Porto Energy Hub

Energy Efficiency for all.

D 2.6 Capacity-building programme plan

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1. Introduction

1.1. Background: OSS as tools to foster energy literacy

According to Directive 2010/31/A of the European Parliament and of the Council of 19 May 2010 on buildings' energy performance (Comission, 2010), buildings are responsible for 40% of the energy consumption in European Union (EU). Despite the many policies and programs set across the EU to increase building energy performance, the current home energy renovation rate remains too low to achieve the EU's decarbonization targets. Therefore, the need to act on the building sector and to focus on the demand side of the energy equation is acknowledged as key to meet the ambitious EU energy and climate targets. This need is well known by energy ministers, CEOs and decision-makers from government, industry and civil society across the globe which, in the 2022 IEA's 7th Annual Global Conference on Energy Efficiency, agreed that "*energy efficiency and demand side action have a particularly important role to play now as global energy prices are high and volatile, hurting households, industries and entire economies" and called on "all governments, industry, enterprises and stakeholders to strengthen their action on energy efficiency*" (IEA, 2022).

The low building renovation rate can be understood as a policy failure derived by the prevalence of many barriers hindering the renovation process. These barriers can be distributed into four main categories including: 1) institutional, 2) economy, 3) behavioural (social, cultural, and educational), and 4) market barriers (Bagaini, 2020). To overcome these barriers and accelerate home renovation interventions it is necessary to rethink the delivery of renovation services and foster energy literacy amongst the population and market players (Bagaini A. E., 2022).

One-Stop-Shops (OSS) are emerging with the purpose to overcome existing barriers and facilitate the home renovation process. These physical or virtual hubs provide multiple services for home renovation in just "one-stop", transforming the complex process for energy renovation into a more user-friendly experience for homeowners

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(Bagaini A. E., 2022). Despite the several designs OSS can adopt (leading to different impacts on the energy home renovation process), these entities always have at their core a common service: informing and disseminating good practices on energy efficiency, promoting the energy literacy of users. Their rationale is clear: to act and adopt more efficient energy behaviours, people need to know how. Energy literacy, pointed as an essential tool to create and foster sustainable energy consumption habits, is a growing research topic as it exploits not only the cognitive domains, but also the affective and behavioural characteristics enabling citizens to make appropriate decisions regarding energy (Martins, 2020). Therefore, OSS should be used as privileged information dissemination hubs and energy literacy promoters.

1.2. Capacity-building in the scope of PEER

The Porto Energy ElevatoR (PEER) project is dedicated to tackling the challenges of energy poverty through an innovative and comprehensive renovation program delivered through the Porto Energy Hub (PEH), a physical and online OSS focused on enhancing energy efficiency in buildings and promote the development of self-sustaining renewable energy communities.

Aligned with the PEH services and ambition, one of PEER tasks is the development of a capacity-building program for both awareness and engagement of dwellers and other relevant stakeholders, as well as for encouraging PEER replication. The program, which includes workshops and webinars, is dedicated to building owners, public entities, and asset managers, and goes far beyond simply emphasizing the importance of sustainable energy measures. It also focuses on presenting the benefits of energy efficiency, showcasing different business models, and highlighting engineering solutions that can be utilised to address energy poverty. Also, the program aims to foster PEH replication. Thus, the goal of the capacity building program is twofold: 1) to create a network of like-minded individuals and organisations who can work together to implement similar initiatives, and which are focused on improve the energy efficiency of buildings in the Porto Metropolitan Area, and 2) to spread the PEH experience across other cities.

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This deliverable has the objective to present the designed capacity building program and should be consulted alongside *D2.7. Capacity building training materials* which present the developed training materials.

2. PEER capacity-building program

As explained previously, the proposed capacity building program has two goals: 1) to engage local actors and foster action, and 2) to promote the replication of PEH model. Thus, the following sections will detail the approach adopted to address each of these goals.

2.1. Goal 1: To engage stakeholders and foster action

Capacity building has long been recognised as one of the key means for the successful implementation of sustainable development. However, to achieve an effective capacity program and foster accountability and compromise, stakeholders' engagement is crucial to ensure its success. As a following step, targeted capacity actions should be designed. The following sections describe the activities carried out to engage and build capacity in the targeted stakeholders.

2.1.1. Engagement step

To reach the ambitious milestones of PEER and promote an effective improvement on the energy efficiency and living conditions of citizens, especially the most vulnerable, besides regular homeowners, social housing management entities, both public and private, and local authorities, were targeted by the project and, therefore, by the capacity building program.

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In order to present the project and its goals to these entities, a dedicated "stakeholders' engagement" presentation and an abstract[1] were prepared. At the beginning of the project, the abstract was delivered and sent to all the municipalities and social housing management entities under AdEPorto's network. In due time, the presentation was made in-person to several of these entities, which demonstrated interest in participating in the project and served also to start to identify renovation projects in pipeline and required sociodemographic information required to characterise the population in risk of energy poverty (Fig. 1).

Figure 1 - Stakeholders' engagement materials (presentation and abstract).

[1] These materials are described in detail in D2.7.

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Municipalities as Porto, Matosinhos, Maia and Valongo were the front-runners in participating in the project. Indeed, some of these entities signed memoranda of cooperation with the project, as was the case of the Municipality of Matosinhos and the social housing entity MatosinhosHabit.

Some months after the first contact, to reinforce and attract more stakeholders to the project, a more complete version of the presentation was produced, and a new round of meetings was carried out. This time, in addition to the municipalities under AdEPorto's network, other municipalities were approached as was the case of the municipalities of the Porto Metropolitan Area at south of the Douro River – to which the project was presented in a meeting supported by the Porto Metropolitan Area (AMP) and Braga, a municipality outside AMP but which showed interest in knowing the project. To further disseminate the project and reinforce the involvement with stakeholders, the project team also presented and discussed the project in different onsite and online forums.

On May 2022, PEER was presented during the session "Energy efficiency in buildings: The key to fight energy poverty" held during TEKTÓNICA – Feira Internacional da Construção[2], to building experts, sectoral associations, academia, and citizens (Fig. 3).

[2] https://www.apemeta.pt/pt/evento/workshop-eficiencia-energetica-na-construcao-a-chave-do-combate-a-pobreza-energetica/?utm_term=APEMETA++Newsletter+da+APEMETA++abril+2022&utm_campaign=Apemeta&utm_source=e-goi&utm_medium=email

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Figure 2 – Presentation of PEER during the TEKTÓNICA fair.

On May 2023, the PEER team alongside two local R&D centers (INEGI – Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial - INEGI and INESC TEC) co-organized the webinar "Strategies and Policies for Decarbonization: The role of cities"[3]. During this online session, the energy poverty topic, and the role of OSS as tools for energy poverty alleviation were discussed and the Porto Energy Hub experience was presented and discussed with citizens, city representatives, energy agencies and R&D institutions (Fig. 3a). Later that month, the Porto Energy Hub experience was also presented during the session "Energy Efficiency in the residential sector and measures to mitigate energy poverty" organised under the scope of the EUROPA project[4] (Fig. 3b).

[3] https://www.inegi.pt/pt/eventos/webinar-estrategias-e-politicas-para-a-descarbonizacao-o-papel-das-cidades/

[4] https://www.areanatejo.pt/wp-content/uploads/2023/05/Programa_EE_SetorResidencial_29Maio2023_VFINAL.pdf

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(a) (b)

Figure 3 – a) Presentation of PEER during the webinar "Strategies and Policies for Decarbonization: The role of cities" and b) Presentation of the PEH experience in the EUROPA session.

2.1.2. Capacity step

To the building owners, local entities and asset managers which requested PEER support, capacity was raised both through formal capacity sessions and informally, during the several technical meetings carried out. During these sessions, the benefits of energy efficiency, the different business models, and funding options as well as the available engineering solutions were presented and discussed to expand knowledge on these topics.

A formal capacity session targeted at the architecture and engineering staff of the Porto social housing management entity was held on December 2022 on the technical

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and feasibility requirements of the PRR – Recovery and Resilience Plan (Fig.04). This session occurred after several technical meetings with this entity and was dedicated to the requirements of the 1ºDireito program (https://recuperarportugal.gov.pt/2021/11/10/financiamento-prr-ao-acesso-a-habitacao-1o-direito/) under which public entities may finance the energy efficiency interventions in social housing districts. Besides the technical aspects, the workshop also focused on the legal and financial aspects such applications may answer.

Figure 4 – Workshop on PRR requirements.

The contents presented during this session were shared and discussed with other housing entities and local entities with which the PEER technical team was working.

Also, to raise the discussion on different funding options, the PEER team collaborated with APESE (https://www.apese.pt/) in the Round Table on Financing Energy Efficiency in Portugal (https://www.euconf.eu/events/seiforums-mesa-redonda-portugal-11-oct-2022) which took place in Lisbon on October 11, 2022. This session occurred after a series of 3 thematic workshops, held between May and June, attended by RdA, Telles and AdEPorto, who shared their experience regarding the creation of OSS to support citizens in accessing funding opportunities. The objective of this Roundtable was to promote the dialogue between the main national actors on how to improve access to private financing for investments in energy efficiency, supporting the implementation of several national strategies (National Energy and Climate Plan 2021-2030, National

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Long-Term Strategy to Mitigate Energy Poverty and PRR – Recovery and Resilience Plan) and the support of programs such as InvestEU for the period 2021-2027. In a parallel session dedicated to the topic "Energy Efficiency Financing", PEER was presented to peers of the energy and banking sectors and participated in the discussion how OSS can leverage the access to financing for the renovation of buildings and renewable energy production (Fig. 5).

Figure 5 – SEIF National Roundtable on energy efficiency financing in Portugal.

For the general population, several capacity activities were developed, namely the organisation of webinars and the creation of informative materials:

- Energy efficiency tips to implement in daily routines;
- A guidebook on residential energy efficiency measures;
- A guidebook on the implementation of renewable energy communities and self-consumption projects.

These materials are available in paper (energy efficiency tips) and in digital formats in the website repository (Repositório – PortoEnergyHub).

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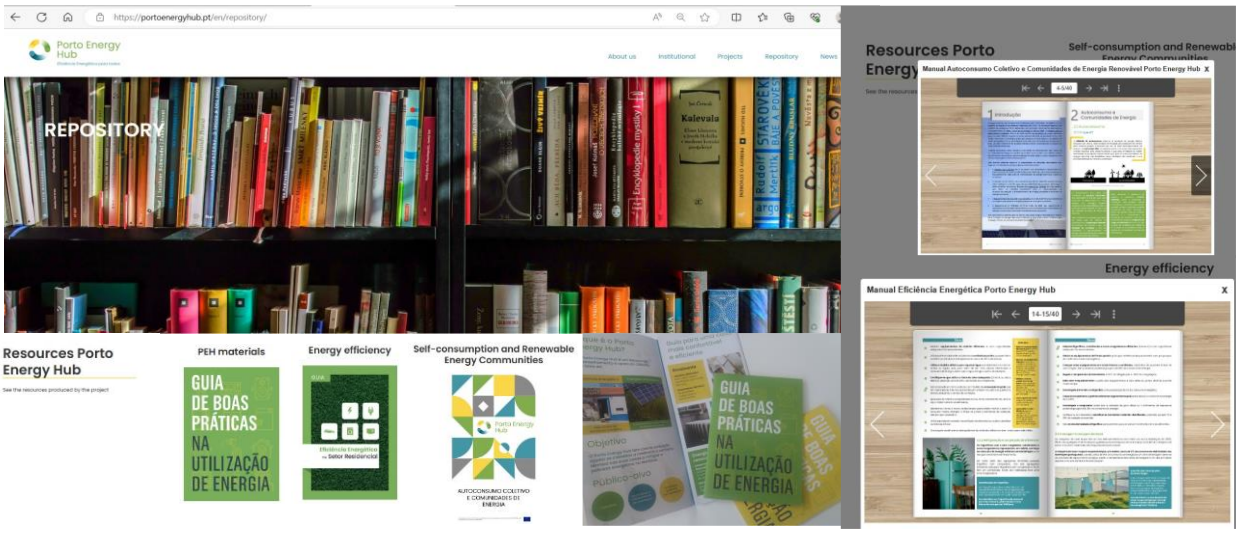

Figure 6 – PEH materials.

Also, the webinars organised to clarify citizens on energy efficiency issues and existing energy related incentives and funding schemes will be further exploited in the scope of WP3.

2.1.3. Sum up of engagement activities

Table 1 recaps the engagement and capacity building activities developed and implemented so far.

Table 1 – Engagement activities promoted by PEER.

Activity purpose	Materials developed	Targeted audience	Dissemination mode	Goal
Stakeholders' engagement	"Stakeholders' engagement" presentation and abstract.	AdEPorto network of municipalities and social housing entities.	In-person meetings.	Project presentation, identification of renovation projects in pipeline and gathering of sociodemographic information required to characterise the population in risk of energy poverty.
		Other municipalities	In-person meetings.	Project presentation, identification of renovation projects in pipeline.
	"Energy efficiency in buildings: The key to	Building experts, sectoral	In-person presentation.	Project presentation, identification of potential

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Activity purpose	Materials developed	Targeted audience	Dissemination mode	Goal
	fight energy poverty" – presentation in TEKTÓNICA.	associations, academia, and citizens.		partners and Advisory Board members.
	"Strategies and Policies for Decarbonization: The role of cities".	Citizens, city representatives, energy agencies and R&D institutions.	Webinar.	Project presentation and discussion on the role of OSS as tools for energy poverty alleviation with peers.
	"Energy Efficiency in the residential sector and measures to mitigate energy poverty".	Energy agencies and energy actors.	Online participation.	
Capacity building	"Programa 1º Direito"	Architecture and engineering staff of Domus Social.	In-person presentation.	Presentation and discussion on technical and feasibility requirements of the PRR – Recovery and Resilience Plan.
	Round Table on Financing Energy Efficiency in Portugal	Peers of the energy and banking sectors	In-person presentation.	Project presentation and discussion with the main national actors on how to improve access to private financing for investments in energy efficiency.
	Informative materials: Energy efficiency tips to implement in daily routines; Guidebook on residential energy efficiency measures; Guidebook on the implementation of renewable energy communities and self-consumption projects.	Citizens.	Online guidebooks and paper tips.	Disseminate practical knowledge on energy efficiency and renewable energy.

2.2. Goal 2: To promote PEH replication

As part of the replication program, two online meetings were held with city representatives of Loulé and Lisbon.

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On November 16, 2022, an online meeting was held with the staff of the Division of Urban Renovation and Department of Territorial Planning and Administration of the Municipality of Loulé (Fig. 7). The objective of the meeting was to discuss challenges and opportunities arising from the implementation of a OSS in Portugal, since Loulé is planning to develop a similar program. In this session, the PEER project was presented as well as the PEH concept and the OSS replication process was discussed. More recently, on June 16, 2023, a similar meeting was held with Lisboa E-NOVA, the energy agency of Lisbon, which show interest in replicate the PEH concept in Lisbon.

Figure 7 –Meeting with Loulé staff.

2.2.1. Sum up of replication activities

Table 2 outlines the replication action promoted.

Table 2 – Replication activities.

Activity purpose	Materials developed	Targeted audience	Dissemination mode	Goal
PEH replication	Project and OSS presentation	Municipal staff and energy agencies.	Online meetings	Project presentation and OSS operation and implementation step-by-step.

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3. Conclusion

Local authorities can play a relevant role in the mitigation of energy poverty as they own and manage a wide range of residential buildings, generally occupied by vulnerable people who are commonly more prone to situations of energy poverty. Also, municipalities are often requested by citizens for technical, legal, and financial support for rehabilitation and energy efficiency interventions.

In this sense, a targeted stakeholders engagement strategy was defined to attract municipal entities to work with PEER and benefit from the project support, as well as to replicate the project outcomes across the country.

The designed strategy led to the AMP municipalities directly benefiting from the project, whether through direct technical support in the renovation of social housing complexes or the Energy Hubs, and that around 200 citizens (individuals and condominiums) have already requested the project support, either through the energy efficiency potential analysis or technical meetings.

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