auf die Stärkung der strategischen und förderlichen Rahmenbedingungen für die weitere Entwicklung, einschließlich hochrangiger Austauschformate mit der Leitung der Genossenschaft und lokalen öffentlichen Akteuren. Zu den behandelten Kernthemen gehörten das künftige Potenzial intelligenter Messsysteme für Energy Sharing, die Identifikation umsetzbarer Projektmöglichkeiten sowie organisatorische Herausforderungen wie Generationenwechsel und Partizipation innerhalb von Genossenschaften. In diesem Stadium ist der Pilot weiterhin durch eine starke bestehende Anlagenbasis, aber ein begrenztes kurzfristiges Expansionspotenzial gekennzeichnet; das OSS zielt darauf ab, die Identifikation von Chancen und die Bereitschaft für künftige Energy-Sharing-Regelungen zu unterstützen.

RE3.2 – Dorfenergie eG

Dieser Pilotstandort besitzt vier Dach-PV-Anlagen, die etwa 0,7 GWh/Jahr erzeugen. Die Genossenschaft hat formell beschlossen, gemeinsam mit anderen Akteuren ein Freiflächen-PV-Projekt mit 16,6 MW und einem Gesamtinvestitionsvolumen von etwa 8 Millionen € zu entwickeln; der Anteil von Dorfenergie entspricht 12 % (für ECOEMPOWER als relevante Kapazität von 1992 kW gemeldet). Der Baubeginn ist für 2026 und die Fertigstellung für 2027 geplant, sodass die wesentlichen Auswirkungen dieser neuen Anlage auf die Energieerzeugung erst über den aktuellen Monitoringzeitraum hinaus erwartet werden.

Im Rahmen von ECOEMPOWER unterstützte das OSS die Genossenschaft und lokale Akteure durch strukturierte Austausch- und Beratungsaktivitäten, die darauf abzielten, Kooperationserwartungen zu klären, Professionalisierungsoptionen zu erkunden und Möglichkeiten nach Auslaufen der EEG-Vergütung vorzubereiten, einschließlich künftiger Energy-Sharing-Ansätze. Parallel dazu unterstützte das OSS eine breitere regionale Vernetzung zwischen benachbarten Genossenschaften und lokalen Akteuren, um gemeinsame Herausforderungen und Kooperationsmöglichkeiten zu diskutieren (z. B. Modelle zwischen Genossenschaften und kommunalen Versorgern, organisatorische/rechtliche Aspekte und zukunftsorientierte Themen wie Energy

Sharing). Insgesamt zeigt der Pilot ein starkes Skalierungspotenzial durch eine bedeutende geplante Investition, während messbare operative Ergebnisse vor allem in nachfolgenden Projektphasen realisiert werden.

RE3.3 – Elektrizitätswerke Reutte

Im Raum Füssen/Reutte prüft eine Gruppe privater Akteure (darunter Hotels, eine Klinik und Akteure aus der Landwirtschaft) die Gründung einer Energy-Sharing-Initiative durch die Bündelung bestehender Dach-PV-Kapazitäten. Ein 24-Stunden-Datensatz mit einer Auflösung von 15 Minuten wurde erhoben und analysiert; dabei zeigte sich, dass das derzeitige Erzeugungsportfolio den Bedarf der beteiligten Akteure nicht ausreichend decken würde. Auf Grundlage dieser Bewertung würde die Initiative zusätzliche erneuerbare Kapazitäten von mehr als 600 kWp benötigen, um eine Konfiguration zu erreichen, die mit einem höheren Grad an Selbstversorgung vereinbar ist; eine Referenzinvestition zur Erreichung dieses Umfangs (z. B. durch Freiflächen-PV) wird auf rund 600.000 € geschätzt. Durch Kooperationsveranstaltungen konnte der Kontakt zu einem Besitzer eines Wasserkraftwerks aufgebaut werden, welches die Modellierung und die Möglichkeiten eines bedarfsdeckenden Energy Sharing signifikant erhöhen würde.

Derzeit ist dies der RE3-Pilot, bei dem sich eine Energiegemeinschaft noch in Gründung befindet. Die Unterstützung durch das OSS konzentrierte sich auf die Konzeptentwicklung (Geschäftsmodelle, rechtliche und finanzielle Planung), die datenbasierte Modellierung potenzieller Energy-Sharing-Konfigurationen und die Bündelung von Stakeholdern. Ein möglicher Kooperationspfad wird zudem mit einer benachbarten Initiative (Bürgerenergie Ostallgäu) geprüft, mit dem Ziel, Kräfte zu bündeln und Umfang sowie Bürgerbeteiligung zu erhöhen. Auf Grundlage der aktuellen Mobilisierung erwartet der Pilot die Gründung einer Energiegemeinschaft noch vor Projektende.

Vorläufige KPI-Ergebnisse und Trends

Auf Grundlage der RE3-KPI-Berichterstattung für die drei Piloten zeigen die Zwischenergebnisse bis Monat 28 Folgendes:

- Erzeugung erneuerbarer Energie (EN3): 17,2 GWh/Jahr erreicht gegenüber einem Referenzwert zum Projektende von 10,01 GWh/Jahr.
- Reduktion der Treibhausgasemissionen (ENV1): 5.349,2 tCO_2eq/Jahr erreicht gegenüber einem Referenzwert von 3.265 tCO_2eq/Jahr.
- Mobilisierte Investitionen (ECO1): 8,6 Mio. € erreicht gegenüber einem Referenzwert von 13 Mio. €.
- Umsetzungsstandorte (SOC1): 2 erreicht gegenüber 3 geplanten.
- Kompetenzen / geschulte Personen (SOC3): 42 erreicht gegenüber einem Referenzwert von 15.
- Beschäftigung (SOC4): 0 VZÄ erreicht gegenüber einem Referenzwert von 91 VZÄ.
- Teilnehmende Bürgerinnen und Bürger (SOC_2): 10 erreicht gegenüber einem Referenzwert von 5200.

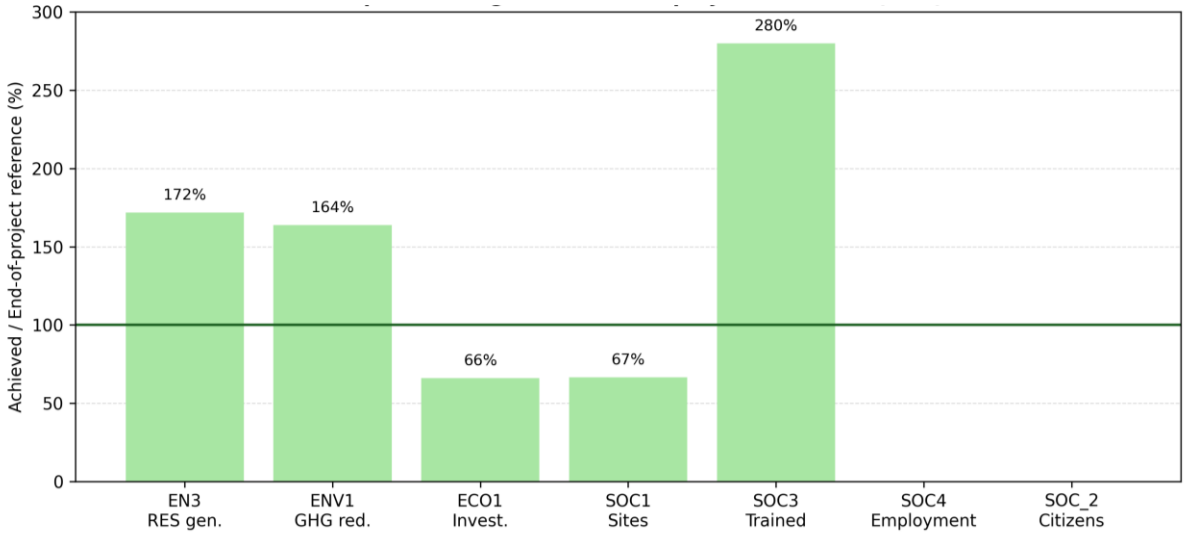

Figure 12 – RE3-Piloten – Fortschritt gegenüber dem Referenzwert zum Projektende (M28)

In diesem Stadium umfasst RE3 sowohl operative Aktivitäten als auch Initiativen, die formell bestätigt wurden und voraussichtlich in naher Zukunft umgesetzt werden (z. B. großskalige PV-Entwicklungen, deren Bau in den nächsten Jahren geplant ist). Im Einklang mit dem in WP6 angewandten Monitoringansatz werden diese bestätigten Entwicklungen in die KPI-Berechnung einbezogen, da sie einen verbindlichen Fortschritt darstellen, der innerhalb des Projektzeitraums ermöglicht und/oder konsolidiert wurde. Mit fortschreitender Umsetzung wird das Monitoring schrittweise mehr operative und gemessene Daten integrieren, wodurch die Aussagekraft der Energie- und Umweltindikatoren gestärkt und ein klarerer Vergleich zwischen den Pilotstandorten unterstützt wird.

Zusätzliche durch das OSS unterstützte Initiativen (über die Pilotstandorte hinaus)

Über die Pilotstandorte hinaus hat das OSS mit weiteren regionalen Akteuren und Initiativen zusammengearbeitet, darunter Austauschformate mit Bürgerenergie Ostallgäu und benachbarten Energiegemeinschaften rund um Eppishausen. Zudem wurde eine Bürgerinformationskampagne in Pforzen zum Thema eines lokalen bürgerbetriebenen initiiert, wo nach einer ersten umgesetzten Veranstaltung nun die Besichtigung von Best-Practices mit den interessierten Bürgern ansteht. Diese Interaktionen unterstützen die Replikation und die Erkundung effizienterer gemeinsamer Organisationsansätze (z. B. die Bündelung administrativer und koordinativer Aufgaben über mehrere Gemeinschaften hinweg), mit dem Ziel, das regionale förderliche Ökosystem für Energiegemeinschaften und Energy Sharing zu stärken.

Zentrale Barrieren und Lessons Learned

Wesentliche übergreifende Punkte, die sich aus RE3 ergeben, sind:

- Der Mangel an geeigneten Flächen und technische Einschränkungen (insbesondere in alpinen Kontexten) können die kurzfristige Umsetzung neuer EE-Anlagen erheblich begrenzen, selbst dort, wo Gemeinschaften bereits ausgereift und motiviert sind.
- Wirtschaftliche Machbarkeit und Investitionszeitpunkt beeinflussen, ob zusätzliche Anlagen innerhalb der Projektlaufzeiten realisiert werden können; einige investitionsstarke Vorhaben (z. B. Freiflächen-PV) könnten erst über den aktuellen Monitoringhorizont hinaus umgesetzt werden.
- Die Bereitschaft für Energy Sharing erfordert frühzeitige Aufmerksamkeit für intelligente Messsysteme und Datenverfügbarkeit; es ist gezielte Unterstützung notwendig, um Genossenschaften und aufkommenden Gruppen dabei zu helfen, Interesse in umsetzbare Modelle zu überführen.
- Ehrenamtlich getragene Genossenschaftsstrukturen stehen vor Herausforderungen im Zusammenhang mit Professionalisierung und Generationenwechsel, die sich auf die Umsetzungskapazität und die langfristige Nachhaltigkeit auswirken können.

Schlussfolgerungen

Die querschnittliche Analyse zum Monat 28 bestätigt, dass der Fortschritt der regionalen Ökosysteme von ECOEMPOWER stark vom Reifegrad der Pilotprojekte, von den Governance-Strukturen sowie von den nationalen oder regionalen regulatorischen Rahmenbedingungen beeinflusst wird. Während messbare energetische und ökologische Auswirkungen weiterhin von der Umsetzung der Infrastruktur und den Zeitplänen für die Inbetriebnahme der Anlagen abhängen, zeigen sich frühere Fortschritte durchgängig beim Kapazitätsaufbau, bei der Mobilisierung von Stakeholdern und bei der Vorbereitung der Governance. Dies deutet darauf hin, dass Unterstützungsmechanismen wie der One-Stop-Shop-Ansatz eine entscheidende ermöglichende Rolle dabei spielen, Gemeinschaften auf die operative Phase vorzubereiten.

In der Endphase des Projekts sollten sich die Anstrengungen darauf konzentrieren, organisatorische Bereitschaft und geplante Investitionen in operative Energy-Sharing-Modelle und messbare Auswirkungen im Hinblick auf Energieerzeugung und Emissionsminderung zu überführen. Gleichzeitig wird weiterhin Aufmerksamkeit für regulatorische Abstimmung, Governance-Konsolidierung und Bürgerbeteiligung erforderlich sein, um die Nachhaltigkeit und das langfristige Funktionieren der entstehenden Energiegemeinschaften sicherzustellen. Die Vielfalt der Pilottypologien stellt eine wichtige Quelle politisch relevanter Erkenntnisse dar und unterstützt die Identifizierung replizierbarer Ansätze und praktischer Umsetzungswege für gemeinschaftliche Energieinitiativen. Die Erfahrungen in den regionalen Ökosystemen liefern wertvolle Erkenntnisse darüber, wie Governance-Modelle, regulatorische Kontexte und Reifegrade die Entwicklung von Energiegemeinschaften beeinflussen. Diese Erkenntnisse werden in die abschließende Bewertung (D6.4) einfließen und die breitere Replikation und Skalierung von gemeinschaftlichen Energiemodellen in ganz Europa unterstützen.

ECOEMPOWER

ECOsystems EMPOWERing at regional and local scale supporting energy communities

Únor 2026

D6.3 VÝSLEDKY PILOTNÍCH LOKALIT PROJEKTU ECOEMPOWER A DOPORUČENÍ – PRVNÍ VERZE

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EXECUTIVE SUMMARY

Tento výstup představuje první verzi výsledků získaných z pilotních lokalit ECOEMPOWER a poskytuje předběžný soubor doporučení na základě průběžného monitorování a hodnocení prováděného v rámci úkolu 6.3 „Hodnotící testy“. Cílem tohoto dokumentu je strukturovaným a měřitelným způsobem posoudit první efekty dosažené prostřednictvím podpůrných mechanismů ECOEMPOWER v pilotních lokalitách z energetického, environmentálního, sociálního a ekonomického hlediska.

Monitorovací činnosti jsou prováděny v 15 pilotních lokalitách (3 energetické komunity v každém z 5 regionálních ekosystémů) s využitím metodiky a ukazatelů definovaných v D6.1 a s odkazem na referenční hodnotu stanovenou v D6.2.

Monitorovací proces zahrnuje kvantitativní i kvalitativní analýzy založené na sběru dat od regionálních partnerů prostřednictvím sdílených šablon, rozhovorů, workshopů a analýzy monitorovacích a komunikačních přístupů.

Výstup 6.3 se zaměřuje na průběžné výsledky shromážděné do 28. měsíce projektu a poskytuje přehled hlavních výsledků a trendů vyplývajících z pilotních lokalit. Výsledky jsou porovnány s výchozími hodnotami, aby bylo možné posoudit počáteční dopady jednotných kontaktních míst ECOEMPOWER (OSS) a souvisejících služeb.

Výstup také představuje systém průběžného monitorování zavedený v rámci WP6 – Testování podpůrných mechanismů projektu v pilotních lokalitách, který popisuje frekvenci sběru dat, nástroje a mechanismy spolupráce mezi partnery. Je navržen předběžný soubor doporučení k optimalizaci probíhajících aktivit a zlepšení výkonnosti pilotních lokalit v následujících fázích projektu.

Regionální ekosystém č. 4 (RE4): Zlínský kraj (ČESKÁ REPUBLIKA)

Popis regionálního ekosystému

Regionální ekosystém č. 4 (RE4) se nachází ve Zlínském kraji a je podporován prostřednictvím OSS provozovaného Energetickou agenturou Zlínského kraje (EAZK). České pilotní lokality se od ostatních ekosystémů liší tím, že primárně zahrnují administrativní/veřejné budovy obcí. V důsledku toho se piloty zaměřují na sdílení energie mezi obecními subjekty (portfolii veřejných budov), nikoli na přímou účast domácností. Energetická společenství v České republice mohou být rovněž tvořena výhradně obcemi a jinými veřejnými subjekty, což odpovídá konfiguraci pilotů RE4.

V tomto kontextu je KPI12 (občané účastnící se energetických společenství) v této fázi vykazován jako nulový, protože domácnosti nejsou v současném provozu pilotů přímo zapojeny. Město Zlín plánuje do budoucna zapojit domácnosti; protože však bylo společenství založeno teprve nedávno, zůstávají tyto kroky plánovány pro další fáze.

Přehled pilotních lokalit a stav implementace

Níže jsou uvedeny dvě tabulky: první z nich postupně představuje klíčové ukazatele výkonnosti (KPI) programu LIFE sledované v různých pilotních lokalitách v rámci regionálního ekosystému; druhá tabulka poskytuje přehled pilotních lokalit, podrobně popisuje klíčové ukazatele výkonnosti a uvádí, zda byly zavedeny v rámci projektu, nebo mimo něj (což je zvláště důležité v případě ECOEMPOWER).

			RE4: Zlin (CZECH REPUBLIC)									
LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE4.1: Mikroregion Vlčnov	RE4.1: Mikroregion Vlčnov	RE4.2: Město Slavičín	RE4.2: Město Slavičín	RE4.3: Město Zlín	RE4.3: Město Zlín	tot RE4 pilots (RE4.1+RE4.2+RE4.3)	TOT achieved	triggered KPIs in RE4	tot RE4 (totRE4pilots+triggered KPIs in RE4)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.0146	0	0.0365	0	0.0912	0	0.1423	**0**	0	0.1423
2. Final Energy Savings in GWh/year	EN2	End of the project	0.0077	0	0.0192	0	0.048	0	0.0749	**0**	0	0.0749
3. Renewable Energy Generation in GWh/year	EN3	End of the project	0.22	0	0.14	0	0.3	0.094	0.66	**0.094**	0	0.66
4. GHG emissions in tCO2eq/year	ENV1	End of the project	96.052	0	61.124	0	130.98	41.04	288.16	**41.04**	0	288.16
5. Investments in sustainable energy in mEUR	ECO1	End of the project	0.27	0	0.34	0	0.44	0.15	1.05	**0.15**	0	1.05
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	0	1	0	1	1	3	**1**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	1	5	0	5	2	15	**3**	0	15
11. Employment FTE	SOC4	End of the project	1.89	0.5	2.38	0.5	3.08	1.5	7.35	**2.5**	0	7.35
12. Citizens taking part in energy communities	SOC_2	End of the project	80	0	200	0	500	0	780	**0**	0	780

LEGEND:
Target achieved
Target almost reached
Far from the target
Estimated value
TARGET

	Entire 2024						Entire 2025					
	RE4.1 Vlčnov		RE4.2 Slavičín municipality		RE4.3 City of Zlín		RE4.1 Vlčnov		RE4.2 Slavičín municipality		RE4.3 City of Zlín	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]	no	no	no	no	no	no	no	no	no	no	yes	no
EC Members	-	-	-	-	-	-	-	-	-	-	9	-
Implemented assets (PV, Hydro, Wind etc.) [#]	-	8	-	3	-	1		-		-	5	-
Implemented assets [kW]	-	172	-	139,5	-	55		-		-	149	-

RE4.1 – Mikroregion Vlčnov

Ve Vlčnově se podpora OSS zaměřila na zkoumání potenciálního vývoje směrem ke strukturovanému energetickému společenství a na zlepšení schopnosti obce řídit sdílení energie jako „aktivní zákazník“. Podpora zahrnovala cílené individuální konzultace s vedením obce a zástupci za účelem projednání budoucích možností rozvoje energetického společenství, příležitostí v oblasti flexibility a možných cest zapojení občanů do sdílení energie. Současně byly přezkoumány technické a administrativní aspekty současného provozního modelu, včetně úprav souvisejících s nastavením alokačního klíče. Pilot rovněž uvádí, že řešení témat souvisejících se sdílením energie v rámci obce je věnován jeden zaměstnanec na částečný úvazek.

RE4.2 - Obec Slavičín

Ve Slavičíně aktivity OSS podpořily strategické plánování pro posílení místní energetické spolupráce a potenciální rozvoj energetického společenství. Podpora zahrnovala bilaterální jednání s vedením obce zaměřená na možné cesty rozvoje energetického společenství, flexibilitu a budoucí možnosti účasti. Kromě toho proběhla jednání s provozovatelem obecní teplárny za účelem prozkoumání možných zón pro sdílení energie v obci a posouzení technické a provozní proveditelnosti. Pilot uvádí, že problematice sdílení energie v rámci obce se věnuje jeden zaměstnanec na částečný úvazek.

RE4.3 – Město Zlín

Ve Zlíně podpora OSS přispěla k pokroku v rozvoji energetického společenství města a k přípravě investic do obnovitelných zdrojů energie s cílem posílit budoucí portfolio pro sdílení energie. Individuální konzultace podpořily strategický rámec pro rozvoj energetického společenství a možnosti flexibility, stejně jako plánování spolupráce mezi městskými subjekty. OSS rovněž podpořilo přípravné práce na významné investici do fotovoltaiky (fotovoltaická elektrárna o výkonu 722 kW plánovaná v Zoo Zlín) a poskytlo technickou a organizační podporu při definování mechanismů sdílení a provozních nástrojů. Relevantním zainteresovaným stranám bylo rovněž poskytnuto školení k používání a úpravám monitorovacího nástroje založeného na Excelu, který slouží k nastavování a sledování sdílení mezi zdroji a spotřebiteli. Zlín uvádí 1,5 FTE věnovaných řešení sdílení energie v rámci města.

Předběžné výsledky KPI a trendy

Na základě vykazování KPI pro RE4 u tří pilotů ukazují průběžné výsledky k 28. měsíci následující:

- Výroba energie z obnovitelných zdrojů (EN3): dosaženo 0,094 GWh/rok oproti referenční hodnotě na konci projektu 0,66 GWh/rok (≈ 14 %).
- Snížení emisí skleníkových plynů (ENV1): dosaženo 41,04 tCO_2eq/rok oproti referenční hodnotě 288,156 tCO_2eq/rok (14 %).
- Mobilizované investice (ECO1): dosaženo 0,15 mil. € oproti referenční hodnotě 1,05 mil. € (≈ 14 %).
- Zavedené energetické komunity (SOC1): dosažena 1 oproti 3 plánovaným (≈ 33 %).
- Dovednosti / proškolené osoby (SOC3): dosaženy 3 oproti referenční hodnotě 15 (≈ 20 %).
- Zaměstnanost (SOC4): dosaženo 2,5 FTE oproti referenční hodnotě 7,35 FTE (≈ 34 %).
- Občané zapojení do energetických společenství (SOC_2): dosaženo 0 oproti referenční hodnotě 780 (0 %).

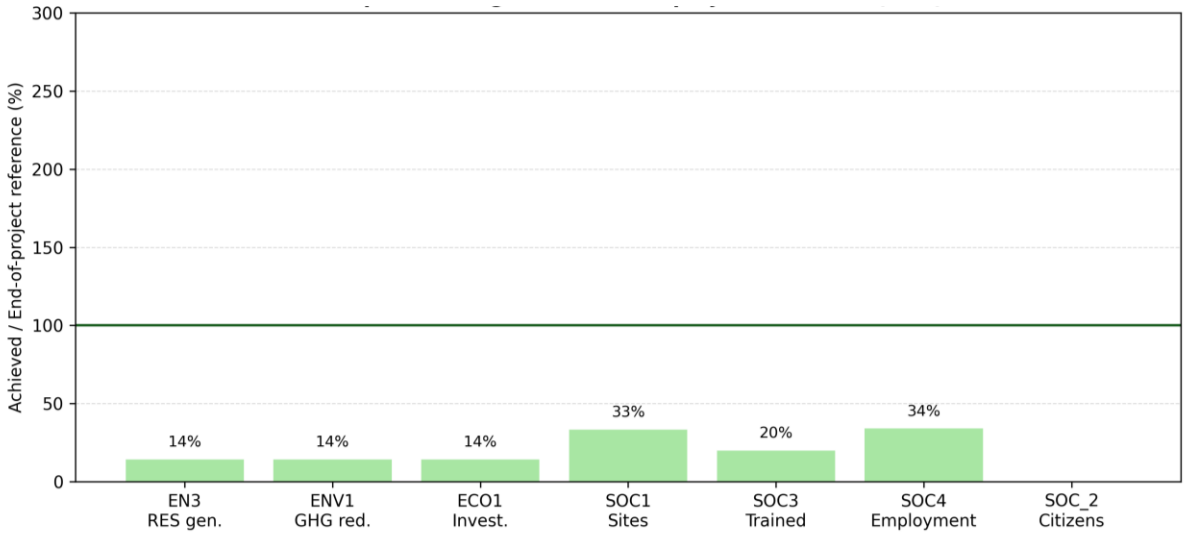

Figure 13 – Piloti RE4 – Pokrok vůči referenční hodnotě na konci projektu (M28)

Piloty RE4 se v současnosti nacházejí v rané fázi implementace, kdy je pokrok spojen především s organizačním nastavením, mechanismy řízení a provozní přípravou obecního sdílení energie mezi veřejnými budovami. Ve srovnání s ostatními regionálními ekosystémy vykazuje RE4 v této průběžné fázi nižší úroveň zralosti, také proto, že se ekosystém zapojil do projektových aktivit později, což vedlo ke kratšímu efektivnímu období implementace. Referenční základna pro RE4 je navíc ukotvena k roku 2024 a řada opatření vyžaduje více času, aby se přípravné kroky (např. definice portfolia, nastavení alokačních klíčů, monitorovací nástroje a příprava FVE projektů) promítly do měřitelných energetických a environmentálních výsledků. Přesto byla provedena řada rozvojových kroků, u nichž se očekává realizace v blízké budoucnosti (včetně nasazení FVE a provozních nástrojů sdílení ve Zlíně), a jsou proto v rámci KPI zohledněny jako potvrzený pokrok konsolidovaný během trvání projektu. Jak bude implementace postupovat, monitoring bude postupně zahrnovat větší podíl provozních a měřených dat z obecních aktiv a schémat sdílení, čímž se posílí robustnost energetických a environmentálních ukazatelů.

Další iniciativy podporované OSS (nad rámec pilotních lokalit)

Vedle pilotů realizovalo OSS ve Zlínském kraji osvětové a kapacity-posilující aktivity na podporu obnovitelných zdrojů energie a komunitní energetiky a představení služeb OSS obcím, podnikatelům a dalším zainteresovaným stranám. Tyto aktivity podpořily zvyšování povědomí o legislativních rámcích, praktických přístupech ke sdílení v obecním prostředí a šíření dobré praxe, čímž přispěly k posílení regionálního prostředí příznivého pro rozvoj energetickcýh společenství.

Hlavní bariéry a získané poznatky

Klíčové průřezové aspekty vyplývající z RE4 zahrnují:

- Konfigurace českých pilotů je založena na veřejných budovách, což urychluje obecní rozhodování a implementační kapacitu, ale vede k omezenému bezprostřednímu zapojení domácností (odráží se v KPI12).
- Obecní sdílení energie vyžaduje specifickou práci na alokačních klíčích, monitorovacích nástrojích a provozních postupech, která těží z cílené podpory a školení ze strany OSS.
- Měřitelný dopad na energii a emise je silně spojen s načasováním nasazení fotovoltaiky a aktivace sdílení, které je u pilotů stále v procesu.

Závěry

Průřezová analýza za 28. měsíc potvrzuje, že pokrok regionálních ekosystémů ECOEMPOWER je silně ovlivněn mírou vyspělosti pilotních projektů, nastavením správy a řízení a národními nebo regionálními regulačními podmínkami. Zatímco měřitelné energetické a environmentální dopady nadále závisejí na zavádění infrastruktury a časovém harmonogramu uvádění zařízení do provozu, pokrok je soustavně patrný v oblasti budování kapacit, mobilizaci zainteresovaných stran a přípravy správy a řízení. To naznačuje, že podpůrné mechanismy, jako je přístup One-Stop-Shop, hrají zásadní roli při přípravě komunit na provozní fázi.
V závěrečné fázi projektu by se úsilí mělo soustředit na promítnutí organizační připravenosti a plánovaných investic do provozních schémat sdílení energie a do měřitelných dopadů z hlediska výroby energie a snižování emisí. Současně bude nezbytné i nadále věnovat pozornost regulatornímu nastavení, konsolidaci správy a řízení a účasti občanů, aby byla zajištěna udržitelnost a dlouhodobé fungování vznikajících energetických společenství. Rozmanitost typologií pilotních projektů představuje důležitý zdroj poznatků relevantních pro veřejné politiky a podporuje identifikaci replikovatelných přístupů a praktických cest implementace pro iniciativy komunitní energetiky. Zkušenosti napříč regionálními ekosystémy poskytují cenné důkazy o tom, jak modely správy a řízení, regulační kontexty a úrovně vyspělosti ovlivňují rozvoj energetických společenství. Tyto poznatky budou využity při závěrečném hodnocení (D6.4) a podpoří širší replikaci a rozšiřování modelů komunitní energetiky v celé Evropě.

Φεβρουάριος 2026

D6.3 ΑΠΟΤΕΛΕΣΜΑΤΑ ΤΩΝ ΠΙΛΟΤΙΚΩΝ ΕΓΚΑΤΑΣΤΑΣΕΩΝ ECOEMPOWER ΚΑΙ ΣΥΣΤΑΣΕΙΣ – ΠΡΩΤΗ ΕΚΔΟΣΗ

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Όλα τα μέλη της κοινοπραξίας ECOEMPOWER δεσμεύονται να δημοσιεύουν ακριβείς και επικαιροποιημένες πληροφορίες και καταβάλλουν τη μεγαλύτερη δυνατή προσπάθεια για τον σκοπό αυτό. Ωστόσο, τα μέλη της κοινοπραξίας ECOEMPOWER δεν μπορούν να αναλάβουν ευθύνη για τυχόν ανακρίβειες ή παραλείψεις, ούτε για άμεσες, έμμεσες, ειδικές, επακόλουθες ή άλλες απώλειες ή ζημίες οποιουδήποτε είδους που προκύπτουν από τη χρήση των πληροφοριών αυτών.

EXECUTIVE SUMMARY

Το παρόν παραδοτέο παρουσιάζει την πρώτη έκδοση των αποτελεσμάτων που προέκυψαν από τους πιλοτικούς χώρους του ECOEMPOWER και παρέχει μια προκαταρκτική σειρά συστάσεων με βάση τις συνεχιζόμενες δραστηριότητες παρακολούθησης και αξιολόγησης που πραγματοποιήθηκαν στο πλαίσιο της Εργασίας 6.3 «Δοκιμές αξιολόγησης». Σκοπός του παρόντος εγγράφου είναι να αξιολογήσει, με δομημένο και μετρήσιμο τρόπο, τα πρώτα αποτελέσματα που επιτεύχθηκαν μέσω των μηχανισμών υποστήριξης του ECOEMPOWER στους πιλοτικούς χώρους, από ενεργειακή, περιβαλλοντική, κοινωνική και οικονομική άποψη.

Οι δραστηριότητες παρακολούθησης πραγματοποιούνται στους 15 πιλοτικούς χώρους (3 Ενεργειακές Κοινότητες ανά 5 Περιφερειακά Οικοσυστήματα) χρησιμοποιώντας τη μεθοδολογία και τους δείκτες που ορίζονται στο D6.1 και λαμβάνοντας ως αναφορά τη βάση αναφοράς που καθορίστηκε στο D6.2.

Η διαδικασία παρακολούθησης περιλαμβάνει τόσο ποσοτικές όσο και ποιοτικές αναλύσεις, με βάση τη συλλογή δεδομένων από περιφερειακούς εταίρους μέσω κοινών προτύπων, συνεντεύξεων, εργαστηρίων και της ανάλυσης συστημάτων παρακολούθησης και επικοινωνίας.

Το παραδοτέο 6.3 επικεντρώνεται στα ενδιάμεσα αποτελέσματα που συγκεντρώθηκαν έως τον 28ο μήνα του έργου και παρέχει μια επισκόπηση των κύριων αποτελεσμάτων και τάσεων που προκύπτουν από τους πιλοτικούς χώρους. Τα αποτελέσματα συγκρίνονται με τη βάση αναφοράς για την αξιολόγηση των πρώιμων επιπτώσεων των ECOEMPOWER One Stop Shops (OSS) και των σχετικών υπηρεσιών.

Το παραδοτέο εισάγει επίσης το σύστημα συνεχούς παρακολούθησης που υιοθετήθηκε στο πλαίσιο του WP6 – Δοκιμή μηχανισμών υποστήριξης του έργου σε πιλοτικούς χώρους, περιγράφοντας τη συχνότητα συλλογής δεδομένων, τα εργαλεία και τους μηχανισμούς συνεργασίας μεταξύ των εταίρων. Προτείνεται μια προκαταρκτική σειρά συστάσεων για τη βελτιστοποίηση των εν εξελίξει δραστηριοτήτων και τη βελτίωση της απόδοσης των πιλοτικών χώρων στις επόμενες φάσεις του έργου.

Περιφερειακό Οικοσύστημα #5 (RE5): Κεντρική Ελλάδα (ΕΛΛΑΔΑ)

Περιγραφή του Περιφερειακού Οικοσυστήματος

Το Περιφερειακό Οικοσύστημα #5 (RE5) βρίσκεται στην Κεντρική Ελλάδα και περιλαμβάνει τρεις δημοτικές περιοχές: Δομοκό, Καμένα Βούρλα και Αμφίκλεια. Οι πιλοτικές περιπτώσεις χαρακτηρίζονται ως μη θεσμοθετημένες ενεργειακές κοινότητες, οι οποίες προχωρούν προς την επίσημη συγκρότησή τους, ενώ παράλληλα ενισχύουν ενεργά την τοπική ευαισθητοποίηση, την ετοιμότητα διακυβέρνησης και τις τεχνικές ικανότητες για μελλοντικές πρωτοβουλίες συλλογικής αυτοκατανάλωσης και διαμοιρασμού ενέργειας. Στους τρεις δήμους, τα τοπικά οικοσυστήματα έχουν υλοποιήσει ένα συνεκτικό σύνολο δράσεων εμπλοκής και ενδυνάμωσης ικανοτήτων (εκπαιδευτικές συνεδρίες, προωθητικές δραστηριότητες και συνεργασία με τοπικούς οργανισμούς, συμπεριλαμβανομένων των σχολείων). Οι δράσεις αυτές υποστηρίζουν τον στόχο του ECOEMPOWER να ενισχύσει την τοπική ευαισθητοποίηση, να ενδυναμώσει τους πολίτες και τις τοπικές αρχές και να θέσει τα θεμέλια για μελλοντικές πρωτοβουλίες ενεργειακών κοινοτήτων στην Κεντρική Ελλάδα.

Επισκόπηση των πιλοτικών περιοχών και κατάσταση υλοποίησης

Ακολουθούν δύο πίνακες: ο πρώτος παρουσιάζει, κατά σειρά, τους δείκτες απόδοσης (KPI) του LIFE που παρακολουθούνται στους διάφορους πιλοτικούς ιστότοπους εντός του περιφερειακού οικοσυστήματος· ο δεύτερος παρέχει μια γενική εικόνα των πιλοτικών ιστότοπων, αναλύοντας τους δείκτες απόδοσης και υποδεικνύοντας αν έχουν εφαρμοστεί στο πλαίσιο του έργου ή εκτός αυτού (ιδιαίτερα σημαντικό για τον ιστότοπο ECOEMPOWER).

LIFE KPI	ECOEMPOWER KPI N°	TIMEFRAME	RE5: Central Greece (GREECE)									
			RE5.1 Domokos	RE5.1 Domokos	RE5.2 Kamena Vourla	RE5.2 Kamena Vourla	RE5.3 Amfikleia	RE5.3 Amfikleia	tot RE5 pilots (RE5.1+RE5.2+RE5.3)	TOT achieved	triggered KPIs in RE5	tot RE5 (totRE5pilots+triggered KPIs in RE5)
1. Primary Energy Savings in GWh/year	EN1	End of the project	0.02	0	0.02	0	0.03	0	0.07	**0**	0	0.07
2. Final Energy Savings in GWh/year	EN2	End of the project	0.01	0	0.01	0	0.01	0	0.03	**0**	0	0.03
3. Renewable Energy Generation in GWh/year	EN3	End of the project	2.4	0.126	0.8	0	4	0.09	7.2	**0.216**	0	7.2
4. GHG emissions in tCO2eq/year	ENV1	End of the project	1155	30.2	388	0	1924	27.1	3467	**57.3**	0	3467
5. Investments in sustainable energy in mEUR	ECO1	End of the project	1.95	0.36	0.65	0	2	0.24	4.6	**0.6**	0	4.6
8. Implementation sites in Number of real-life sites	SOC1	End of the project	1	0	1	0	1	0	3	**0**	0	3
9. Skills Number of people trained	SOC3	End of the project	5	5	5	0	5	1	15	**6**	0	15
11. Employment FTE	SOC4	End of the project	13	4	5	0	14	3	32	**7**	0	32
12. Citizens taking part in energy communities	SOC_2	End of the project	100	5	100	0	150	6	350	**11**	0	350

LEGEND:	
	Target achieved
	Target almost reached
	Far from the target
	Estimated value
	TARGET

	Entire 2024						Entire 2025					
	RE5.1 Domokos		RE5.2 Kamena Vourla		RE5.3 Amfikleia		RE5.1 Domokos		RE5.2 Kamena Vourla		RE5.3 Amfikleia	
Information	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER	in ECOEM POWER	outside ECOEM POWER
Energy community created [yes/no]	no	yes	no	yes	no	yes	yes	yes	no	yes	yes	yes
EC Members		15		12		8	5	12		14	6	12
Implemented assets (PV, Hydro, Wind etc.) [#]		2 PV		2 PV		2 PV	1PV, 1storage	2 PV		2 PV	2 PV	2 PV
Implemented assets [kW]		100		110		100	90	120		100	100	90

RE5.1 – Δομοκός

Ο Δομοκός βρίσκεται σε πρώιμο στάδιο ανάπτυξης, με έμφαση στην ενεργοποίηση τοπικών αρχών, μικρών επιχειρήσεων και πολιτών που ενδιαφέρονται για τις ανανεώσιμες πηγές ενέργειας και τα μοντέλα συλλογικής αυτοκατανάλωσης. Το τοπικό οικοσύστημα άρχισε να διαμορφώνεται μέσα από τη συνεργασία μεταξύ του δήμου, τοπικών φορέων (συμπεριλαμβανομένου ενός αγροτικού συνεταιρισμού) και περιφερειακών ενεργειακών εμπειρογνωμόνων.

Κατά το 2025, ο Δομοκός αναφέρει την υλοποίηση μίας φωτοβολταϊκής εγκατάστασης 90 kWp και ενός συστήματος αποθήκευσης στο πλαίσιο του έργου. Ο πιλοτικός αυτός τόπος αναφέρει επίσης για το 2025 παραγωγή ανανεώσιμης ενέργειας 0,126 GWh/έτος, με εκτιμώμενες αποφεύγουσες εκπομπές 30,2 tCO_2/έτος. Οι επενδύσεις σε βιώσιμη ενέργεια αναφέρονται σε 0,36 M€, προωθούμενες από δημοτικές δράσεις και από την αυξανόμενη ιδιωτική συμμετοχή.

Από κοινωνική και οργανωτική πλευρά, ο πιλοτικός τόπος αναφέρει 5 εκπαιδευμένα άτομα μέσω εκπαιδευτικών και ενημερωτικών δράσεων και 5 συμμετέχοντες πολίτες. Η επίδραση στην απασχόληση αναφέρεται ως 4 ΙΠΑ (FTE), συνδεόμενη με προσωπικό μερικής απασχόλησης που υποστηρίζει δραστηριότητες διαμοιρασμού ενέργειας και τον συντονισμό του πιλοτικού έργου. Συνολικά, ο Δομοκός παρουσιάζει σαφή εξέλιξη από την ευαισθητοποίηση προς την υλοποίηση μικρής κλίμακας, με ισχυρή έμφαση στη συμμετοχή των πολιτών και στην ενίσχυση των εσωτερικών ικανοτήτων.

RE5.2 – Καμένα Βούρλα

Τα Καμένα Βούρλα βασίζονται σε ισχυρό δημοτικό ενδιαφέρον για τη μετάβαση στις ανανεώσιμες πηγές ενέργειας και για την τοπική ανθεκτικότητα. Οι δραστηριότητες κατά το 2025 επικεντρώθηκαν στη δημιουργία συνεργασιών με τοπικά σχολεία, μικρές επιχειρήσεις και τις τεχνικές υπηρεσίες του δήμου, ώστε να εντοπιστούν βιώσιμες ευκαιρίες για φωτοβολταϊκά και να ενισχυθεί η τοπική ετοιμότητα. Σε αυτό το στάδιο, ο πιλοτικός τόπος αναφέρει ότι δεν υπάρχει θεσμοθετημένη ενεργειακή κοινότητα στο πλαίσιο του έργου. Οι δράσεις εμπλοκής και ενδυνάμωσης ικανοτήτων παραμένουν κεντρικές: οι εκπαιδευτικές δραστηριότητες και οι προωθητικές ενέργειες συνέβαλαν στην αύξηση της τοπικής προβολής και υποστήριξαν την ανάπτυξη μαθησιακού υλικού για τη διαχείριση και τη λήψη αποφάσεων, παράλληλα με καθοδήγηση εντός της βασικής ομάδας για την ενίσχυση της κατανόησης συνεταιριστικών μοντέλων και της ενεργειακής παιδείας. Οι δράσεις αυτές θέτουν τις βάσεις για μια μελλοντική νομικά θεσμοθετημένη ενεργειακή κοινότητα.

RE5.3 – Αμφίκλεια

Στην Αμφίκλεια, η μη θεσμοθετημένη κοινότητα έχει προχωρήσει γρήγορα χάρη στην ισχυρή δέσμευση του δήμου και την πρώιμη συμμετοχή των πολιτών, επωφελούμενη επίσης από συνέργειες στο ευρύτερο οικοσύστημα της Κεντρικής Ελλάδας.

Κατά το 2025, η Αμφίκλεια αναφέρει την υλοποίηση δύο φωτοβολταϊκών εγκαταστάσεων (100 kWp) στο πλαίσιο του έργου. Ο πιλοτικός τόπος αναφέρει για το 2025 παραγωγή ανανεώσιμης ενέργειας 0,09 GWh/έτος, με εκτιμώμενες αποφεύγουσες εκπομπές 27,1 tCO_2/έτος. Οι επενδύσεις σε βιώσιμη ενέργεια αναφέρονται σε 0,24 M€.

Από κοινωνική και οργανωτική πλευρά, ο πιλοτικός τόπος αναφέρει 1 εκπαιδευμένο άτομο (μέσω εκπαιδευτικών/ενημερωτικών δράσεων) και 6 συμμετέχοντες πολίτες. Η επίδραση στην απασχόληση αναφέρεται σε 3 ΙΠΑ (FTE), προερχόμενη από προσωπικό μερικής απασχόλησης που υποστηρίζει δραστηριότητες διαμοιρασμού ενέργειας και τον συντονισμό του πιλοτικού έργου. Συνολικά, η Αμφίκλεια καταδεικνύει ισχυρή δυναμική προς τη δημιουργία μιας νομικά θεσμοθετημένης ενεργειακής κοινότητας, υποστηριζόμενη από δομημένη καθοδήγηση και μεταφορά γνώσης σχετικά με τα συστήματα ανανεώσιμης ενέργειας και τις έξυπνες πρακτικές κατανάλωσης.

Προκαταρκτικά αποτελέσματα KPI και τάσεις

Με βάση την αναφορά KPI του RE5 για τους τρεις πιλοτικούς τόπους, τα ενδιάμεσα αποτελέσματα έως τον Μήνα 28 δείχνουν:

- Παραγωγή Ανανεώσιμης Ενέργειας (EN3): 0,216 GWh/έτος επιτεύχθηκαν έναντι τιμής αναφοράς τέλους έργου 7,2 GWh/έτος (≈ 3,0 %).
- Μείωση εκπομπών αερίων του θερμοκηπίου (ENV1): 57,3 tCO_2eq/έτος επιτεύχθηκαν έναντι 3467 tCO_2eq/έτος (≈ 1,7 %).
- Κινητοποιημένες επενδύσεις (ECO1): 0,6 M€ επιτεύχθηκαν έναντι 4,6 M€ (≈ 13 %).
- Τοποθεσίες υλοποίησης (SOC1): 0 επιτεύχθηκαν έναντι 3 προγραμματισμένων (0 %).
- Δεξιότητες / εκπαιδευμένα άτομα (SOC3): 6 επιτεύχθηκαν έναντι 15 (≈ 40 %).
- Απασχόληση (SOC4): 7 ΙΠΑ (FTE) επιτεύχθηκαν έναντι 32 ΙΠΑ (FTE) (≈ 22 %).
- Πολίτες που συμμετέχουν (SOC_2): 11 επιτεύχθηκαν έναντι 350 (≈ 3 %).

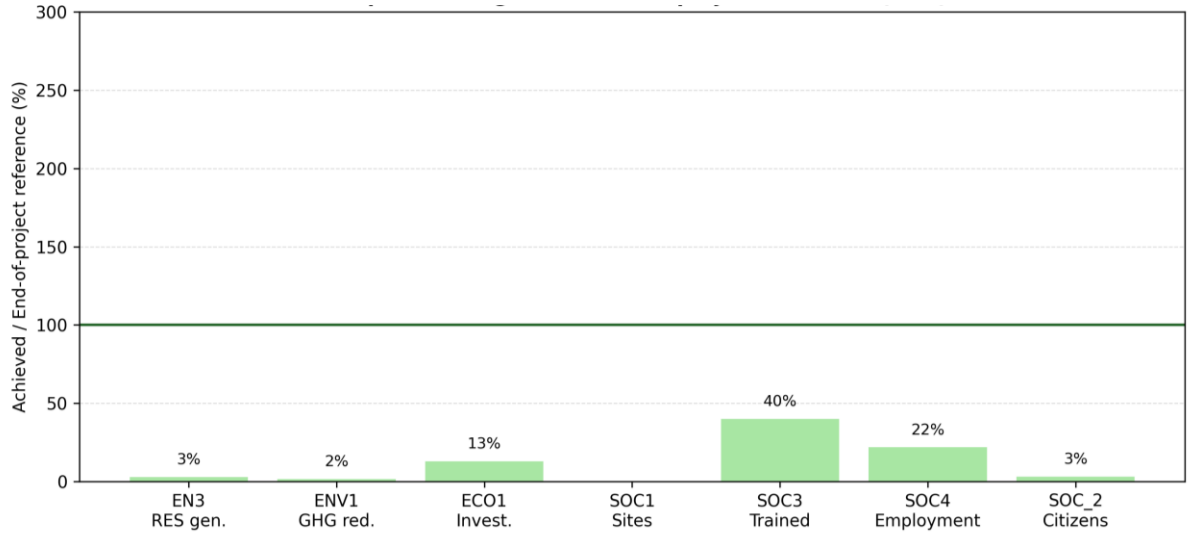

Figure 14 – Πιλοτικοί τόποι RE5 – Πρόοδος έναντι της τιμής αναφοράς τέλους έργου (M28)

Οι πιλοτικοί τόποι του RE5 βρίσκονται ακόμη σε φάση όπου τα βασικά αποτελέσματα συνδέονται κυρίως με την κινητοποίηση της κοινότητας, την ανάπτυξη δεξιοτήτων και τη σταδιακή μετάβαση από άτυπες ομάδες σε λειτουργικές διαμορφώσεις. Παρότι ορισμένοι πιλοτικοί τόποι αναφέρουν ήδη αρχικές επενδύσεις και βήματα υλοποίησης (ιδίως στον Δομοκό και στην Αμφίκλεια), ευρύτερες επιπτώσεις στην παραγωγή ενέργειας, στη μείωση των εκπομπών και στη συμμετοχή των πολιτών αναμένεται να αυξηθούν καθώς οι πρωτοβουλίες μεταβαίνουν από την πρώιμη ανάπτυξη στη σταθερή λειτουργία και στην ευρύτερη ένταξη μελών.

Πρόσθετες πρωτοβουλίες που υποστηρίχθηκαν από το OSS (πέραν των πιλοτικών τόπων)

Δεν αναφέρθηκαν πρόσθετες πρωτοβουλίες εκτός των πιλοτικών τόπων για το RE5 κατά τη διάρκεια αυτής της περιόδου παρακολούθησης.

Βασικά εμπόδια και διδάγματα

Βασικές πτυχές που αναδύονται από το RE5 περιλαμβάνουν:

- Οι πιλοτικοί τόποι είναι μη θεσμοθετημένες κοινότητες, επομένως η πρόοδος εξαρτάται από την οικοδόμηση ικανότητας διακυβέρνησης και εσωτερικής διαχείρισης πριν από την πλήρη λειτουργία.
- Οι πρωτοβουλίες πρώιμου σταδίου μπορούν ήδη να κινητοποιήσουν επενδύσεις και υποδομές μικρής κλίμακας, αλλά η διεύρυνση της συμμετοχής των μελών και οι μετρήσιμες ενεργειακές επιπτώσεις απαιτούν συνήθως επιπλέον χρόνο και σταθερές οργανωτικές δομές.
- Η συνεχής εμπλοκή της κοινότητας και η συνεργασία με τοπικούς οργανισμούς (συμπεριλαμβανομένων των σχολείων) αποτελούν αποτελεσματικούς μοχλούς για την ενίσχυση της ευαισθητοποίησης και τη διατήρηση της δυναμικής προς την επίσημη συγκρότηση.

Συμπεράσματα

Η διατομεακή ανάλυση του Μήνα 28 επιβεβαιώνει ότι η πρόοδος των Περιφερειακών Οικοσυστημάτων του ECOEMPOWER επηρεάζεται σε μεγάλο βαθμό από το επίπεδο ωριμότητας των πιλοτικών δράσεων, τις ρυθμίσεις διακυβέρνησης και τις εθνικές ή περιφερειακές κανονιστικές συνθήκες. Ενώ οι μετρήσιμες ενεργειακές και περιβαλλοντικές επιπτώσεις εξακολουθούν να εξαρτώνται από την ανάπτυξη των υποδομών και τα χρονοδιαγράμματα θέσης σε λειτουργία των εγκαταστάσεων, η πρόοδος σε πρώιμο στάδιο παρατηρείται με συνέπεια στην ανάπτυξη ικανοτήτων, στην κινητοποίηση των ενδιαφερόμενων μερών και στην προετοιμασία της διακυβέρνησης. Αυτό υποδηλώνει ότι μηχανισμοί υποστήριξης όπως η προσέγγιση One-Stop-Shop διαδραματίζουν κρίσιμο υποστηρικτικό ρόλο στην προετοιμασία των κοινοτήτων για την επιχειρησιακή φάση.

Στο τελικό στάδιο του έργου, οι προσπάθειες θα πρέπει να επικεντρωθούν στη μετατροπή της οργανωτικής ετοιμότητας και των προγραμματισμένων επενδύσεων σε λειτουργικά σχήματα διαμοιρασμού ενέργειας και σε μετρήσιμες επιπτώσεις όσον αφορά την παραγωγή και τη μείωση των εκπομπών. Παράλληλα, θα είναι αναγκαίο να συνεχιστεί η προσοχή στη ρυθμιστική ευθυγράμμιση, στην εδραίωση της διακυβέρνησης και στη συμμετοχή των πολιτών, ώστε να διασφαλιστεί η βιωσιμότητα και η μακροπρόθεσμη λειτουργία των αναδυόμενων ενεργειακών κοινοτήτων. Η ποικιλομορφία των τύπων των πιλοτικών δράσεων αποτελεί σημαντική πηγή γνώσεων σχετικών με τη χάραξη πολιτικής, υποστηρίζοντας τον εντοπισμό αναπαραγώγιμων προσεγγίσεων και πρακτικών διαδρομών υλοποίησης για πρωτοβουλίες κοινοτικής ενέργειας. Οι εμπειρίες από τα Περιφερειακά Οικοσυστήματα παρέχουν πολύτιμα στοιχεία για το πώς τα μοντέλα διακυβέρνησης, τα κανονιστικά πλαίσια και τα επίπεδα ωριμότητας επηρεάζουν την ανάπτυξη των ενεργειακών κοινοτήτων. Τα διδάγματα αυτά θα τροφοδοτήσουν την τελική αξιολόγηση (D6.4) και θα υποστηρίξουν την ευρύτερη αναπαραγωγή και κλιμάκωση των μοντέλων κοινοτικής ενέργειας σε όλη την Ευρώπη.