POWER UP

The catalyst for social innovation in the energy market

Energy poverty mitigation: Co-designing schemes and defining just governance models

Report on the governance of the POWER UP pilots

Authors
Ecopower

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Executive Summary

From collective self-consumption in social housing to social energy cooperative shares for vulnerable households: the POWER UP pilot cities are developing ambitious new schemes. POWER UP is based on the idea that renewable energy production and energy efficiency support measures must benefit vulnerable households. That is why different ways to achieve this have been collaboratively defined with households and local stakeholders in the cities of Valencia (Spain), Roznov (Czech Republic), Eeklo (Belgium) and UCSA (Italy). This report allows for a behind-the-scenes look into how pilots co-created together with energy-poor households one or several of their renewable energy pilot schemes. Their aim: to move them out of energy poverty and prepare for their implementation based on a just governance. As you'll read through the report, you learn about how practically the co-creation process with vulnerable households was organised or planned by four of the five pilots. Step-by-step the parties involved defined all aspects of the pilot schemes and explored different governance options. The selected governance option to implement the pilots are presented and explained. Finally, the report gives the - provisionally planned - energy poverty mitigation actions for each pilot.

01

Introduction

This report reflects the insights gained from two tasks from the POWER UP project: T3.2 Co-creating the pilot schemes with energy-poor households, and T3.3 Defining innovative governance to implement the pilots.

During the co-creation processes (T3.2), pilots engage with energy-poor households in a collaborative process to determine how renewable energy production and increased energy efficiency will benefit the local communities, especially energy-poor households. Four of the five pilot sites (Valencia, Roznov, Eeklo and UCSA) organised a series of (at least) three workshops to discuss the (renewable) energy topic more generally (energy bills, switching suppliers, energy poverty mitigation measures), and more particularly the different aspects of the project with an average of 10 vulnerable households. That way, they wanted to inform people while ensuring that the project will be tailored to their needs and realities. The fifth pilot (Heerlen) experienced several juridical and business-model related challenges, causing a delay in organising the co-creation part of the project and deciding on the project's governance. This report will be updated later with information from Heerlen.

Based on the insights from these co-creation processes, pilot leaders defined a governance (T3.3) that responds to the need of the pilot scheme and the ambition to include vulnerable households in the practical and strategic realisation of the scheme in the best possible way. This task includes the definition of which organisations will concretely implement the pilot schemes and clarifies the governance structure so that energy-poor households will be closely associated in the implementation phase. Pilots strive to use innovative governance structures that have not yet been tested in their location; however, feasibility apparently takes precedence over the ambition to choose an innovative approach.

As foreseen in the Grant Agreement, each pilot started to think about potential energy poverty mitigation measures (T5.3) that accompany the work on the pilot in the respective site. These measures aim to accelerate the speed at which the situation of households in energy poverty is ameliorated while the pilot scheme itself is being prepared. Additionally, by organising these measures, pilot leaders are reaching out to fresh audiences, expanding the group of people profiting from Power Up activities, and diversifying activities. You can find a short description of the first ideas and actions on these accompanying energy poverty mitigation measures in each pilot chapter.

This deliverable builds further on insights from the technic-economic analyses and business cases, which fed into the preparation of the co-creation workshops and discussions with vulnerable households. Other sources used to compile this report are the bilateral monthly meetings between the pilots, ENC, SNL and ECO in which the co-creation process has been a recurrent point on the agenda, and a workshop prepared by ECO and held during the in-person project meeting in Roznov in April 2023.

More details on the engagement strategies and communication material to enlarge the communities around the renewable energy production schemes and energy efficiency measures will be provided in upcoming reports.

Despite Heerlen, in the Netherlands, initially being a pilot site for the PowerUp project, this report does not include information about this pilot. Heerlen's pilot faced several local legal and governance challenges, leading to a project decision to discontinue it.

Initially, a local ban on injecting locally produced renewable energy into the energy grid created challenges and delays in defining a technically, economically, and legally viable model for Heerlen. After several months of attempts, the model idea stabilized around the concept of renovating the roofs of social housing building blocks (each block with six apartments), for energy efficiency, and installing PVs on it. These renewable sources would be part of a local energy cooperative and be directly consumed by the participating households, potentially reducing their energy costs.

Such a model required a partnership with the social housing company for the renovation work, as well as a financial scheme to fund the roof renovations and PV installation. The initial plan involved renewing the roofs in partnership with the social housing company and offering the renovated roofs to a partner energy cooperative, which would fund and install the panels and charge a monthly fee to the households to recover the investment over time. Further details of the model can be found in deliverable 4.1: Guidelines on renewable energy production business case: How to do, what to take into account.

However, during the formalization of the model, the pilot faced a significant governance problem: no local partner (social housing company, municipality, or energy cooperative) was

willing to assume the risk of non-payment of the household debt for the PV installations. This scenario implied that energy-poor households would need to take out a loan to install the PVs, which posed a strong risk of financial burden on these households. This was not aligned with PowerUp's objectives and would not be easily acceptable to the target group. As a result, PowerUp stopped the pilot development in Heerlen. Although informal discussions with potential target households occurred in Heerlen, formal co-creation workshops were not conducted.

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02

Valencia pilot

In the Valencia pilot, two models are being tested. Only the energy community model has by now figured in the co-creation process. After further, particularly legal refinement, the fee model will also be presented to vulnerable households to define the scheme's opportunities and barriers.

In short, the energy community model as it is designed now comprises the investment of, preferably, the energy community and, potentially, the municipality, in a PV installation on a public roof and offering it to citizen energy communities. While households benefit from self-consumption from the PV plant (according to their investment), selected households can benefit from this scheme through a limited amount of free shares dedicated to vulnerable households (according to public partner investment).

The fee model implies installing PV systems on public land by an investment of and in the hands of the municipality, with citizens being granted temporary access to a share of the production via an energy-sharing agreement by paying a fee. Selected vulnerable households could benefit from this scheme by being granted access to the energy-sharing agreement without having to pay that fee.

2.1

Co-creation process

2.1.1 Identification of households

Next to POWER UP, the city of Valencia and Las Naves also participate in the WELLBASED project. For this Horizon 2020 funded project, monthly neighbourhood-focused "collective assemblies" are being developed during 2023, starting in February, with an engaged and interested group of 10 to 15 people. To capitalise on the synergies between both projects, the Power Up co-creation workshops have been built around people already attending these assemblies. The advantage of this approach is that vulnerable households are not confused by being approached by different projects. Additionally, the Power Up workshops could profit from the trust-building work that has been done in the Wellbased assemblies before, facilitating the exchange in the co-creation workshops dedicated to the Power Up project.

Initially, the pilot partners strived to reach out to vulnerable households who, in addition to low income, also encounter other structural barriers, such as gender, language or living in a rented apartment. People's profiles and backgrounds were very diverse: local people but also migrants from different origins; people living in rented apartments and others who were owners; people sharing apartments with other families; households with elderly people, and others with children. In terms of gender, the profiles of participants were quite balanced in workshops 1 and 2, while in workshop 3, women were the majority.

2.1.2 Invitation of households

In order to engage the households participating in the Wellbased project, the invitation to the three dedicated Power Up workshops focused on the direct benefits that participants could expect: information, building capacities and skills, learning about ways to reduce their energy

bill, and the possibility to connect with other people in the same situation to find mutual support. Also, being one of the first to learn about the possibility to participate in new energy communities, and the possibility to get access to renewable energy production have been formulated as incentives to the potential participants. Some questions have been posed to trigger potential participants, such as "do you want to talk about energy? Do you think it's expensive? Are you interested in what the city wants to do?"

Several steps have been taken to make participation as accessible as possible, such as choosing the same place and timing as the Wellbased assemblies, avoiding technical language, including service for taking care of children during the workshops and inviting them during the Wellbased assemblies and domestic visits. The communication channel used was the WhatsApp group that has been set up in the scope of the Wellbased project and participants are actively using that to exchange advice and ask for help. Pilot partners sent via WhatsApp a specific 1-minute video for each workshop, highlighting in a very clear language the benefits of attending each workshop.

2.1.3 Content of the workshops

Three co-creation workshops have been organised between the beginning of May and the end of July 2023.

Workshop topic (date)	Main objectives	Number of participants / equivalent number of households
Let's talk about energy (4/5/2023)	Get to know people, let them feel at ease, Sharing insights on the energy market and the possibility to access renewable energy Invitation to participate in the second workshop to learn more on what the city plans to do on collective energy	15 / 10

	projects facilitating universal access to affordable, clean energy	
Self-consumption (1/6/2023)	Learn more about how a PV installation works Learn more about the advantages of self-consumption (individual and collective) Invitation to participate in the third workshop to learn more on collective self-consumption via an energy community	27 / 19
Energy communities (20/7/2023)	Testimony from the CEL-Castellar energy community	19 / 13

Table 1: ***Valencia co-creation workshops***

In the general approach of the workshops, attention has been paid to putting participants at ease by offering snacks, drinks and creating a cozy atmosphere. The presentation part of the workshop has been limited to the essence, with a small number of slides figuring basic graphics to explain the topics of the day. A list of accessible questions had been prepared in case people would be hesitant to interact and to start the conversation.

The pilot partners plan to organise more co-creation sessions after the summer, specifically to get feedback on the potential barriers for participation in the fee model. They evaluate the workshops as an interesting way to refine and ameliorate the two pilot schemes.

The main insights and learnings from the three workshops can be summarised as follows:

- The audience is quite diverse and knowledge about energy-related topics and the opportunities of renewable energy differs greatly: some participants for example already knew about energy communities and asked to join other pilots similar to Castellar. This interest pushes pilot partners to better define a procedure to facilitate the connections between emerging communities and people with interest in joining them.
- From the feedback during the workshops, the up-front investment to participate in an energy community was not a problem. Several participants seemed interested in investing.

- In cases where people receive state financial support for paying their bills (about 80% of the bill), the economic argument is not convincing enough. This pushes pilot partners to reinforce other arguments, such as the benefits of belonging to a community or the environmental dimension.
- Living in a rented apartment is perceived as a barrier that is really difficult to overcome.
- There is an interest in listening to 'real life experiences' or testimonials from members of energy communities rather than / next to theoretical explanations of the scheme.

Figure 1 - Valencia workshop 1

Figure 2 - Valencia workshop 2

Figure 3 - Valencia workshop 3

2.2

Governance model

A good governance model balances the interests of all parties involved in a way that allows all of them to meet their interests in a way that does not negatively impact the interests of the other partners and ideally even strengthens the whole of the project.

2.2.1 Interests of the involved stakeholders

The stakeholders involved in the energy community model and in the fee model are the municipality, households and vulnerable households. Their respective interests are:

2.2.2 Governance model selected

For the fee model, the selected governance model leaves the project's lead in the municipality's hands with the role of vulnerable households being limited to beneficiaries of free electricity. For the energy community model, the projects are led and managed by the communities themselves, with the municipality taking the role of enabler and facilitator and helping identify and including vulnerable households. However, it has to be remarked that both models are

still evolving, with several upcoming new energy communities providing a way to test and learn new approaches compared to the Castellar case, and with a thorough legal analysis and dedicated co-creation workshops for the fee model. The governance model of both schemes might thus further evolve in the upcoming months.

The governance of the energy community model consists of

- The municipality facilitates access to public roofs and spaces for energy communities by means of public, open procedures such as tendering. It asks, in return, energy communities to make an investment covering the cost of a limited number of shares to be allocated to vulnerable households, identified by the municipality through social services and/or in collaboration with social stakeholders. The municipality may take part in the energy community too, thus making an investment.
- households participating in the scheme by taking part in the energy community, making an initial investment according to their participation in the PV plants. Their participation (share) leads to direct annual savings which makes the investment profitable in a few years.
- selected vulnerable households benefiting from free shares, accessing the collective self-consumption scheme with no investment from their side, as it's covered by the energy community and/or the municipality.

The governance of the fee model consists of

- the municipality investing in solar installations on public land, selecting the vulnerable households who will profit from free access to the collective consumption.
- households participating by paying a fee on their annual savings, profiting from collective self-consumption.
- selected vulnerable households obtaining free access to the collective self-consumption scheme, financed either by savings from municipal buildings included in the self-consumption scheme, or by the fee paid by investing households.

2.2.3 Reasons why

In both models, the interests of all stakeholders are met. However, it is clear that, right now, the role of vulnerable households in the governance of both models is limited to a rather passive beneficiary of the scheme, without their own investment and without membership.
On the one hand, this has several advantages: by keeping the investment and the selection of vulnerable households in its own hands, the municipality safeguards that projects are effectively realised. The decision power on who benefits from the scheme remains with the city, enabling it to relieve the highest need. Finally, vulnerable households benefit directly from the scheme without additional financial or organisational burdens.

On the other hand, the co-creation workshops on the energy community model revealed that several participants are interested in investing in a share themselves. This might be a reason to consider foreseeing the possibility of vulnerable households also buying a share and, thus, becoming full members of the energy community. Potentially, the interaction with vulnerable households will also differ in future energy communities, depending on the type of building: there might be different options for public schools, neighbourhood centers, or other contexts. Also, the situation of households is not static. It seems useful to anticipate a financial situation of households that worsens or ameliorates, making it possible for households to switch between roles.

For the fee model, the co-creation process still has to take place; we will have to wait and see if, also for this model, (some) vulnerable households are inclined to take up a more active role as investor.

2.2.4 Formalisation of stakeholder relations

For the first energy community experience in the city, the CEL Castellar-L'Oliveral, several formal steps were made to make it possible, However, it must be noticed that this process is hardly replicable, given legal restrictions. That's why a legal study has been conducted to explore and design an open, legally adjusted and easy to replicate process of collaboration between Energy Communities and the municipality of Valencia.

For this first experience, there was a municipal will to have a first pilot experience of Energy Community in the city to learn during the setting-up process and give a tangible example to all citizens that such kind of collective projects are feasible and attractive. With this argument, a public roof in the neighbourhood of Castellar was offered to a newly created association playing the role of energy community. It was a two-step process:

- The municipality assigned the municipal roof to VCE with the objective of setting up an energy community around a PV plant built in such location.
- VCE signed a contract with the CEL Castellar-L'Oliveral association including two main points:
    - Allowing the association to make use of the building's roof to build and manage a PV plant during the following 25 year (life cycle of the plant), following the energy community principles of open access and democratic control.
    - Integrating VCE as member of the Energy Community, acquiring a certain % of shares that should be offered to vulnerable households living in the surroundings.

Subsequently, to legalise and start the operation of the collective self-consumption, an "Energy sharing agreement" has been signed by all EC members participating as prosumers in the PV plant, including VCE on behalf of vulnerable households.

As explained above, the facilitation of the roof via assignment to VCE as an intermediary cannot be an standard solution for coming projects. As recognised in regional law, municipalities must facilitate access of Energy Communities to public roofs and spaces through open tendering or an equivalent process, allowing communities to access this benefit in equal conditions. A legal study is helping Valencia pilot partners to define the basic principles and necessary steps to drive this open process and promote it as an innovative, but fully compliant and "standardised" solution to multiply the number of energy communities in the city.

As for the fee model, a legal study is also conducted to help define the necessary contracts, internal bureaucracy, etc., to implement it. There's little experience in Spain deploying such business models and there's some controversy around whether they should be conceived (and legally considered) as a public service or a market-related activity. Prioritising energy-poor households in the scheme should help implement the model, justifying it as a public interest

initiative rather than as a market activity competing with other entities offering similar services (collective-self consumption) in exchange for a fee payment.

2.3

Energy poverty mitigation actions planned

The Valencia pilot will explore multiple ways to mitigate energy poverty and improve energy efficiency in line with Power Up objectives. All actions will be deployed in synergy with different activities promoted through Valencia Clima i Energia One-stop-shops (The Energy Offices), so as to reach as many vulnerable households as possible, incorporating best practices and improving training materials thanks to Power Up contributions.

Co-creation sessions organised with WELLBASED project participants helped pilot partners improve training and communication materials, making use of accessible language, and also helped validate concerns and needs of vulnerable households in relation to energy issues.

There's a big transformative potential if we manage to link access to self-produced renewable energy with household-level efficiency measures. As a first step, there's a need to understand how energy is consumed at home, making an energy diagnosis of appliances, energy sources etc. as well as how it is billed to make the best out of participating in a collective self-consumption scheme.

The Valencia pilot will promote different activities, targeting vulnerable households, including:

- Collective workshops around energy efficiency, bill optimisation and renewable energy.
- Provision and/or installation of micro-efficiency energy kits.
- Tailored advice to understand bills, get to know energy rights and subsidies, and also about behavioral change to improve energy efficiency at home.

Those activities could be targeting different already identified collectives, such as:

- Control group from WELLBASED research project. An approximate number of 170 households take part in the "control group" of the WELLBASED project, meaning that they cannot receive any kind of energy intervention until the end of August 2024. There

is a critical mass of vulnerable households here that could benefit from the aforementioned activities in relation to Power Up.

- Households not taking part of Power Up models because of excessing demand. Those households not being able to participate in the models (as beneficiaries of the collective self-consumption) because of limited availability of shares will be offered to take part in the above mentioned activities.
- Households participating in NextGen energy retrofitting of buildings projects ("Desamparados" and "Tendetes"). The municipality of Valencia, together with the regional government, is promoting the rehabilitation of several building blocks in two target areas (two of the most deprived areas in the city). Retrofitting costs will be vastly covered with NextGen European funds, meaning little or no investment cost for households. There is a big chance here to try to engage these communities around energy efficiency and renewable energy activities through our one-stop-shops.

In addition, there is a chance to have some additional funding for deploying these activities thanks to the "Las Naves Brillen" project. The first year of operation of the PV plant from the "Las Naves Brillen" project should provide some income to be re-invested in energy poverty mitigation measures, such as the acquisition of efficiency kits or the promotion of different activities for supporting energy-poor households.

03

Rožnov pilot

The Rožnov pilot consists of two integral components. Firstly, it aims to assess the feasibility of establishing a comprehensive One Stop Shop (OSS) dedicated to promoting energy sufficiency and sustainable homes, and secondly, installing the city's first PV installation on an apartment building owned by the city, in order to self-consume the electricity produced and sell the surplus to the grid.

In short, the One Stop Shop (OSS) has been established by the local authority to provide advice to citizens on various energy-related matters. The OSS team consists of two local authority staff members. Although the OSS currently holds an informal status without official recognition, it handles approximately 50 to 100 consultations per month, organises comprehensive information campaigns and creates and distributes informative brochures, leaflets, and other materials on a range of energy-related topics. The city finds the One-Stop-Shop (OSS) option interesting and plans to continue offering its services from autumn to spring when energy matters most. Importantly, using OSS doesn't require any technical development or investment.

The installation of a PV system on a public social housing building owned by the city aims to enable collective self-consumption of the generated electricity and sell any surplus energy back to the grid. The municipality invests in the PV system and refinances this investment by charging tenants an additional fee on the monthly rent. This fee is lower than tenants' benefit through collective self-consumption, leaving them with a net benefit.

3.1

Co-creation process

3.1.1 Identification of households

The pilot leader decided to open the invitation to the co-creation workshops to everyone: all citizens of Rožnov and some smaller cities in the region were welcome to participate. After each workshop, participants were asked to fill out a short, anonymous survey developed by the pilot leader and based on advice from UNIMAN. The responses to this questionnaire allow the pilot leader to analyse the participants' financial and energy-related situations. Some effort was put into finding the right wording and questions in order to correctly define those participants that can be qualified as being in a situation of energy poverty as the majority of citizens experience a rise in their electricity bill but the possibilities to cope with this differs.

The pilot asked citizens what percentage of their income they spend on energy bills. Additionally, the survey was used to gain insight into the participants' specific needs and interests, such as topics they want to hear more about, speakers they would like to see invited, etc.

Overview of participants

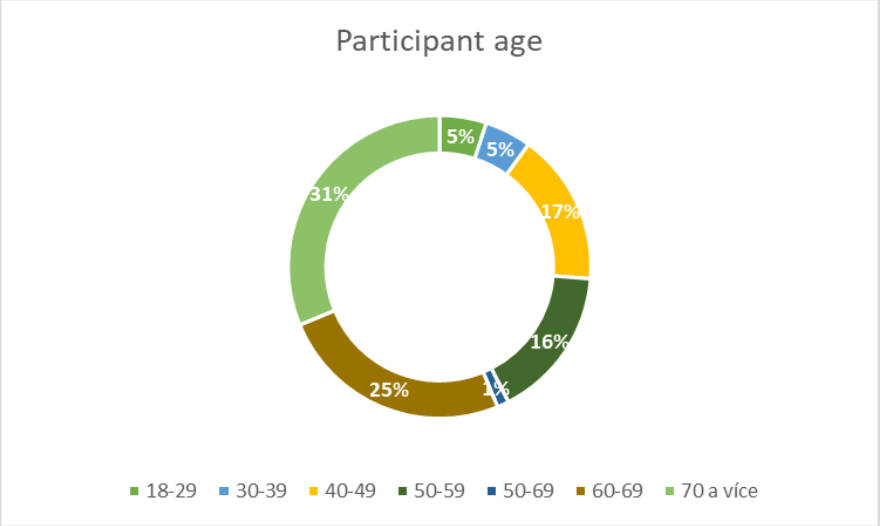


Figure 4 - Age of Roznov co-creation workshop participants

The age distribution among participants in the energy-related workshop offers a fascinating insight into the diversity within the group. It's evident that the pilot successfully engaged individuals spanning a wide range of age groups, from young adults to seniors. This diversity proved valuable during discussions surrounding energy issues, as it brings together participants with varying life experiences, perspectives, and priorities. Notably, most attendees in the inaugural workshop were aged 65 and above, and the pilot leader was pleased to have several participants with disabilities, as these were the two eligible groups for a new funding opportunity presented during this specific event. On subsequent occasions, the pilot leader observed a more balanced mix of attendees, with a slight tilt towards individuals aged 40 and older.

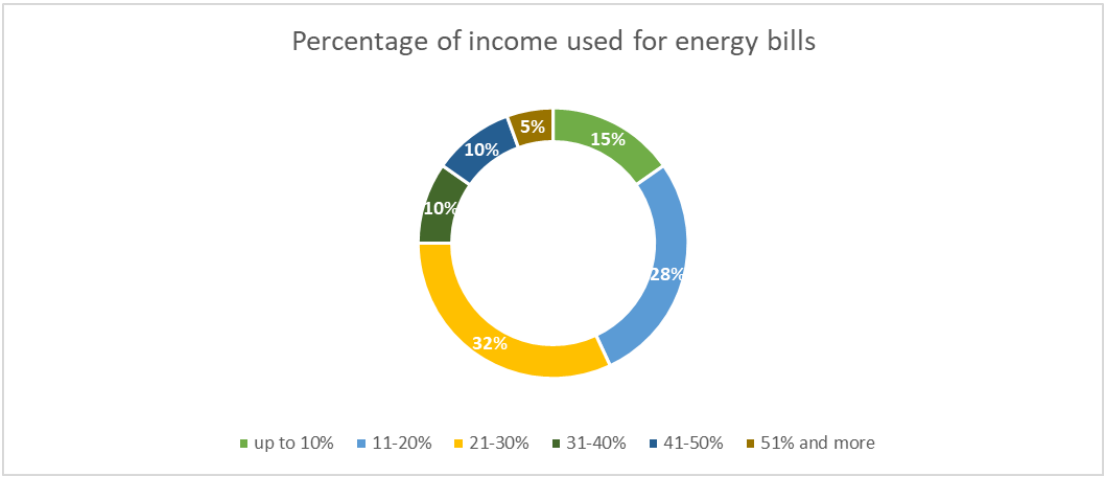


Figure 5 - Financial situation of Roznov co-creation workshop participants (based on income)

Figure 5 provides a comprehensive overview of how workshop participants allocate their income to cover energy bills, offering insights into varying levels of financial burden. Notably, around 41% of respondents allocate just 10% of their income to energy expenses, indicating a relatively low financial burden. Another 20% fall into the 11-20% category, suggesting a moderate cost allocation. A significant portion, approximately 23%, dedicates 21-30% of their income to energy costs, reflecting a higher financial commitment. Furthermore, 7% of respondents each fall into the 31-40% and 41-50% categories, facing substantial financial challenges due to exceeding the threshold of 30% of income defined by the Czech government as the maximum one should spend on energy bills to receive state aid[1]. This data highlights the wide-ranging financial impacts of energy expenses, with most having a manageable burden. Still, notable segments were grappling with significant financial challenges, as underscored by the government's assistance criteria.

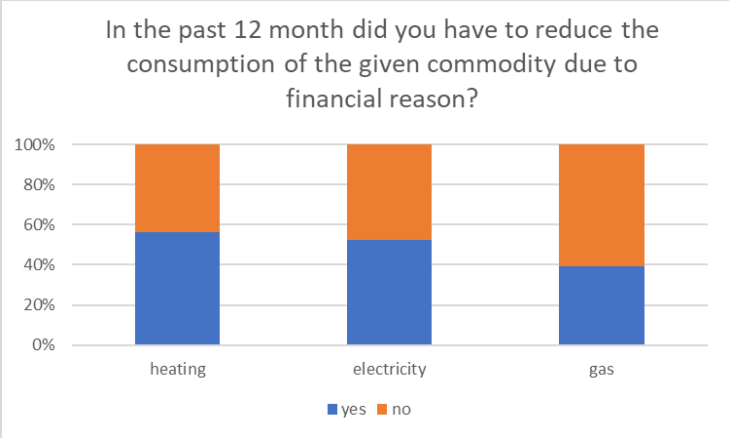


Figure 6 - Financial situation of Roznov co-creation workshop participants (based on force reduction of consumption)

Figure 6 depicts the results of a survey assessing whether respondents had to decrease their heating, electricity, and gas consumption in the past 12 months due to financial constraints. The data reveals that almost 58% of respondents had to reduce their heating consumption, 52% had to cut back on electricity, and 39% had to decrease their gas usage for financial reasons. These findings underscore the significant impact of economic challenges on essential

[1] https://www.reuters.com/markets/europe/czech-government-cap-housing-energy-costs-30-income-2022-08-17/

commodity consumption, with heating experiencing the highest proportion of respondents having to make cutbacks.[2]

3.1.2 Invitation of households

The invitation was widely disseminated through various channels, including the municipality's website, local TV broadcasts, public poster locations, local newspapers and municipal social media, especially Facebook. The pilot leader, SEMMO, also amplified the announcement by issuing multiple press releases and featuring event details prominently on its website and in the SEMMO newsletter.

Citizens who participated in one of the workshops and wanted to be invited to future workshops, could fill in their name and contact details in the anonymous survey handed out to all participants after each workshop.

During all our workshops, a local TV channel was there to cover the topics. The video footage was useful for sharing information about energy topics and the municipal one-stop shop and invite people to join the upcoming workshops.

3.1.3 Content of the workshops

Between February and April 2023, four co-creation workshops have been organised.

Workshop topic (date)	Main objectives	Number of participants
New funding possibilities for	Inform citizens on the new funding scheme for low-income groups introduced and financed by national government Show citizens how to apply for this funding Present the local contact points for the funding scheme	30

[2] Please note the workshops took place between February and early April 2023, which corresponds to winter and colder weather months when people usually have heating on.

households[3] (2/2/2023)	Demonstrate political support on the topic by the mayor giving a speech	
Energy prices and how to switch supplier[4] (2/3/2023)	Information on the development of energy prices Learn how to choose and switch suppliers Learn more about energy contracts Learn more about energy invoices	15
Renovation of apartment buildings[5] (21/3/2023)	Answering practical questions on premises, investments, etc. by an expert Information on the possibility to ask advice to a certified local energy expert Information on the offer of the city regarding advice on the topic	45
Renovation of family houses[6] (12/4/2023)	What to do and not to do Proper implementation of insulation and what to to avoid Effect of temperature and humidity on the indoor environment Proper heating design and what to to avoid PV on a family home	15

Table 2 - Roznov co-creation workshops

[3] https://www.tvbeskyd.cz/mesto-usporadalo-besedu-o-moznostech-cerpani-dotaci-na-zatepleni-domu-pro-seniory-a-nizkoprijmove-domacnosti/

[4] https://www.tvbeskyd.cz/v-roznove-se-lide-na-besede-dozvedeli-jak-se-vyznat-v-energiich/

[5] https://www.tvbeskyd.cz/obyvatele-bytovych-domu-besedovali-o-usporach-za-energie/

[6] https://www.tvbeskyd.cz/na-dalsi-energeticke-besede-se-mluvilo-o-uspornych-opatrenich-v-rodinnych-domech/-

POWER UP project mentioned in interviews

Figure 7 - Pictures of Roznov co-creation workshops

The pilot leader's top priority in the workshops was ensuring participant comfort and providing good quality information. They achieved this by offering snacks and drinks, and by cultivating a comfortable atmosphere. Speakers were requested to keep their presentations concise, avoiding excessive technical jargon, and focusing on delivering useful explanations of key topics. Participants have been actively encouraged to ask questions whenever they feel the need, both during and after the presentation, ensuring ample time for inquiries. Additionally,

conveniently located venues within the city have been selected to make attendance as accessible as possible.

Insights from the workshops include the importance of political support on the topic of energy poverty. In the case of the city of Roznov, this helped mobilise resources and staff to organise the co-creation meetings. Working with anonymous surveys among the participants of the workshops also enhanced the understanding of the population with energy concerns. However, despite the fact that the majority of people experience difficulties paying their energy bills, the taboo to ask for help among the group the most affected remains strong .For example, the small number of people attending the workshop on energy prices might be caused by citizens being reluctant to reveal that they have financial problems or that they do not understand their energy bills.

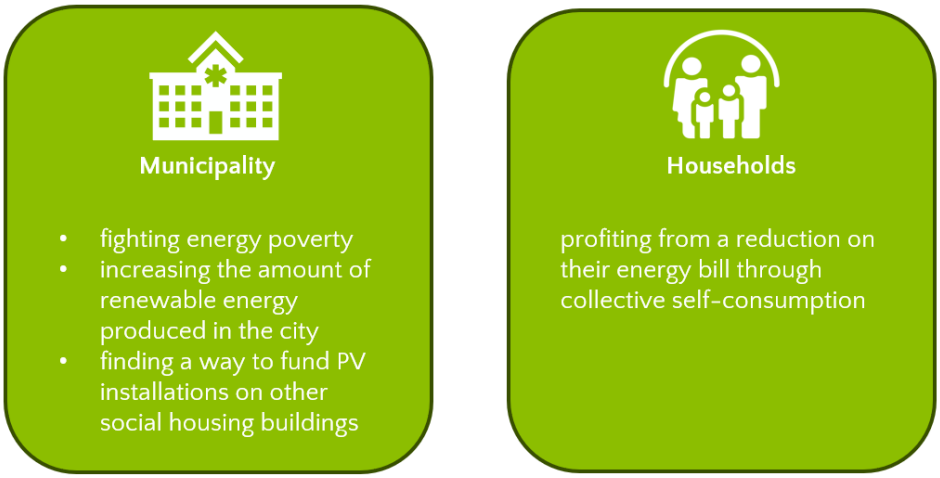
3.2

Governance model

This chapter focuses on the PV installation on a municipally owned social housing building. In order to describe a pertinent governance model for the PV project on the social apartment building, the project leader relies on the lessons learned in the co-creation workshop for the broader public. Further interaction and co-creation with the inhabitants of the apartment building is planned and might lead to further refinement of the model.

3.2.1 Interests of the involved stakeholders

The stakeholders involved in the PV installation on the social housing building are the municipality and the vulnerable households living in the building. Their respective interests are:



3.2.2 Governance model selected

As stated above, the governance model of the solar project on the social housing building might further evolve in interaction with vulnerable households living in the pilot building.

The governance of the model now consists of

- the municipality taking the role of the up-front investor, pre-financing the solar installation on the roof of an apartment building and gets its investment back by charging an extra fee on the rent.
- vulnerable households living in the building taking the role of the beneficiary who also refinances the solar installations by deferred payments. Households can freely join the model to profit from a percentual access to the collective self-consumption both for their individual apartment and the common areas of the building. They are charged an additional fee on their rent by the municipality in order to refinance the PV installation. This increase on the rent is lower than the benefits they will get from the collective self-consumption. Households keep the free choice of supplier and can step in and out of the scheme at every time by a simple note to the supplier.

The municipality and SEMMO are currently thinking about ways to enable the city to scale the project to other social housing buildings in the city. That way, the municipality meets its interest in providing all social housing buildings with renewable energy and prevents discontent from vulnerable households living in areas other than the pilot building. This could, for example, be done by reinvesting the benefits of the PV installation in a rolling fund, or by citizen financing. In April 2023, a meeting was conducted with the mayor, during which both approaches were presented. Subsequently, the City of Rožnov opted to initiate proceedings with the conventional return on investment, postponing consideration of the citizen financing or crowdfunding option for future evaluation.

3.2.3 Reasons why

In the model selected, the interests of both stakeholders are met. What is very positive is that vulnerable households, next to profiting from a reduction in their energy bill, are taking an active role as re-investors of the solar installation. Up until now, the co-creation workshops have been held with a broad panel of citizens. The co-creation process with the tenants in the building still has to take place. Potentially, this will again bring up new ideas to improve the scheme and its governance.

3.2.4 Formalisation of stakeholder relations

Given the City's decision to realise a return on investment in this initial PV installation, the households will be required to pay an additional PV fee of 5 euro per month per household to the municipality. This fee is considered reasonable, as it is anticipated that the monthly energy savings for households will likely exceed 5 euros, resulting in tangible benefits for the households. How the payment will be formalised has not been decided yet. Most likely, the city will announce an increase in rents to the households.

It will be one of the first few installations of PV and an implemented electricity-sharing model, allowing the use of self-produced energy in a municipality-owned apartment building in Czechia. The pilot leader is currently in the developmental phase, actively exploring viable options.

3.3

Energy poverty mitigation actions planned

Throughout the heating season, the national government plans to allocate funding to assist citizens in shifting from fossil fuel-based heating sources to more environmentally friendly alternatives. The City of Rožnov is also expected to organise additional events in the upcoming autumn to provide information on available subsidies and address related topics.

The pilot project will serve as a source of inspiration for others and the broader public regarding installing photovoltaic (PV) systems on private roofs. This outreach will extend to regional TV channels for broader dissemination.

Autumn events will encompass diverse subjects, including energy communities, PV legislation, disconnection from district heating, and subsidy funding.

It is important to note that the city cannot endorse specific products, companies, or contractors. Instead, the OSS (Office of Sustainable Solutions) will offer general information about PV installation, such as available funding, market price benchmarks, and necessary documentation. While the municipal property will be maintained as necessary and in accordance with the City's discretion, it's essential to emphasise that the city is not in a position to provide e.g. any energy-saving kits to individual households.

04

Eeklo pilot

The Eeklo pilot consists of a cooperative wind turbine financed and owned by the members of citizen energy cooperatives Ecopower and Volterra (respectively 74% and 25%), and the city of Eeklo (1%). The city of Eeklo uses its part in the wind turbine to pre-finance social shares of Ecopower for vulnerable inhabitants who will that way be able to become not only a member of Ecopower but also a client of its cooperative supplier activities and consume the green energy at cost price at home.

4.1

Co-creation process

4.1.1 Identification of households

The municipality identified the following groups to be eligible to join the pilot scheme in the first phase of the pilot (20 households):

- Households who received an energy allowance in 2022-2023 and who do not have the social tariff (as they would not benefit from switching supplier) *or* who lost social tariff as of 01/7/2023. Households in one of these two situations but who have a prepaid meter are - for the time being - excluded by the Energy Decree.
- Households who have been declared debt-free via the LAC (Local Advisory Committee) and are returning to a commercial supplier after a period at the DSO.

Together with the social department of the city, the pilot leader agreed that this is the most vulnerable group who will profit the most from switching to the cooperative supplier.

In the second phase of the pilot (scaling up to 100 households), additional criteria might be added to identify a broader group of households. The option which is currently investigated and proposed to the elected officials is an approach where the income limit for '*verhoogde tegemoetkoming*' (increased compensation) or increased compensation for health care costs is used in combination with additional criteria such as age, composition of the family and housing situation to ensure we select the most vulnerable households. Identification of the households would be led by the social housing organisation (renters and candidates on the waiting list for social housing) and social services.

4.1.2 Invitation of households

To build trust and recruit vulnerable households for the co-creation workshops, the municipality decided to place a staff member of the city of Eeklo at the community center 'De Kring' every Wednesday morning during a period of several weeks. She helped visitors with energy-related questions, informed them about the pilot scheme and invited them to participate in the co-creating workshops to learn more about how to participate. To enlarge the recruitment the staff member also participated in other community initiatives.

4.1.3 Content of the workshops

Between September and December 2022, six co-creation workshops have been organised by the municipality.

Workshop topic (date)	Main objectives	Number of participants / equivalent number of households
Introduction to Power Up (19/10/2022)	Present the ideas for the POWER UP scheme Have a first open group discussion, see the initial reactions and barriers Reflect on general opportunities and barriers in relation to energy saving. Get to know about which topics the participants want to learn during the sessions	6 / 6
Communication about energy (support schemes) (26/10/2022)	Gather insights on relevant communication channels, stakeholders and messages around energy. Discuss existing stakeholders that can help with energy advice and energy bills Open space for questions around energy	4/4

Benefits of Power Up (9/11/2022)	Calculate the personal benefits when the households would enter the scheme, in the format of an appointment at the energy office Open space for questions around energy	4/4
Energy administration and energy saving (16/11/2022)	Co-create the contract for entering Power Up based on a first draft. Exchange tips on energy saving and learn about the energy consumption of common household appliances.	4/4
Energy journey (23/11/2022)	share different options when confronted with difficult energy situations (broken appliances, high bills,…) co-create and discuss the first version of the energy guide (how to distribute, interesting topics, clear language check)	4/4
Evaluation and discussion with alderman and press (30/11/2022)	Reflect in group about the key takeaways and learnings, both on a personal level for the participants and on a project level. Discussing the project take aways with the alderman. Presenting the project together with the participants to the press	4/4

Table 3 - Eeklo co-creation workshops

The workshops took place in the community center, a location that is both centrally located and well frequented by the target group. To allow people with school-going children to participate, the workshops ran from 9.00 until 11.45. To make the participants feel welcome and at ease, breakfast and a soup pause were foreseen. By focusing on visual communication, we tried to remove barriers to participation for less literate people. The workshops entailed both group discussions as one-on-one conversations, allowing everyone to speak up.

The municipality has prepared and organised the workshops in collaboration with an expert by experience. The expert facilitated a trustful atmosphere and open communication with the participants, allowing the municipality to collect honest feedback on the scheme.

The main insights and learnings from the workshops can be summarised as follows:

- Amidst the height of the energy crisis, it was difficult to motivate people to attend the workshops as they felt not in control of their energy bill, they felt that this issue was something above their competencies and they felt left behind by public policies.
- Personal contact and connecting on a personal level are key to convince people to come by to enter the scheme
- The financial savings are the most important incentive for joining the scheme and should be presented before explaining the details of the scheme
- Words such as 'loan', 'lending', 'pay back time' have negative connotations for the target group due to previous bad experiences with financial products and the fear of having a new debt
- The living conditions of the target group can rapidly change due to for example job loss, health conditions, change in the composition of the family,… Therefore it is very important that the families can get back the amount they already saved up for the share.
- The monthly amount to pay back the share (€3.5) is feasible and is in proportion to the savings
- There is a lot of confusing about how, where and when to apply for the scale of energy measures implemented to temper the impact of the energy crisis both on local and national level
- There is a need for information and referral to energy advice in plain language
- Social renters feel left out of the energy transition as they don't have access to PV
- Existing energy-related initiatives such as energy scans, housing and energy office,… are not well known amongst the target group

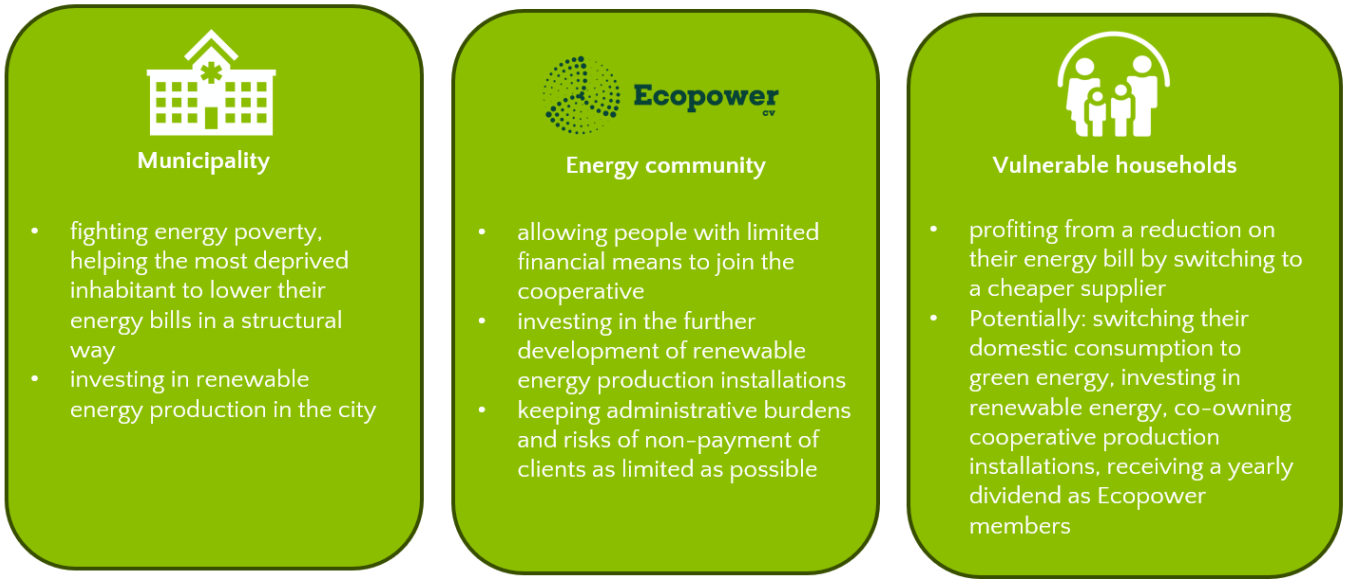
4.2

Governance model

A good governance model balances the interests of all parties involved in a way that allows all of them to meet their interests in a way that does not negatively impact the interest of the other partners and ideally even strengthens the whole of the project.

4.2.1 Interests of the involved stakeholders

The stakeholders involved in the Eeklo model are the municipality, the vulnerable households, and Ecopower. Their respective interests are:



4.2.2 Governance model selected

The governance model that is right now being tested in the first phase of the pilot, consists of

- the municipality investing in the wind turbine by purchasing Ecopower shares, lending these shares to selected vulnerable households and, once paid back by the households, lending them to the next (rolling fund). Given the vulnerability of the households, the municipality offers a close follow-up, with an individual invitation and intake (explaining the scheme, calculating the potential benefit based on the current consumption and energy contract, follow-up in case of non-payment).
- vulnerable households becoming members and clients of Ecopower through the pre-financed shares, immediately profiting from renewable electricity at cost price and full membership in the cooperative including co-ownership and sharing in the benefits (dividend). They pay back the share of 250 euro in small monthly rates spread over six years.
- Ecopower welcoming the Power Up households as 'normal' clients but foreseeing some extra administrative and communicative tasks, e.g. an adapted welcome communication, the billing of the monthly fees to pay back the pre-financing of the share, signaling payment problems to the Eeklo social services department, etc. The cooperative accepts the potentially higher risk of non-payment among this group in order to meet its ambitions to be an accessible supplier for everyone.

4.2.3 Reasons why

In the model selected, the interests of all stakeholders are met. What is very positive is that vulnerable households are structurally profiting from renewable energy at cost price, and are taking an active role as full members of the cooperative. By reinvesting the participation in the wind turbine in other vulnerable households once the pre-financed shares have been paid back, the municipality has an instrument at its disposal to support the most vulnerable inhabitants structurally. For Ecopower this governance model allows to work more continuously on the accessibility of the cooperative: it provides a way to overcome the initial barrier of the 250 euro for a share and triggers additional initiatives like easy-to-read information on energy efficiency, local information sessions for new members, and gaining experience as a partner for municipalities on the topic of energy poverty.

4.2.4 Formalisation of stakeholder relations

Vulnerable households wanting to join the scheme are being invited to a meeting with the city's social department. Next to calculating the potential benefit of joining the scheme in their individual situation, they are being informed about the implications of joining the scheme and about their rights and obligations.

If they want to join, they have to sign a contract with the city of Eeklo that explains the different steps of the project, the obligation to pay back the pre-financed amount of the share via an additional 3,5 euro on the monthly advance invoice that they will receive from Ecopower, their right to receive a yearly dividend from the cooperative (if there is one), how to leave the scheme, what happens if they cannot pay their bills and situations in which they lose their right to the social share.

Next, the social department and Ecopower liaise to put a social share on the name of the respective household. Now, with the support of an Eeklo social assistant, the household signs a contract with Ecopower for the supply of green, locally generated electricity. Besides a general email, Ecopower sends out a specific communication to the household repeating the rules and agreements from the contract with the city and welcoming them as full members of the cooperative, in the context of the Power Up project.

As regards the relation between the city of Eeklo and Ecopower, the participation in the wind turbine is subject to a formal agreement closed in the context of the construction of the wind turbine 'Huysmanhoeve'.

4.3

Energy poverty mitigation actions planned

Eeklo and the Flanders region have implemented a broad range of mitigation measures in the past, such as: a one stop shop for energy and housing advice (including assistance for switching energy suppliers), free energy scans for vulnerable households (including kits to reduce energy consumption), discount coupons of 250 euros on energy-efficient household appliances, renovation subsidies up to 50% for low-income households, renovation loans at lower interest rates,...

Even though these are not new measures, we learned during the co-creation sessions that the target group lacks knowledge about these initiatives. This is one of the reasons the take-up of these measures remains low. For example, it is estimated that only 3% of REG subsidies is paid to vulnerable households.7

With these figures in mind, the partners of Power Up in Eeklo will focus on removing barriers and closing gaps in the existing service offering rather than develop initiatives that work in parallel with the existing services.

An overview of possible mitigation actions:

Offering one-time info sessions on an energy-related topic embedded within existing initiatives
For example: digi.labs. Each month an interactive session about a digital theme is organised in the library. People can join for free and learn a new hands-on digital skill (searching for information online, using routeplanners, the city e-loket,...).

[7] SERV. De hete patat in het klimaatdebat. Aanbevelingennota Stroomgroep Financiering, SERV, 16 oktober 2019, p. 12.

One of the sessions could be about finding and switching to a cheaper energy supplier online. This session could also be organised on demand for social enterprises and organisations.

Renting of household appliances

Although vulnerable households in Flanders can use a coupon of €250 for energy-efficient appliances, these are still unaffordable for some households, especially for the more expensive appliances such as cooler-freezer combinations that easily cost more than €1000 euro.

The Papillon project solves this by renting out appliances rather than selling them. The coupon is also valid for this scheme and is calculated as a €2 discount on the monthly rental fee. The monthly fee includes the rent, repairs and replacement for a period of 10 years. An additional advantage for vulnerable households is that these items cannot be confiscated as the households are not the owners of the appliances.

Pre-financing renovation subsidies

As stated before, only 3% of REG subsidies are paid to vulnerable households. Besides a significantly lower rate of home ownership amongst lower-income households, the way the subsidies are paid is a big barrier for these households. As the subsidies are only paid one year after the end of the renovation works, households must finance the entire renovation themselves or are faced with high monthly payments for their renovation loan.

The city could pre-finance the renovation subsidies to lower the renovation loan from the start. After one year, the city would then receive the subsidies and could use them to help another family. This scheme could also be a lever to involve landlords in the renovation of their rental properties.

PV for renters

Currently, only 6% of suitable roofs in Eeklo are covered with PV installations. Privately rented houses rarely have solar panels, while private renters are one of the demographic groups with a higher risk of energy poverty.

To close this gap, Ecopower will offer a split-incentive scheme for PV where the renter pays back part of the installed PV to the landlord, at a lower rate than the monthly energy savings.

Distribute energy-saving packages through neighbourhood initiatives

During the co-creation sessions, we learned that initiatives such as the energy office and the energy scans are not really known in the Power Up target group. To reach more vulnerable households, maybe the model could be turned around. Small energy saving packages could be distributed through existing, in person neighbourhood events such as the bi-weekly free soup cart and through the existing street ambassadors. This could be a first step towards reaching out for more in-depth energy advice and a quick win for the families involved.

Offering Ecopower clients to keep a prepaid meter

In Flanders, customers unable to pay their electricity bills and whose contracts get ended by the supplier, get their electricity supply from the DSO under a prepayment contract, until they have no more debts. Those not eligible for a social tariff will pay a tariff that is usually less attractive than most commercial contracts. Nevertheless, a small number of customers with no more debts decide to stay with the prepaid contract and higher tariffs because it allows them to control their energy budget.

Ecopower wishes to work with the DSO to test renewable energy supply to customers who choose to remain on the prepaid system and charge them a more attractive rate. This activity requires close collaboration with the DSO, the identification of the households, a market communication campaign and the adaptation of Ecopower internal processes.

05

Campania area pilot

In the Campania Area (UCSA pilot, Municipalities of San Gennaro Vesuviano, San Giuseppe Vesuviano, Palma Campania e Striano), two specific areas have been selected in the municipalities of San Giuseppe Vesuviano and Palma Campania for the implementation of the pilot. In these two specific areas insist relevant social building stocks and for the Municipality of Palma Campania the roofs are owned and managed by the Municipality itself. In each of these areas 3 popular housing buildings were selected, in order to reach a total of 200 families. Preliminary analysis carried out so far by AESS have shown the possibility of installing a total of 280 kWp of PV in the 6 buildings, if all rooftop area available is used.

In parallel, UCSA's municipalities are also considering to act on their own assets and are already verifying the possibility of allocating the energy surplus from existing public PV systems to support the nascent energy community, by assigning this energy to families in energy poverty situations engaged in the project.

Furthermore, the Municipality of Palma Campania is also studying the possibility of installing new systems in two schools and a development of a ground PV plant in a brownfield site in the industrial area close to the A30 highway, which would also destinate the energy surplus produced to be shared by the energy community, supporting the families in energy poverty situations. From the preliminary analysis carried out so far by AESS, it would be possible to install 160 kWp of PV in the 2 public schools and 609 kWp in the public land area.

Thus, two different models of an energy community will be tested in the UCSA area by the Project.

1. The first model will seek, through public meetings, to activate the participants of the selected buildings (or others that attend the series of meetings) to carry out the installation of generation systems directly on the building's rooftops. The project will also provide tailored feasibility studies with the technical assistance of AESS and support to the identification and contracting of an Energy Service Company – ESCo, which could finance and install the PV system.
2. In the second case, the initiative would start from public systems installed on public buildings already active or to be activated yet for administrative delay in most cases, that share the surplus of energy generated with members of the energy community in situations of energy poverty.

These two models were presented and deepened in the public events during the 5 co-creation meetings held throughout October and November 2023 with the vulnerable households involved and citizens interested in the initiative, in order to take into account the specific opportunities and barriers of the UCSA/Campania area.

5.1

Co-creation process

5.1.1 Identification of households

The apartment blocks that were objects of the initial feasibility studies for the installation of the PV plants and the families in a situation of energy poverty were identified by the Municipalities of Palma Campania and San Giuseppe Vesuviano, members of UCSA, through their respective social services sectors.

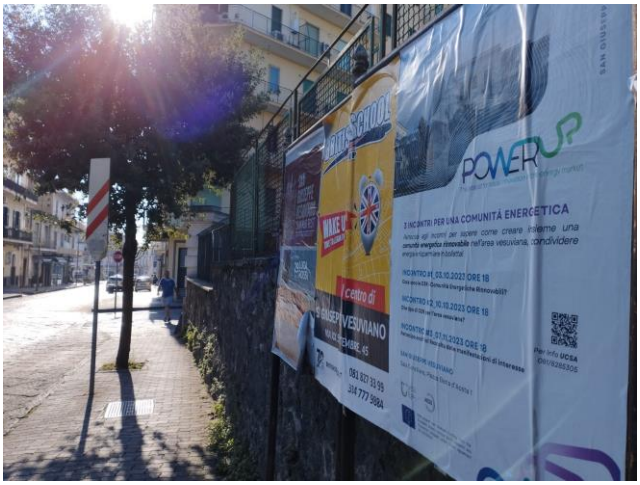
Figure 8 - Selected social housing buildings in San Giuseppe Vesuviano

Figure 9 - Selected social housing buildings in Palma Campania

5.1.2 Invitation of households

The series of public meetings have been promoted by the Municipalities/UCSA through social media, their official websites and also by a door-to-door flyers campaign in the selected areas, with the support of the public employees of the Municipalities. The focus of the campaign will include the 6 social housing buildings selected, reaching about 200 families.

However, the meetings were opened and the dedicated flyers and posters regarding the initiative were displayed in public spaces and dedicated communication areas in the UCSA area.



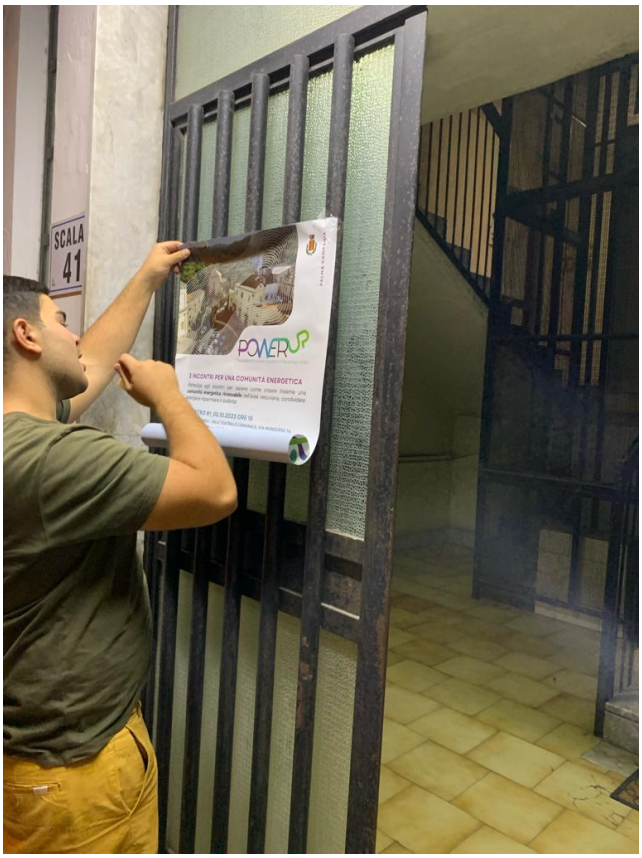


Figure 10 - Divulgation campaign with posters in the public areas and in selected buildings.

In total, 5 meetings were planned and held. Four sessions to co-design the initiative (2 in San Giuseppe and 2 in Palma Campania) and a final meeting that brings both initiatives together,

as both areas can be part of a single renewable energy community (REC) in the San Giuseppe Municipality.

The meetings in San Giuseppe were held in the municipal council room. The meetings in Palma Campania were initially foreseen to be held in one of the schools selected for the feasibility study (Istituto Comprensivo Vincenzo Russo), in an attempt to be closer and in an environment more familiar to the invited public. However, for organisational reasons, it ended up being held in the city hall of Palma Campania.

5.1.3 Content of the workshops

Between October and November 2023, 5 co-creation workshops were held in two municipalities of the UCSA/Campania area (San Giuseppe Vesuviano - SGV and Palma Campania - PC).

Workshop topic (dates)	Main objectives	Number of participants / equivalent number of households
RECs & who wants to join the project? (3/10/2023 in San Giuseppe Vesuviano) (5/10/2023 in Palma Campania)	● introduce the Power Up project ● explain the role of RECs in the energy transition ● collect expressions (and counts) from participants who are interested in participating in the REC co-design journey	9 in SGV and 10 in PC

Feasibility studies, REC models, participation in the project (10/10/2023 in San Giuseppe Vesuviano) (12/10/2023 in Palma Campania)	● presentation of feasibility studies conducted ● presentation of suggested REC models ● collection of expressions of interest in participating in the future REC	8 in SGV and 6 in PC
Action plan for REC, participation in the project (7/11/2023 in San Giuseppe Vesuviano)	● presentation of feasibility studies and simulations updated ● presentation of the plan of actions for the activation of the REC initiative in the UCSA territory ● collection of expressions of interest in participating in the future REC	12 from SGV and PC

Table 4 - Campania area co-creation workshops

Figure 11 - Public meeting held on October 5th in Palma Campania.

Figure 12 - Public meeting held on October 10th in San Giuseppe Vesuviano.

Figure 13 - Final meeting held on November 7th in San Giuseppe Vesuviano.

5.2

Governance model

It is possible to choose from many options of legal entities/governance models, such as cooperatives, associations, foundations or even a private company with the explicit absence of scope of profit.

In general, the governance model is mainly defined on the basis of the nature of the members of the future energy community. A key point is to understand the advantages, disadvantages and limits of having the participation of public entities, such as the local authority/Municipalities, as members of the energy community.

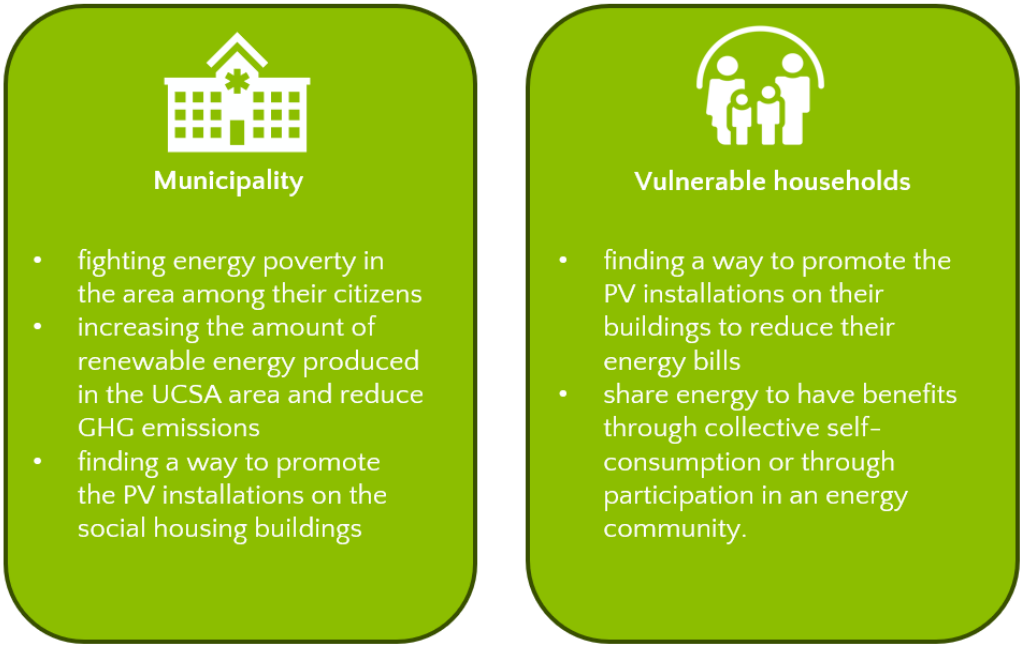
Considering that in the UCSA area the direct participation of the local administration in the CER could bring an important added value given the strong social value of the initiative, four different legal forms compatible with the participation of a public entity as member, will be presented and explored in the 2 meetings. To know:

- Association not recognised;
- Association recognised;
- Foundation; and
- Cooperative.

The interaction and co-creation with the inhabitants of the social housing building, citizens and public servants and representatives of the Municipalities over the last meetings lead to the definition of the Association recognised as a legal entity to be created to manage the REC initiative in the UCSA area.

5.2.1 Interests of the involved stakeholders

The main stakeholders involved in the project are the Municipalities of UCSA/Campania area (San Gennaro Vesuviano, San Giuseppe Vesuviano, Palma Campania e Striano) and their citizens. The respective expective aims of the stakeholders are listed below.



5.2.2 Governance model selected

After holding the 5 co-creation meetings that included the participation of citizens, civil servants and political representatives from the municipalities involved, it was decided:

a) formally approve the REC initiative promoted by POWER UP, through the council of mayors of the UCSA's Municipalities, that decided on the opening of a public call to identify the founding partners of the REC, among only entities not-for-profit from the territory and 10 citizens from each municipality, with priority given to those with a lower ISEE (under to €15,000); once the REC will be formalised, the details of the governance model will become more clear.
b) constitution of the legal entity in the form of an association - with perfect patrimonial autonomy (formal constituted and recognised);

c) definition of a roadmap/action plan to activate the initiative in the first semester of 2024 (target May/2024), to be implemented through the local working group - LWG.

5.2.3 Reasons why

The feasibility studies carried out show that the roofs of the 6 social buildings have less impact on direct consumption (since they should be connected to the condominium) and, therefore, have a longer payback time in relation to the other photovoltaic systems studied in the Campania/UCSA area, being, therefore, classified with lower priority. Given that the social buildings in Palma Campania still have roofs that are public property, the possibility of insulating them will be evaluated in a second phase, during the 2024 meetings focusing on energy efficiency measures.

In the activation phase, some photovoltaic systems in the municipalities of San Giuseppe, San Gennaro and Palma Campania will be used since they are not yet connected to the electricity grid due to technical and administrative problems. Therefore, such systems may be considered eligible for energy sharing and receiving REC incentives. After the activation of the REC, the systems to be installed first by the REC will probably be those at the "Vincenzo Russo" - 59 kWp or "Antonio de Curtis" - 100kWp schools or on the land confiscated from the mafia on the A30 highway (609 kWp), all in Palma Campania.

The social buildings selected in the SGV will not have in-depth studies, at least for now, given the lack of participants from the respective buildings in the meetings held, the fact that the roof is private, and also because they are the least convenient from an economic and energy point of view (possibility of direct self-consumption or having surpluses to share).

5.2.4 Formalisation of stakeholder relations

After holding the first series of co-design events, between October and November 2023, the public call will be released to identify the founding partners of the REC, and these, together with representatives from UCSA's municipalities, will establish the local working group (LWG) for the constitution of the REC entity (association) in 2024.

With the formal constitution of the REC association, the relation among the stakeholders will be formalised and the REC should absorb most of the activities of the LWG, helping the implementation of the POWER UP project.

5.3

Energy poverty mitigation actions planned

Firstly, within the Power Up project, a renewable energy community (REC) pilot will be activated in the UCSA/Campania area, which involves the perimeter limited to the AC001E00202 cabin. This model will create the possibility to exchange the renewable energy produced by existing photovoltaic systems owned by the Municipality of Palma Campania and the future ones, which will be built on the rooftops of the identified buildings, owned by the municipalities and the social housing blocs, to offer an economic contribution to families in situations of poverty energy due to the national incentives for the shared energy.

In 2024, 5 public meetings are foreseen with the local communities and the REC's activation/co-design group (selected in the meeting cycle held between October and November 2023 in the municipalities of Palma Campania and San Giuseppe Vesuviano). After the meetings, the activation group should present the proposals best suited to the territory to mitigate situations of energy poverty.

Secondly, a memorandum of understanding is planned between various local stakeholders active on the topic. This could represent a tool to activate initiatives on the municipal territory aimed at alleviating energy poverty, in parallel to the action of the REC and beyond its membership.

Specifically, the memorandum of understanding should express their desire to carry out the following activities in a joint and coordinated manner:

- prevention and reduction of situations of energy poverty in the territory.
- discussion and dialogue between the main actors in the UCSA territory and the Municipalities of San Giuseppe Vesuviano, San Gennaro Vesuviano, Palma Campania and Striano, who are interested in alleviating energy poverty, in order to be able to activate a network of solid and lasting collaboration;

- continuous training and information on the issues of energy poverty, using different means including the training materials available within the Italian Observatory on Energy Poverty (OIPE);
- contribute to the emergence and development of renewable energy communities aiming at alleviating energy poverty in the UCSA area;
- sharing of studies and publications on the topic of energy poverty to improve the cognitive framework of the phenomenon at a local level.

Thirdly, technical consultancy, awareness raising and information actions will be promoted regarding more general themes such as:

- analysis of behavior and main energy consumption habits, in order to increase awareness of energy consumption and changes also in relation to specific behaviors to optimise energy consumption;
- energy support within the home, in order to identify the major sources of consumption, both in terms of behavior and in terms of household appliances and the characteristics of the home;
- Inform consumers of the information collected in the previous points, to develop an action plan tailored to specific needs.

It is expected that the citizens and stakeholders who will manage the future REC will have to be able to communicate with users in energy poverty situations in the territory, providing them with all the tools and knowledge necessary to acquire awareness regarding the major critical issues and also allowing them to expose their own possible solutions and proposals to tackle the situation of energy poverty.

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