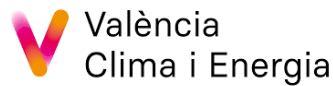




The catalyst for social innovation in the energy market

Funding opportunities for energy efficiency and energy community projects





Authors

Gabriele Fregonese (Sinloc)

Matteo Meneghetti (Sinloc)

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Executive summary

Effective solutions to tackle energy poverty need to be sustainable over time and co-created with the involvement of vulnerable households for long-term impact. One-shot solutions, such as welfare public-funded projects and government support, may help solve the issue for a few beneficiaries but are usually not self-sustainable in the long term and are applied top-down. Funds from governments or public institutions (grants, tax credits, incentives, etc.) are definitely key to supporting initiatives to fight energy poverty. Still, several other options are available, including the involvement of market players (e.g. ESCOs) or exploiting opportunities from the new EU regulation on energy communities.

The PowerUP! approach aims to support the co-creation of solutions with the involvement of vulnerable households. Thus, the business models were developed assuming that the upfront cost needs to be covered by third parties, while the generated value is then shared with vulnerable households.

The PowerUP! project pilots chose different ways of financing the implementation of the solutions, as well as exploiting the opportunities available in their countries. In the case of Campania Pilot (Italy), the municipality exploited the incentives for the setting up of renewable energy communities; in Valencia (Spain), the municipality makes some of its roofs available for PV installation by energy communities, requiring that a share of the energy produced is shared with vulnerable households; in Roznov (Czechia) the municipality can use a public incentive to install a PV plant on the roof of a social housing building and the households living inside can gain a benefit; in Eeklo (Belgium) the municipality buys some shares of the local energy cooperative and give them to selected vulnerable households, that can benefit from the lower tariffs applied to the energy produced by the local wind farm. All these different pilots, require different funding and business models to ensure their long-term sustainability, as discussed in this report.



01

Introduction

One of the key issues in identifying solutions to tackle energy poverty is related to their sustainability over time and the possibility of involving vulnerable households without creating a financial burden for them. One-shot solutions, such as public-funded projects and government contributions, may help solve the issue for few beneficiaries but are usually not self-sustainable in the long term and are applied top-down, without involving the vulnerable households. This is the case, for example, of the social discount on the energy bills offered by governments for low-income households or the energy renovation of social housing buildings carried out directly by the publicly owned social housing company. Such measures are for sure effective in supporting vulnerable households in reducing their energy bills but depend on the availability of public budget and, most importantly, do not promote a just and equal green transition process. Neither do these measures help vulnerable households to become aware of the issue, to be informed about available solutions and to cooperate to develop or join energy transition initiatives.

The PowerUP! approach, instead, aims at supporting the co-creation of solutions with the involvement of vulnerable households. In doing so, the assumption that, by definition, vulnerable households cannot invest money must always be considered. Thus, the availability of public funds and/or business models where a third party covers the upfront cost and assumes financial risk is still key for activating the investments that can generate the value which will be shared with vulnerable households.

Each project pilot developed its own business model according to the identified value proposition, to deliver a solution to fight energy poverty in the local context. To move the project forward, from conceptual business models towards the implementation phase, it's necessary to find a sustainable way to cover the costs of the identified activities and/or investment.

In this context, this document explores financing opportunities for implementing solutions at PowerUp pilot sites. It starts by identifying public and private financing providers. Chapter 2 categorizes funding entities and describes their main characteristics. Subsequently, chapter 3 delves into financial solutions supporting energy poverty initiatives throughout project development, highlighting financial benefits and sustainability. Finally, chapter 4 examines financing opportunities specific to PowerUp! pilot sites, evaluating the most suitable financial instruments based on local conditions and stakeholder needs.



02

Financing providers

Exploring fund providers for energy projects

2.1

Public funding providers

Public investment in energy transition is essential for achieving both EU long-term objectives and national targets. The “Fit for 55” package, as well as the most recent recast “Energy Performance in Building Directive (EPBD) set ambitious goals for the cut of CO₂ emissions in various sectors, including residential buildings, making it necessary to boost the renovation rate and related investments. Since climate-neutrality is a primary target of the EU policy, Member States will thus need to deploy sufficient national-level finance and policies to support the renovation. At the same time, Member States are required to include an overview of national policies and measures empowering and protecting vulnerable households, alleviating energy poverty and ensuring housing affordability¹.

This section explores the main public funding providers and resources that could play a key role in the energy transition process and in supporting investments in energy efficiency, which could be relevant for other projects looking to alleviate energy poverty. It’s important to note that public finance alone may not be sufficient to cover all necessary investments to achieve the renovation targets. However, it still plays a crucial role in fostering private investments in the relevant sectors. Moreover, public finance is even more important to ensure support for the development of projects and initiatives benefitting specific categories, such as vulnerable households, that cannot afford investments on their own but are usually among the ones that most need it.

2.1.1 Pure public providers

While public finance alone is insufficient to cover all required interventions, it plays an essential role in catalyzing private sector investment. Private investment often falls short of the sector's needs due to the high uncertainty associated with energy projects. This uncertainty arises from

¹ https://ec.europa.eu/commission/presscorner/detail/en/qanda_24_1966

challenges in providing precise estimates concerning learning curves, financial data, investment schemes, and risks associated with new technologies, particularly during the early stages of research, development, and pilot phases of technology innovation. Public finance plays an even more important role in the context of energy poverty, as vulnerable households are typically unable to invest in energy efficiency measures that could help them improve their situation. Public finance is vital in these contexts to stimulate additional private investment and foster growth in the clean energy sector. Public intervention helps unlock investment in new areas that would otherwise remain undeveloped.

Public funding for energy efficiency is available from European, national, and regional/local levels, encompassing both European and national funds.

EU resources

The European Union has maintained a pivotal role in the energy transition sector. This is evident not only through the establishment of regulatory frameworks, particularly in recent years (e.g., Clean Energy for all Europeans, European Green Deal, Just Transition Fund), but also through tangible support for investments. Economically, European resources are accessible in the form of grants, loans, and technical assistance funding. These funds encompass budget areas directly managed by the European Commission and those managed jointly with Member States, such as the European Regional Development Funds (ERDF) and the European Structural and Investment Funds (ESIF).

In this regard, the European Green Deal is the pivotal initiative intertwining regulatory and budgetary measures, aiming to position the European Union as the first climate-neutral continent by 2050. Attaining this goal necessitates comprehensive actions across all economic sectors, encompassing environmentally friendly technologies and industries, cleaner private and public transportation, decarbonization of the energy sector, and advancements in energy efficiency.

National resources

Energy transition is a top priority even for individual Member States, which must apply the EU directives and approve national plans to achieve the goals. Nevertheless, national governments significantly contribute to funding clean energy projects, including greening existing public sector interventions and supporting the development of innovative renewable energy and energy efficiency technologies.

In many cases, governments act as intermediaries between EU funding and the beneficiaries, with the role of allocators of EU resources both at state and regional level. Governments

allocated a significant share of their National Recovery and Resilience Plans to green transition through the Next Generation EU funds.

In other cases, governments (Ministries) or Local Authorities (e.g. Regions, Provinces or even municipalities) allocate resources from their own balance to energy transition projects. Since energy poverty is a topic crossing environmental and social issues, these resources are often addressed to vulnerable households who cannot make an investment on their own (e.g. households whose income is lower than a set threshold).

Local resources

Municipalities can foster energy transition locally by investing their funds into renewable energy projects. Usually, these local investments are specifically tailored to meet community needs, such as installing solar panels on public buildings, upgrading insulation, or supporting small-scale renewable ventures. This helps reduce the community's carbon footprint and drives local economic growth by creating jobs. Additionally, municipal investments may be integrated with further funding from national and European levels, enhancing their effectiveness. By leveraging their funds strategically, municipalities enhance their energy infrastructure, improve local economic resilience, and support vulnerable populations struggling with energy costs.

2.1.2 International Financial Institutions

International banks also play a crucial role in supporting sustainable economic development in alignment with EU and COP28 policies. Our analysis reveals a common intervention pattern among these institutions. Notable among them are the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD). While these institutions offer a range of financial products – loans, equity and guarantees – to promote sustainable growth across various sectors, they also carry out programs to support the development of projects in many priority sectors such as social housing.

European Investment Bank (EIB)

Since its founding in 1957, the EIB has actively funded the energy sector, with recent annual energy investments averaging 12 to 14 billion Euros. The EIB focuses on unlocking energy efficiency, decarbonizing the energy supply, supporting innovative technologies and infrastructure, and ensuring enabling infrastructure. In partnership with the European Commission, the EIB is also launching a new European Initiative for Building Renovation (EIB-R) to explore new financing mechanisms for refurbishment, potentially covering up to 7% of eligible capital expenditures under specific conditions. For public sector projects, including

social housing construction or energy efficiency, EIB can finance up to 50% of program costs, which often start at 100 million Euros, with the combined EU funds not exceeding 70% of total project costs.

The EIB also allocates funds to project development assistance programs, such as the ELENA Funds² to support large-scale energy renovation projects. Through the ELENA facility, many Local Authorities across the EU developed projects for the renovation of public buildings. At the same time, more recently, the focus has moved to the private residential sector, including social housing.

Moreover, under the InvestEU Advisory Hub³, the European Investment Bank Group (EIBG) acts as the main advisory partner to the European Commission by delivering advisory services to promoters of projects.

European Bank for Reconstruction and Development (EBRD)

Owned by 69 countries, including the European Union and the EIB, the EBRD emphasizes energy as a critical sector, focusing on enhancing energy efficiency and facilitating the transition to a low-carbon sector. The EBRD's efforts are part of its Green Economy Transition (GET) strategy, which supports countries in building low-carbon economies through green investments, concessional financing, and innovative financial instruments, often in collaboration with other donors to provide market-rate finance under sound banking principles.

2.1.3 National and Local Promotional Banks

Promotional and national development banks are decisive in supporting bottom-up sustainable economic development through green and social projects in alignment with EU and national objectives. Their activity also consists of the intermediary between the EIB and territorial projects.

Our analysis has been concentrated on the banks which promote projects aligned with those supported by PowerUp!. We reported: *Cassa Depositi e Prestiti* (CDP – Italy), *Instituto de Crédito Oficial* (ICO - Spain), *Compañía Española de Financiación del Desarrollo* (COFIDES - Spain), Czech National Promotional Bank (NRB - Czechia), Croatian Bank for Reconstruction and

² <https://www.eib.org/en/products/advisory-services/elena/index.htm>

³ <https://advisory.eib.org/>

Development (HBOR - Croatia), Malta Development Bank (MDB – Malta), and *Banque des Territoires* (BdT – France). These banks primarily finance large-scale projects but also support smaller initiatives via national commercial banks. Additionally, they often partner with international financial institutions like the EIB to manage funds or create investment platforms specifically tailored to energy projects.

Cassa Depositi e Prestiti (CDP)

Cassa Depositi e Prestiti is a financial institution owned by Italy's Ministry of the Economy and Finance. It has a vast range of activities, from holding shares of strategic national companies to issuing loans to public entities and private companies. It collaborates with the European Investment Bank to promote the “Green Loan” for public entities for investments in energy efficiency, public transport, waste treatment and water works. In addition, through the branch CDP Equity, it developed joint ventures with the aim of energy transition and the installments of renewable energy plants supporting local public entities in their projects.

Instituto de Crédito Oficial (ICO)

Instituto de Crédito Oficial was created in 1971. It is the Spanish national promotional bank involved in sustainability projects with direct financing, second-floor activities (guarantees), and the channelling of EU resources. A measure to be highlighted is the “Fond-ICO Sustainability and Infrastructures” for investments between 10 and 30 million euros. It provides financing to projects that contribute to a more sustainable and carbon-neutral economy through equity stakes, subordinated debt, or participating loans.

Compañía Española de Financiación del Desarrollo (COFIDES)

The COFIDES is a branch of the *Instituto de Crédito Oficial*. It specialises in managing Spanish national funds providing medium and long-term loans to private entities. The Coinvestment Fund (FOCO) is one of COFIDES’ principal financial instruments. It aims to attract non-Spanish entities whose main activity is green transition. FOCO’s measures consist of direct equity contributions and debt instruments as co-investors. With the same financial mode of action but addressed to all Spanish companies, there is another instrument, the “Social Impact Fund”.

Czech National Promotional Bank (NRB)

The *Národní rozvojová banka* is a State-owned banking institution established in 1992 in the Czech Republic. It has different offices in the main regions of the State territory. It finances both the private and public sector with direct loans and co-financing. Its preferential loans with

special conditions are addressed to projects in the waste management, circular economy, renewable energy, brownfields, water infrastructure, digital infrastructure, smart cities, shared mobility and electromobility. For example, they provide long-term loans for cities, municipalities and associations of municipalities to finance investments in order to improve living conditions or protect the environment up to CZK 130 million with a fixed or floating interest rate determined individually according to current market conditions and a maturity of up to 15 years.

Outside the PowerUP! project perimeter, there are additional significant National and Local Promotional Banks. They are described below as they may be useful for other projects and initiatives.

Croatian Bank for Reconstruction and Development (HBOR)

Founded in 1992, HBOR plays a pivotal role in fostering the development and export capabilities of the Croatian economy. HBOR offers a range of traditional financial services, including loans, equity investments, and guarantees. It participates in EU programs such as the Natural Capital Financing Facility under the LIFE program and serves as a fund manager for ESI Funds. While its financial services cater to various sectors, HBOR has developed specific facilities tailored to the energy sector. HBOR's offerings are designed to support both private entities, with an emphasis on small and medium-sized enterprises (SMEs), and public entities.

Malta Development Bank

The Malta Development Bank (MDB) was established recently, in 2017, to support the sustainable economic development of the isle where it was born. The government of Malta owns the MDB and it operates in the sector of the financing facilities in which the market fails or has no interest. It has two main sectors of intervention: facilities for SMEs, where facilities are extended through commercial banks, and for Private and Public Sector Projects, in which it acts as a co-financier or as a guarantor. MDB's financial operations could be on state-aided terms or on market terms for projects that pursue innovation, sustainability and/or social achievements.

Banque des Territoires

The *Banque des Territoires* was instituted in 2018 as a branch of *Caisse des Dépôts et Consignations* to meet the financing needs of small territories more effectively in France. Its offer is vertical on the energy sector, and it directly finances the projects across all the French

territory. The Banque des Territoires proposes short-medium and long-term loans with no size limits and could intervene with direct investing in projects. To obtain the financial instruments offered, the project promoter has to submit the project to the regional office of the institution, where it is assessed if it could fit their risk criteria and roadmap.

2.2

Private funding providers

Private finance providers encompass a wide variety of entities, ranging from commercial banks and investment funds to venture capital funds and crowdfunding platforms. These providers offer a variety of financial products and services to meet the needs of businesses, individuals, and other organizations seeking capital. Usually, their conditions are more flexible and can be customized according to the peculiar specifications of each project. However they are slow-moving regarding the energy transition sector, limiting their activity to take opportunities from governmental initiatives and leveraging on grants or incentives. This happens because, traditionally, renewable energy as well as energy efficiency projects have low returns on investments if state incentives do not subsidize them.

2.2.1 Commercial banks

Generally, commercial banks do not have specific financial instruments for energy investments or projects in their portfolio. In some cases, recently, banks have offered lower interest rates on personal loans and mortgages to buy energy-efficient houses (A and B energy class). In other cases, they act as intermediaries or partners between EU or National funds (such as from National Promotion Banks) and the final beneficiary to offer specific products at lower interest rates and/or with special guarantees. For example, some commercial banks across the EU are involved in the management of the Private Finance for Energy Efficiency (PF4EE) instrument, a joint initiative between the EC and the EIB to increase the availability of debt financing for eligible energy efficiency investments.

2.2.2 Private Finance for Energy Efficiency (PF4EE)⁴

It is a joint initiative between the EIB and the European Commission to support, through several commercial banks in the EU, the access to funds for energy efficiency interventions. Partner banks in the PowerUP! pilot countries are: BPER (Italy), Santander (Spain), Belfius (Belgium), KB (Czech Republic). The instrument allows the banks to offer loans for energy efficiency projects at special conditions. EIB designed two key components plus one:

- Risk Sharing Facility: which covers 80% of losses deriving from individual loans (with a maximum amount agreed before);
- Expert Support Facility: which consists of consultancy services that every partner bank can demand to better understand the energy efficiency market. It allows banks to adjust their loan offer and be assisted in the evaluation of PF4EE requirements;
- EIB Loan (optional): which may provide loans on a long-term basis to partner banks in combination with the Risk Sharing facility.



Figure 1 - Map of partner banks of the PF4EE instrument (source: PF4EE website)

The European Commission has granted 80 million euros to fund the instrument and does not have limits on the project's value to be financed.

⁴ <https://pf4ee.eib.org/>

2.2.3 Investment Funds

Investment funds interested in the energy transition are usually infrastructure funds. Typically, their investors seek stable returns over a long-term time horizon. But, in terms of project type, development stage and geography of the investment, they are also very different one from the other. In most cases, infrastructural investment funds use equity to finance projects that are capital-intensive and/or need a public-private partnership (PPP) to be developed. According to surveys conducted within the EU-funded NESOI project, these funds target large-scale projects (40 million euros on average) with a high growth potential. When they invest, they invest in majority stake up to 100%, seeking for a minimum return on investment of 7%. Generally, infrastructural funds target single projects and portfolios of projects. In some cases, investments are extended to small and medium companies but rarely to public/state institutions.

So, this type of financing is recommended for large scale projects that can produce a good return on the investment based on technologies already tested.

2.2.4 Crowdfunding platforms

Crowdfunding involves gathering capital by seeking investments from a vast number of individuals. It is considered a fintech solution because all the process is usually completed on the internet. People invest in projects through crowdfunding platforms not only to have a monetary return but also to receive positive externalities from it. The success of crowdfunding can be explained by its capacity of inclusion: it is a bottom-up funding practice that permits to involve different type of stakeholder. Unlike other types of investments, crowdfunding allows faster and easier access to capital, reducing the distance between the investor and the beneficiary. Promoters of the project or the entity to be financed could be many: SMEs, Special Purpose Vehicle, start-ups, public institutions and also NGOs.

In the case of small-scale energy transition projects, it looks like a remarkably interesting funding instrument.

Crowdfunding platforms could be classified into:

- equity crowdfunding platforms, which permit to invest participating in equity, meaning also in the risk of the investment;
- crowdlending platforms, which permit to finance projects through credit.

Usually, these two types of platforms also have other alternative instruments like subsidized equity and subordinated loans, respectively.

Crowdfunding instruments referring to receiving a reward after a donation do not look interesting for energy transaction projects, so it has not been taken into account. The information about the platforms has been found in the surveys we conducted for the delivery 1.5 of the NESOI project.

Equity crowdfunding platforms

They offer the possibility to invest in a range between the 30% and the 100% of each project's equity, depending on the promoter's desire. Generally, the yields sought are between 5-10%, and up to 15% in case of possible disruptive projects with more risk. The minimum amount that could be invested consists usually of 50 thousand euros, and the average value of the project is 500 thousand euros.

Crowdlending platforms

Crowdlending platforms are specialized in debt financing. The average maturity is about 8 years, with platforms offering short-term loans (maximum 2 years) and others providing loans with longer maturity up to 15 years. The collateral required could consist of pledge on assets, suretyship or the entire crowdfunding operation could be subordinated at a previous senior financing activity. The funds obtained could be used only for an advanced phase of the project presented.

A comprehensive comparison of financial providers' intervention models is provided in Table 1, describing the possible financial models for each provider. A detailed description of the mentioned financial models is provided in Chapter 3, Financing Opportunities.

		APPLICABLE FINANCIAL MODELS									
		Direct Loan	Crowdfunding activity	Tax Credit Transfers	Green Bond	Grants	PPPs	EPC	Net Metering	Ongoing Tax Benefits	P.B. Incentives
FINANCIAL PROVIDER	Pure public providers					X	X		X	X	X
	International Financial Institutions	X			X						
	National and Local Promotional Banks	X			X		X				
	Commercial Banks	X		X			X	X			
	Investment Funds				X		X				
	Crowdfunding Platforms		X								
	Other private entities							X			

Table 1 – Financial providers comparison



03

Financing opportunities

Understanding financial solutions against energy poverty

3.1

Upfront investment support

Upfront investment support comprehends a variety of instruments to help mitigate the initial costs associated with investments in energy efficiency and/or renewable energy projects. Typically, and especially in the context of energy poverty, upfront cost is the most relevant barrier preventing vulnerable households from taking action to improve their condition.

While energy and financial savings could be achieved through cost-free solutions, such as better management of the heating system or switching to a cheaper energy supplier, investments in energy efficiency or renewable energy production could make a significant difference in fighting energy poverty. This section explores the available opportunities on the market to cover part of the initial investment cost and support the implementation of projects for vulnerable households.

3.1.1 Government grants

Government grants are funds made available typically through subsidies to finance beneficial investments at a federal, state/regional or local level. The amount of funds received is not meant to be repaid; this way, initial investment costs can be drastically cut down, depending on the amount obtained. For this reason, usually, beneficiaries must comply with strict ethical, economic and/or technical requirements to receive the grant.

Grants could be divided into three types:

- capital contributions, not specifically linked to a project but instead to reinforce equity or to cover excessive general costs (typically for enterprises);
- asset-related grants, related to investments in specific assets or in specific way of acquisition of them;
- operational grants, proportional to income or other variable.

Generally, government grants target fundamental but unprofitable sectors helping their actors to reach at least the break-even point. In other cases, like energy transition, the objective is to sustain strategic activities. In the specific case of energy poverty, grants target at the same time energy efficiency and social issues, making the use of public funds more efficient.

Within the framework of PowerUP! Roznov municipality applied for government grants issued from the Czech Ministry of the Environment. In this case, the contribution can be categorized as an asset-related grant, requiring specific eligible interventions.

3.1.2 Subsidized Public Loans

Governmental entities provide subsidized public loans at more favourable conditions than standard market terms. This type of financial aid could be typically demanded through platforms where you need to fill out a form. Like government grants, beneficiaries must meet the conditions set by the provider. These facilitated financings are often used to stimulate economic development in specific sectors and promote innovation.

Favourable loan conditions could be (one of them or in combination):

- no need for a guarantee or in low percentage on the amount disposed;
- low interest rates up to zero interest;
- longer period of repayment;
- cover of administration fees;
- late start of the amortization period.

The "Subsidies for the Promotion of Self-Consumption of Electricity in Municipalities CV 2024" issued by the Valencia Region exemplifies a subsidized public loan. In this specific instance, the Valencia municipality viewed it as an opportunity to finance its PV installation. However, after the evaluation process, other opportunities were selected. This instrument finances up to 62.5% of eligible costs with a 0% interest mortgage.

3.1.3 Subsidized Private Loans

Subsidized Private Loans are financing resources offered by commercial banks or private financial institutions at better conditions than normal market stipulations. Usually, they are backed by state initiatives and/or warranties: the public entity leverages on market and territorial knowledge of the banks and then provides the funds to the intermediary financial institution. In most cases, private banks front the costs or the resources needed to receive reimbursement later.

Favourable loan conditions could be the same for public loans, but usually interest rate would never be zero:

- no need of guarantee or in low percentage on the amount;
- low interest rates;
- longer period of repayment;

- late start of the amortization period;
- no preliminary and/or administration fees.

3.1.4 Tax Credit and Tax Credit Transfers

A tax credit is an indirect form of public grant where governments assign the beneficiary a tax credit that can be used to reduce the amount of taxes to be paid for a certain number of years, instead of providing liquidity for an investment. Tax credit transfer, if allowed by the government, is a financial strategy where taxpayers transfer their tax credits to another party in exchange for cash or an immediate discount on the upfront investment cost.

Different entities may qualify themselves for various tax credits offered by local, state, or federal governments. These credits aim to encourage specific actions or investments, such as generating renewable energy or making buildings more energy efficient. Instead of using the tax credits to offset their own tax debts, taxpayers can transfer them to another party. This recipient could be a company or individual with a higher tax burden who can make better use of the credits. The latter, usually a tax credit broker or investor, pays the taxpayer a reduced sum for the tax credits. The taxpayer gets immediate cash, while the buyer gains the right to claim the credits and use them to lower their own tax payments. The buyer typically undergoes a procedure to apply the transferred tax credits to their tax responsibilities. This might involve providing documentation to tax authorities and ensuring adherence to regulations. It is essential to carefully evaluate the terms of the transfer and ensure compliance with tax laws and regulations.

A clear example of tax credit is the Italian Subsidies for the recovery of the building heritage. By applying to the tax credit, the building owner can recover 50% of the invested sum as a deduction from the individual income tax in 10 years. In addition to the deduction, all the products and services supplied obtain a favourable rate of VAT at 10%.

3.1.5 Equity Crowdfunding

Equity-based crowdfunding is a method of raising capital through online platforms or portals. Investors receive ownership stakes or equity in the business in return for their investments.

Businesses can access capital from a broad pool of investors, often with fewer regulatory requirements than traditional equity-raising methods like initial public offerings (IPOs). On the other hand, investors could have the opportunity to invest in early-stage or growth-stage companies or projects and potentially earn an elevated return on their investment if the business succeeds and grows in value.

3.1.6 Lending Crowdfunding

In this type of crowdfunding, raising funds from a vast portion of individuals remains an essential characteristic. In this case, investors do not own equity stakes but become the borrower's creditor. The money received will be repaid with interest over time.

Lending crowdfunding, or peer-to-peer lending, originates a loan agreement, and the borrower could be any entity or individual.

3.1.7 Green Bonds

Issuance of Green Bonds, a relatively new financial instrument, has surged in 2007. These bonds function like traditional bonds but are tied to environmentally beneficial projects such as energy efficiency and clean energy production. Initially dominated by supranational financial institutions like the World Bank, Green Bonds are now issued by corporations, municipalities, and state agencies. Recent years have seen even greater expansion due to initiatives like the Paris Agreement, potentially leading to a 54% annual increase. This expansion is driven by large corporations in emerging markets and increasing attention from supranational institutions towards environmental sustainability. Notably, major development banks renew their commitment to sustainability yearly. While there is no global standard for certifying Green Bonds, the International Capital Market Association provides guidelines. These principles mandate transparency in fund allocation, special project evaluation procedures, and regular progress reporting. Green Bonds join Social Bonds and Sustainable Bonds in promoting socially and environmentally responsible investment. Social Bonds support socially beneficial initiatives, while Sustainable Bonds align financial goals with social and environmental sustainability to fund projects like (energetic) poverty reduction and infrastructure development.

3.2

Sustained Financial Support

Sustained financial options are a corollary of ongoing financial benefits that distinguish energy transition projects. These financial outcomes accrue during projects' lifetime and are usually more stable than initial one-time grants or benefits.

3.2.1 Ongoing Tax Benefits

They are permanent advantages in taxation designed by the government to sustain some economic sectors or some particular business' legal form.

They can be:

- extended tax deductions, that artificially increase the amount deductible for some types of costs and investments;
- tax exemptions, that exclude certain types of income, transactions or companies from the taxable amount.

In general, investments in energy efficiency are targeted by ongoing tax benefits, giving the beneficiaries a continuous relief for the intended period.

3.2.2 Renewable Energy Certificates (RECs) or Guarantees of Origin (GOs)

Renewable Energy Certificates (RECs) in Europe, also referred to as Guarantees of Origin (GOs), are tradable instruments affirming the renewable origin of electricity sourced from renewable energy generators. These certificates strengthen transparency and accountability within the energy market by monitoring the production and utilization of renewable energy.

Whenever renewable energy is generated, a Renewable Energy Certificate is issued for each unit. These certificates prove the renewable nature of the energy produced, detailing key information such as the energy source, location of generation, and date of production.

Guarantees of Origins are officially registered and monitored within a centralized database overseen by relevant authorities or certification bodies in each European country where certificates' issuance, transfer, and retirement are meticulously recorded.

After the registration, RECs become available for purchase, sale, or trade on renewable energy markets. Various entities, including electricity suppliers, retailers, and consumers, engage in REC transactions to showcase their commitment to renewable energy and fulfill renewable energy targets or obligations.

3.2.3 Feed-in Tariffs (FiTs)

A feed-in tariff (FIT) is a policy to foster the growth of renewable energy sources. It achieves this by ensuring producers receive a guaranteed price for their electricity that is higher than the market rate. The guarantee of the amount received based on the energy produced can reduce the uncertainty linked to the economic feasibility of renewable energy installations. Usually, these types of payments are made by government entities and the contract has an average duration of 15 years with decreasing annual remuneration following cost reduction of technologies involved.

Governments worldwide have extensively embraced feed-in tariffs as a policy mechanism to propel the deployment of renewable energy and curb greenhouse gas emissions. Although the particulars of feed-in tariff schemes may differ among nations, their primary aim remains consistent: fostering a conducive landscape for renewable energy investment and advancing the shift toward a sustainable energy landscape.

No feed-in tariffs are mapped within the PowerUp! project. However, this financing mechanism has been widely implemented all over Europe in the past years. The Italian mechanism, active from 2005 to 2013, was called "Conto Energia". It has been designed to provide highly competitive feed-in tariffs to support the installation and operation of photovoltaic systems.

3.2.4 Net Metering

Net metering is a form of remuneration for renewable production plants' owners for the surplus of energy they achieve. Prosumers, when the plants are not working, continue to pay the electricity consumed to their respective electricity supplier. Instead, when owners produce energy, they inject the quota they do not self-consume into the electricity grid. Annually, the designated entity to manage the energy services calculates the difference between the exported and the consumed for each owner. If the energy they introduced into the grid is more than the consumption, they will receive monetary compensation or a credit on the electricity bill.

Net metering allows customers with renewable energy systems to offset their electricity bills by generating their own electricity and exporting any excess to the grid. It provides an incentive

to invest in renewable energy technologies by allowing them to financially benefit from their clean energy generation. Net metering policies vary by location and utility company, but they are commonly used to promote renewable energy adoption and distributed generation. Net metering isn't currently active in the pilots. However, it remains a widely adopted mechanism in many regions to encourage the growth of renewable energy sources.

3.2.5 Production-Based Incentives

They are financial rewards proportional to the renewable energy produced, and governments or EU programs grant them. Production-based incentives aim to enhance the quantity of sustainable energy produced, replacing fossil production and reducing gas emissions. As operational grant, they help offset the operational costs related to investments in clean energy technologies or simply act as a form of financial subsidy.

3.2.6 Sharing-Based Incentives

To specifically increase energy efficiency, some European governments are introducing ongoing incentive schemes based on energy sharing (or shared self-consumption) rather than simple energy production. An example is the Italian "PNRR - M2C2 - Investment 1.2 Promotion of Renewables for Energy Communities and Self-Consumption," which forms the basis of the Italian pilot's business model. These incentives, issued by the Italian Ministry of the Environment and Energy Security, aim to finance new PV installations while promoting local consumption of the produced energy. This approach encourages well-dimensioned installations and energy flexibility, ensuring that only efficiently managed production is financed, rather than random production. As a fundamental part of the UCSA pilot business model, this opportunity is described in section 4.1 and its implications are analyzed in D4.2 "Financial and commercial business cases of 4 pilot areas".

Based on the unique aspects of a renewable project, both upfront investment support and sustained financial support can be essential tools for the success of renewable energy projects. Upfront investment support is ideal for investments with high initial costs, even if they are expected to be profitable. In contrast, sustained financial support is more suitable for investments with lower initial costs that may not be highly profitable over time. The following chapter details the actual opportunities identified in the project pilots and the specific tools selected to meet their unique needs.



04

Financing opportunities for the PowerUP! Pilots

Exploring financing for alleviating energy poverty in
PowerUP! pilots

4.1

UCSA pilot financing instruments

Exploiting the new regulation on Energy Communities in Italy⁵, the pilot foresees the installation of photovoltaic plants on public rooftops to share renewable energy with the members of the Energy Community. To encourage the consumption of locally produced renewable energy, the Italian regulation has set an incentive to be assigned to Energy Communities according to the amount of energy that is “shared” (produced and virtually consumed at the same time) within its members. The pilot rationale of UCSA is that some vulnerable households could be involved in the Energy Community and receive a share of the incentives generated according to the amount of energy produced by the PV plants and consumed by the members, including the vulnerable households.

As found in D4.2 “Financial and commercial business cases of 4 pilot areas”, some municipal buildings already have some PV panels (partially or totally installed but not connected to the grid). The investment cost required to make them work and to include them in the Energy Community will be quite low. It’s estimated that the already existing PV panels, for a total installed power of 200 kWp, are worth about € 300.000 and were purchased in the past thanks to regional or national grants in the context of an overall refurbishment of the building. On the other side, the estimated cost to refurbish the systems and to connect them to the grid is estimated at 22.000 €. Each of the four Municipalities participating in the project sustains the cost proportionally. Thanks to the low upfront cost needed to start the project, the Municipalities can undertake the investments directly and without the recourse to loans or debt. On average, an upfront cost of 111 euros per kWp has been estimated.

⁵ Decree 169/2019 that transposed the RED II Directive in Italy and Dlgs 199/2021 that applied it.

In addition to the initial investment, the pilot project will also generate operating costs for the Energy Community that have been estimated at 20 €/kWp. The total annual cost, corresponding to €4.000, includes:

- ordinary and extraordinary maintenance;
- insurance;
- management of the plants.

4.1.1 Financing opportunities

National grant using PNRR (NextGenEU) funds

This measure aims to promote the installation of renewable energy plants for energy communities and self-consumption. The Italian Ministry of the Environment and Energy Transition provides grant financing, conveying funds from the National Recovery and Resilience Plan (PNRR). The total financial endowment is 2.2 billion Euros. This grant covers up to 40% of up-front investment cost in renewable energy for members of renewable energy communities or shared self-consumption groups. Eligible investors include private entities (excluding natural persons), public entities as members of a REC and a renewable energy community itself. The grant is disbursed after the investor submits verified invoices, who must be a formal participant in an energy community. The renewable energy installations must be located in Municipalities with less than 5.000 inhabitants.

The capital contribution covers up to 40% of investment costs. Caps on the investment and limits established for different renewable technologies are specified in Table 2.

In the UCSA case, despite the technical investment could be eligible in terms of hardware, software and services that can be covered by the grant, the Municipalities involved are inhabited by more than 5.000 inhabitants. Therefore, this funding opportunity is not viable.

Funding opportunity name:	PNRR - M2C2 - Investment 1.2 - Promotion of renewables for energy communities and self-consumption
Scale:	National (Italy)
Financing Provider:	Ministry of the Environment and Energy Security
Starting year:	2024
Ending year (if defined):	2026
Financing model:	Government Grants
Beneficiaries:	Energy communities, municipalities and private entities

Useful link:	https://www.mase.gov.it/comunicati/energia-mase-pubblicato-decreto-cer
<ul style="list-style-type: none"> • Description: Grant financing issued by the Italian Ministry of the Environment and Energy Transition. It includes up to 40% of investment costs in renewables for participants in renewable energy communities or shared self-consumption groups. Investors can be private entities (with financial autonomy, no natural persons), public entities and the renewable energy community itself. It is paid after the presentation of proven invoices supported by the investor. The investor must formally participate in an energy community. The renewable energy must be located in municipalities with less than 5.000 inhabitants. • Contribution amount/quota: The capital contribution covers up to 40% of the investment costs. The maximum reference investment cost is set at €1.500/kW, for systems up to 20 kW, €1.200/kW, for systems with power greater than 20 kW and up to 200 kW, and €1.050/kW, for systems of power exceeding 200 kW and up to 1.000 kW. Other limits are set for other renewable technologies. • Eligible costs: <ul style="list-style-type: none"> ○ construction of renewable source systems ○ supply and installation of storage systems ○ purchase and installation of machinery, systems and hardware and software equipment, including expenses for their installation and commissioning ○ construction works strictly necessary for the implementation of the intervention ○ connection to the national electricity grid ○ pre-feasibility studies and expenses necessary for preliminary activities, including necessary expenses to the establishment of configurations ○ planning, geological and geotechnical investigations, the burden of which is borne by the designer for the design definition of the work ○ works direction ○ technical and/or technical-administrative testing, consultancy and/or technical-administrative support essential to the implementation of the project 	
Relation between the funding opportunity and the pilot implementation	
This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected <input type="checkbox"/> Has not been considered for the financing of the project <input type="checkbox"/> Applied to funding opportunity and obtained <input type="checkbox"/> Applied to funding opportunity but not obtained <input checked="" type="checkbox"/> Other: Has been considered for the financing of the project, but it is not eligible

Table 2 - Funding opportunity: PNRR - M2C2

Promotion of renewables for energy communities and self-consumption (ongoing incentive).

These are financial incentives provided by the Italian Ministry of the Environment and Energy Security. They are primarily based assigned according to the amount of energy that is shared between members of Renewable Energy Communities (RECs). To be eligible for the incentive, RECs must install new renewable energy production plants with a maximum output power of 1 MW each. The owner of the plant is not necessarily a member of the community, but must give the availability of the plant to the REC.

The incentives are awarded based on the effective shared energy, measured hourly by the DSO. Shared energy is defined as the minimum of the total energy fed into the grid by all eligible REC plants and the energy withdrawn by all community members.

The incentive is variable and based on the plant's nominal power as reported in Table 3.

UCSA Energy Community resulted in being eligible for the incentive.

Funding opportunity name:	PNRR - M2C2 - Investment 1.2 Promotion of renewables for energy communities and self-consumption
Scale:	National (Italy)
Financing Provider:	Ministry of the Environment and Energy Security
Starting year:	2024
Ending year (if defined):	2027
Financing model:	Shared-based incentives
Beneficiaries:	Energy communities
Useful link:	https://www.mase.gov.it/sites/default/files/ALLEGATO%201%20Regole%20operative%20CACER%20def.pdf

Description: They are financial benefits paid by the Italian ministry of the Environment and Energy Security through the public company GSE (Gestore dei Servizi Energetici). These incentives are based primarily on the self-consume of renewable energy and then on the shared energy among member of Renewables Energy Communities. To receive them, RECs must install new production plants of renewable energy with a maximum output power of 1 MW for each. The incentives will be based on the energy produced by these new plants and their owner is not obliged to be a member of the community.

Contribution amount/quota: The incentives will be issued on the effective shared energy. Shared energy is measured on an hourly basis and is given by the minimum of the total energy fed into the grid by all plants eligible for RECs sharing and the energy withdrawn by all members of the community.

Plant nominal power	Fixed amount	Variable amount depending on zonal market price	Maximum value
>600 kW	60 €/MWh	0-40 €/MWh	100 €/MWh
200 - 600 kW	70 €/MWh	0-40 €/MWh	110 €/MWh
<200 kW	80 €/MWh	0-40 €/MWh	120 €/MWh

Premium incentive + 4 €/MWh for plants installed in Central regions and 10 €/MWh for plants installed in Northern regions

Additional incentive + 10,57 €/MWh (+-0,65) as refund of avoided grid costs

Eligible actions: Shared energy by the members of RECs measured in MWh

Relation between the funding opportunity and the pilot implementation

This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input checked="" type="checkbox"/> Applied to funding opportunity but not obtained
	<input type="checkbox"/> Other: please describe

Table 3 – Funding opportunity: Ongoing incentive for RECs

National Fund for Energy Income (initial government grant)

These are financial grants provided by the Italian Ministry of the Environment and Energy Security through a dedicated national fund. They target individual homeowners with a household income of less than 15.000 €/year, or up to 30.000 €/year if they have four or more children. The grant can cover the entire investment cost. Eligible energy production systems

must be new installations with an output power between 2 and 6 kW, located on sites owned by the beneficiary.

The total funds available are 100.000.000 €/year for two years, with 80.000.000 € allocated for the southern regions of Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia, Sardinia, and Sicily and 20.000.000 € for the other regions. The maximum eligible amount is 11.000 € per beneficiary, with a variable amount of 1.500 €/kW of nominal power installed and a fixed amount of 2.000 €. Eligible actions can be founded in Table 4.

This funding opportunity has been considered but is not applicable for the UCSA pilot, as public entities are not eligible. Furthermore, citizens who are beneficiaries of the grant contribution cannot participate in an energy community scheme since they have already received a contribution of more than 40% of the cost of the system.

Funding opportunity name:	National Found of the Energy Income	
Scale:	National (Italy)	
Financing Provider:	Ministry of the Environment and Energy Security	
Starting year:	2024	
Ending year (if defined):	2025	
Financing model:	Government Grants	
Beneficiaries:	Individual house owners	
Useful link:	https://www.gse.it/documenti_site/Documenti%20GSE/Servizi%20per%20te/Reddito%20Energetico/Regole%20e%20procedure/Decreto%20Ministeriale%208%20agosto%202023%20DM%20REN.pdf	
<p>Description: They are financial grants issued by the Italian Environment and Energy Security ministry through an appropriate revolving fund. They target individual house owners with a household income of less than 15 thousand euros or 30 thousand if they have 4 sons or more. The grant can cover all the amount of the investment. The energy production systems can have an output power between 2 and 6 kW and have to be new installations on sites owned by the beneficiary.</p> <p>Contribution amount/quota: The total funds available are 100.000.000 €/year for 2 years:</p> <ul style="list-style-type: none"> ○ 80.000.000 € for Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia, Sardegna and Sicilia regions; ○ 20.000.000 € for the other regions. 		
Maximum costs admitted		
Nominal Power (kW)	Fixed amount (€)	Variable amount (€/kW)
2 ≤ 6	2.000	1.500
Maximum eligible: 2.000 + 1.500*6 = 11.000 €		

Eligible actions:	
<ul style="list-style-type: none"> ○ Supply and installation of energy production systems and all the ancillary costs ○ 10-years long insurance (mandatory) ○ Monitoring hardware (mandatory) ○ 10-years long fees for maintenance services (mandatory) 	
Relation between the funding opportunity and the pilot implementation	
This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input type="checkbox"/> Applied to funding opportunity but not obtained
	<input checked="" type="checkbox"/> Other: Has been considered for the financing of the project but it is not eligible

Table 4 - Funding opportunity: National fund of Energy Income

Campania REC funds (regional grant)

The Campania Region is offering a grant to promote and establish RECs within its territory. This grant is available to Municipalities with less than 5.000 inhabitants. Each applicant must commit to establishing a renewable energy “social” community and will act as its promoter. Beneficiaries can request an advance of up to 50% of the total grant amount, with the total grant capped at €8.000 per project. The remaining 50% of the grant will be disbursed upon submission of the incorporation deed of the energy community, the technical and economic feasibility study, and invoices for the costs incurred. Suitable actions can be found in Table 5.

Since UCSA’s municipalities have more than 5.000 inhabitants, the project initiative is not eligible.

Funding opportunity name:	Regional government resolution No. 451 of September 1, 2022 - Notice for grant to municipalities in Campania with less than 5.000 inhabitants for the promotion of "Renewable Energy Social Communities"
Scale:	Regional (Campania)
Financing Provider:	Campania Region
Starting year:	November 2022
Ending year (if defined):	November 2024
Financing model:	Government Grants
Beneficiaries:	municipalities

Useful link:	https://www.regione.campania.it/assets/documents/dgr-n-451-del-01092022.pdf https://www.gse.it/normativa_site/GSE%20Documenti%20normativa/CAMPANIA_DD_n346__09_05_2024.pdf
<p>Description: Grant issued by the Campania Region for the promotion and establishment of renewable energy social communities in the relevant territory. Beneficiaries are municipalities with less than 5.000 inhabitants. Each applicant, whether individual or associated, will undertake to establish a renewable energy social community by assuming the role of promoter. Beneficiaries can request the Region for an advance of 50% of the total contribution, which amounts to a maximum of 8.000 € for each admitted project. The remaining 50% is granted upon the presentation of the deed of incorporation of the energy community, the technical and economic feasibility project and the invoices for the costs incurred.</p> <p>Contribution amount/quota: The resources available for the financed projects amount to a total of 1.000.000 €. Each contribution is set at the maximum amount of 8.000 € to cover the expenses related to the eligible actions.</p> <p>Eligible actions:</p> <ul style="list-style-type: none"> o technical and economic feasibility study; o administrative and legal services essential to the establishment of the legal entity. 	
<p>Relation between the funding opportunity and the pilot implementation</p>	
This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input type="checkbox"/> Applied to funding opportunity but not obtained
	<input checked="" type="checkbox"/> Other: Has been considered for the financing of the project but it is not eligible

Table 5 - Funding opportunity: Campania REC funds

Subsidies for the recovery of the building heritage (ongoing tax benefit)

This tax benefit offers a 50% tax deduction (lowered to 36% starting from 2025) on investments related to home renovation from individual income tax. Eligible beneficiaries include homeowners, house tenants, individual companies (if the house is not a company asset), or their spouses, provided they are the investors. The deduction is spread over 10 years, with an equal amount deducted each year. Additionally, all products and services supplied benefit from a favorable VAT rate of 10%.

The maximum amount of costs eligible for the tax benefit is €96,000, resulting in a maximum tax benefit of 48.000 € (50%), which translates to 4.800 € per year over 10 years.

Among all eligible actions for extraordinary maintenance and general renovation, also measures for energy transition are eligible as stated in Table 6.

This grant is only dedicated to house owners as beneficiaries and for this reason UCSA project is not eligible.

Funding opportunity name:	Subsidies for the recovery of the building heritage
Scale:	National (Italy)
Financing Provider:	Ministry of the Economy and Finance
Starting year:	2012
Ending year (if defined):	-
Financing model:	Government Grants
Beneficiaries:	House owners, house tenants
Useful link:	https://www.agenziaentrate.gov.it/portale/web/guest/singole-unit%25c3%25a0-abitative-ristrutturazioni-edilizie
<p>Description: It is a tax benefit of the 50% (36% from 2025) for the investment related to house recovery on the individual income tax. The beneficiaries must be house owners, house tenants, individual companies (if the house is not a company asset) or their consort. They have to be the investor. The 50% of the sum invested is deducted from the individual income tax in 10 years with an identical amount every year. In addition, all the products and services supplied obtain a favorable rate of VAT at 10%.</p> <p>Contribution amount/quota: The maximum amount of costs admitted is 96.000 euros, with a corresponding maximum tax benefit of 48.000 euros (50%): 4.800 euros per year per 10 years.</p> <p>Eligible actions: among all the eligible actions for extraordinary maintenance and general recovery, focusing on these made to achieve an energy saving:</p> <ul style="list-style-type: none"> o Supply and installation of energy production systems with maximum 20 kW power output o Supply and installation of storage systems o Ancillary costs related to the installation 	
Relation between the funding opportunity and the pilot implementation	
This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input type="checkbox"/> Applied to funding opportunity but not obtained

	<input checked="" type="checkbox"/> Other: Has been considered for the financing of the project but it is not eligible
--	------------------------------------------------------------------------------------------------------------------------

Table 6 - Funding opportunity: Governmental tax benefit for houses extraordinary maintenance and energy transition

4.1.2 Pilot financing decision process

The first step to evaluate the financing of the UCSA pilot is a mapping of all the funding opportunities for energy transition projects eligible for UCSA territory. The process involved the recognition of financing options already employed in other similar projects carried out in Italy and in the Campania region specifically. As explained before, these funding opportunities have been mapped:

- Upfront investment support
 - National PNRR funds (Table 2);
 - "Energy Income" fund (Table 4);
 - Campania REC funds (Table 5);
 - Tax deduction for extraordinary maintenance and energy transition actions for houses (Table 6).
- Sustained financial support
 - Energy sharing incentive (Table 3).

In the case of UCSA projects, each of the four Municipalities exceeds the 5.000 citizens threshold. For this reason, the National PNRR funds and the Campania REC funds have been excluded since only municipalities with less than 5.000 inhabitants are eligible.

As regards the "Energy Income" fund, the Municipalities cannot benefit from the contribution because the citizens who benefit from the contribution cannot participate in an energy community scheme. Despite this, single house owners could apply for it to install new energy plants, but several issues affect this possibility in the Campania pilot. First, in most of the cases, the grant goes beyond the 40% limit threshold for plants to be admitted in a REC, excluding the owners from the community and the same plants from generating Energy Sharing incentives. In addition, energy produced by plants that access to "Energy Income" fund cannot be sold or shared. In any case, to be eligible for this financing grant, beneficiaries must be owners of the installation surfaces. However, the UCSA project aims to involve the REC vulnerable households who usually do not own their house directly.

Municipalities are also not eligible for the tax deduction mechanisms for home renovation, as only homeowners are eligible.

In conclusion, UCSA municipalities selected the Energy sharing incentives financing opportunity (Table 3) available for renewable energy communities. The selection process of funding opportunities have been explained in Figure 2 - Selection process of financing opportunities

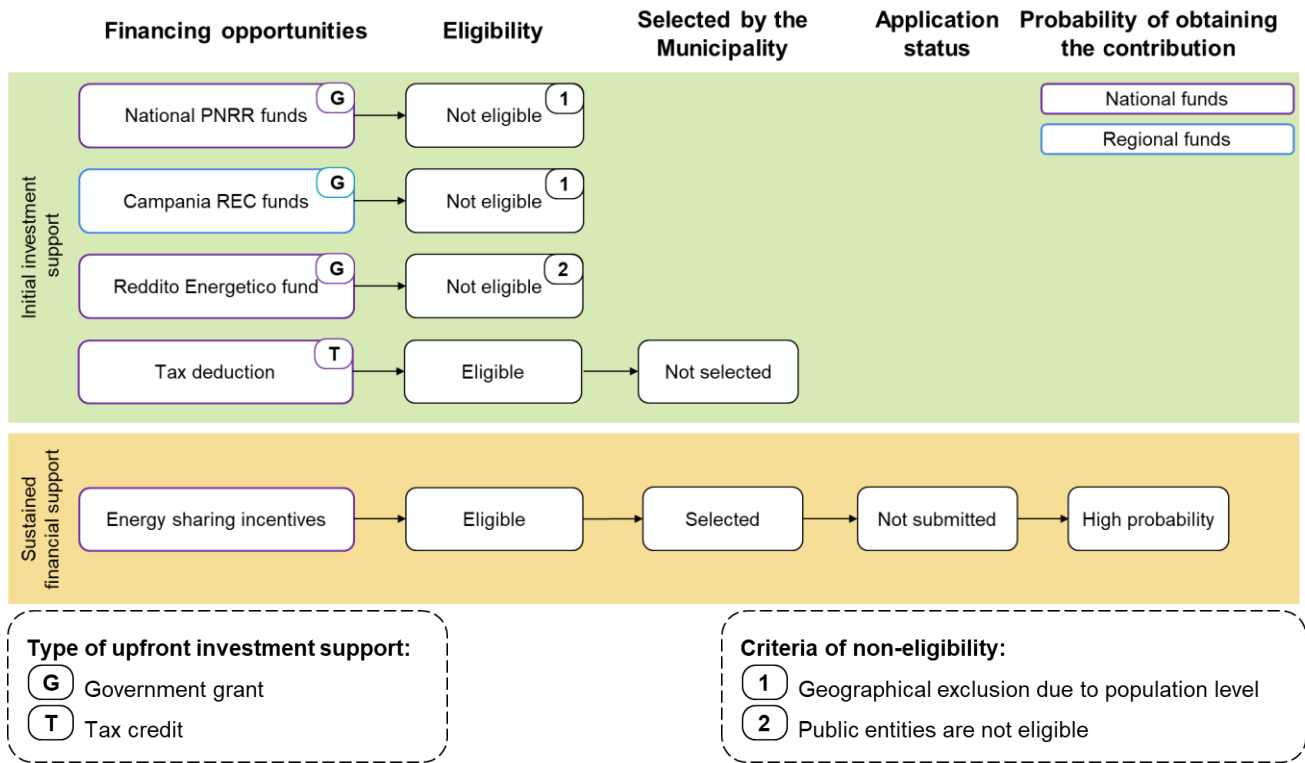


Figure 2 - Selection process of financing opportunities (UCSA project)

4.1.3 Bankability assessment

The UCSA pilot project requires a modest initial investment of 22.000 € to become operational. This low upfront cost allows the participating Municipalities to directly finance the initial phase without relying on loans or incurring debt.

However, exploring financing options can be beneficial to further optimize the project's financial sustainability and leverage potential growth.

If the project were to be financed entirely through a loan, the financial outlook would remain robust. For example, a 100% loan financing option over 10 years at a 4.5% interest rate would result in an annual mortgage payment of 2.806€. Despite this debt service, the project would generate a gross cash flow of 50.23€, indicating a positive cash flow almost unaffected by the bank loan.

Additionally, even with an added 70.000 € for legal constitution and administrative costs, the project maintains a positive balance. Under 100% loan financing, this scenario would result in an annual mortgage payment of 11.652 € and a gross cash flow of 38.579 €. These values highlight the project's financial viability and potential for sustained economic benefits.

4.2

Valencia pilot financing instruments

In the Spain REC model, energy produced by a photovoltaic (PV) plant is virtually shared among member households in proportion to the number of shares they hold. This approach enables households to reduce their energy bills by consuming locally generated renewable energy. Within this energy community framework, households consume renewable energy generated by the PV plants based on their shareholding.

As widely discussed in D4.2 and D4.1 the municipality of Valencia plans to install five photovoltaic systems for a total power of 2,8 MWp to foster the "Renewable energy self-consumption - public service

These municipal plants will provide energy directly to the Municipality and the citizens involved, which can be divided into two categories: citizens in a vulnerable energy situation and citizens or small and medium size enterprises within the energy sharing radius. The direct investment of the Municipality allows vulnerable households to obtain shared energy quotas without investing an initial amount of money, making the energy community model accessible even to those who do not have capital to invest in the plant.

According to the elaboration of D4.2, the estimate of initial investment cost for PV plants has been set at 1.158 €/kWp. This value includes not only the panels but also the installation, the activation procedures and other ancillary costs. Since the Municipality plans to install 2.831 kWp, the total initial investment amount is 3.277.252 €. In addition, PV plants cause different operational costs every year. The forecast includes three macro items of annual costs:

- PV maintenance, estimated in 15 €/kWp;
- Administrative costs, variable to the number of members (10 € per citizen);
- Data management, to maintain accurate records, estimated in a fixed 18.000 € fee.

Nevertheless, the Valencia pilot also work with a second model in Power Up, that implies the creation of an energy community that invests in a PV system on a public roof and shares the production by collective self-consumption. By providing public roofs, the Municipality facilitates the implementation of renewable energy community projects, particularly those to alleviate

energy poverty. Specifically, in a previous project, the Municipality provided an available area via free concession to install the energy community’s photovoltaic plant. Citizens, as members of the energy community, had the opportunity to participate in the investment by purchasing 0,5 kWp plant shares at a cost of 600 € each. Through an initial investment, citizens could obtain a constant share of free renewable energy over the years. Thanks to the collective self-consumption scheme, shared renewable energy directly reduces the citizens’ bills and improves their social condition.

Two separate activities, therefore, can require funding within the Valencia framework. The first, conducted by the Municipality, for the direct installation of PVs, and the second conducted by the RECs that have obtained the opportunity to install in their PVs in the surfaces of the municipality.

4.2.1 Financing opportunities

Regional government grant for REC promotion (initial grant)

The aim of this program is to encourage the installation of renewable energy systems for the generation and collective self-consumption of electricity under the renewable energy community scheme. The percentage of contribution IVACE could issue is set up to 45% of the costs, with possible increases:

- An additional 10 percentage points for aid to medium-sized enterprises.
- An additional 20 percentage points for aid to small enterprises, municipalities, public bodies, and non-profit organizations.

The maximum amount is 100.000 € per project. Other information about eligible beneficiaries can be found in Table 7.

Funding opportunity name:	Renewable Energy Communities 2024. Self-consumption electricity installations
Scale:	Regional (Comunidad Valenciana)
Financing Provider:	IVACE
Starting year:	2024
Ending year (if defined):	-
Financing model:	Government grant
Beneficiaries:	Energy communities, municipalities and private entities
Useful link:	COMUNIDADES ENERGÍAS RENOVABLES 2024. INSTALACIONES AUTOCONSUMO ENERGÍA ELÉCTRICA (ivace.es)

Description:	
The purpose of this programme is to promote renewable energy installations for the generation and collective self-consumption of electricity under the renewable energy community scheme.	
Contribution amount/quota:	
Up to 45%, but it could be increased by up to 10 percentage points for aid to medium-sized enterprises and by up to 20 percentage points for aid to small enterprises, municipalities, public bodies and non-profit making bodies and institutions . Up to 100.000€.	
Eligible beneficiaries:	
RECs, entities managing and modernizing industrial areas, municipalities, neighborhood associations, irrigation communities	
Eligible actions:	
a) Investments in equipment and assembly directly linked to the self-consumption installations, specifically, the generator system, energy conversion system, equipment for measuring the energy generated and, where appropriate, the storage system.	
b) Civil works linked to the installation.	
c) Energy evacuation installations up to the connection point, general protection box or transformer.	
d) Control systems, telemetry, monitoring and communication with the control centre associated with the installation, including testing and commissioning and operational tests.	
e) Systems for the management, active control and monitoring of the demand for electrical energy of consumer installations.	
f) Where applicable, the costs of drawing up projects, health and safety studies and site management, in the case of external contracts, up to a limit of 5% of the material execution budget of the installation.	
g) Where applicable, the costs of setting up the renewable energy community (notarial deed and official registers, drafting of articles of association), up to a maximum of 500 €.	
Relation between the funding opportunity and the pilot implementation	
This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input checked="" type="checkbox"/> Applied to funding opportunity but not obtained yet
	<input type="checkbox"/> Other: please describe

Table 7 – Funding opportunity: Regional government grant for REC promotion

National incentivisation programme for RECs – EC-IMPLEMENTA (initial grant)

The EC-IMPLEMENTA program is part of Component 7, "Deployment and Integration of Renewable Energies," of the Recovery, Transformation, and Resilience Plan for implementing the Next Generation EU funds. This program recognizes energy communities as key players in the energy transition and provides them with the financial capacity needed to develop and commission facilities that encourage social participation in the energy sector. Aid is provided as a non-repayable grant, disbursed to the beneficiary upon verification of project implementation and investment certification. To facilitate project financing, up to 80% of the awarded aid may be advanced to the beneficiary as explained in Table 8.

Funding opportunity name:	Calls for incentives for unique energy community projects under the EC IMPLEMENTA Programme.
Scale:	National Level (Spain)
Financing Provider:	IDAE
Starting year:	2022
Ending year (if defined):	2024
Financing model:	Government Grant
Beneficiaries:	Energy communities
Useful link:	Programa de Incentivos a proyectos piloto singulares de comunidades energéticas (CE IMPLEMENTA) Idae
<p>Description: The EC-IMPLEMENTA program is part of component 7 'Deployment and integration of renewable energies' of the Recovery, Transformation and Resilience Plan for the implementation of the Next Generation EU funds, which identifies energy communities as a key actor in the energy transition, providing these entities with the necessary financial capacity to develop the construction and commissioning activities of facilities linked to social participation in the energy sector.</p> <p>Contribution amount/quota: The aid will be granted in the form of a non-repayable grant, which will be definitively received by the beneficiary once the implementation of the project has been verified and the investment has been certified. In order to facilitate project financing, 80% of the aid awarded may be advanced to the beneficiary. In the third call (ending in February 2023), the amount available is 10 million € for small projects (max 1 million of investment per project). In the fourth call (ending in February 2023), the amount available is 30 million € for medium and big projects (more than 1 million of investment per project). In the case of installation of plants for the production of renewable energy, the maximum intensity issued could be the 60% of the eligible costs.</p> <p>Eligible beneficiaries: Any legal entity established in Spain</p>	

Eligible actions:	
<ul style="list-style-type: none"> ○ construction of renewable source systems ○ supply and installation of storage systems ○ purchase and installation of machinery, systems and hardware and software equipment, including expenses for their installation and commissioning ○ construction works strictly necessary for the implementation of the intervention ○ connection to the national electricity grid ○ pre-feasibility studies and expenses necessary for preliminary activities, including necessary expenses to the establishment of configurations ○ planning, geological and geotechnical investigations, the burden of which is borne by the designer for the design definition of the work ○ works direction technical and/or technical-administrative testing, consultancy and/or technical-administrative support essential to the implementation of the project 	
Relation between the funding opportunity and the pilot implementation	
This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input type="checkbox"/> Applied to funding opportunity but not obtained
	<input checked="" type="checkbox"/> Other: Selected but waiting for a new call

Table 8 - Funding opportunity: National incentivisation programme for RECs

Funds for the promotion of self-consumption of electricity in municipalities (subsidized loan and initial grant)

The measure aims to facilitate access to financing for Municipalities in the Valencia Region in carrying out projects for the self-consumption of electricity in buildings and facilities owned by the city council. The subsidy consists of 0% interest rate mortgages up to 50% of the amount of the eligible costs, up to 50.000 € per project. For collective self-consumption installations, the percentage of up to 62,5% of the amount of the eligible costs, up to 93.750 € per project. For deeper information about eligible investment, consult Table 9.

Funding opportunity name:	Subsidies for the promotion of self-consumption of electricity in municipalities cv 2024
Scale:	Regional (Comunidad Valenciana)
Financing Provider:	IVACE
Starting year:	2024
Ending year (if defined):	2024
Financing model:	Subsidized public loan
Beneficiaries:	Local entities belonging to the Comunitat Valenciana .
Useful link:	AYUDAS DESTINADAS AL FOMENTO DE INSTALACIONES DE AUTOCONSUMO DE ENERGÍA ELÉCTRICA EN MUNICIPIOS CV 2024 (ivace.es)

Description: Facilitate access to financing for municipalities in the Valencia Region to carry out projects for self-consumption of electricity in buildings and facilities owned by the council.	
Contribution amount/quota: Subsidy up to 50% of the amount of the eligible costs, up to 50.000 € per project. For collective self-consumption installations, the percentage of up to 62,5% of the amount of the eligible costs, up to 93.750 € per project. Mortgage at 0% interest rate up to the 100% of the complementary part of the investment.	
Eligible beneficiaries: Local entities in the Valencia region	
Eligible actions: a) Investments in equipment and assembly directly linked to the self-consumption installations, specifically, the generator system, energy conversion system, control and regulation system, equipment for measuring the energy generated and, where appropriate, the storage system. b) Civil works strictly necessary. c) Energy evacuation installations up to the connection point. d) Costs of administrative processing of the installations and registration in the registers of self-consumption and electricity production. e) Where applicable, the costs of drawing up projects, health and safety studies and works management, in the case of external contracts. f) VAT paid on the purchase of goods and services invoiced.	
Relation between the funding opportunity and the pilot implementation	
This funding opportunity:	<input checked="" type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input type="checkbox"/> Applied to funding opportunity but not obtained
	<input type="checkbox"/> Other: please describe

Table 9 - Funding opportunity: Subsidies for the promotion of self-consumption of electricity

4.2.2 Pilot financing decision process

The process initially consisted of recognising all the funding opportunities for energy transition projects eligible for the projects in the municipality of Valencia. As explained before, the funding opportunities that have been mapped to finance RECs activities are:

- Regional government grant for REC promotion (Table 7);
- National incentive programme for RECs (Table 8);

While the opportunity identified for the finance the “Renewable energy self-consumption - public service setup” is:

- Funds for the promotion of self-consumption of electricity in Municipalities (Table 9);

Two additional opportunities have been analysed but excluded from the discussion (Renewable Energy programme 2024 for companies and regional subsidies for self-consumption with renewable sources).

The “Regional government grant for REC promotion” is the financing opportunity firstly opted to finance the RECs activities thanks to the considerable amount the Region could grant for each one: 100.000 €. In fact, every one of the 9 Renewable Energy Communities applied to it and being non-profit organizations, it would permit to them to receive up to the 65% of the eligible costs for the investment. The probability of obtaining it are medium-high.

The RECs involved in Valencia roofs procurements also considered “EC-Implementa” (National incentivitation programme for RECs). Unfortunately, the calls for the financial aid have not been renewed also for 2024, so Energy Communities of Valencia are waiting for new calls. The decision process undertaken by RECs to finance their installations and activities is graphically represented in Figure 3.

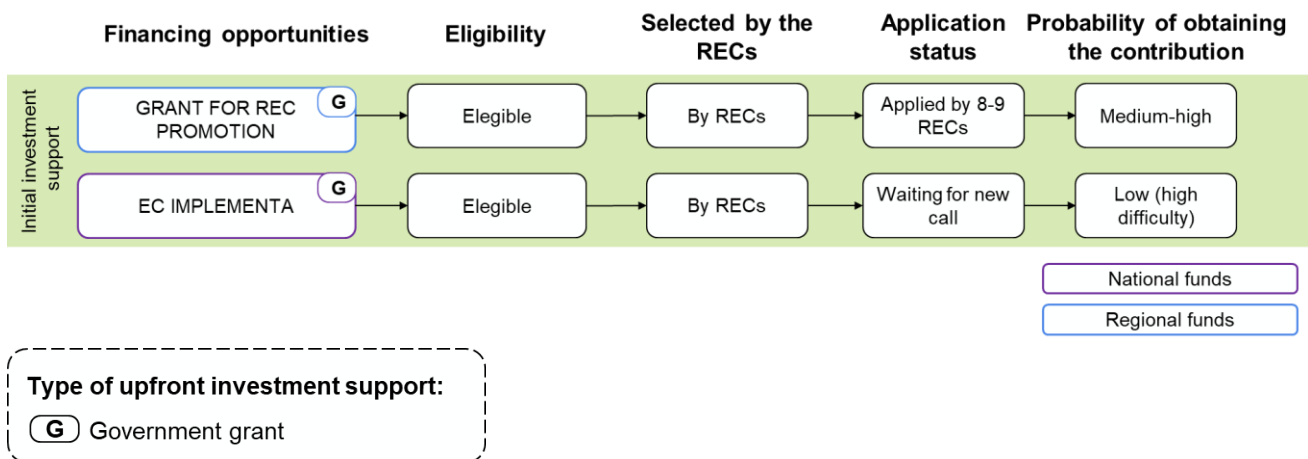


Figure 3 - Valencia RECs financing opportunities decision process

“Funds for the promotion of self-consumption of electricity in municipalities” could be considered by the municipality to finance the Public Service of renewable self-consumption initiative by access to funds that have to be repaid with a 0% favourable rate mixed with a non-repayable complementary part. However, as indicated in Figure 4, the municipality preferred not to apply to this fund and to wait for a most suitable financing opportunity due to its relatively low value.

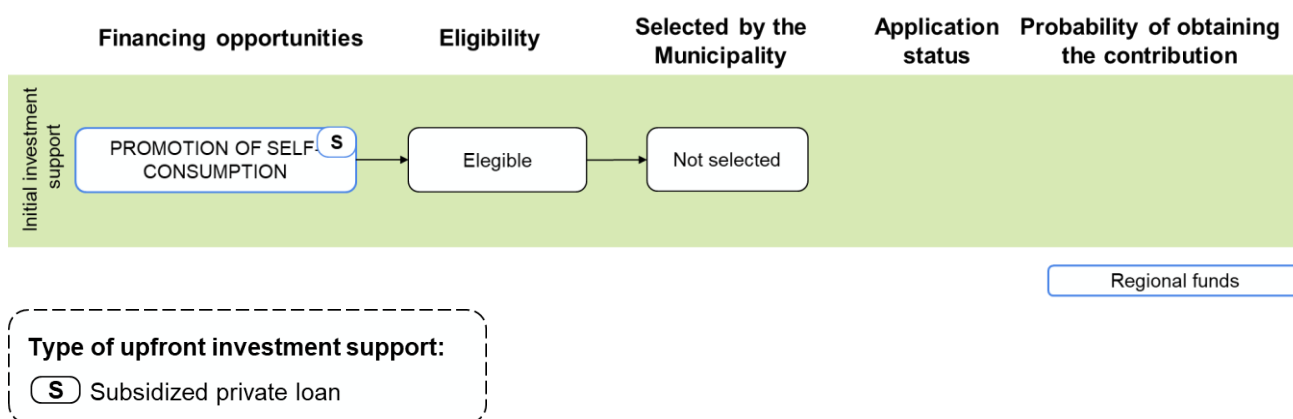


Figure 4 - Selection process of financing opportunities for Valencia municipality

4.2.3 Bankability assessment RECs Model

The Renewable Energy “Self-Consumption - Public Service Setup case”, extensively discussed in D4.2, involves the Municipality as the initial investor. The municipality recovers the investment from non-vulnerable households (NVH) participants over several years. Alternatively, the model could involve shifting the investment capital to a bank, which would be repaid through profits collected from citizens and potential energy sales by the municipality.

Nevertheless, this chapter delves into the financing opportunities for installing PVs on surfaces provided by the municipality through RECs. So far, it has been assumed that the initial investment is covered by REC participants through a 600 € contribution. Typically, such a small PV share is repaid within four years, thanks to savings and surplus energy sales (self-consumption level a crucial factor). This straightforward situation suggests no significant interest in proposing a financial structure to reduce the initial investment. Additionally, the presence of a regional government grant for REC promotion could partially recover the investment. Given the non-profit nature of the initiative, the contribution is expected to reach 65%, but it will be disbursed after the investment is made (in the model this delay has been set as one year). Therefore, participants will still need to invest 600 € initially.

Combining grants and debt, the emerging scenario involves requesting an initial bank loan to cover 100% of the investment, which will be significantly reduced once the regional government's grant is received. Assuming the grant covers 65% of the costs, the remaining 35% would be repaid in subsequent years from energy sales profits. The financial model proposes a 10-year loan at a 4.5% interest rate to cover the total investment of 75.000 € for 125 PV shares (125 kWp). After repaying 65% of the debt in the first year with the grant,

participants would save around 100 € per year for the first ten years. After clearing the debt, annual savings would increase to approximately 130 € per participant. In this way the effort of the initial 600 € was moved from the individual participant to the credit institution, partially covering it with the regional contribution.

4.3

EEKLO pilot financing instruments

The initiative, rolled out by the municipality of Eeklo and the citizen energy cooperative Ecopower, aims to make locally produced renewable energy accessible also for its vulnerable citizens. The plan is to secure shares of a cooperative wind turbine project, enabling households to benefit from favourable energy prices. The city will pre-finance these cooperative shares and lend them to individuals who cannot afford the upfront cost of 250 €. Over several years, the beneficiaries will repay the shares through a small monthly fee. From day one, the shareholders will be full members of the Ecopower cooperative, enjoying all associated rights, such as receiving renewable energy at a fair price and participating in Ecopower's decision-making process. This rolling fund of pre-financed social energy shares makes local renewable energy accessible to everyone.

As discussed in deliverable D4.2, the municipality of Eeklo, in collaboration with Ecopower, considered acquiring and lending shares in a wind turbine project. By investing 25.000 €, the municipality obtains 100 social shares in the project, empowering vulnerable households to access energy at favourable prices. This effort aims to involve as many households as possible in benefiting from this sustainable energy solution. The municipality will be repaid charging the citizens with a maximum annual fee set at the 30% of the energy costs saved, for a monthly amount of 3,5 € per household. It expects to recover the investment in about 6 years and then restart the process of supporting others 100 vulnerable individuals, as in a rolling fund.

As of July 2024, significant changes have occurred in the energy market since the beginning of the project. Nowadays, Ecopower recognized that its energy tariff, although secure, is no longer the most economical, discouraging vulnerable families from participating. In response, Ecopower and the municipality of Eeklo have decided to implement a new approach involving the free installation of photovoltaic panels on the rooftops of participating households.

These panels, financed by Ecopower (as third-party financing), will allow households to consume solar energy at zero cost during the daytime. The excess energy not consumed by the household will be withdrawn and sold by Ecopower to recover their investment. At the moment of writing, an additional financing source is under consideration to shorten the

payback period. I.e. the participation in a social interest project, which, if it is granted, would be the first of its kind for Ecopower. The project would consist of a Flemish public wastewater treatment company that was looking for a partner to realize the new obligation for big consumers regarding the production of solar energy on their roofs by July 2025. As the company cannot comply with this obligation in time, they will make use of another possibility: granting a loan to Ecopower, which will be used to refinance the cooperative wind project in Schelle (2x 2MW, realized in 2023). That way the company realizes 244 kW of wind energy via Ecopower. The interest that Ecopower would normally owe to the company will, in the first year of the agreement (2024-2025), be used to finance part of the solar panels for Power Up participants in Eeklo, and, in the following years, will be used for social solar panels in other municipalities (duration of the loan: 15 years). At the time of writing, a basic agreement has been made but not yet signed. Participants will continue to use Ecopower’s wind-based energy for any additional needs, ensuring a complementary energy solution. To enable this model, landlords must agree to provide their roof space for the installation of the panels.

4.3.1 Financing opportunities

The fundamental part of the project is related to the purchase of shares by the municipality of an energy cooperative and donating them to vulnerable households. No viable financing opportunities or grants that could meet the requirements of the project have been found. However, expanding the vision also to the opportunities for the cooperative involved in the project, the Flemish government launched an investment support programme back in 2021 and ended in 2023.

Green Power Call (initial grant on bid mechanism)

The measure mentioned before is called “Green Power Call” and its aim is to support the installation of photovoltaic panels and onshore wind turbines. This opportunity is interesting for the Ecopower cooperative because it allows it to finance the installation of both photovoltaic and wind power systems. However, to date Ecopower has not been able to access this financing line for two distinct reasons: for wind power, the turbines were installed before the financing opportunity was activated; for photovoltaics, the measure covers systems with a power level higher 25 kWp that are not suitable for residential use. More detailed information can be found in Table 10.

Funding opportunity name:	Green Power Call (“Call Groene Stroom”)
Scale:	Regional (Flanders)

Financing Provider:	Flemish government
Starting year:	2021
Ending year (if defined):	2023
Financing model:	investment support programme linked to requirements
Beneficiaries:	developers of wind projects
Useful link:	https://www.vlaanderen.be/call-groene-stroom
Description:	
<p>The green power call is the Flemish government's investment support programme for medium-sized PV installations and small and medium-sized wind turbines. It is a competition formula where applicants can submit a bid for an installation. That bid is rated as the ratio of the requested support and the expected energy yield. Bids are ranked based on cost efficiency. The best ranked bids are retained according to budget.</p> <p>Through a green power call, you can get support for:</p> <ul style="list-style-type: none"> • PV installations with an inverter power greater than 25 kW • onshore wind turbines with a turbine power greater than 10 kW up to and including 300 kW. <p>Contribution amount/quota: Depending on the yearly budget available. In 2022 for example, there was 5 million euro available, in 2023 there was 10 million euro available.</p> <p>Eligible actions:</p> <ul style="list-style-type: none"> • subcall 1: floating PV installations, PV installations on marginal lands, PV installation in energy communities, PV installations on residential buildings and small and medium-sized wind turbines • subcall 2: all other PV installations. 	
Relation between the funding opportunity and the pilot implementation	
This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input type="checkbox"/> Applied to funding opportunity but not obtained
	<input checked="" type="checkbox"/> Other: programme was not yet available at the moment the Huysmanhoeve windturbine has been developed

Table 10 - Funding opportunity: Green Power Call

4.3.2 Bankability assessment

The initial Eeklo project, initiated by the municipality of Eeklo and Ecopower, does not allow for a traditional bankability assessment. As demonstrated in D4.2, the municipality can recover its initial 25.000 € investment in six years by collecting participation fees from the involved citizens. However, if the municipality opts for a bank loan to gather the required funds, it will need to rely on participant contributions to repay the debt, a scenario deemed unfavourable due to increased costs for citizens from interest payments.

With the introduction of free photovoltaic (PV) installations on participant rooftops, additional factors come into play:

- **High Initial Investment:** Typical residential systems (3-4.5 kWp) have high costs without economies of scale
- **Investment Recovery:** PV installation investment will be covered only with surplus energy sales and, potentially, by participation in a social interest project
- **Self-Consumption:** Higher self-consumption by residents lengthens the payback period, with 30% being a plausible self-consumption rate
- **Bank Loan for Small Installations:** Loans for small PV systems might result in long payback periods due to limited annual cash flows

Return on Investment Scenarios:

Two different scenarios based on market values have been analysed to assess the payback period of a small-scale PV where the repayment of the installation is only covered with the energy surplus selling.

In the **Base Scenario**, the investment costs range from 1.000 € to 1.500 € per kWp. With operational costs at 20% of energy selling revenues. If a grant covers 50% of these costs, the payback period varies from 9 to 13 years. Increasing the grant cover 60%, the payback period shortens to 7 to 11 years.

In the **Conservative Scenario**, the same investment costs apply, but the operational costs are higher, at 30% of energy selling revenues. Under these conditions, with a grant covering 50% of the costs, the payback period extends to 10 to 15 years. If the grant covers 60%, the payback period ranges from 8 to 12 years.

These considerations highlight the financial challenges and extended timelines associated with financing small-scale photovoltaic plants through bank loans.

To current objective is to limit the duration of the payback period to 9 years by combining the funds through the social interest project and the injection of the surplus energy. After this period, the installation becomes the property of the landlord.

4.4

Rožnov pilot financing instruments

To address energy poverty in social housing, the municipality of Rožnov is installing photovoltaic panels on a selected social housing building. The energy generated will benefit the residents by reducing their electricity costs through collective self-consumption of renewable energy. The municipality is bearing the initial investment cost, and households will contribute by paying a small monthly rent supplement. Additionally, the municipality aims to assist residents in understanding energy efficiency by establishing a One-Stop-Shop.

As explained in D4.2, to meet the energy demand of the residents while considering the limitations of the available surface area, the municipality will install a photovoltaic (PV) system with a capacity of 39.1 kW. The PV system will be supplemented by a battery storage system, significantly enhancing self-consumption levels by balancing daytime energy production with evening usage, which is typical for residential buildings. The installation, furthermore, will consolidate multiple metering points into a single meter managed by the municipality, integrated with the PV system. The total required investment cost is higher than the amount that was initially expected, especially due to the cost for merging the 85 households' meters. The last forecast set a total cost of 133.988 €, broken down as follows:

- PV panels: 55.714 €;
- battery system: 44.921 €;
- meter merging cost: 33.353 €.

Additionally, the municipality expected a total of 2.050 € per year of operating cost to ensure the efficiency and safety of the project. These costs include 205 € allocated for plant insurance, 82 € for system revisions to maintain functionality and safety, and another 82 € for maintenance and operational control of the photovoltaic system throughout its lifecycle. In addition, 98 € is invested annually in monitoring production metrics and energy performance. Managing contracts and reporting energy bills for 85 households requires an annual expenditure of 1.583 €, as the municipality purchases energy from the supplier on behalf of all households.

4.4.1 Financing opportunities

New Green for Savings

The New Green for Savings program is one of the most effective initiatives in the Czech Republic dedicated to enhancing energy efficiency in family homes and apartment buildings. Its primary goal is to improve building energy efficiency and reduce greenhouse gas emissions and other air pollutants. The program supports activities such as building insulation, constructing or purchasing homes with very low energy consumption, adopting eco-friendly heating methods, replacing inefficient heating systems, utilizing renewable energy sources, and implementing adaptation and mitigation measures to address ongoing climate change.

The project is eligible and the demand has been submitted.

Both legal entities and individuals could be beneficiaries of the measure and for the maximum quota that could be issued as a grant, more information could be found in Table 11.

Funding opportunity name:	New Green for Savings
Scale:	National (Czech Republic)
Financing Provider:	Ministry of the Environment
Starting year:	2021
Ending year (if defined):	2030
Financing model:	Government Grants
Beneficiaries:	Legal entities, citizens
Useful link:	www.novazelenausporam.cz
<ul style="list-style-type: none"> • Description: The New green savings program is one of the most effective programs in the Czech Republic focused on energy savings in family and apartment buildings. The program's main goal is to increase the energy efficiency of buildings and reduce emissions of greenhouse gases and other pollutants in the air. Support is aimed at building insulation, construction or purchase of houses with very low energy consumption, ecological methods of heating buildings, including replacing inadequate heating sources, using renewable energy sources or adaptation and mitigation measures in response to ongoing climate change. • Contribution amount/quota: The grant is limited at 50% of the following eligible costs: <ul style="list-style-type: none"> • 22,000 CZK for 1 kWp of installed capacity of PV panels • 15,000 CZK for 1 kWh of electricity storage system with lithium-based batteries • 15,000 CZK for a housing unit sharing produced el. energy from the PV system and simultaneously connected to the PV energy consumption optimization system • Eligible actions: <ul style="list-style-type: none"> • Renovation of family and apartment buildings (insulation of facades, roofs, ceilings, replacement of windows and doors) 	

<ul style="list-style-type: none"> • Construction of family and apartment buildings in the so-called passive standard (passive houses) • Purchase of family houses and apartments with very low energy consumption • Solar thermal and photovoltaic systems • Green roofs, outdoor shading technology • Accumulation tanks for collecting rainwater, use of waste water • Utilization of heat from waste water • Controlled ventilation system with heat recovery (ZZT, recovery) • Exchange of non-ecological heat sources for heat pumps, boilers or local biomass sources, gas condensing boilers • Procurement and installation of charging stations for passenger vehicles • Planting trees on publicly accessible land near apartment buildings 	
Relation between the funding opportunity and the pilot implementation	
This funding opportunity:	<input type="checkbox"/> Has been considered for the financing of the project but non selected
	<input type="checkbox"/> Has not been considered for the financing of the project
	<input type="checkbox"/> Applied to funding opportunity and obtained
	<input checked="" type="checkbox"/> Applied to funding opportunity but not obtained yet
	<input type="checkbox"/> Other: please describe

Table 11 - Funding opportunity: New Green for Savings grant

4.4.2 Pilot financing decision process

The only financial grant identified is, as disclosed before, the New Green for Savings grant issued by the Czech Republic government. The application has already been submitted since the project is eligible and the probability of obtaining it is very high. The municipality expects to receive a percentage between 40% and 45% of the forecasted investment costs.

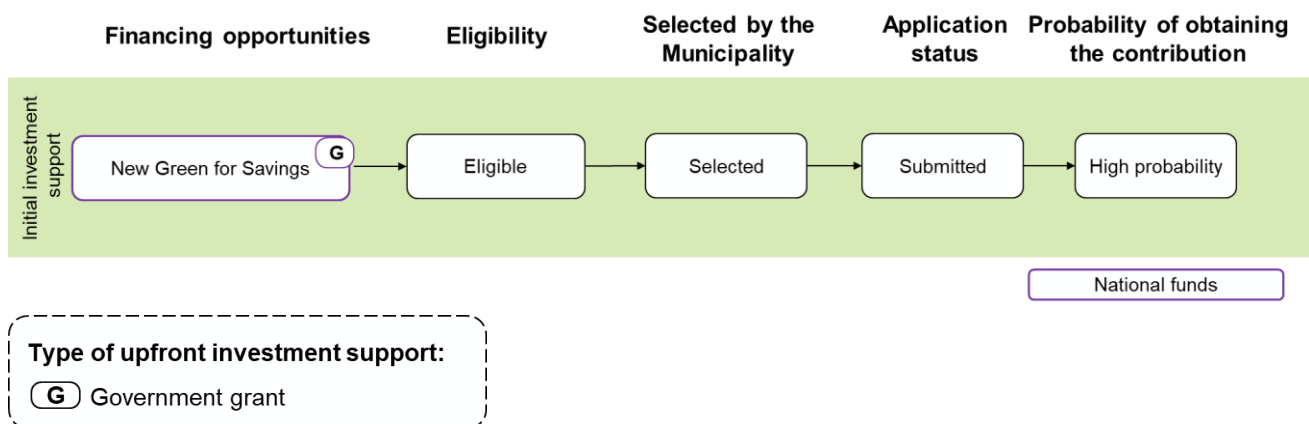


Figure 5 - Roznov municipalites contribution flow

4.4.3 Bankability assessment

In Rožnov pilot project, the grant covers 33% of the total cost. However, this quota is lower than expected due to additional costs incurred by the municipality for connecting households' meters and other civil works. If the municipality were to finance the remaining investment through a bank loan, repaying the debt would be challenging without increasing rent for residents, given that the relatively low municipality's revenue exclusively based on from energy sales. This increase, as hypothesized in D4.2, would significantly impact the financial savings for households. Due to the relatively low grant percentage, bank financing would necessitate a larger rent increase than originally estimated.

Alternatively, if residents were to repay the debt directly, they would face substantial debt instalments, consuming much of their savings.

In any case, covering the non-granted portion with a conventional bank loan would significantly reduce the savings generated by the project. Therefore, the decision by Rožnov Municipality to rely solely on the grant without resorting to bank loans is the most beneficial solution for the households. This approach minimizes financial strain on residents and ensures the project's sustainability.



05

Conclusion

Different financing strategy have been identified to be optimal in the project pilots. The Campania, Valencia, and Rožnov pilots reinforce their own funds with public funds. In contrast, Eeklo has not planned to obtain any public contributions at this time, though a private grant could be an opportunity in the future.

The Campania pilot bases its strategy on sustained financial support, aiming at sharing-based incentives and does not require initial support due to the relatively low investment needed. The Valencia and Rožnov pilots aim to utilize government grants to overcome the initial investment barrier. Although none of the pilots currently plan to access bank loans, a bankability assessment demonstrated that the Campania and Valencia pilot investments are bankable without excessively affecting the social impact. Conversely, a hypothetical bank loan supporting the Rožnov project would affect households' cost savings due to the relatively high investment costs. The Eeklo project does not require a bank loan due to its nature. The different opportunities selected or hypothesized by the pilots are then mapped in Figure 6.

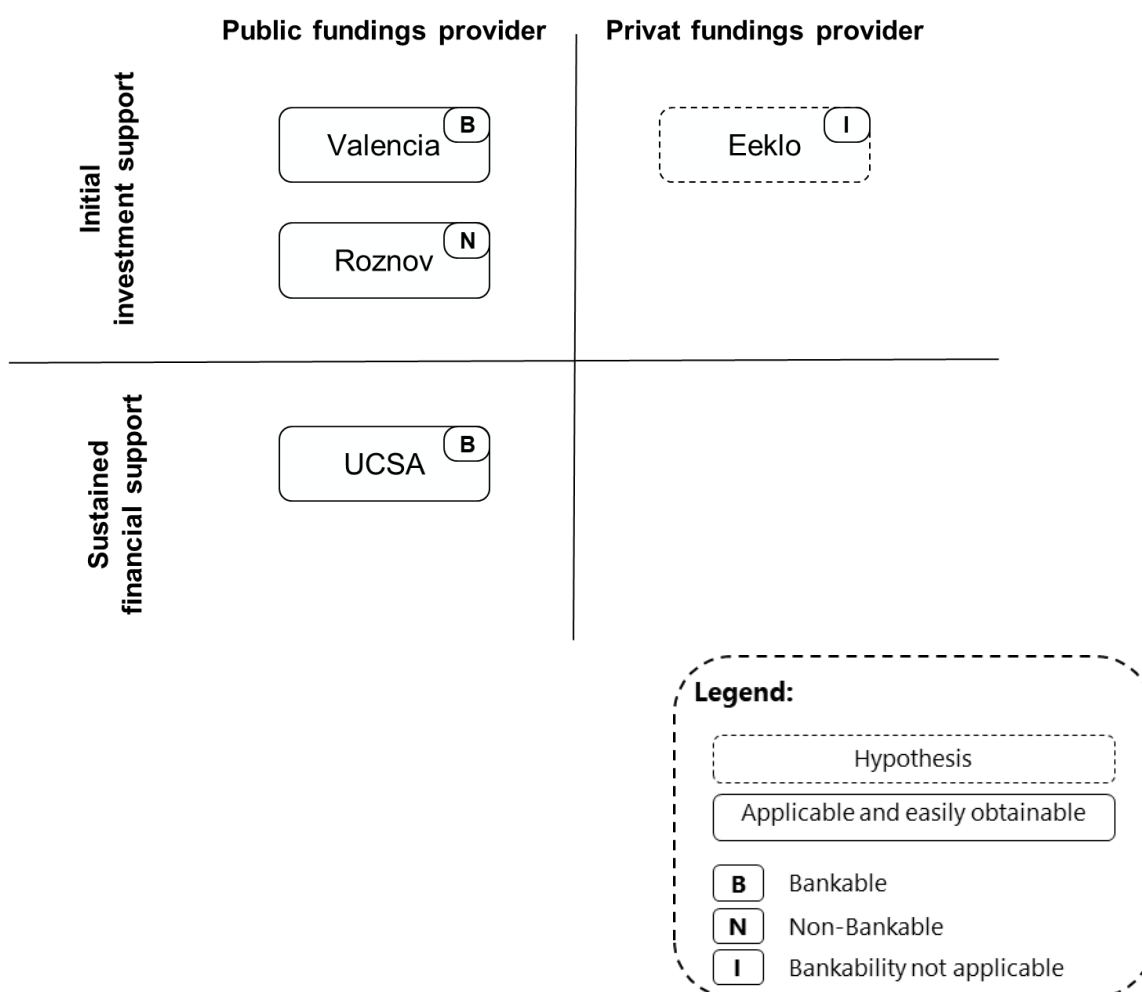


Figure 6 - Pilots' comprehensive description

The main evidence from this explorations is that a unique financing approach isn't the optimal solution if social impact is the main target. A multifaceted financing approach that combines public grants and private funding can be the best option in Valecia and Campania pilots, while it isn't the case in the Rožnov pilot. These findings contribute to the broader discourse on sustainable energy solutions, offering a framework for future projects to enhance resilience, inclusivity, and sustainability in energy transitions.



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