Masterpiece

Funded by the European Union

MASTERPIECE - Multidisciplinary Approaches and Software Technologies for Engagement, Recruitment and Participation in Innovative Energy Communities in Europe

Deliverable 2.4

FUNCTIONALITIES' NEEDS AND PERFORMANCE MEASUREMENT PLANNING (UPDATE)

Title	Functionalities' needs and performance measurement planning – update
Document description	This product is an update of D2.3, which also describes the results of T2.3 and T2.4, including data provision, pilot mapping, use case requirements and performance evaluation planning.
Nature	Type and dissemination level: R - PU
Task	T2.3 and T2.4
Status	Final
WP	WP2
Lead Partner	ODINS
Partners Involved	UMU, BERC, SUST, UPP, NGENIC, ALEC, SEIN, RDIUP, TROYA
Date	20/12/2024

Revision history	Author	Delivery date	Summary of changes and comments
Version 0.1	ODINS	15/11/2024	ToC
Version 0.2a	ODINS	27/11/2024	Initial contributions related to KPIs
Version 0.2b	UMU	28/11/2024	Updated version of use cases
Version 0.3	ODINS	05/12/2024	Updated contributions related to KPIs
Version 0.4	ODINS	10/12/2024	Included general sections
Version 0.5	TROYA	17/12/2024	Review
Version 1.0	ODINS	20/12/2024	Final version

Disclaimer:

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Swiss Confederation. Neither the European Union nor the granting authority can be held responsible for them.

CONTENTS

EXECUTIVE SUMMARY

As the last update in the set of deliverables connected to Task 2.3 and Task 2.4, this deliverable is the one including the latest version of the content of WP2 related to use cases as well as evaluation. The work done in collaboration with pilots and component developers has been used for producing a refined version of the use cases, with the additional knowledge obtained from both parts gained in the last months, crucial to determine exactly what needs to be analysed in each pilot to validate the solution. In addition, the set of KPIs has also been revised to adjust it to the existing information in the pilots and to the functionality offered by the components.

1 INTRODUCTION

This document provides an update of D2.3, highlighting updates from Task 2.3 'Pilot research, validation scenario analysis and implementation definition' and Task 2.4 'Evaluation planning and KPI definition', focusing on the analysis and definition of KPIs and evaluation planning to assess the performance of the MASTERPIECE solution in the pilot scenarios developed in WP5.

1.1 Relation to other tasks

The main objective of this document is to describe the updates obtained as a result of Task 2.3 and Task 2.4, including the updates related to the individual use cases from the pilots and the final version of the pilot KPIs.

Task 2.3 - "Pilot surveys, validation scenarios analysis and deployment definition" focuses on defining the project's application scenarios by studying and analysing the pilots in terms of energy consumption, user comfort, energy sources and available infrastructure, and the task 2.4 – “Evaluation planning and KPIs definition” aims to analyse and define the KPIs and evaluation planning to assess the effectiveness of the MASTERPIECE solution.

On the other hand, this document is published in parallel with deliverable D5.7 “Evaluation of social, environmental, technical and economic impact – interim update”, which focuses on updating the definition of the methodology for each KPI, both globally and for each pilot, while this deliverable focuses on updating the definition of each use case for the pilots, as WP2 refers to requirements and definitions and WP5 focuses on the actual evaluation of the Masterpiece solution.

Since this document is focused on the preparations needed to be carried out mostly for WP5 to properly evaluate the solution, there is a direct connection with T5.6 in section 4.

1.2 Structure of the document

This document is organized into five sections. The first section is the introduction to this deliverable, setting the context of the document, highlighting its relationships to other project tasks and presenting its overall structure.

Section 2 describes the final version of the pilot use cases, detailing the main elements and the validation processes involved.

The document continues with Section 3, which presents the final versions of the pilot KPIs, refined through ongoing collaboration between the pilot partners and the component developers up to

month 24 of the project. This is the result of several iterations with the participation of WP2, WP3, WP4 and WP5.

Section 4 presents updates on the end-user questionnaires used to assess various project outcomes. These questionnaires cover aspects such as user profile, level of engagement, willingness to participate in energy communities, knowledge acquired on the subject and other important elements for a comprehensive evaluation of the Masterpiece solution.

Section 5 - Conclusions presents the main conclusions and findings of the research and performance measurement plan up to month 24 of the project.

2 FINAL VERSION OF THE PILOTS' USE CASES

This section outlines the final use cases for each pilot, detailing the refinements made based on pilot feedback, along with their corresponding KPIs. Coordination between WP2, WP3, WP4 and WP5 has been key in the finalizing of the use cases description, ensuring that the proposed approach aligns with the pilot's objectives. The importance of the use cases lies in the fact that they establish the foundation for achieving the pilots' objectives.

A significant effort made during the preparation of this document was focused on aligning what pilots want to achieve, the information they actually have available from the different data sources and also the functionality provided by the components.

In WP2, and consequently in this deliverable, the focus was on the conceptual level, as the Intervention Program is part of WP5. Use cases are already integrated into WP5, where the collaborative efforts of WP2, WP3 and WP4 converge. This is where the coordination of the conceptual, technological and planning aspects of the pilots merge. In parallel, the KPIs serve as the method for evaluating each use case. These KPIs are finalised in section

Final version of the pilots KPIs and detailed further in Deliverable D5.7.

2.1 PoC: Spain - UMU: Universidad de Murcia

UC1 - Fostering a Socially Responsible Energy Community

This use case push towards the construction of a socially responsible energy community while materialise the digital counterpart of the energy community. Starting in an early stage of the Energy Community, the goal is to engage the maximum number of participants (using the MASTERPIECE digital solution) in learning, being more consciousness about ECs, understanding the importance of community commitment and sustainability.

- **KPI 1: Number of people who have interacted with the tool.**

UC 2 - Promoting Collaboration and Self-Consumption from PV

This use case focuses on directing solar power generation (solar power flows will be simulated based on actual photovoltaic generation available on campus) to power air conditioning systems in specific study rooms, designated as "climate shelters". The goal is to create energy-efficient and comfortable spaces that encourage sustainable habits and interaction. By concentrating solar energy in these selected areas, the initiative aims to demonstrate the effective use of renewable energy while inspiring a change in community behaviour. The level of success is measured by the number of people that moves to these climate shelters and therefore, that have accepted to change their usual location of study. This reflects a broader commitment to environmentally responsible and energy conscious living within the community in their everyday life.

- **KPI 1: Number of people reached and percentage that attained the collaborative behaviour.**

UC 3 - Management of Demand and Fair Pricing

It involves designing and implementing demand modifications based on energy prices and renewable generation. There are going to be two types of interventions:

- To modify the demand based on tariffs/grid signals.
- Demand Shift Towards Self-Consumption: which includes not only to modify the demand from low period of renewable generation to high generation periods, but also to encourage users to modify, to collaborate by adjusting assets during high renewable energy generation periods, promoting sustainable energy use.

- **KPI 1: 10% Energy savings.**

UC 4 - Achieving Sustainable Energy Transition and Equitable Access

This use case aims to equalise the energy saving potential between the different faculties of a community. Considering the faculties as members of the EC. Therefore, we have considered faculties are classified as "energy poor" those with outdated infrastructures and no smart monitoring and "altruistic" well equipped with efficient infrastructures and monitoring systems and capable to exporting clean energy. The goal is to distribute the solar power generation (clean energy) according to these savings' potential of the faculties to decrease the footprint in all faculties, thus improving the energy situation of the less equipped ones. This strategy not only enhances grid independence, but also ensures a fair and collective approach towards a sustainable energy transition, emphasizing the improvement of the entire community without leaving any group at a disadvantage.

- **KPI 1: % Increase in grid energy independence (community level).**

2.2 Italy - BER: Municipality of Berchidda

UC1 - Promoting the transition from consumer to prosumer in an informed and conscious manner among citizens

Berchidda is a highly social community, characterized by strong bonds of collaboration and support among its citizens, with active participation in social events. This community has been informed about ECs but not in detail as it was desired (too many changes which have taken place in Berchidda and not enough time to organise the information). Therefore, this use case is essential to aware people about ECs. MASPERPIECE digital solution will be key in promoting this knowledge, covering from existing EC aspects (e.g. legal frameworks, benefits, etc.) and helping the community to understand how to start an EC. This process will form part of the transition from consumer to prosumer. It is important for each potential member to understand the concepts, steps among other aspects to establish an EC and participate actively on it.

- **KPI 1: Number of individuals informed.**

UC 2 - Achieving Active Participation and Sensibilisation in Sustainable Energy Usage

In the small community of Berchidda, the Municipality aims to organize public events and meetings, including those during village fairs (agricultural fairs, religious festivals, etc.) for capacity-building moments. The objective is to clearly explain the business plan behind the creation of an EC so that every citizen can understand the socio-economic benefits that it can bring. MASTERPIECE digital solution will be used to gather individuals interested in forming an official EC, allowing them to better understand the concept in practical terms. Through this, the Municipality seeks to foster active participation and engagement in the creation of the community.

- **KPI 1: More than fifty citizens have collaborated and expressed interest in creating the official energy community.**

2.3 Turkey - UEDAS: Aşağıçavuş Forest Village

UC1 - Understanding ECs and engagement of citizens

1st phase: Sensibilisation and Education

With all the technical infrastructure in place for producing and consuming renewable energy, TROYA will organise specific workshops to inform and engage the inhabitants in the pilot site to start an energy community. According to preliminary studies conducted at the Turkish site, all households have low education and energy literacy levels. For the next step, TROYA is planning to increase their knowledge and awareness by providing energy, climate, sustainability, and some technical training to a total of 13 households. The aim is to create the concept of Energy Community with at least 10 of these 13 households' community through these trainings and by that to create the first EC concept in Turkey.

- **KPI 1: Nº Interaction within the learning process.**
- **KPI 2: Rate of understanding of the EC environment.**

2nd phase: Consolidation and participation

The focus is on empowering the people of the pilot site to acquire a solid knowledge and understanding of ECs by exploring within a great variety of resources. Also, to inform and engage the citizens of the village about the potential for starting their own energy community, leveraging the existing technical infrastructure in the pilot site. According to the first site study, since the knowledge level of the households is low, most of them are uninformed about the energy community and are hesitant about it. TROYA and UEDAS will plan to test the steps of creating a community together by developing them with ecological and conceptual training to familiarise them with the energy community concept and include them in it.

- **KPI 3: Rate of acceptance to create an Energy Community.**

UC2 - Achieving Active Participation and Sensibilisation in Sustainable Energy Usage

The pilot site utilizes solar panels on designated buildings, with the goal of going beyond simple green energy deployment. Each customer has individual solar installations, and they are going to be treated as a unified system, i.e., from a community standpoint being total community solar generation.

- **KPI 1: Energy shifted to solar generation periods - from the Community point of view (kWh).**
- **KPI 2: Community participation rate (%).**

2.4 France - SEIN: Poissy and Magnanville

UC1 - Evaluation of Joint Ownership Model for collective PV installation Investment

This use case aims to establish a joint ownership model for the collective investment in PV installations. The objective is to create a collaborative framework where participants contribute collectively to develop and co-consume energy generated by the PV installations.

The PART'Ener project, through this model, proposes a tailored Joint Ownership Model wherein members co-invest for collective PV installation, creating a sense of shared ownership and shared benefits.

- **KPI 1: Up to 60 engaged members | Establishing 3 categories of members: Residential, Small and Medium businesses, Large Groups or Consumers.**
- **KPI 2: CAPEX per kW installed < 2500 EURkW | Yearly OPEX per kW PV installed < 50.**

UC2 - Promoting Inclusivity, fair governance, and Equity, in Collaborative Self-Consumption ECs

The aim is to encourage EC members to adopt new measures and behaviours. This involves the impact of their consumption patterns and additional investment. Therefore, the goal is to boost their long-term engagement and promote a faire governance and collective decision-making processes.

- **KPI 1: At least 3 actor profiles represented in EC: public and private economic actors, academic actors, households.**
- **KPI 2: Balanced governance - at least 3 votes per category of stakeholders during decision-making.**

2.5 France - RDIUP: Les Mureaux

UC1 - Empowering Citizens' Access to Solar-Powered Energy Community Ownership

The goal of UC1 is focusing on facilitating the discovery of ECs at early stage and informing citizens about sustainable energy practices while promoting solar energy and self-consumption. Also, an accessible framework for proximity eligibility and analysis should be provided for all potential EC members to allow them to explore the possibility ECs' joining.

The EC model involves association creation, co-investment, and co-consumption of energy. The model engages communities, businesses, and citizens. Participants are encouraged to be involved in EC management, strategy, and community animation, fostering engagement and diverse projects beyond energy production.

- **KPI 1: Eagerness to learn more about ECs.**
- **KPI 2: Acceptance to join a Solar-powered ECs (%).**

2.6 France - ALEC: Solévent

UC1 - Management of the EC and participation of the members in the activities

To facilitate a transparent management of the Energy Community, with the view of solar energy production of the EC to both EC managers and members.

To encourage participation and interest among EC members, creating a more engaged and informed community by facilitating the information exchange, social interaction, and the organization of various community activities.

- **KPI 1: Number of logins and Time spent on ECOOP.**
- **KPI 2: Number of interactions between participants (participation frequency in private chat rooms and discussions and number of meetings organised within the EC).**

UC2 - Enrolment and on-boarding on the EC

To streamline the subscriptions and on-boarding for new members joining the Energy Community (EC), minimizing administrative complexities.

- **KPI 1: Number of new members interested in joining the EC.**
- **KPI 2: Qualitative feedback of RECOMME (online questionnaire).**

UC3 – Achieving Active Participation and Sensibilisation in Sustainable Energy Usage

This use case focuses on the pilot site's schools which have solar panels installed in their main buildings (primary, elementary, etc.). School users will be encouraged to adjust their consumption when there is solar production, by providing them recommendations and by showing them the consumption (if possible) and solar generation. It could be interesting to do it not only on an independent level (per school), but also as the community level with the aggregation of solar panels generation of several schools, allowing each school to see its consumption / production compared to the total aggregated one. Another option would be to display regional consumption / production so that the users can be aware of consumption peaks.

It involves designing and implementing demand modifications based on energy prices and renewable generation. There are going to be two types of interventions:

- To modify the demand based on tariffs/grid signals.
- Demand Shift Towards Self-Consumption: which includes not only to modify the demand from low period of renewable generation to high generation periods, but also to encourage users to modify, to collaborate by modifying assets during high renewable energy generation periods, promoting sustainable energy use.

- **KPI 1: In the recommendation of DR-FLEX there will be the option for the person using it, to indicate if it has acted based on the recommendations. [User Action Confirmation Rate (%)].**

2.7 Sweden - UPP: Dansmästaren

UC1 - Understanding ECs and engagement of citizens

Inhabitants of the pilot site will be empowered to understand ECs through diverse resources. UPP aims to inform and engage the inhabitants in the pilot site, encouraging them with UPP's assistance and using the MASTERPIECE solution, to initiate an energy community.

- **KPI 1: Ten or more citizens have been informed about the possibility to start and/or participate in an energy community.**

UC 2 - Empowering Citizens in Renewable Energy Community

If a group is interested in starting an energy community, this use case will utilise tools to make simple calculations of the feasibility of an energy community. It aims to explore possible options such as investment, financials, energy flow of energy communities considering all the technical infrastructure in place of the pilot site for producing and storing renewable energy showing the inhabitants the possible investments.

- **KPI 1: The success ratio in residents taking further steps to start an energy community is ten or more percentage points.**

UC 3 – Registering an official EC.

UPP views energy communities as an effective tool for the energy transition but is uncertain about the administration and processes behind it. Therefore, UPP aims to register an energy community -in its own name- and learn from it. The energy community will use MASTERPIECE digital platform. This use case emerges from the other two, demonstrating how UPP will successfully become an energy community through the various Masterpiece tools

- **KPI 1: There is an official energy community in Uppsala municipality.**

2.8 Sweden - NGENIC: BRF Väppeby Backe & BRF Venus

UC1 - Strengthening social bonds and energy literacy.

This use case aims to increase the knowledge and interest within the organisations, BRF Väppeby Backe and BRF Venus there by enhancing the energy literacy in the test groups.

- **KPI 1: Five or more residents have been informed about the possibility to start and/or participate in an energy community.**
- **KPI 2: The success ratio in residents taking further steps to start an energy community is ten or more percentage points.**

2.9 Sweden - NGENIC: Austerland

UC1 - Empowering citizens in PV community energy ownership showing the return on investment.

Empower users in Austerland to collectively own and utilize a new PV park, demonstrating the return on investment. Regarding this pilot site, for this use case, there will be two types of users, differentiated, divided in two groups:

- Group1: Users with home DSO meters connected with an NGENIC Track P1 package that will see the whole picture of usage and PV production. **This group will only be included in the use case if data from the DSO meters can finally be obtained (not confirmed yet)**.

- Group 2: Users utilising the platform to show their return on investment in the cooperative PV investment. This group doesn't have their DSO meters connected.

- **KPI 1: % Average return investment for at least 5 people from Group 2.**

3 FINAL VERSION OF THE PILOTS KPIS

As the general KPIs of the project remained unchanged, this section focuses exclusively on the pilot KPIs, which, due to their specificity, required a more detailed analysis.

In this context, strategic adjustments were made to some of the initially defined KPIs, as well as to the measurement and evaluation methodologies, following extensive alignment and collaboration discussions with the teams involved. These adjustments were necessary to reflect the specificities and challenges encountered during the implementation of the pilots, and to allow for a better adaptation to the functionalities and capabilities of the tools used.

This integrated approach ensures greater precision in the results, optimises the use of the available tools and promotes a more consistent alignment between the objectives set in each use case.

3.1 PoC: Spain - UMU: Universidad de Murcia

3.1.1 Use case 1: Fostering a Socially Responsible Energy Community

- **KPI 1: Number of people who have interacted with the tool.**

This KPI seeks to reflect the number of participants who, through the app, have managed to capture and, in some cases, enhance community involvement and commitment to sustainability.

3.1.2 Use case 2: Promoting Collaboration and Self-Consumption from PV

- **KPI 1: Number of people reached and percentage that attained the collaborative behaviour.**

  This KPI consists of to make effective use of renewable energy and encourage community behaviour change.

3.1.3 Use case 3: Management of Demand and Fair Pricing

- **KPI 1: 10 % Energy savings.**

  This KPI consists of modifying the demand for energy consumption based on incentivising consumption during periods of renewable generation by shifting demand to periods of high photovoltaic generation in order to reduce energy consumption from the grid.

- **KPI 2: 10 % cost energy savings.**

  This KPI adjusts the energy consumption demand in accordance with electricity tariff rates and energy cost savings in order to reduce energy cost

3.1.4 Use case 4: Achieving Sustainable Energy Transition and Equitable Access

- **KPI 1: % Increase in grid energy independence (community level).**

This KPI aims to demonstrate the targeting of solar energy (renewable energy in simulated form) based on the energy-saving resources of the different faculties, with the intention of reducing the environmental impact on all faculties.

3.2 Italy - BER: Municipality of Berchidda

3.2.1 Use case 1: Promoting the transition from consumer to prosumer in an informed and conscious manner among citizens.

- **KPI 1: Number of individuals informed.**

This KPI aims to inform individuals about what the Energy Community is all about, the incentives, restrictions and other aspects, in order to enhance their understanding of what it means to participate in an Energy Community and what they need to do to play an active role in it.

3.2.2 Use case 2: Achieving Active Participation and Sensibilisation in Sustainable Energy Usage

- **KPI 1: More than fifty citizens have collaborated and been interested in creating the official energy community.**

In order for all individuals to comprehend the potential socio-economic advantages of an EC, this KPI seeks to provide a clear and concise explanation of the business case supporting its formation.

3.3 Turkey - UEDAS: Aşağıçavuş Forest Village

3.3.1 Use case 1: Understanding ECs and engagement of citizens.

- **KPI 1: Nº Interaction within the learning process**

This KPI aims to encourage the use of the tools available, with the constant support of the EC Manager, so that citizens can familiarise themselves and learn more about the subject.

- **KPI 2: Rate of understanding of the EC environment**

This KPI plans to increase citizens' knowledge and awareness by providing energy, climate, sustainability and some technical training to a total of 13 households, creating the concept of an Energy Community.

- **KPI 3: Rate of acceptance to create an Energy Community.**

As a final step in the process of introducing and learning about EC concepts and accessing the tools (via the EC Manager), this KPI consists of identifying the number of families who have agreed to join a EC.

3.3.2 Use case 2: Achieving Active Participation and Sensibilisation in Sustainable Energy Usage

- **KPI 1: Energy shifted to solar generation periods - from the Community point of view (kWh).**

This KPI will encourage users by giving them recommendations on how to adjust their energy consumption when there is community solar production, as well as showing them the community's consumption and solar production.

- **KPI 2: Community participation rate (%).**

This KPI aims to increase community participation by organising workshops with households to teach them how to interpret the data displayed (consumption, photovoltaic generation on an individual/community basis), how to act on the recommendations, show the results of the changes they have made (if applicable), etc.

3.4 France - SEIN: Poissy and Magnanville

3.4.1 Use case 1: Evaluation of Joint Ownership Model for collective PV installation Investment

- **KPI 1: Up to 60 engaged members | Establishing 3 categories of members: Residential, Small and Medium businesses, Large Groups or Consumers.**

This KPI aims to engage more than 60 members by establishing 3 categories of members for a joint ownership model of collective investment in photovoltaic installations.

- **KPI 2: CAPEX per kW installed < 2500 EURkW | Yearly OPEX per kW PV installed < 50 EUR.**

The PART'Ener project proposes a tailored Joint Ownership Model wherein members co-invest for collective PV installation, creating a sense of shared ownership and shared benefits.

A lot of technical and economic data has been collected in the previous stages and will be used in this KPI to test the tools and validate the results obtained.

3.4.2 Use case 2: Promoting Inclusivity, fair governance, and Equity, in Collaborative Self-Consumption ECs

- **KPI 1: At least 3 actor profiles represented in EC: public and private economic actors, academic actors, households.**

The aim of this KPI is to encourage the involvement of different stakeholder profiles in order to promote representativeness and fair governance.

- **KPI 2: Balanced governance - at least 3 votes per category of stakeholders during decision-making.**

This KPI seeks to increase their long-term engagement and promote fair governance and collective decision-making.

3.5 France - RDIUP: Les Mureaux

3.5.1 Use case 1: Empowering Citizens' Access to Solar-Powered Energy Community Ownership

- **KPI 1: Eagerness to learn more about ECs.**

This KPI focuses on facilitating the early discovery of EC and informing citizens about sustainable energy practices, while promoting solar energy and self-consumption.

- **KPI 2: Acceptance to join a Solar-powered ECs (%).**

This KPI is to provide an accessible framework for eligibility and proximity analysis for all potential EC members to enable them to explore the possibility of EC membership.

3.6 France - ALEC: Solévent

3.6.1 Use case 1: Management of the EC and participation of the members in the activities.

- **KPI 1: Number of logins and Time spent on ECOOP.**

This KPI is designed to measure the interest and participation of EC members.

- **KPI 2: Number of interactions between participants (participation frequency in private chat rooms and discussions and number of meetings organised within the EC).**

This KPI tracks how EC members participate and communicate with one another, fostering an informed and involved community and assisting in the planning of community events as well as the sharing of knowledge and social contact.

3.6.2 Use case 2: Enrolment and on-boarding on the EC.

- **KPI 1: Number of new members interested in joining the EC.**

This KPI measures the number of new members who are interested in joining an EC using tools that facilitate their involvement.

- **KPI 2: Qualitative feedback of RECOMME (online questionnaire).**

This KPI performs a qualitative analysis through the feedback given by the EC manager on the use of the tool to a panel of selected members.

3.6.3 Use case 3: Achieving Active Participation and Sensibilisation in Sustainable Energy Usage

- **KPI 1: In the recommendation of DR-FLEX there will be the option for the person using it, to indicate if it has acted based on the recommendations. [User Action Confirmation Rate (%)].**

The purpose of this KPI is to determine whether or not the user acted on the recommendation given by DR-FLEX.

3.7 Sweden - UPP: Dansmästaren

3.7.1 Use case 1: Understanding ECs and engagement of citizens.

- **KPI 1: Ten or more citizens have been informed about the possibility to start and/or participate in an energy community.**

Inform residents about energy communities and identify if there is an interest to form an energy community.

3.7.2 Use case 2: Empowering Citizens in Renewable Energy Community

- **KPI 1: The success ratio in residents taking further steps to start an energy community is ten or more percentage points.**

To nudge residents to take a more active role in learning more and/or starting or participating in an energy community.

3.7.3 Use case 3: Registering an official EC.

- **KPI 1: There is an official energy community in Uppsala municipality**

This KPI aims to register an energy community on behalf of the UPP so that everyone can contribute and learn.

3.8 Sweden - NGENIC: BRF Väppeby Backe & BRF Venus

3.8.1 Use case 1: Strengthening social bonds and energy literacy.

- **KPI 1: Five or more residents have been informed about the possibility to start and/or participate in an energy community.**

Encourage the development of energy communities in Sweden where citizens are involved and educated in the field of energy by informing them about the possibilities

- **KPI 2: The success ratio in residents taking further steps to start an energy community is ten or more percentage points.**

To nudge residents to take a more active role in learning more and/or starting or participating in an energy community by offering the tools.

3.9 Sweden - NGENIC: Austerland

3.9.1 Use case 1: Empowering citizens in PV community energy ownership showing the return on investment.

- **KPI 1: % Average return investment for at least 5 people from Group 2**

Enable users in Austerland to collectively own and use a new photovoltaic park, demonstrating the average return on investment in %.

4 END USER QUESTIONNAIRES

As the project has evolved and matured, the end-user questionnaires have been improved and several models have been created to meet different objectives.

As a variation of questionnaires, the RECOMME tool employs tailored interactive-questionnaires/forms to profile users across various dimensions, including knowledge levels, values, resource capacity, and energy consumption patterns.

Through analysing these profiles, the tool assesses key metrics including environmental commitment, financial interest, community engagement and personal responsibility, while also determining users' readiness and willingness to join or participate in an energy community based on their maturity level.

This evaluation process spans the entire spectrum of maturity, from early-stage citizens (potential members) to more advanced participants, such as active members or activists within energy communities. Based on the responses, the tool provides tailored recommendations aligned with each user's profile and maturity level. To ensure continuous improvement, RECOMME actively gathers user feedback regarding its usability, interface design, and system availability at every stage of the user journey.

On the other hand, the MEET APP tool uses the quizzes to measure the transformation of the information received into knowledge acquired from the users of the tool (people who want to learn more about the energy community ecosystem) who have accessed the informational material provided by the tool. The results of the quizzes on the training/information material are then made available, and their approach can be adapted according to the needs of each pilot's KPIs, for example: the average score was x out of y, or x users answered the quiz.

5 CONCLUSIONS

This document incorporates the result of the work done in WP2 since M6, when D2.3 was submitted, including an early set of candidate *scenarios* obtained from the literature which were expected to be used as reference for pilots to define their use cases.

Now, in M24, especially after the launch of WP5 in M10, there is a much better view of the needs of the pilots and the potential of the components. Although part of the job was reported in deliverables from WP5 while WP2 was inactive, namely D5.3 and D5.6, this is the closing point for most of the use cases as well as their corresponding KPIs, which have also been refined and updated.

Although each pilot has its own specific goals, the collective achievements are summarized through the following general objectives. Through these five points, it is possible to see the overall achievement vision of the pilots:

1. Promoting awareness about ECs and active participation understandings.
2. Self-consumption and Efficient management of energy (flexibility demand).
3. Facilitates collaborative and participative governance approaches.
4. Supporting citizen empowerment in the energy transition.
5. Creation, support and facilitation of the EC.

However, as mentioned in D5.7, which is also being submitted in M24, some minor changes might need to be done in the future as a consequence of the appearance of MAPS as a new partner in the consortium, providing a new component. These updates, if any, will be included in future deliverables of WP5.

On the other hand, section 4 includes a compilation of information from WP3, backported to WP2, clarifying what certain components can offer in terms of functionality in the context of end user questionnaires, which will be used in the evaluation phase mostly to retrieve social feedback from the pilots, in T5.6.