

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

Deliverable 5.6

Evaluation of social, environmental, technical and economic impact

Title	Evaluation of social, environmental, technical and economic impact
Document description	Deliverable 5.6 includes the work done in T5.6 around calculation of baselines for the KPIs identified so far, both the global ones reported in D2.3 and those related to the use cases of the pilots, reported in D5.3. Historical data of certain pilots is also analysed and will be later compared with real-time data obtained once the components are activated.
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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	7
2. INTRODUCTION	7
2.1. BACKGROUND AND CONTEXT	7
2.2. RELATIONSHIP WITH OTHER WPS, DELIVERABLES, AND TASKS	8
2.2.1. RATIONALE FOR RELATIONSHIP WITH WP2	8
2.2.2. RATIONALE FOR RELATIONSHIP WITH WP3 AND WP4	8
2.2.3. ALIGNMENT WITH OTHER WP5 DELIVERABLES	9
2.3. DOCUMENT STRUCTURE OVERVIEW	9
3. KPIS AND BASELINES	9
3.1. GLOBAL KPIS	11
3.2. POC: SPAIN - UMU: UNIVERSIDAD DE MURCIA	16
3.2.1. USE CASE 1: FOSTERING A SOCIALLY RESPONSIBLE ENERGY COMMUNITY	16
3.2.2. USE CASE 2: PROMOTING COLLABORATION AND SELF-CONSUMPTION FROM PV	17
3.2.3. USE CASE 3: MANAGEMENT OF DEMAND AND FAIR PRICING	17
3.2.4. USE CASE 4: ACHIEVING SUSTAINABLE ENERGY TRANSITION AND EQUITABLE ACCESS	18
3.3. ITALY - BER: MUNICIPALITY OF BERCHIDDA	18
3.3.1. USE CASE 1: PROMOTING THE TRANSITION FROM CONSUMER TO PROSUMER IN AN INFORMED AND CONSCIOUS MANNER AMONG CITIZENS.	18
3.3.2. USE CASE 2: ACHIEVING ACTIVE PARTICIPATION AND SENSIBILISATION IN SUSTAINABLE ENERGY USAGE	19
3.4. TURKEY - UEDAS: AŞAĞIÇAVUŞ FOREST VILLAGE	20
3.4.1. USE CASE 1: UNDERSTANDING ECS AND ENGAGEMENT OF CITIZENS.	20
3.4.2. USE CASE 2: ACHIEVING ACTIVE PARTICIPATION AND SENSIBILISATION IN SUSTAINABLE ENERGY USAGE	22
3.5. FRANCE - SEIN: POISSY AND MAGNANVILLE	23
3.5.1. USE CASE 1: EVALUATION OF JOINT OWNERSHIP MODEL FOR COLLECTIVE PV INSTALLATION INVESTMENT	23
3.5.2. USE CASE 2: PROMOTING INCLUSIVITY, FAIR GOVERNANCE, AND EQUITY, IN COLLABORATIVE SELF-CONSUMPTION ECS	24
3.6. FRANCE - RDIUP: LES MUREAUX	25

EU's Grant Agreement 101096836.

3.6.1. USE CASE 1: EMPOWERING CITIZENS' ACCESS TO SOLAR-POWERED ENERGY COMMUNITY OWNERSHIP	25
3.7. FRANCE - ALEC: SOLÉVENT	26
3.7.1. USE CASE 1: MANAGEMENT OF THE EC AND PARTICIPATION OF THE MEMBERS IN THE ACTIVITIES.	26
3.7.2. USE CASE 2: ENROLMENT AND ON-BOARDING ON THE EC	26
3.7.3. USE CASE 3: ACHIEVING ACTIVE PARTICIPATION AND SENSIBILISATION IN SUSTAINABLE ENERGY USAGE	27
3.8. SWEDEN - UPP: DANSMÄSTAREN	28
3.8.1. USE CASE 1: UNDERSTANDING ECS AND ENGAGEMENT OF CITIZENS.	28
3.8.2. USE CASE 2: EMPOWERING CITIZENS IN RENEWABLE ENERGY COMMUNITY	28
3.8.3. USE CASE 3: REGISTERING AN OFFICIAL EC.	29
3.9. SWEDEN - NGENIC: BRF VÄPPEBY BACKE & BRF VENUS	29
3.9.1. USE CASE 1: STRENGTHENING SOCIAL BONDS AND ENERGY LITERACY.	29
3.10. SWEDEN - NGENIC: AUSTERLAND	31
3.10.1. USE CASE 1: EMPOWERING CITIZENS IN PV COMMUNITY ENERGY OWNERSHIP SHOWING THE RETURN ON INVESTMENT.	31
4. HISTORICAL DATA	32
4.1. POC / CONSUMPTION	33
4.2. POC / PRODUCTION	40
4.3. TURKISH PILOT / PRODUCTION AND CONSUMPTION	41
5. CONCLUSIONS	48

LIST OF FIGURES

FIGURE 1: ESPINARDO CAMPUS – PERIOD 1	33
FIGURE 2: ESPINARDO CAMPUS – PERIOD 2	33
FIGURE 3: GENERAL LECTURING BUILDING 1 – PERIOD 1	34
FIGURE 4: GENERAL LECTURING BUILDING 1 – PERIOD 2	34
FIGURE 5: GENERAL LECTURING BUILDING 2 – PERIOD 1	34
FIGURE 6: GENERAL LECTURING BUILDING 2 – PERIOD 2	34

FIGURE 7: GINER DE LOS RÍOS LECTURING BUILDING – PERIOD 1	35
FIGURE 8: GINER DE LOS RÍOS LECTURING BUILDING – PERIOD 2	35
FIGURE 9: AULARIO NORTE BUILDING – PERIOD 1	35
FIGURE 10: AULARIO NORTE BUILDING – PERIOD 2.....	35
FIGURE 11: COMPUTER SCIENCE FACULTY 1 – PERIOD 1.....	36
FIGURE 12: COMPUTER SCIENCE FACULTY 1 – PERIOD 2.....	36
FIGURE 13: COMPUTER SCIENCE FACULTY 2 - PERIOD 1	36
FIGURE 14: COMPUTER SCIENCE FACULTY 2 - PERIOD 2	36
FIGURE 15: GENERAL LIBRARY - PERIOD 1	37
FIGURE 16: GENERAL LIBRARY - PERIOD 2	37
FIGURE 17: CHEMISTRY FACULTY - PERIOD 1.....	37
FIGURE 18: CHEMISTRY FACULTY - PERIOD 2.....	37
FIGURE 19: PLEIADES BUILDING - PERIOD 1.....	38
FIGURE 20: PLEIADES BUILDING - PERIOD 2.....	38
FIGURE 21: WORK SCIENCES FACULTY - PERIOD 1.....	38
FIGURE 22: WORK SCIENCES FACULTY - PERIOD 2.....	38
FIGURE 23: VETERINARY FACULTY 1 – PERIOD 1	39
FIGURE 24: VETERINARY FACULTY 1 - PERIOD 2.....	39
FIGURE 25: VETERINARY FACULTY 2 - PERIOD 1.....	39
FIGURE 26: VETERINARY FACULTY 2 - PERIOD 2.....	39
FIGURE 27: PSYCHOLOGY FACULTY - PERIOD 1	40
FIGURE 28: PSYCHOLOGY FACULTY - PERIOD 2	40
FIGURE 29: VETERINARY FARM PV SOLAR PLANT - PERIOD 1	41
FIGURE 30: VETERINARY FARM PV SOLAR PLANT - PERIOD 2	41
FIGURE 31: POOL PARKING PV SOLAR PLANT - PERIOD 1	41
FIGURE 32: POOL PARKING PV SOLAR PLANT - PERIOD 2	41
FIGURE 33: BUILDING 1 - PERIOD 1	42
FIGURE 34: BUILDING 1 - PERIOD 2	42

FIGURE 35: BUILDING 2 - PERIOD 1	43
FIGURE 36: BUILDING 2 - PERIOD 2	43
FIGURE 37: BUILDING 3 - PERIOD 1	43
FIGURE 38: BUILDING 2 - PERIOD 2	43
FIGURE 39: BUILDING 4 - PERIOD 1	44
FIGURE 40: BUILDING 4 - PERIOD 2	44
FIGURE 41: BUILDING 5 - PERIOD 1	44
FIGURE 42: BUILDING 5 - PERIOD 2	44
FIGURE 43: BUILDING 6 - PERIOD 1	45
FIGURE 44: BUILDING 6 - PERIOD 2	45
FIGURE 45: BUILDING 7 - PERIOD 1	45
FIGURE 46: BUILDING 7 - PERIOD 2	45
FIGURE 47: BUILDING 8 - PERIOD 1	46
FIGURE 48: BUILDING 8 - PERIOD 2	46
FIGURE 49: BUILDING 9 - PERIOD 1	46
FIGURE 50: BUILDING 9 - PERIOD 2	46
FIGURE 51: BUILDING 10 - PERIOD 1.....	47
FIGURE 52: BUILDING 10 - PERIOD 2.....	47
FIGURE 53: BUILDING 11 - PERIOD 1.....	47
FIGURE 54: BUILDING 11 - PERIOD 2.....	47
FIGURE 55: BUILDING 12 - PERIOD 1.....	48
FIGURE 56: BUILDING 12 - PERIOD 2.....	48
FIGURE 57: BUILDING 13 - PERIOD 1.....	48
FIGURE 58: BUILDING 13 - PERIOD 2.....	48

1. EXECUTIVE SUMMARY

This document is the first of the series of deliverables that will report all the work done in the context of evaluation of the MASTERPIECE solution from different perspectives, including social, environmental, technical and economic impact.

These different perspectives of evaluation have been mapped into KPIs, with some of them addressing the needs of project objectives (both key and dissemination-related objectives) and others linked to the use cases defined in the different pilots. As a result, some use cases provide feedback about the social benefits of using MASTERPIECE, especially for people who are potential EC members. Other use cases try to quantify the environmental impact of the interventions, such as energy savings. A more technical approach of EC management is incorporated in certain use cases, with end users and building managers being the target audience, while the economic impact is included by either offering simulations of the ECs with the proper tools, or by quantifying the actual costs savings obtained by using some specific components once the EC has already been created (i.e. obtained using flexibility services).

In this specific deliverable the main focus is the calculation of baselines. The work has been done on a per-KPI basis, in an attempt to have an initial reference as soon as possible, although in some pilots there is some work yet to be done for this purpose based on their current status. With the amount of pilots participating in the project, the analysis is being done in a very individual way, taking into consideration their own singularities (national regulations, access to existing data, etc.), and that is why significant differences in the progress of the evaluation process have been detected. Therefore, the baselines have been calculated for a subset of the KPIs, while for most of the remaining KPIs, it has been included information about how to measure them and when.

As part of the evaluation, a first analysis of historical data has also been incorporated for certain pilots. This data is related to energy production and consumption, and later in the project will be used for KPI calculations once the components are operational, to check the impact of the solution in these pilots.

2. INTRODUCTION

2.1. Background and context

The fundamental objective of the MASTERPIECE project is to create a digital arena for coordination and collaboration, characterised by an innovative participatory approach. In this context, it is crucial to carry out a multi-dimensional evaluation of the MASTERPIECE

solution throughout the project, considering social, environmental, technical and economic impacts.

This deliverable includes the first contribution of T5.6, which aims to evaluate the integrated MASTERPIECE solution applied in real Energy Community pilots. It will use the requirements analysis performed in WP2 and the KPIs defined in T2.4 to perform a comprehensive multi-dimensional evaluation of the MASTERPIECE solution.

The evaluation process will analyse the provision of digital tools and questionnaires to stakeholders and energy communities, and the acceptance and usability of social innovations and MASTERPIECE components prior to the project completion.

The lessons learnt will be of paramount importance in the evaluation and monitoring of these KPIs by the pilots, allowing for refinement of the calculation methodology, as well as the implementation and use of the MASTERPIECE services after the end of the project. In addition, they will also be essential to improve the developments in WP3 and WP4 and set the stage for the second phase of pilot demonstrations. The results of the KPIs will be used to measure and compare key performance drivers, contributing to the regulatory innovation strategies in T6.4 and the replicability study in T6.5.

2.2. Relationship with other WPs, Deliverables, and Tasks

2.2.1. Rationale for relationship with WP2

One of the most relevant inputs of this deliverable is WP2, where the initial efforts were made to prepare a base for the whole evaluation process, including the definition of the evaluation strategy and the methodology and tools to be used for this purpose. This information was reported as part of the results generated by T2.4 in D2.3 *Functionalities' needs and performance measurement planning*.

A specific part of D2.3 that is extensively referenced in the current deliverable is the set of global KPIs, aligned to the key objectives of the project.

2.2.2. Rationale for relationship with WP3 and WP4

In order to properly evaluate the solution, this deliverable is the first one including real historical data existing in the pilots. This historical data will be used as reference for later updates once the social innovations and digital tools generated by WP3 and WP4 respectively start producing results. With them, the scope of the evaluation will be extended not only to the period when the project is fully active, but also to the past, when MASTERPIECE solution was still under development.

2.2.3. Alignment with other WP5 Deliverables

Part of the work related to the definition of use cases and KPIs for the different pilots, although it belonged to WP2, was actually reported in month 15 in D5.3 *Intervention Program: All pilots WP5 implementation*. In a similar way as it has been done with the global KPIs, these use cases and KPIs are referenced in the current deliverable individually.

On the other hand, there is a common ground between the work done in the evaluation process and the monitoring activities reported in D5.1 *Holistic proof-of-concept and pilot WP5 implementation roadmaps*. It has to do with the use of monitoring/testing tools, specifically Jenkins, which will be used in both cases.

2.3. Document Structure Overview

Inside this document, section 3 focuses on the key performance indicators (KPIs). The baseline values for each KPI are presented, along with the dates on which these values were or will be available. This data is provided both at the overall project level and at the level of each specific use case. Additionally, the section includes a detailed description of how the KPIs are calculated and the tools used to obtain the necessary parameters for these calculations, thus guaranteeing the accuracy and relevance of the data.

Section 4 includes an initial analysis of the historical data obtained from the *Proof of Concept* (PoC) and the Turkish pilot. This analysis makes it possible to identify and understand the behaviour of energy consumption and generation in the different use cases of these pilots. Such an understanding is crucial to quantifying the future impact of the adoption of MASTERPIECE solution, providing valuable insights.

3. KPIs AND BASELINES

This section presents the global KPIs for the project and at use case level for each pilot, as well as their baseline values and the month they were made available. More details on the calculation methodology for each KPI can be found in D2.3.

As the nature of KPIs is heterogeneous, there are some cases that deserve comment due to their specific characteristics:

KPIs related to cases of achieving absolute values

These KPIs are considered to be achieved by reaching an absolute value. There are cases such as the KPIs related to dissemination (WP6) where the aim is to achieve a specified minimum number of different types of publications, events and initiatives related to the dissemination of knowledge, but there are other KPIs that aim to quantify other factors, such as the number of application downloads, the number of registered users, even quantify

empirically obtained parameters, such as the number of users who attended an event, answered a survey, etc.

Therefore, the baseline for KPIs related to knowledge dissemination is always considered as zero and was obtained at the beginning of the project (M01), and in other cases the baseline also has a value of zero but considers M18 as the available month, referring to the beginning of the evaluation phase.

KPIs related to the publication of deliverables

These KPIs are considered to have been achieved when the deliverables specified in the calculation methodology are published. Therefore, the establishment of a baseline value for these cases and consequently the definition of the month in which it would be available is not applicable.

KPIs calculated by more than one different application/methodology

Some KPIs require more than one parameter provided by the tools/applications to be achieved and, in some cases, a combination of multiple tools. In these cases, the combination of potential parameters and tools is being studied to ensure that these KPIs are fully achieved. Based on this definition, the baselines will be defined in the future. This situation is very common in KPIs that are focused on the early stages of user participation in energy communities.

KPIs calculated by comparing reference periods

For some KPIs the calculation methodology is based on comparing results from specific periods, evaluating the impact of implementing one of the solutions proposed in the MASTERPIECE project. The defined periods are properly chosen to guarantee the significance and coherence necessary for the comparison. This way, baselines will be calculated as soon as the initial period is determined.

KPIs related to the beta version of the platform

Some KPIs are directly related to the use of the platform, so it is important to highlight the differences in the execution of the different phases of the project. The platform will be launched with a beta version including an initial deployment. In this phase, a set of basic tools will be incorporated and made available for users to test and evaluate.

In these cases, it has been decided to postpone the calculation of the baseline in order to ensure that it was more representative according to the calculation methodology presented in document D2.3. Once the beta version has been tested by users, the platform will be updated to its operational version, which will include all the planned tools and functionalities.

The operational version of the platform will be launched after careful analysis and improvement based on the feedback received during the beta phase. This full version will

include all the functionalities originally designed to ensure a robust and comprehensive experience for users.

3.1. Global KPIs

KPI 1: Adherence to the ECs after the Intervention Program			
Description	The evaluation of the four energy community centres will look for new ways to encourage citizen participation and engagement, using qualitative insights to structure the modelling of resources and tools that promote participation, agency, literacy and social entrepreneurship. These tools will be implemented in the pilot sites through an Intervention Programme, with the main objective of increasing membership of the energy communities by 30% after the intervention .		
How to measure	<p>AEC refers to the initial Adherence to the energy communities (ECs) at the start of the Pilot Monitoring Phase. This value will be determined by extrapolating data from initial surveys on the current level of adherence to existing platforms in the areas where they are deployed. Alternatively, platform uptake can be measured in the first two months and compared with the data obtained at the end of the Intervention Programme to assess the impact of the incentive measures.</p> <p style="text-align: center;">KPI1 = ((AAIP - AEC) / AEC) * 100</p> <p style="text-align: center;">AEC: Initial Adherence to the ECs during the pilot monitoring phase AAIP: Adherence alter the Intervention Program in the pilot scenarios.</p>		
Baseline			
Month available	Not Available	Comments	<p>Due to the legal complexities involved in setting up an EC, the necessary information to properly define the baseline for this KPI is not available at the current stage of the project. Therefore, it has been decided to postpone the calculation of the baseline to ensure that it is more representative in line with the calculation methodology presented in document D2.3.</p> <p>In this regard, the second option described in the previous deliverable for the calculation of this KPI has been chosen, which means the baseline will be calculated two months after the launch of the first version of the platform. This approach will offer a more accurate result, more in line with the reality of the use</p>

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Page 11 of 49

			of the platform (see <i>KPIs related to the beta version of the platform</i>).
Calculated Value	Not Available		

KPI 2: Master Plan of services and Services Blueprints

Description	The publication of the MASTERPIECE Master Plan and Service Blueprints aims to foster collaboration among community federated services. Early assessments of community maturity and aspirations will lead to participatory service design sessions and innovative concepts. The formulation, localization, and implementation of tailored services for community members at each Pilot site will be coordinated through the Service Blueprint, enhancing citizen involvement and EC co-creation through participatory approaches.		
How to measure	The KPI will be measured through the publication of the D2.7 – “Architecture design and functional blueprint” at M09 and D2.8 – “Architecture design and functional blueprint - update” M27		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to the publication of deliverables</i> .
Calculated Value	Not Applicable		

KPI 3: Increase of federated services

Description	Multi-dimensional incentive models will provide consumers with tools to encourage investments and lifestyle changes necessary for joining energy communities as prosumers. Self-sustaining services and business models will rely on income from new consumer goods or cost savings from reduced inefficiencies. New business models will focus on reducing energy use and improving energy infrastructure management. The goal is to increase federated services by 20% , particularly in simplifying clean energy purchases and sharing through automated onboarding and incentives, achieving a spillover effect in each energy community. Federated services are services that are interoperable with each other, where the output of one is used as input in another, and at the same time collaborate to guide the users in their EC journey.
How to measure	KPI3 = ((FFSN - IFSN) / IFSN) * 100

	IFSN: Initial Number of Federated Services measured at the beginning of the pilot monitoring phase. FFSN: Final Number of Federated Services at the End of the Intervention Program.		
Baseline			
Month available	Not Available	Comments	See <i>KPIs related to the beta version of the platform</i> .
Calculated Value	Not Available		

KPI 4: Secure data management			
Description	Together with an improved access control system that allows policy-based authentication and authorization evaluation for data exchange and access while maintaining privacy, privacy-preserving identity management techniques will be expanded and integrated, enabling secure exchange between the different components within the platform. The project must guarantee 100% secure data management of private information.		
How to measure	$\text{KPI4} = (\text{IDC} - \text{FNSD}) / \text{IDC} * 100$ IDC: Initial number of (kind of) Data Collected at the beginning of the pilot monitoring phase. FNSDC: Final Number of No Secured Data collected at the end of the Intervention Program.		
Baseline			
Month available	M21/ M22	Comments	The baseline value will be defined and calculated during the platform's deployment phase.
Calculated Value	Not Available		

KPI 5: Validation of large-scale acceleration programs			
Description	Define the guidelines to be followed by the project during the development and implementation of the intervention programme, as well as the validation methodology and the results of this validation in order to assess its potential impact on other large-scale acceleration programmes.		
How to measure	The guidelines and roadmaps that will be defined in D5.1 and D5.2 , which are focused on defining the "Holistic proof-of-concept and pilot implementation roadmaps," as well as in the Intervention Program defined		

	in D5.3-5 , "Intervention Program: All pilots implementation," must be taken into consideration when developing the initial list of guidelines that need to be validated.		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to the publication of deliverables</i> .
Calculated Value	Not Applicable		

KPI 6: Dissemination of Scientific publications			
Description	Dissemination of scientific publications through 3 scientific and 3 industrial publications in journals with gold access and Impact Factor, or in green access that is self-archiving and has repositories listed on https://zenodo.org/ , or those are utilized by consortium members.		
How to measure	DSP = GOAP + IP GOAP: Number of Gold Open Access Publications IP: Number of Industrial Publications		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to cases of achieving absolute values</i> .
Calculated Value	Not Applicable		

KPI 7: Dissemination of mainstream media publication			
Description	MASTERPIECE partners will promote awareness of the platform and the development of new and existing CEs through media packages and targeted messages and articles.		
How to measure	The number of mainstream media have to be greater or equal than 3 publications .		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to cases of achieving absolute values</i> .

Calculated Value	Not Applicable
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KPI 8: MASTERPIECE dedicated workshops			
Description	Organise MASTERPIECE workshops and participate in workshops and events aimed at a two-way exchange of information between the project consortium and the local community. At least four workshops with local and national stakeholders will be organised in the pilot countries.		
How to measure	A workshop must be held for each pilot and at least 20 people must attend each workshop.		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	Not Applicable		

KPI 9: Dissemination through conferences and events			
Description	Dissemination through presentations at European conferences, workshops, fairs and events.		
How to measure	A minimum of six presentations at European conferences, trade fairs and events.		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	Not Applicable		

KPI 10: Dissemination through cooperation and joint research with EU research projects and clustering initiatives			
Description	KPIs are centered around cooperation with H2020-funded projects) as well as with the BRIDGE initiative and particular working groups under the same MASTERPIECE call.		
How to measure	The number of participations in collaborative workshops and other initiatives must be equal to or greater than three.		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to cases of achieving absolute values.</i>

Calculated Value	Not Applicable
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KPI 11: Development of inspiring case studies			
Description	This KPI measures the development of compelling case studies, including videos and interviews, based on local deployments.		
How to measure	The number of inspiring case studies have to be equal to or greater than three and at least one case study per country will be created, focusing on homeowners as well as other relevant parties.		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	Not Applicable		

3.2. PoC: Spain - UMU: Universidad de Murcia

The PoC has a specific role in the project as a reference pilot which will be used for obtaining knowledge and experience for the other pilots. To this regard, the methodologies for calculating the KPIs for each use case, the tools that were used, the baselines and the results of the first round of calculations will be presented.

3.2.1. Use case 1: Fostering a Socially Responsible Energy Community

KPI 1: Number of people who have installed the tool.			
Description	In addition to bringing the energy community's digital counterpart to life, this use case seeks to spearhead the development of a socially conscious energy community. Reaching as many users as possible via the app is the aim in order to record and improve community involvement and sustainability-related commitment.		
How to measure	The methodology for calculating this KPI consists of obtaining the quantitative parameters provided by the tools, such as: Number of downloads, Number of user registrations/accounts, Number of logins total or individual, etc.		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>

Calculated Value	Not Applicable
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3.2.2. Use case 2: Promoting Collaboration and Self-Consumption from PV

KPI 1: Number of people reached and percentage that attained the collaborative behaviour.			
Description	Solar energy generation is targeted at specific study rooms to make effective use of renewable energy and encourage community behaviour change.		
How to measure	<p>Thanks to installed counting cameras, it is possible to measure the number of people who have participated and their commitment.</p> <p>In addition, the DR-FLEX tool can be used to gather information on reach and user feedback (User action confirmation rate based on the recommendation received).</p> <p>This means that this KPI will be calculated by comparing the values obtained in two periods: a reference period where the system is inactive and another where the system is active.</p>		
Baseline			
Month available	Not Available	Comments	See <i>KPIs calculated by comparing reference periods.</i>
Calculated Value	Not Available		

3.2.3. Use case 3: Management of Demand and Fair Pricing

KPI 1: 10 % Energy savings			
Description	To achieve UC3, this KPI uses the DR-FLEX tool to modifying EC (Energy Consumption) demand based on encouraging consumption during renewable generation periods: shifting demand to periods of high photovoltaic generation, reducing energy consumption from the grid.		
How to measure	Through the Savings in energy functionality provided by the DR-FLEX tool.		
Baseline			
Month available	Not Available	Comments	See <i>KPIs calculated by comparing reference periods.</i>
Calculated Value	Not Available		

KPI 2: 10 % cost energy savings
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Description	In order to achieve UC3, this KPI adjusts the EC (Energy Consumption) demand in accordance with electricity tariff rates and energy cost savings by utilizing the DR-FLEX tool.		
How to measure	Through the Savings in energy costs functionality provided by the DR-FLEX tool.		
Baseline			
Month available	Not Available	Comments	See <i>KPIs calculated by comparing reference periods.</i>
Calculated Value	Not Available		

3.2.4. Use case 4: Achieving Sustainable Energy Transition and Equitable Access

KPI 1: % Increase in grid energy independence (community level). % Deviation in energy savings potential before and after (variation)			
Description	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.		
How to measure	Through the Grid energy independence of the network (%) provided by the DR-FLEX tool.		
Baseline			
Month available	Not Available	Comments	See <i>KPIs calculated by comparing reference periods.</i>
Calculated Value	Not Available		

3.3. Italy - BER: Municipality of Berchidda

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

KPI 1: Number of individuals informed.			
Description	This KPI aims at extrapolating information so that citizens have access to it, thus preparing the ground for the objective of KPI 2.		
How to measure	This KPI was be calculated in an empirical way: how many people will attend the workshops, who will ask for more information, give their email in the case		

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	of info material to be sent or directly take information material that may be distributed or simply stop and talk to someone about the MASTERPIECE project.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

KPI 2: N° of consumers interested in becoming prosumers.			
Description	This KPI is temporally related to KPI 1, so this KPI is calculated after KPI 1 where the step of attracting people was done empirically to provide knowledge about EC and pave the way for the KPI in question.		
How to measure	The methodology for calculating this KPI will be empirical, using questionnaires after one or more workshops have been held. These workshops will aim to promote the project and present its applications.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

3.3.2. 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.			
Description	In order for all individuals to comprehend the potential socio-economic advantages of an EC, this KPI1 seeks to provide a clear and concise explanation of the business case supporting its formation.		
How to measure	This KPI will be calculated empirically, as direct contact with citizens has been made after the General Assembly in Berchidda at events organised by the municipality. An official document already records the number of people interested in taking part in a EC, with at least 10 people registered so far.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

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KPI 2: N° Interaction within the learning process.			
Description	This KPI aims to encourage the use of available tools to increase the number of interactions in the learning process.		
How to measure	As in Use Case 1 of this pilot, this KPI will be calculated according to KPI 1 of this Use Case. Feedback from a more appropriate set of tools will be used to obtain parameters for quantifying the number of interactions within the learning process. The Meet App tool has already been identified as a potential provider of this information, but the best combination of applications to use for the calculation is still being investigated, as is the possibility of using questionnaires to also add empirical information to this process.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

3.4. Turkey - UEDAS: Aşağıçavuş Forest Village

It is important to emphasise that this EC has a specific nature due to the profile of its members. The EC manager played a fundamental role in the calculation of all reported KPIs, as they were used extensively for data entry and applications, as the community does not have the capacity to use and reach digital tools. The EC manager and the EC pre-manager were therefore responsible for transmitting user feedback.

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

In this use case, the KPIs will be calculated in two phases. The first consisting of informing and engaging the inhabitants of the pilot site to start an Energy Community, and the second to enable them to acquire a solid knowledge and understanding of ECs and to engage the citizens of the village about the potential of starting their own Energy Community, using the existing technical infrastructure at the pilot site.

The first two KPIs were calculated in the first phase and the third in the next one.

KPI 1: N° Interaction within the learning process	
Description	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.
How to measure	This KPI will be calculated empirically through the different feedback received from the workshops, either physically or directly through available

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	<p>tools such as Meet App, and RECOME, etc. These tools will provide functionalities to evaluate the usability of the tools, user interface, availability, etc.</p> <p>All this information is collected and reported by the EC Manager.</p>		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

KPI 2: N° Rate of understanding of the EC environment			
Description	This KPI plans to increase citizens' knowledge and awareness by providing energy, climate, sustainability and some technical training to a total of 19 households, creating the concept of an Energy Community.		
How to measure	It is measured empirically by the number of people who have expressed an interest in attending workshops (before and after surveys).		
Baseline			
Month available	Not Applicable	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	Not Applicable		

KPI 3: Rate of acceptance to create an Energy Community.			
Description	This KPI plans to increase citizens' knowledge and awareness by providing energy, climate, sustainability and some technical training to a total of 19 households, creating the concept of an Energy Community.		
How to measure	<p>The methodology of this KPI consists of being able to quantitatively measure the number of people who have agreed to create a EC. This functionality can be provided by a ECOOP tool.</p> <p>Rate of acceptance to create an Energy Community = [(N° of households entered the system of ECOOP for the EC / Total number of households) *100].</p>		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>

Calculated Value	0
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3.4.2. 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).			
Description	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.		
How to measure	This KPI was measured by the functionality Shifting energy to periods of solar generation (kWh) provided by the DR-FLEX tool.		
Baseline			
Month available	Not Available	Comments	See <i>KPIs calculated by comparing reference periods.</i>
Calculated Value	Not Available		

KPI 2: Community participation rate (%).	
Description	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.
How to measure	<p>According to the specificities of this pilot project, the moderator will be the only and exclusive user registered in DR-FLEX. He or she will have access to the information of all households (consumption and production) and the corresponding recommendations. Based on this information, the moderator will rate the recommendations from 1 to 5 and record whether people have followed the recommendations or not (in Boolean format), will be responsible for collecting these ratings and Boolean information (whether they were followed or not) and entering them into DR-FLEX for each household.</p> <p>In this way, the KPI will be calculated automatically on a monthly basis using the DR-FLEX tool.</p> <p>$KPI2 = \text{sum of people who say "Yes, I follow the recommendation"} / \text{total number of recommendations.}$</p>

Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

3.5. France - SEIN: Poissy and Magnanville

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 assembly of the two energy communities (Poissy and Magnanville) is underway and the energy community of Poissy is more advanced than the EC of Magnanville.

3.5.1. 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.			
Description	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.		
How to measure	This KPI will be measured using contractual documents and annual reports of the two energy communities and results data aimed at obtaining data on the number of user registrations/accounts, analysis of identified profiles and technical and economic analysis will be extracted from a set of tools that provide this information. The EC-SIM, SIT and EC-MGMT tools were initially listed as potential tools for use.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

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

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	A lot of technical and economic data has been collected in the first stages and will be used in this KPI to test the tools and validate the results obtained.		
How to measure	To calculate this KPI, it will be necessary to collect information on CAPEX per kW installed and annual OPEX per kW PV installed. The potential tools to provide this data have initially been identified are the EC-SIM, SIT and EC-MGMT tools.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

3.5.2. 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.			
Description	This KPI aims to encourage various EC members to adopt new practices and behaviours.		
How to measure	This KPI will be measured using EC documents (contractual documents, reports, etc.) and output data from the tools used to analyse the profiles identified (RECOMME is potential tool to provide this parameter).		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

KPI 2: Balanced governance - at least 3 votes per category of stakeholders during decision-making.			
Description	This KPI seeks to increase their long-term engagement and promote fair governance and collective decision-making.		
How to measure	This KPI will be measured using documents from EC (contractual documents, reports, etc) and output data from the ECOOP tool used to tracking the number of votes during decision making.		
Baseline			

Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

3.6. France - RDIUP: Les Mureaux

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

KPI 1: Eagerness to learn more about ECs.			
Description	This KPI focuses on facilitating the early discovery of EC and informing citizens about sustainable energy practices, while promoting solar energy and self-consumption.		
How to measure	This KPI will be calculated using the most appropriate set of tools to analyse and track user engagement with the educational content offered, as well as measuring the number of participants in the webinars and workshops held. This KPI will also be empirically evaluated through quizzes used in various pilot workshops.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

KPI 2: Acceptance to join a Solar-powered ECs (%).			
Description	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.		
How to measure	This KPI will be measured using output data from the ECOOP tool used to tracking the percentage of participants who join and participate in Solar-powered ECs.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

3.7. France - ALEC: Solévent

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

KPI 1: Number of logins / Time spent on ECOOP.			
Description	This KPI is designed to measure the interest and participation of EC members.		
How to measure	This KPI will be measured using output data from ECOOP tool: Number of logins total or individual / Time dedicated on the tool.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

KPI 2: Number of interactions between participants (participation frequency in private chat rooms and discussions/ number of meetings organised within the EC).			
Description	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.		
How to measure	This KPI will be measured using output data from ECOOP tool: Frequency of participation in private chat rooms and discussions/ Number of meetings organized within the EC.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

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

KPI 1: Number of new members interested in joining the EC.	
Description	This KPI measures the number of new members who are interested in joining an EC, holding physical events such as workshops, and using tools that facilitate involvement.
How to measure	This KPI will be measured using output data from the ECOOP tool used to get the number of downloads and the number of user registrations/accounts.

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Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

KPI 2: Qualitative feedback of RECOMME (online questionnaire).			
Description	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		
How to measure	This KPI will be measured using output data from the RECOMME tool, which is planned to provide a rating scale for the use of the tool.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

3.7.3. 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 (%)].			
Description	The purpose of this KPI is to determine whether or not the user acted on the recommendation given by DR-FLEX.		
How to measure	This KPI will be measured using output data from DR-FLEX tool: User action confirmation rate based on the recommendation received.		
Baseline			
Month available	Not Available	Comments	See <i>KPIs calculated by comparing reference periods.</i>
Calculated Value	Not Available		

3.8. Sweden - UPP: Dansmästaren

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

KPI 1: More than five citizens have collaborated and have been interested in the creation of the official energy community with active participation in the MASTERPIECE digital platform.			
Description	Identify whether more than five citizens were informed and involved in the pilot site, being encouraged, with the assistance of the UPP, to start an energy community.		
How to measure	This KPI will be measured using output data from the tools available to measure parameters such as the number of participants in webinars, the number of user registrations/accounts, the number of total or individual logins and the number of accounts logged in more than once.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

3.8.2. Use case 2: Empowering Citizens in Renewable Energy Community

KPI 1: At least two communities/organisations have used the tool to gauge the possibility of forming an energy community.			
Description	Identify whether at least two community organizations used the EC-SIM tool, with prior support provided by the UPP, to evaluate the possibility of forming an energy community.		
How to measure	This KPI will be measured using output data from the EC-SIM to obtain parameters such as number of user registrations/accounts, number of total or individual logins. * KPI1 will be qualified as approved, if the municipality is present when the tool is used (UPP will document it).		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

KPI 2: % "Success ratio" in - after using the tools - the community takes further steps to start an energy community should be at least 25 %. [Further steps include contacting the municipality or the DSO for additional information].			
Description	This KPI aims to achieve a success rate of at least 25% through the use of tools aimed at creating an Energy Community.		
How to measure	This KPI will be calculated using analysis data to track user engagement, number of accounts logged in more than once, tracking changes in user behaviour over time, interpreting these parameters as an action of interest that revisits the tool for further conversations and calculations. At first, the EC-SIM tool was identified to be used in this case.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

3.8.3. Use case 3: Registering an official EC.

KPI 1: UPP is an official energy community.			
Description	Registration of an energy community in the name of UPP so that everyone can contribute and learn.		
How to measure	In this use case the components/tools are not applied directly but are derived from those used in the other two cases. The official UPP document will serve as proof of achievement of this KPI.		
Baseline			
Month available	Not Applicable	Comments	The official UPP document will serve as proof of achievement of this Boolean KPI.
Calculated Value	Not Applicable		

3.9. Sweden - NGENIC: BRF Väfteby Backe & BRF Venus

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

KPI 1: Increased feeling of energy interest and willingness to change.	
Description	Encourage the development of energy communities in Sweden where citizens are involved and educated in the field of energy.
How to measure	This KPI will be calculated using the functionalities of the most appropriate MASTERPIECE project toolkit, which presents basic concepts about Energy

<p>Communities with the aim of increasing the feeling of interest in energy and the willingness to change in the organisations BRF Värpeby Backe and BRF Venus.</p> <p>In addition to the use of the tools, surveys and interviews will be carried out to assess the increase in users' awareness of the potential benefits of being part of an Energy Community as a result of the knowledge gained, after using the previously identified tools.</p>			
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

KPI 2: Completion of at least 1 action based on your energy literacy			
Description	Increased awareness in test groups within the organisations BRF Värpeby Backe and BRF Venus, promoting at least 1 action based on energy literacy.		
How to measure	This KPI will be calculated by promoting energy literacy among the members of the test group, using the most appropriate set of tools from the MASTERPIECE project and, in conjunction with this action, using forms and interviews to measure the knowledge acquired by the test group.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

KPI 3: [Only in BRF Venus] +20 out of 80 apartments in one staircase to have increased knowledge compared to the other 720 apartments.			
Description	This KPI aims to promote increased awareness of 20 of the 80 apartments on a staircase, compared to the other 720 apartments.		
How to measure	This KPI will be calculated using the most appropriate set of tools from the MASTERPIECE project and, in conjunction with this action, using forms and interviews to measure the increase in knowledge of this target audience.		
Baseline			

Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values and KPIs calculated by more than one different application/methodology.</i>
Calculated Value	0		

3.10. Sweden - NGENIC: Austerland

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

KPI 1: At least 5 users of Group 1 interact to view their usage and PV Production			
Description	Empower users in Austerland to collectively own and use a new photovoltaic park, demonstrating return on investment.		
How to measure	This KPI will be measured using output data on the level of use of the most appropriate tool set for at least 5 Group 1 users (users with residential DSO meters connected to a NGENIC Track P1 package, who will see the full picture of consumption and photovoltaic production). The most suitable tools identified so far are EC-SIM and EC-MGMT.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

KPI 2: % Average return investment for at least 5 people from Group 2			
Description	Enable users in Austerland to collectively own and use a new photovoltaic park, demonstrating the average return on investment in %.		
How to measure	This KPI will be measured using output data aimed at monitoring the ROI of at least 5 users from Group 2 (users who use the platform to show the ROI of cooperative PV investments. This group does not have their DSO meters connected). The most suitable tools identified so far are EC-SIM and EC-MGMT.		
Baseline			
Month available	M18	Comments	See <i>KPIs related to cases of achieving absolute values.</i>
Calculated Value	0		

4. HISTORICAL DATA

This section presents historical data from the Proof of Concept (PoC) and the Turkish pilot obtained using the integrations that have already been completed. This historical data is essential for identifying and analysing consumption and generation behaviours in the different use cases of these pilots. These two pilots have been selected for this purpose because they were the only ones providing historical data that could be actually useful for KPI calculations.

For the first KPI of the second use case of the PoC, generation and consumption data was extracted and processed, while for the two KPIs of use case 3, only consumption data was required.

In the case of the Turkish pilot, consumption and generation data has been used for the first KPI of use case 2.

The time series for all cases were limited to 2 periods in order to standardise all the data on the same temporal scale and to unify the analysis methodology.

In the case of the PoC, the first monitoring phase covered the period from March to July of 2023, a total of five months. This period includes Spring and part of Summer, periods characterised by rising temperatures and higher solar radiation. These conditions led to an increase in both energy production and consumption, particularly due to the intensive use of HVAC systems.

The second monitoring period goes from October to November of 2023, a total of two months. This period covers part of the Autumn season in Spain, when electricity consumption is expected to be lower than in the first period due to milder temperatures and less need for cooling systems.

In the case of the Turkish pilot, the first monitoring phase was limited to July of 2023 because the meters of the pilot were installed during June, while the second phase also covers from October to November of 2023.

The treatment and analysis of this data will serve as a basis for future comparisons with real data obtained after various implementations of the tools developed in MASTERPIECE, which are expected to be reported in D5.7.

Analysis of this historical data provides a general understanding of the performance of the systems before and after the interventions, making it easier to identify improvements achieved as a result of the deployment of the MASTERPIECE solution.

4.1. PoC / Consumption

This section presents graphs based on consumption and photovoltaic generation data from the Espinardo campus and the seven buildings that make up the PoC, divided into two periods in 2023: from March to July and from October to November. Some graphs show periods without data, due to the lack of communication between the devices and the platform (UMU Scada). No additional data has been added to the series in these gaps in order to preserve the veracity of the data, even if it affects the construction of the trend curve of consumption and production behaviour.

In general, it can be seen that in the first period, which completely covers the months of March to July, there is a decrease in consumption until about the end of April and an increase until July. This consumption pattern is closely linked to the use of refrigeration appliances, where there is no significant consumption in winter (end of December to end of March), but a significant increase in the following seasons, spring and summer, in line with the rise in temperatures during these seasons.

Analysing the second period, which covers the months of October and November 2023, we see a general downward trend in consumption, with some discrete increases towards the end of the time series, possibly related to temperature peaks, although it is winter.

Espinardo Campus

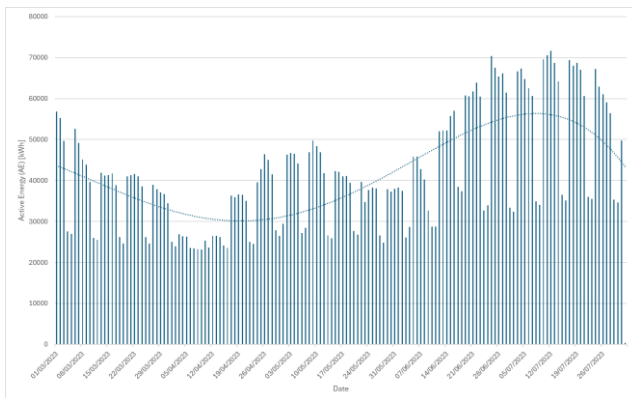


Figure 1: Espinardo Campus – Period 1

(March-July 2023)

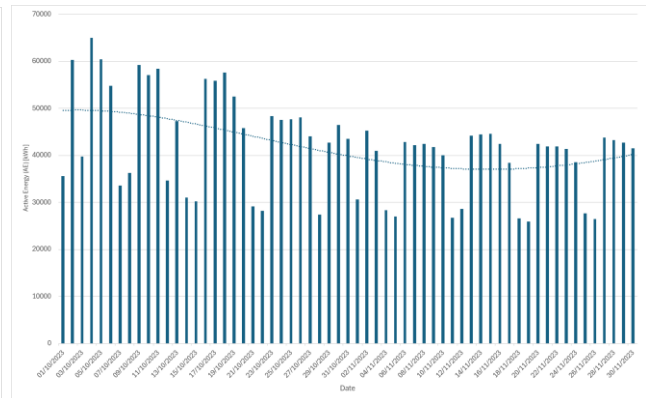
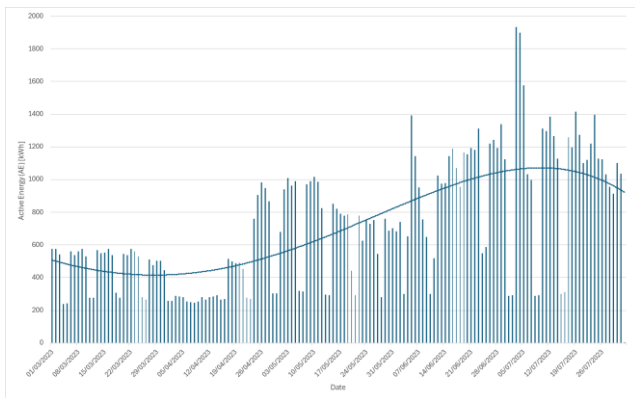


Figure 2: Espinardo Campus – Period 2

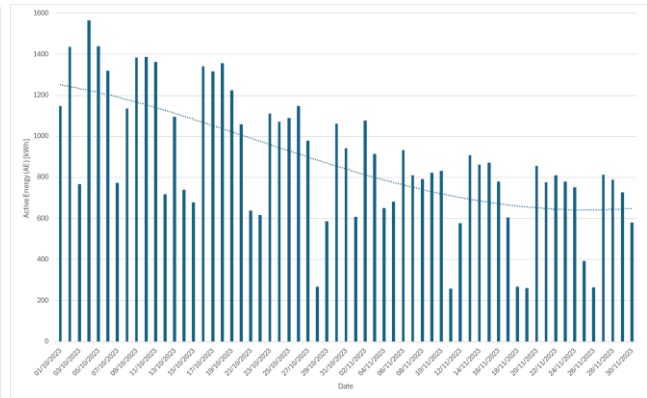
(October-November 2023)

General Lecturing Building 1



*Figure 3: General Lecturing Building 1 –
Period 1*

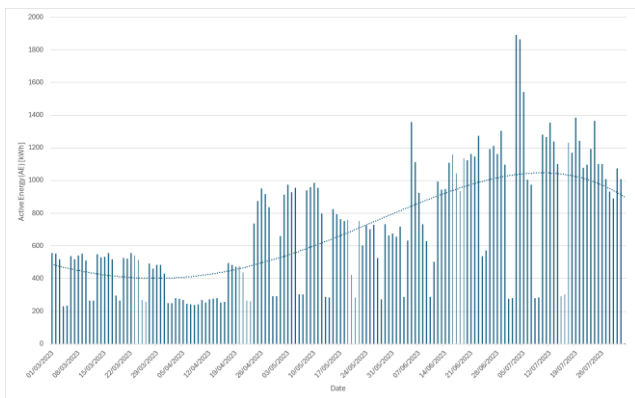
(March-July 2023)



*Figure 4: General Lecturing Building 1 –
Period 2*

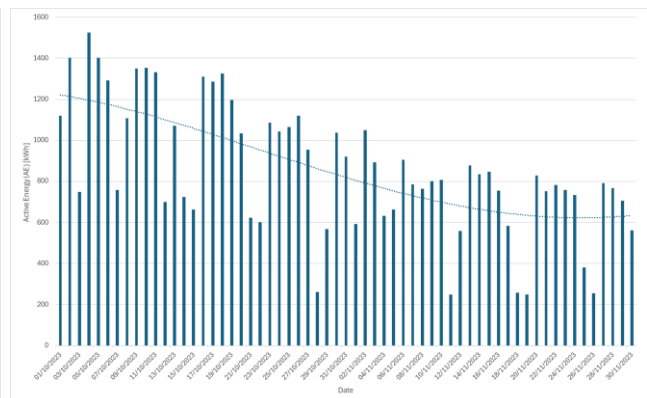
(October-November 2023)

General Lecturing Building 2



*Figure 5: General Lecturing Building 2 –
Period 1*

(March-July 2023)



*Figure 6: General Lecturing Building 2 –
Period 2*

(October-November 2023)

Giner de los Ríos Lecturing Building

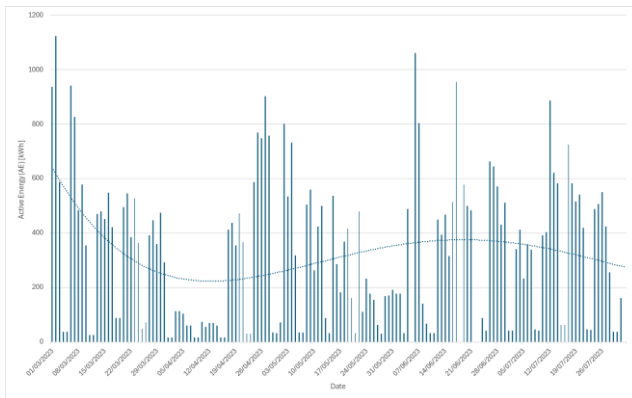


Figure 7: Giner de los Ríos Lecturing Building – Period 1

(March-July 2023)

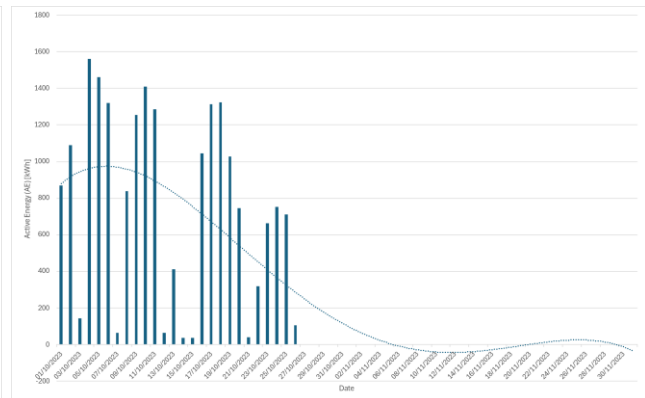


Figure 8: Giner de los Ríos Lecturing Building – Period 2

(October-November 2023)

North Lecturing Building

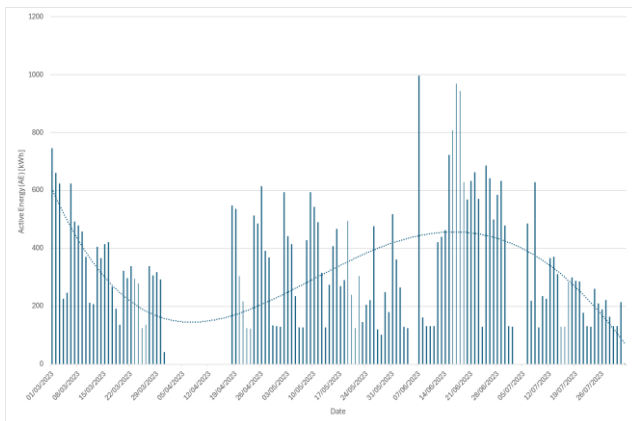


Figure 9: Aulario Norte Building – Period 1

(March-July 2023)

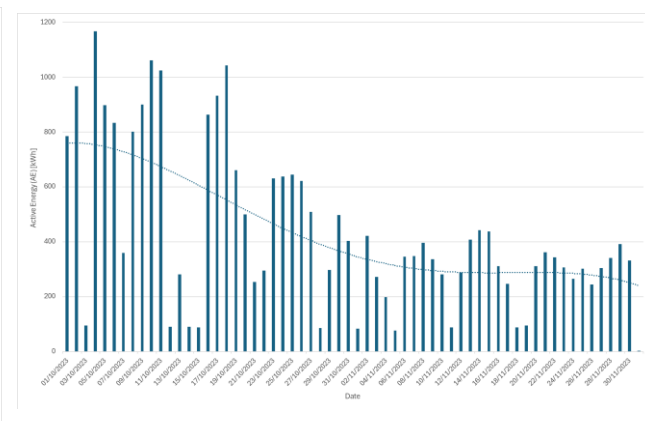
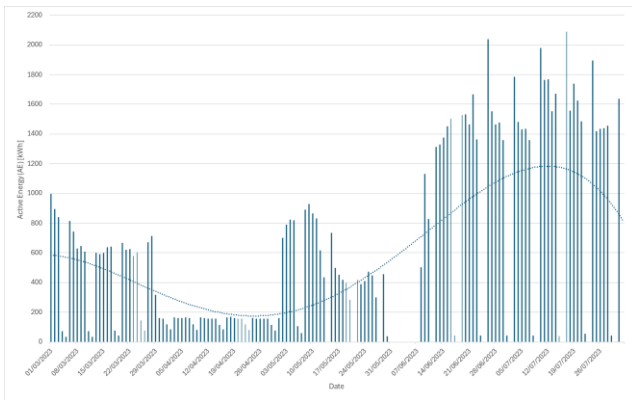


Figure 10: Aulario Norte Building – Period 2

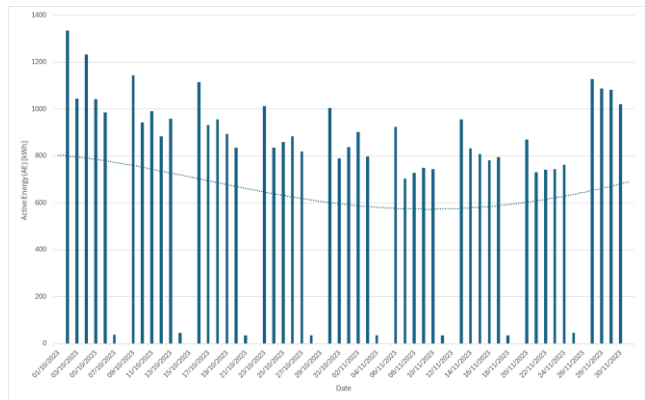
(October-November 2023)

Computer Science Faculty 1



*Figure 11: Computer Science Faculty 1 –
Period 1*

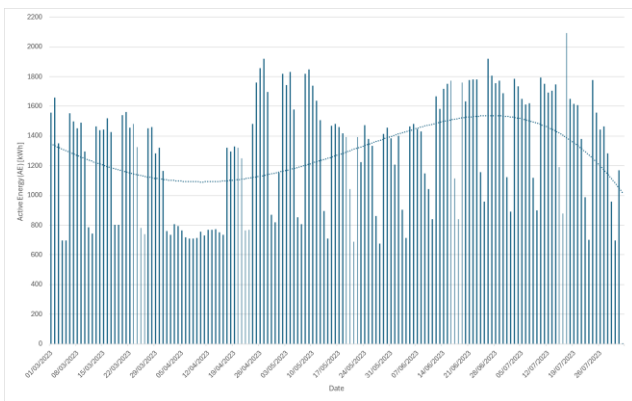
(March-July 2023)



*Figure 12: Computer Science Faculty 1 –
Period 2*

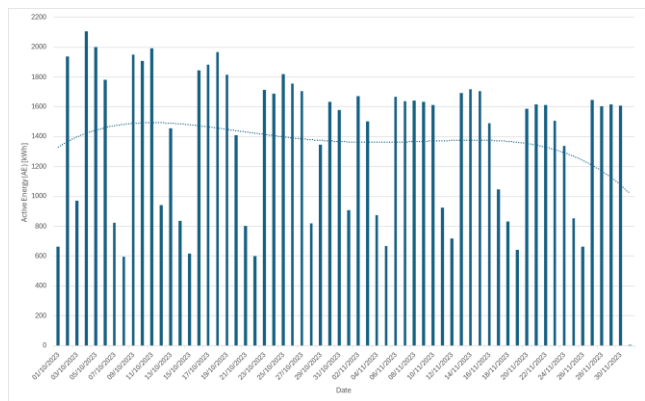
(October-November 2023)

Computer Science Faculty 2



*Figure 13: Computer Science Faculty 2 -
Period 1*

(March-July 2023)



*Figure 14: Computer Science Faculty 2 -
Period 2*

(October-November 2023)

General Library

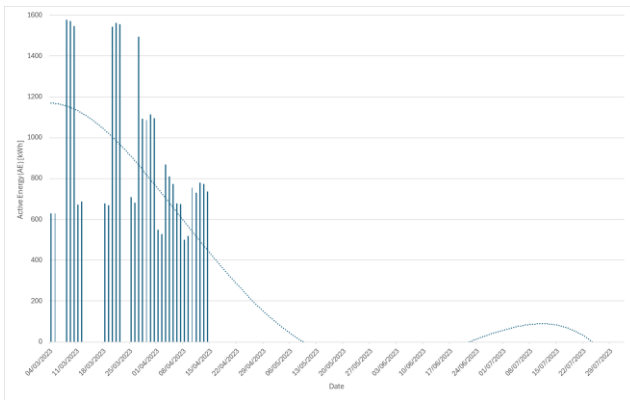


Figure 15: General Library - Period 1

(March-July 2023)

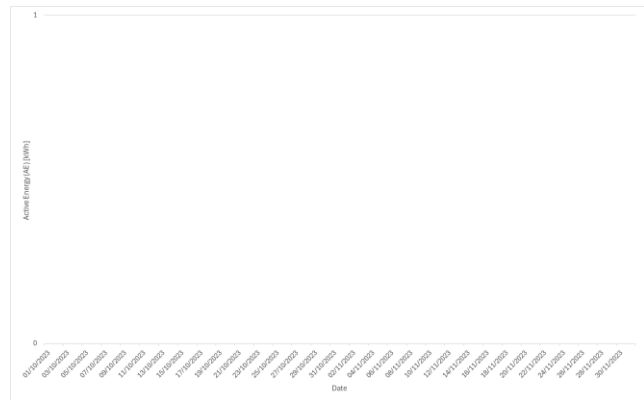


Figure 16: General Library - Period 2

(October-November 2023)

Chemistry Faculty

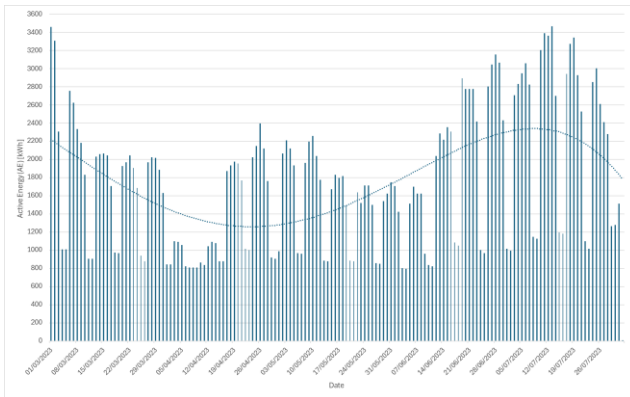


Figure 17: Chemistry Faculty - Period 1

(March-July 2023)

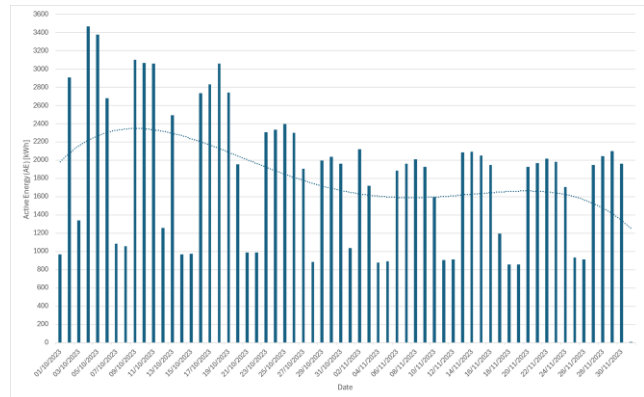


Figure 18: Chemistry Faculty - Period 2

(October-November 2023)

Pleiades Building

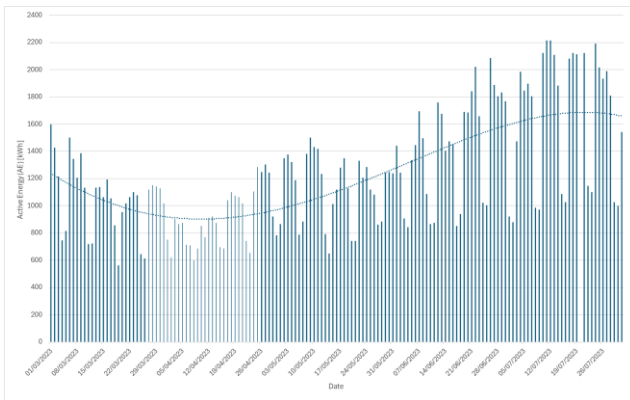


Figure 19: Pleiades Building - Period 1

(March-July 2023)

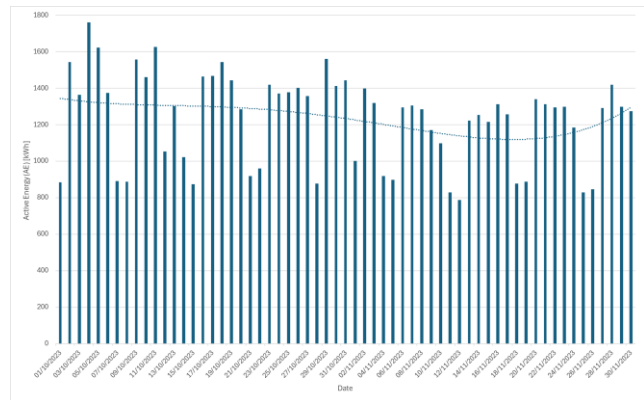


Figure 20: Pleiades Building - Period 2

(October-November 2023)

Work Sciences Faculty

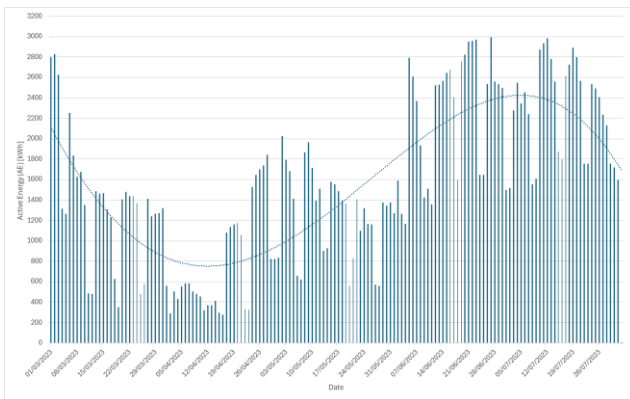


Figure 21: Work Sciences Faculty - Period 1

(March-July 2023)

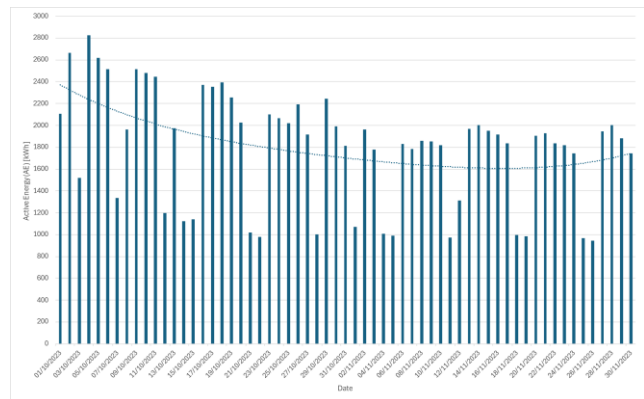


Figure 22: Work Sciences Faculty - Period 2

(October-November 2023)

Veterinary Faculty 1

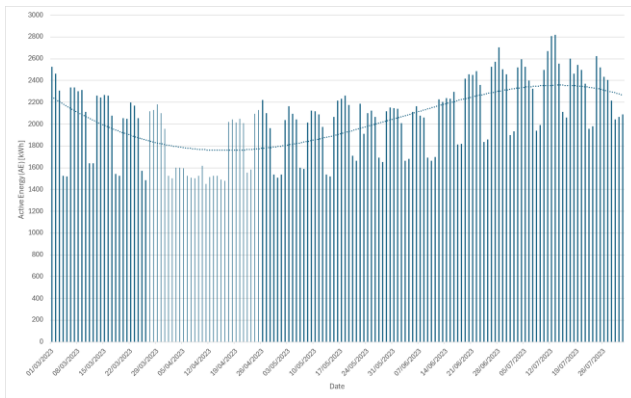


Figure 23: Veterinary Faculty 1 – Period 1
(March-July 2023)

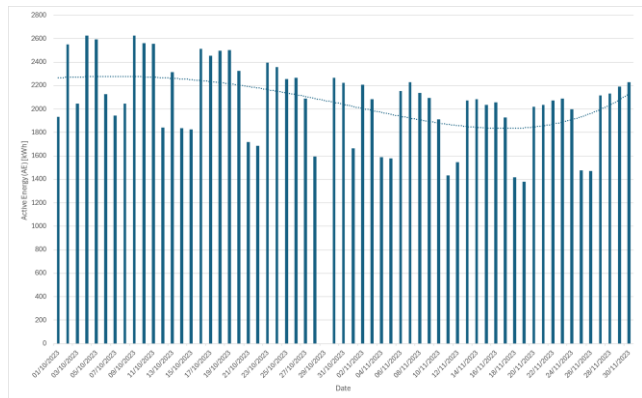


Figure 24: Veterinary Faculty 1 - Period 2
(October-November 2023)

Veterinary Faculty 2

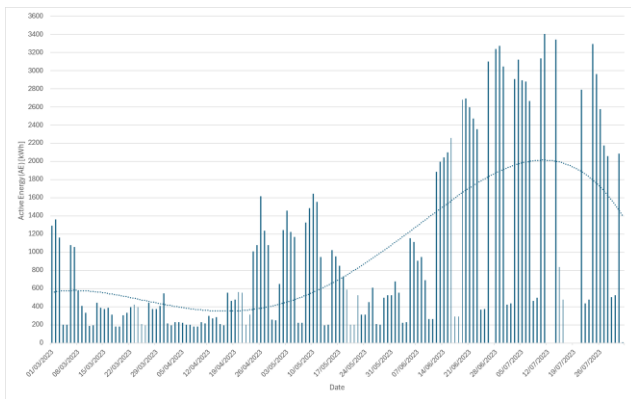


Figure 25: Veterinary Faculty 2 - Period 1
(March-July 2023)

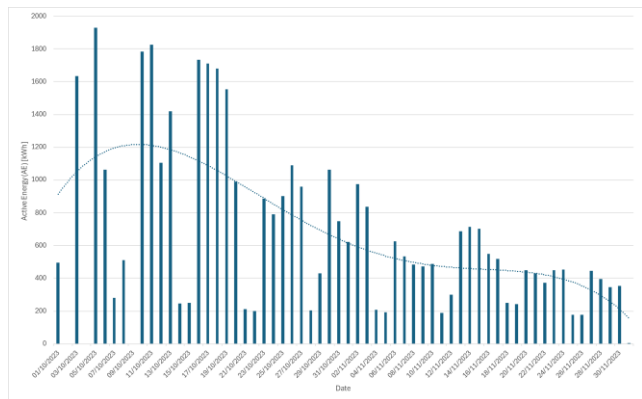


Figure 26: Veterinary Faculty 2 - Period 2
(October-November 2023)

Psychology Faculty

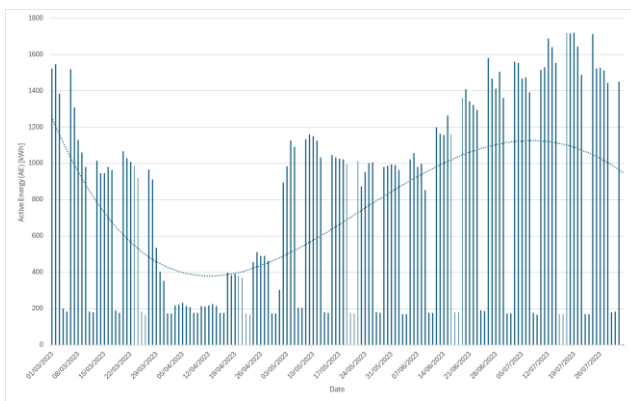


Figure 27: Psychology Faculty - Period 1

(March-July 2023)

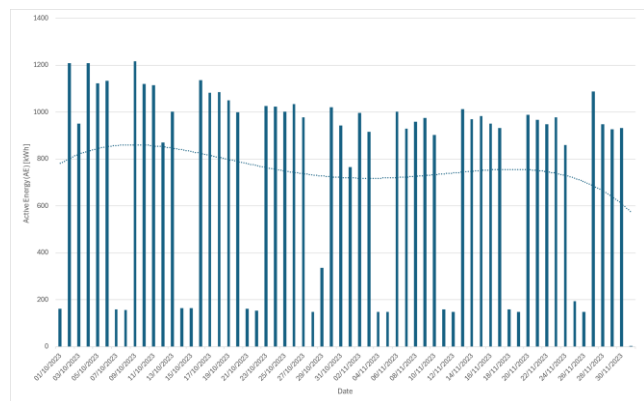


Figure 28: Psychology Faculty - Period 2

(October-November 2023)

4.2. PoC / Production

In this section you can visually see the photovoltaic production data from the PoC at the Veterinary Farm Building and the On-street Car Park at the Espinardo Campus - North Zone. The data has been divided and analysed for the same periods and the errors have also been maintained, as in section 4.1.

In the first period, which covers the end of winter with milder temperatures and the spring and summer seasons with more hours of sunshine, there is an upward trend in photovoltaic production. This growth is driven by the greater number of hours of sunshine and more favourable weather conditions.

In the second period, which includes the months of October and November, photovoltaic production shows lower values and a downward trend. This decrease is due to fewer hours of sunshine and less favourable weather conditions during these months.

Veterinary Farm PV Solar Plant

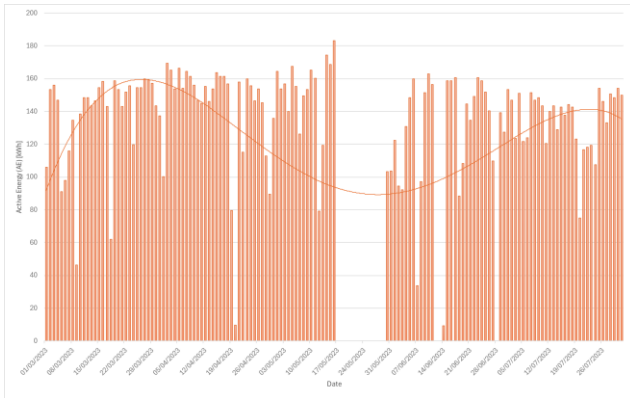


Figure 29: Veterinary Farm PV Solar Plant - Period 1

(March-July 2023)

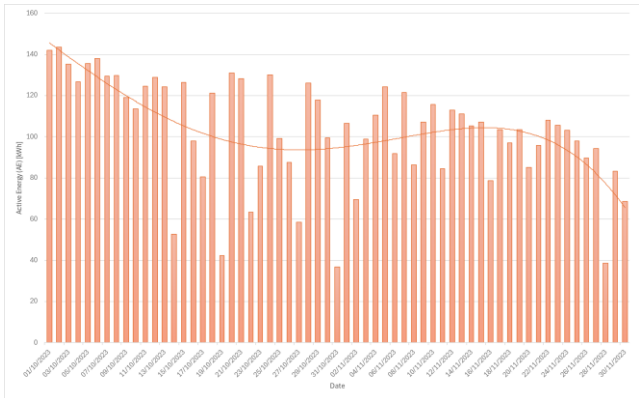


Figure 30: Veterinary Farm PV Solar Plant - Period 2

(October-November 2023)

Pool parking PV Solar Plant

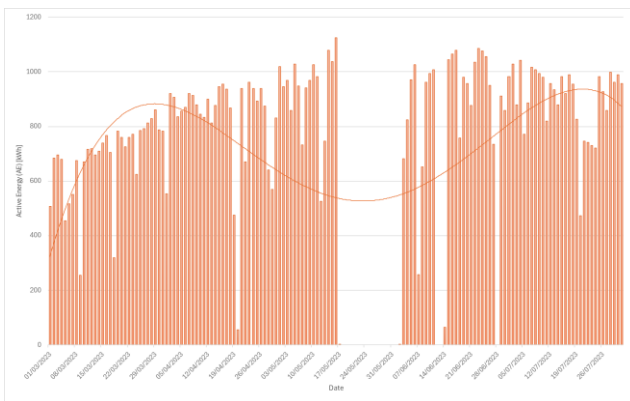


Figure 31: Pool parking PV Solar Plant - Period 1

(March-July 2023)

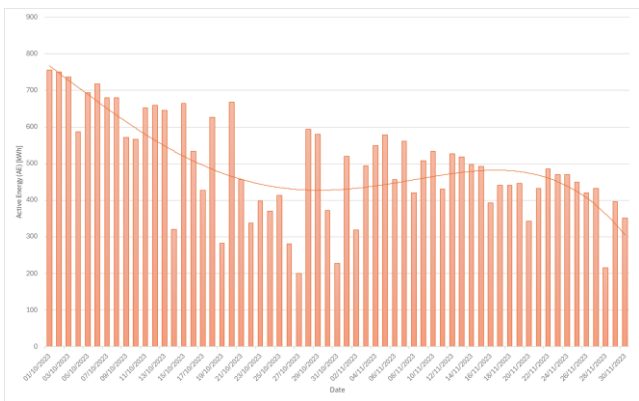


Figure 32: Pool parking PV Solar Plant - Period 2

(October-November 2023)

4.3. Turkish Pilot / Production and Consumption

In addition to the PoC, we also collected historical data from the Turkish pilot and divided it into two periods for analysis. However, due to limited data availability, the first period only covered the month of July 2023, while the second period covered the months of October to the end of November.

The Turkish pilot includes 13 buildings with both consumption and PV generation, allowing both data to be visualised in the graphs. In the first period, it was observed that production was significantly higher than consumption in all buildings except buildings 4 and 11, where

EU's Grant Agreement 101096836.

production data was not yet available. In building 10, production was higher than consumption, but this could only be observed at the end of the month, as no data was available until then.

Looking at the second period, we can see that in most of the buildings there is a crossing of the production and consumption trend lines. Initially, production is higher, but as time goes by, it decreases while consumption increases. There are many reasons for this behaviour, including seasonal variations, changes in building use and variations in the efficiency of photovoltaic systems.

As in the first period, building 11 continued to have only consumption data available, and building 12 only had consumption data up to the beginning of November; these data gaps were maintained to ensure integrity and better analysis, reflecting real conditions without artificial intervention in the records.

Building 1

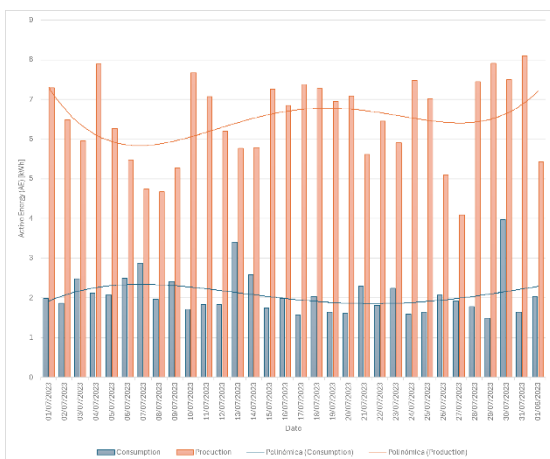


Figure 33: Building 1 - Period 1
(July 2023)

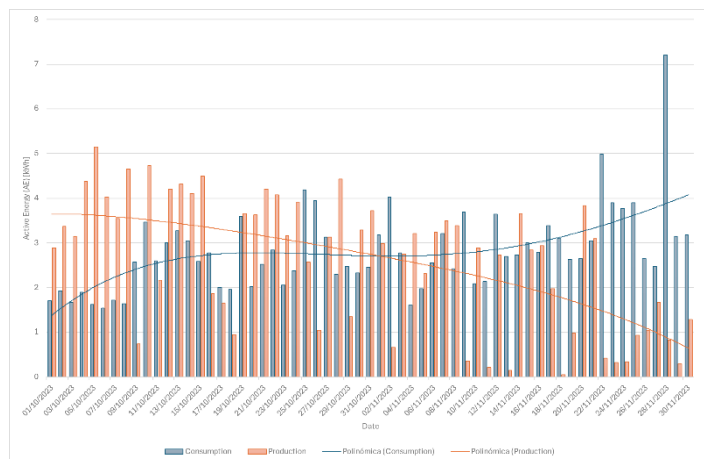


Figure 34: Building 1 - Period 2
(October-November 2023)

Building 2

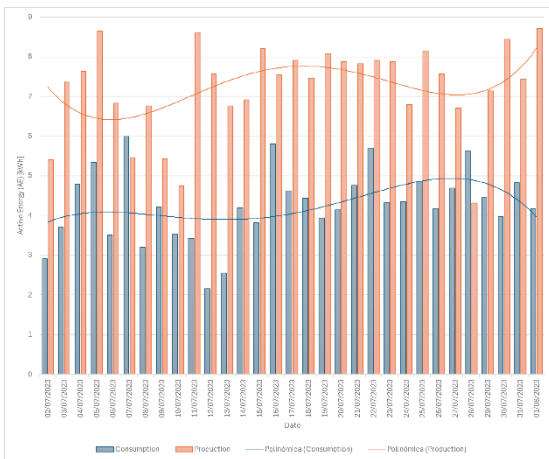


Figure 35: Building 2 - Period 1
(July 2023)

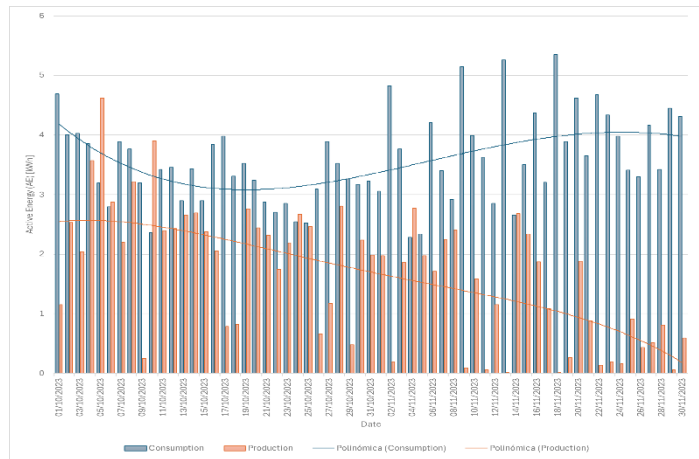


Figure 36: Building 2 - Period 2
(October-November 2023)

Building 3

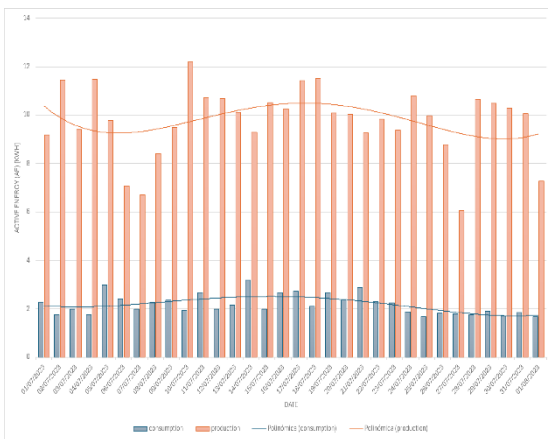


Figure 37: Building 3 - Period 1
(July 2023)

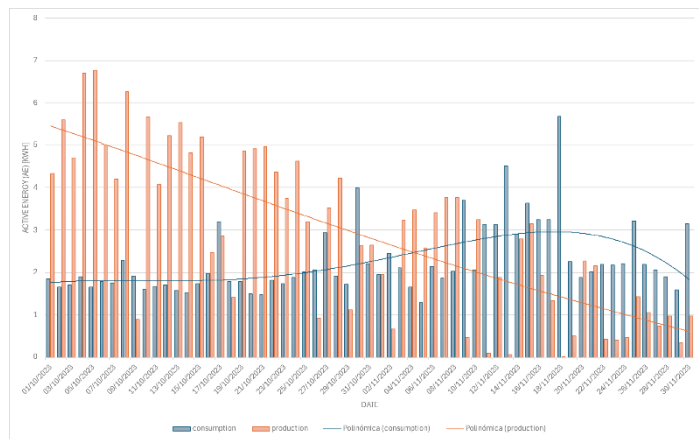


Figure 38: Building 2 - Period 2
(October-November 2023)

Building 4

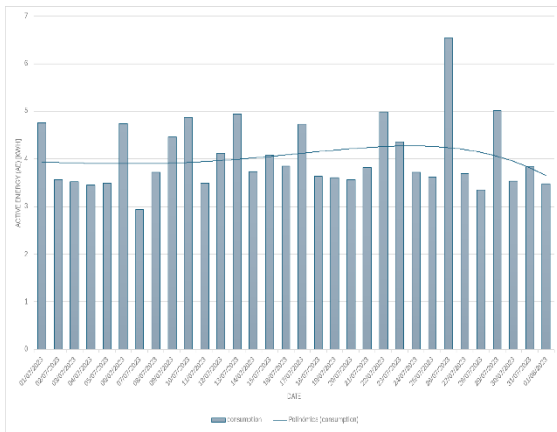


Figure 39: Building 4 - Period 1

(July 2023)

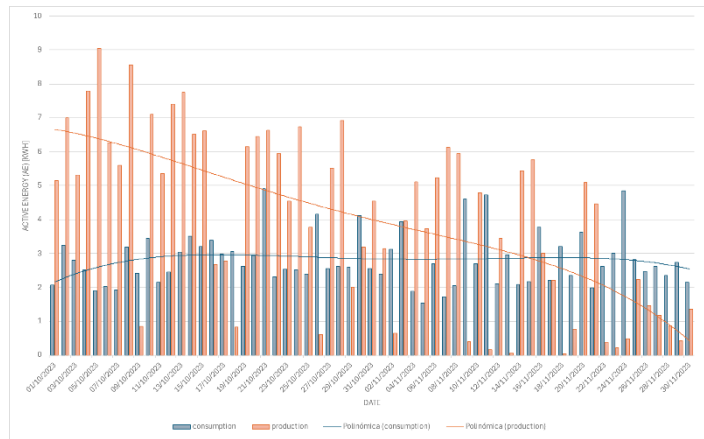


Figure 40: Building 4 - Period 2

(October-November 2023)

Building 5

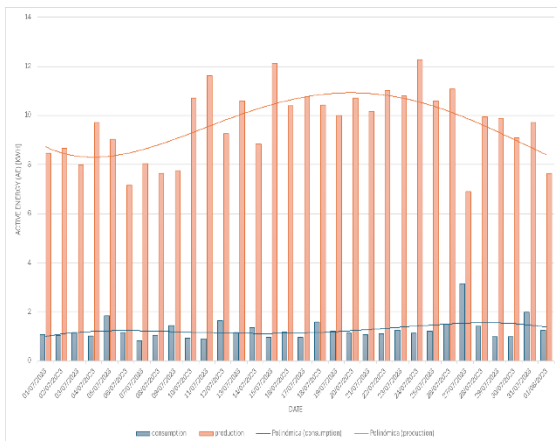


Figure 41: Building 5 - Period 1

(July 2023)

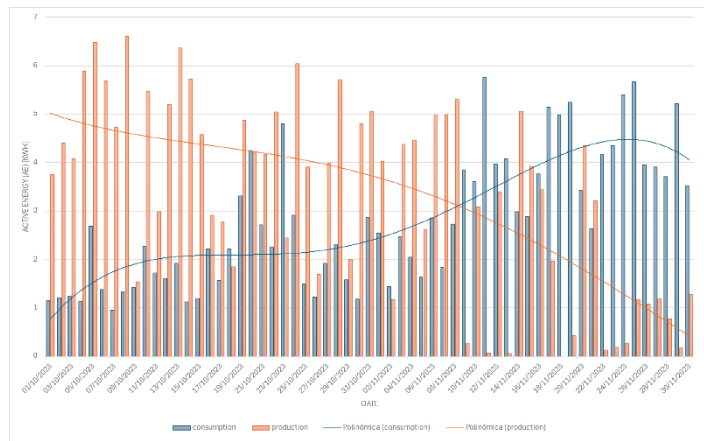


Figure 42: Building 5 - Period 2

(October-November 2023)

Building 6

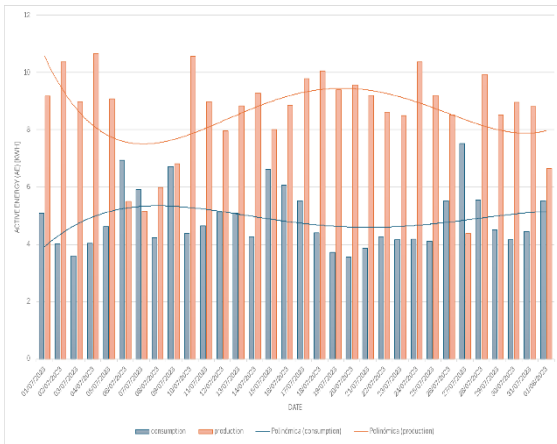


Figure 43: Building 6 - Period 1
(July 2023)

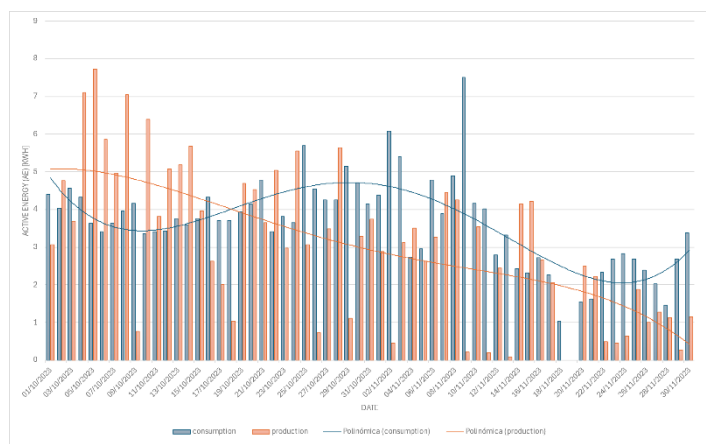


Figure 44: Building 6 - Period 2
(October-November 2023)

Building 7

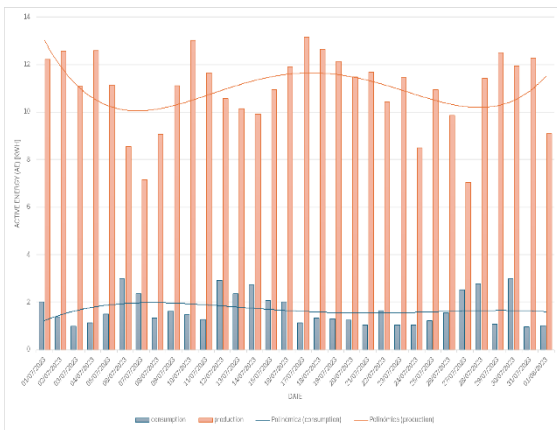


Figure 45: Building 7 - Period 1
(July 2023)

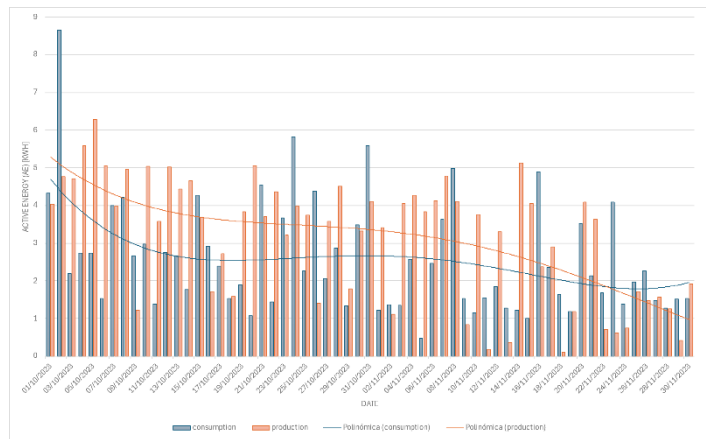


Figure 46: Building 7 - Period 2
(October-November 2023)

Building 8

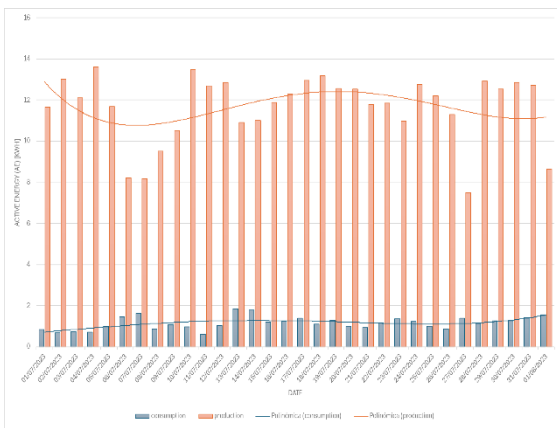


Figure 47: Building 8 - Period 1

(July 2023)

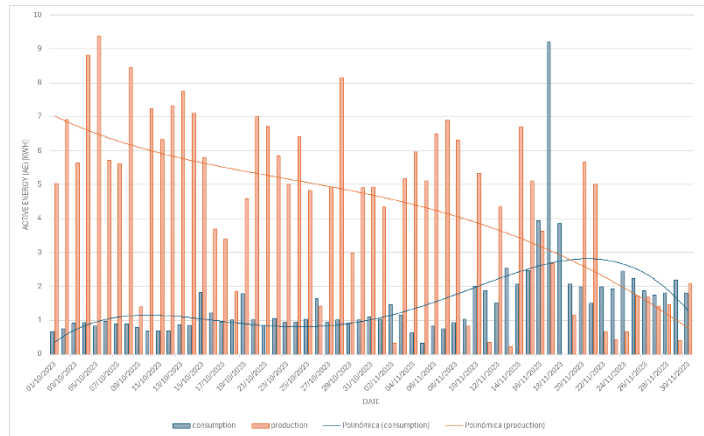


Figure 48: Building 8 - Period 2

(October-November 2023)

Building 9

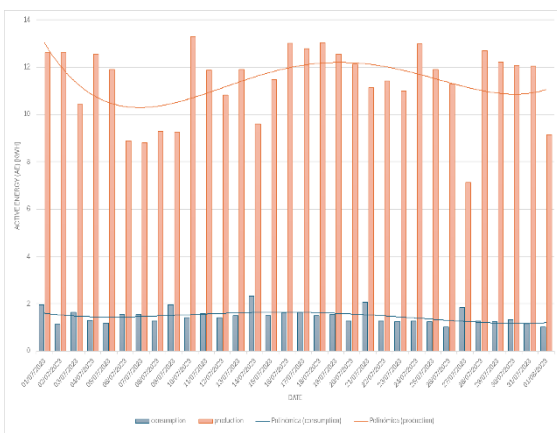


Figure 49: Building 9 - Period 1

(July 2023)

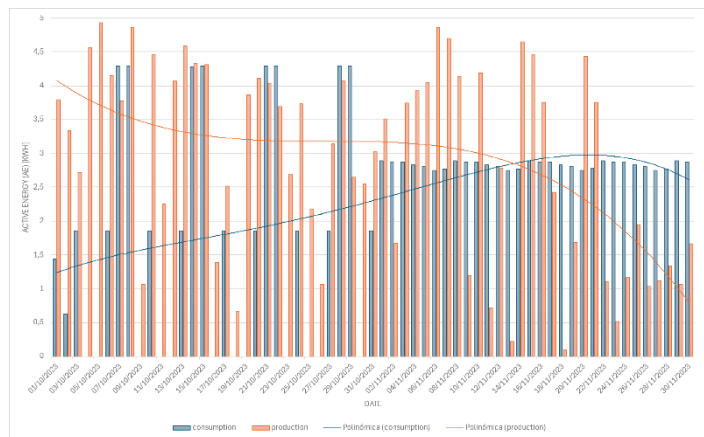


Figure 50: Building 9 - Period 2

(October-November 2023)

Building 10

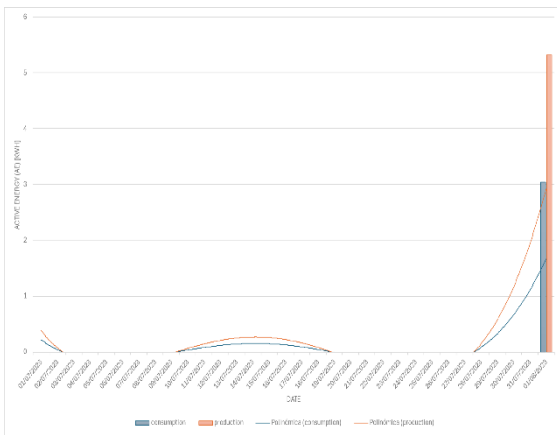


Figure 51: Building 10 - Period 1

(July 2023)

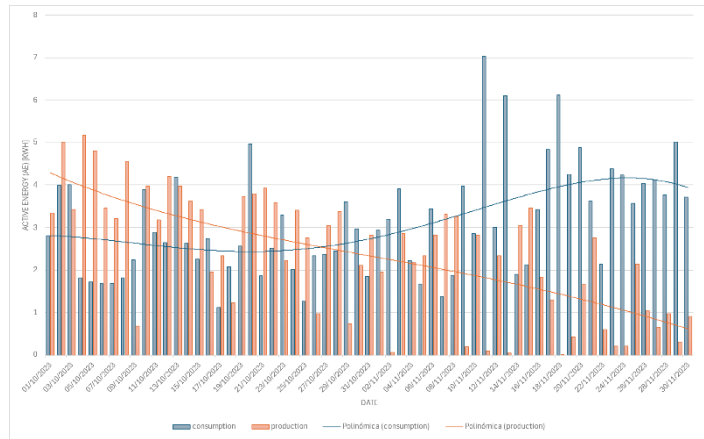


Figure 52: Building 10 - Period 2

(October-November 2023)

Building 11

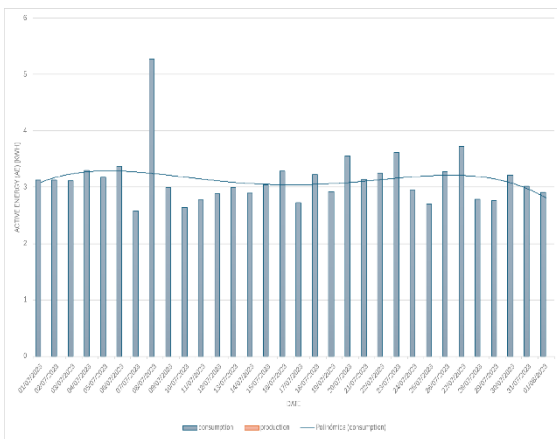


Figure 53: Building 11 - Period 1

(July 2023)

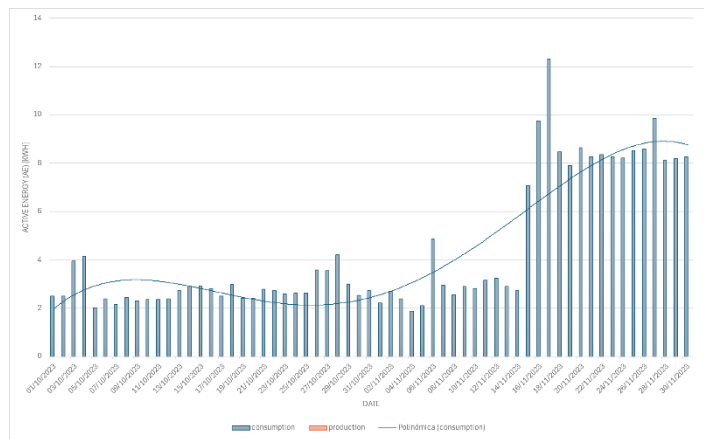


Figure 54: Building 11 - Period 2

(October-November 2023)

Building 12

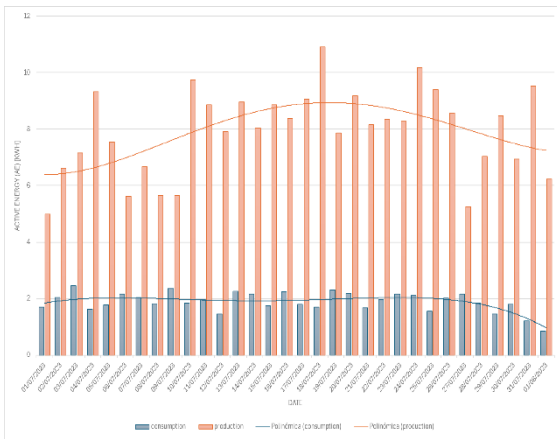


Figure 55: Building 12 - Period 1

(July 2023)

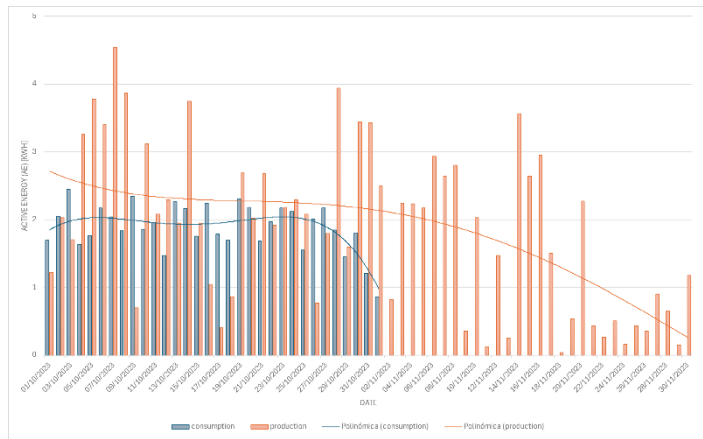


Figure 56: Building 12 - Period 2

(October-November 2023)

Building 13

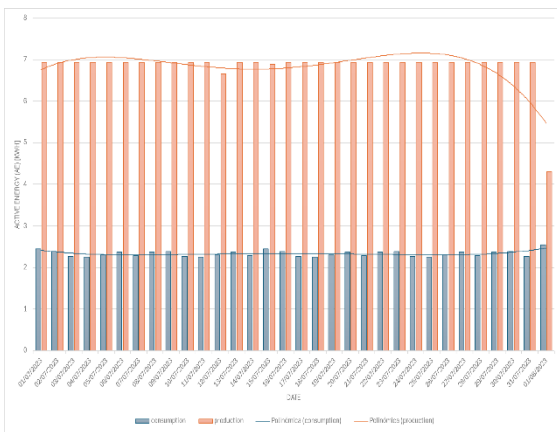


Figure 57: Building 13 - Period 1

(July 2023)

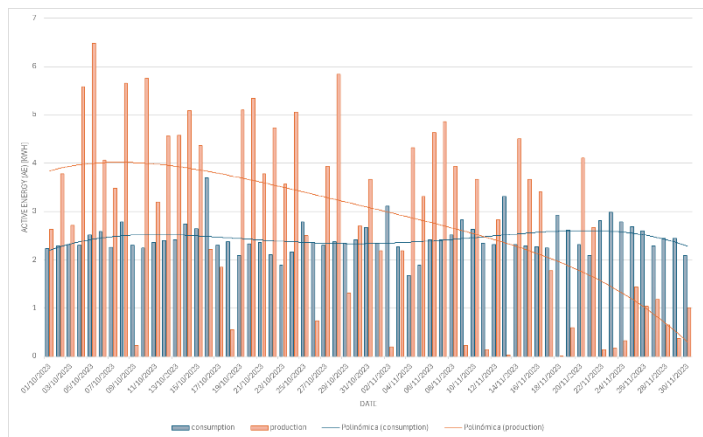


Figure 58: Building 13 - Period 2

(October-November 2023)

5. CONCLUSIONS

This deliverable has provided the first contribution in terms of evaluation in the project. The main goal was to establish a reference for future updates in terms of identification of baselines and it has been achieved. Most of these baselines have either been obtained or identified when and how they will be calculated.

However, there are still a small group of baselines pending to be defined/calculated, and most of them have one thing in common, the relationship with use cases focused on promotion of ECs and potential enrolment of new members. This is a critical point of the EU's Grant Agreement 101096836.

user journey (the very beginning) and needs to be addressed carefully. In the end, people tend to be reluctant to participate in certain activities when they do not have a clear view of the benefits, especially if they need to register and/or provide sensitive data *for no clear reason*.

To address this issue, per-pilot work is being done in this regard in both preparing materials to be used directly with the users, asking for their participation (workshops, questionnaires, etc.), and from the point of view of components, in an attempt to try to get from the users the feedback required for KPI calculations without being too demanding/intrusive. This work includes an analysis of the specific combination of components which can be used for calculating the KPIs either in their current status or by adding some extended functionalities to cover some gaps.

On the other hand, since the components should be operational in the following months, developers will also start their work related to component evaluation by defining their own test cases. As described in the test case template included in D2.3, pilot partners might need to participate in the evaluation of these test cases once they are defined and implemented, as a way to confirm that the components do what they are expected to do.

The automatic part of the evaluation of some test cases will be done by Jenkins whenever it is possible, as a way to take advantage of the knowledge already obtained from this tool.

In this sense, the next actions will be to refine the methodology for calculating the KPIs, once it has been demonstrated that the functionalities offered by the components are those required by the pilots, and thus to proceed to the evaluation phase. A second version will be published in month 24 of the project and will provide a preliminary analysis of the test results of this first demonstration cycle, in order to provide a solid overview of the main advantages and disadvantages of MASTERPIECE, and thus provide a basis for the preparation of the final project report in month 42 of the project.