EXAMPLES OF INNOVATIVE FINANCING SCHEMES

2023
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Examples of innovative financing schemes

Introduction ..................................................................................................................................................... 7

Empowering Local Renewable Energy Generation:
Energy cooperatives almost 100% funded by loan debt ................................................................. 8

When crowdfunding crosses borders ...................................................................................................... 12

Seeds of Change:
Unleashing the Potential of Community Energy in Southeast Europe ........................................... 16
Under the current macro-economic trends, the so far abundant support system for renewables (mainly in the form of feed-in-tariffs and quota systems) has been drastically modified. In many EU countries, companies are trying to find alternative ways to secure financing for their renewable energy projects. Therefore, new ways of attracting private capital for the realisation of green energy goals have to replace the historical public schemes.

The European Green Deal of the EU requires further, enormous investments in demonstration projects and new storage and flexibility technologies, besides generation facilities. In addition, the energy transition will only become a success, if citizens participate. The challenge is to identify the appropriate policy options and financial tools to attract and scale-up private investments. There are, however, already innovative and promising business and financial models to promote the deployment of RES in the EU.

The aim of the EurObserv’ER case studies is to find such examples and describe them so as to put forward the best practices and the replicability of the future promising financing mechanisms. The selection criteria for the choice of case studies should ensure (I) diversity across regions and RES, (II) diversity across finance instruments/mechanisms, (III) success of approach and its potential to be replicated, (IV) and a wide range of the “size” of actors/investors and the resulting RES investments (capacity).

The current selection also takes into account the fact that there were already some case studies published in 2014, 2015, 2018, 2019, 2020 and 2022.

These are also available for download on the project website: www.eurobserv-er.org
EMPOWERING LOCAL RENEWABLE ENERGY GENERATION: ENERGY COOPERATIVES ALMOST 100% FUNDED BY LOAN DEBT
Renewable energy generation plays a crucial part in reaching energy transition goals and mitigating climate change, and local, community-driven renewable energy projects or ‘Energy cooperatives’ are an important contributor. One of the key challenges to scaling and accelerating the deployment of renewable energy is the mobilization of finance effectively and efficiently to the sector, and energy cooperatives face challenges with applying traditional financing methods that are often unsuitable due to, for example, a reliance on the members of a cooperative to invest their own capital upfront or to obtain grants. This case study presents a way of overcoming these challenges, the innovative financial scheme employed by the Dutch ‘Coöperatie Op Rozen Facilitair’ (CORF) [1]. It explores the recent updates in the regulatory framework that shaped the new Cooperative Energy Generation Subsidy Scheme (Subsidieregeling Coöperatieve Energieopwekking - SCE) [2] as a follow-up to the Reduced Rate Regulation (Regeling Verlaagd Tarief - RVT) [3], showcasing its potential to transform the local renewable energy landscape in the Dutch regions.

FINANCIAL SCHEMES FOR COOPERATIVES IN THE NETHERLANDS: THE RVT AND THE SCE

In The Netherlands, the Reduced Rate Regulation (RVT), has been an important support mechanism for energy cooperatives. Under the RVT, small consumers involved in a local project received an energy tax rebate on their energy bill. This rebate was settled by their energy supplier, using the power generation statement produced by the energy cooperation, which detailed the share of each member of the total electricity produced. The tax refund couldn’t exceed the customer’s own consumption or their share of the generated energy by the cooperative [2]. However, the level of financial support for projects under the RVT is uncertain due to (potential) changes in energy tax rates. This unpredictability has discouraged potential investors and hindered the viability of community-led renewable energy initiatives. Also, the intricate historical operational structure of the RVT, with complex financial modelling requirements and historical changes to VAT returns, were highlighted as major challenges [3] [4]. Energy cooperatives faced difficulties in attracting investments and communicating the benefits of their projects to prospective members, and thus there was a need to develop new financial schemes that could address the financing gap.

THE CORF CASE STUDY: EMPOWERING LOCAL ENERGY INITIATIVES VIA A NEW SUBSIDY SCHEME

The Coöperatie Op Rozen Facilitair (Cooperative On-Roof Financing - CORF) case study is as an example of an innovative solution that addresses the challenges faced by energy cooperatives. CORF plays an important role in facilitating the formation of an energy cooperative, which is supported by the updated version of the RVT scheme, the Cooperative Energy Generation Subsidy Scheme (SCE) [2] [5]. The previous RVT was substituted with the SCE, which shares several features with the main SDE subsidy scheme for larger renewable energy and emission reduction projects. Consequently, the SCE does not include returning energy taxes [2]. The SCE scheme provides the cooperative with a guaranteed

Illustration of a solar panel installation procedure
minimum price per kWh for 15 to 16 years. This subsidy is triggered if the price per kWh produced goes below a pre-determined value, ensuring a stable minimum revenue stream for the cooperative [6]. The SCE concept ensures the involvement of a diverse group of stakeholders, ranging from entrepreneurs to employees, and leverages the expertise of CORF to promote solar power projects. It streamlines the processes involved in deploying technology, network rules, subsidy regulations, tax incentives, and energy market dynamics by integrating these elements using CORF’s mathematical models, facilitating advice to companies about optimal solar power utilisation for their roofs [6]. Unlike its predecessor (the RVT), the SCE is no longer linked to the power consumption of cooperative members, offering greater financial stability and predictability.

At the heart of CORF lies the provision of local support for green energy production, enabling local residents to decide on project locations and to collectively benefit. CORF’s mission helps to ensure the financial rewards of green energy projects enrich local communities. By transferring the ‘Op Rozen’ concept to local energy cooperatives, CORF empowers communities to continue independently, fostering sustainable energy development that has local ownership and responsibility.

CORF’S FINANCIAL MODEL

The financial structure of CORF empowers local communities to invest in and benefit from green electricity production. The business plan is designed to maximise returns, engage a diverse range of stakeholders, and relies on the ability to leverage borrowed capital efficiently. In the ‘Op Rozen’ concept, the cooperative finances itself with 99% of external assets to optimise the return on equity for its members [8]. This capital structure of the Op Rozen concept comprises an:

- 80% senior bank loan
- 19% financed by the cooperative with a subordinated loan This is a linear loan with a term of 15 years that yields an attractive interest rate
- 1% is financed by members with a one-off contribution.

The Op Rozen structure enables CORF to combine optimal and sub-optimal production locations within a cooperative. It does so by allowing the solar power installations to be placed anywhere in the cooperative neighbourhood within specific postal code areas [6]. By doing so, the cooperative diversifies the risks and rewards across different installations. This approach also democratises the benefits of local green electricity, making it accessible to all residents of the Netherlands, regardless of their income or roof suitability. The financial ingenuity lies in the ability to create an investment structure that is attractive to members with diverse financial backgrounds and capabilities. The model empowers members to collectively invest in multiple installations, enabling the scaling up of local green electricity production.

CORF’s financial plan ensures its long-term sustainability. Members invest in line with their electricity consumption, enabling proportional access to benefits. At the same time, when the members jointly invest in their own neighbourhood, they can pay the energy tax collectively (total production) and receive the VAT back for a period of at least 15 years ensuring financial security to the participants. Finally, a Debt Service Coverage Ratio (DSCR) of at least 1.2 ensures the cooperative’s capacity to pay the interest and principal on the debt [4] [8].

BENEFITS, CHALLENGES AND FUTURE PROSPECTS

While the CORF concept showcases innovative solutions, it’s essential to acknowledge the challenges it faces. Notably, this
Examples of innovative financing schemes

concept is adopted by only a portion of energy cooperatives for several reasons:

• **Dependency Concerns:** Many energy cooperatives prefer equity financing over debt to avoid dependency on external, particularly commercial, parties. This preference of equity reflects a desire for greater control over their projects, even though it might require higher initial capital contributions from cooperative members.

• **Uncial Loan Guarantees:** CORF relies on municipal loan guarantees to lower the cost of senior debt. However, not all municipalities are willing to provide such guarantees to energy cooperatives. This limitation can hinder the accessibility of this financial model for certain cooperatives.

• **Fluctuating Financial Leverage:** Financial leverage, a fundamental aspect of the CORF concept, can diminish over time due to factors such as increasing interest rates. While many cooperative projects still enjoy access to affordable financing sources, those without access to low-cost funds may face challenges when borrowing from commercial banks, where interest rates can be notably higher.

The achievements of CORF and the SCE/RVT provide a basis for potential broader adoption and replication. Scaling up innovative financial schemes such as CORF can ignite the acceleration towards renewable energy deployment on a larger scale in a fair and decentralised way. As Europe embarks on a journey towards a greener future, embracing these innovative financing models will play a pivotal role in achieving sustainable energy goals, fostering community involvement, and securing a resilient planet for generations to come. It is important for policymakers, stakeholders, and communities to collaborate in promoting a sustainable energy landscape that empowers and uplifts local communities. Continued research and development in innovative financing mechanisms will be essential to refining and expanding these models, and ensuring their adaptability to changing market conditions and energy goals. By combining collaborative financing approaches and supportive regulatory frameworks, we can create a virtuous cycle that sustains the growth of renewable energy and drives positive change in our communities and beyond.

**SOURCES:**


WHEN CROWDFUNDING CROSSES BORDERS

While equity crowdfunding has established itself as a fully-fledged source of financing for renewable energy projects within the European Union, operations tend to be strictly limited by borders. Today however, the rules are beginning to change, and the prospects are opening up, along with the appetites of market competitors.

GROWING BUT FRAGMENTED EUROPEAN CROWDFUNDING MARKET

Crowdfunding is no longer a novelty in the world of finance. Applied to the development of renewable energy projects, it has even become a classic financial tool in most European Union countries. In France, for example, despite the rise in interest rates, these funds raised €324 million in 2022 for energy transition projects, compared with €185 million in 2021, an increase of 75%. In the field of renewable energies, these sums contributed to the financing of 503 projects with a combined capacity of 3.9 GW. The growth of this phenomenon has been spectacular considering that France raised only 11 million euros in 2016. Participatory financing has clearly achieved a new status: it is no longer a local fundraiser in the form of token financial contributions; it has become a financing tool in its own right. Despite the headway being made in the market, European players, in particular participatory financing platforms, continue to hit a major stumbling block: the fragmentation of the sector. The financing needs for the energy transition in all the countries of the European Union are massive. Investment is needed for a multitude of technologies and investment sizes, and while participative financing tools should help launch all European projects, cross-border operations remain very marginal. Until recently, structures wishing to support projects in other Member States had to obtain approval in each country of operation, and thus comply with a multitude of legal frameworks. In short: a nightmare of red tape forced the vast majority of platforms to operate only in their country of origin. A pioneer in the field, the Citizenergy platform, launched in 2015, accomplished the first cross-border operation. Their approach was to centralise renewable energy or energy efficiency projects in different European countries and create partnerships with local crowdfunding platforms. Citizenergy was thus able to introduce investors across the continent to nearly 50 projects in ten European countries. This pioneering endeavor has above all else, highlighted the obstacles involved in such an approach.

2021, THE RULES HAVE CHANGED

Aware of the situation, the European Union has been monitoring the development of participatory financing for over a decade. For Brussels, the involvement of citizens is clearly one of the pillars on which Europe must rely to accelerate its transition. In November 2021, a regulation on European pre-traders of financing services came into force. This text standardises the rules for European platforms by creating a new status for European
Examples of innovative financing schemes

Crowdfunding service providers (ECSPs). The aim is simple: to make the market more fluid by simplifying the ability for all projects to open up their capital to European citizens, and to give them the opportunity to diversify their portfolios, both geographically and in terms of project type. The era of renewable investments with cross-border participative financing is about to begin.

This new milestone has naturally stimulated interest, and a buzz of activity was not long in coming. The German group Invesdor, one of the largest platforms operating in the EU with more than €330 million invested, mainly in Germany, Finland and Austria, reached an agreement with the Dutch platform Oneplanetcrowd, which operates in the Benelux. In another deal, Dutch start-up ZonnepanelenDelen has joined forces with French renewable energy consultancy Green Consult. Founded in 2014, ZonnepanelenDelen specialises in crowdfunding for photovoltaic installations in the Netherlands. In just under ten years, the com-
pany has honed its business model around small-scale projects scattered across the country. The profile of these small-scale operations highlights one of the major challenges of the energy transition in Europe. While the development of large-scale wind and solar farms is an important segment to Europe’s energy transition, equipping European homes with individual installations is also a crucial issue for the European Union. Typically, the cost of an individual photovoltaic installation can be prohibitive: it may be too large a sum for the homeowners to afford but too small to be financed by the banks, therefore stonewalling the project. This type of situation is where crowdfunding comes into its own. ZonnepanelenDelen finances the installations by offering ‘solar bonds’ based on well-defined rates of return and repayment horizons. While, the overall returns of this partnership may be limited given the relatively small surface area in the Netherlands, and given that the agreement with Green Consult was designed to take advantage of the openings offered by the new European legislation on cross-border investments, the movement remains underway and the impact should be felt over the next two or three years.

In addition, the opening up of borders is also likely to attract the interest of major European banks in the crowdfunding sector. Investment banks, traditionally partners in large-scale operations, will no doubt increasingly take into consideration the field of participatory financing of smaller projects, taking advantage of the potential in a burgeoning European market.
Examples of innovative financing schemes

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- Citizenergy platform website, [https://citizenergy.eu/](https://citizenergy.eu/)

*Solar power plant, France*
Amidst a profound energy transition from fossil fuels to renewables, citizens have become central agents in shaping Europe’s energy future. With a rich history in local energy projects and decentralised initiatives, this transition is evident across the European Union. Recently, energy communities have emerged as a transformative legal concept and force, championing renewables and empowering individuals and local groups in clean energy generation, distribution, and management. These communities serve as linchpins in forging a sustainable, people-centric energy landscape. At the same time, community energy projects, often rooted in long-standing local traditions, continue to thrive outside this specific legal framework. They vary widely in size and scope, spanning from small grassroots efforts to large community-owned endeavors. Nevertheless, while much attention so far has been directed towards countries in central Europe with well-established communal energy traditions, other Member States have remained on the periphery. However, an encouraging trend has emerged in Southeast Europe, where a growing number of community energy initiatives is emerging and providing sustainable renewable energy solutions. With a growing momentum of community energy initiatives, Southeast Europe with a focus on Slovenia and Croatia shall be the focus of this case study, pointing out how existing initiatives in both countries can be amplified and sustained. Although community energy still contributes a relatively small share to the electricity supply in both Slovenia and Croatia, the concept is starting to take root in the local energy landscape. A number of projects have proactively assumed control of their energy future by establishing self-governing and decentralised energy communities and community-led renewable energy initiatives. While many projects emulate concepts working well elsewhere and transpose them to the local context, many initiatives have added a local flavour, turning them into veritable home-grown activities, putting local actors and challenges in the centrestage. This case study aims to explore the transformative potential of community energy projects in the Southeast European context by delving into the origins, structure, and impact of these projects on local economies, social dynamics, and environmental well-being. By showcasing projects and lessons learned, the case study aims to highlight how bottom-up initiatives are shaping the local energy landscape of the region and contributing to a more sustainable future. However, from navigating complex regulations to securing financing for ambitious projects, the journey towards establishing functioning energy communities faces its hurdles. Overall, the case study will shed light on the impacts of community-led energy projects and their potential to drive positive change in the region’s energy sector.

**SEEDS OF CHANGE: UNLEASHING THE POTENTIAL OF COMMUNITY ENERGY IN SOUTHEAST EUROPE**

**SLOVENIA’S PATH TO COMMUNITY ENERGY**

In Slovenia, the legacy of agricultural cooperatives which have existed since the 19th century serves as the foundation upon which community-led climate and energy action and energy co-operatives can build on. One of the recent examples for citizen-driven energy project in Slovenia is Lesna Zadruga Loški Potok, the Loški Potok Wood Cooperative. Taking the form of a not-for-profit cooperative, it is operating a local district heating system that runs on wood biomass, with users including the Municipality, the local primary school, a home for the elderly as well as some residential houses and private businesses. In 2020, the cooperative proceeded to install a small solar PV system on a municipal carpark roof, linking it to the purchase and charging of an electric vehicle used in the Slovenian Prostoter scheme.1 A community-driven wind turbine project is currently being considered as well. One of the key features enabling the success of the project was the active support from the Loški Potok Municipality,
Examples of innovative financing schemes

in particular the Mayor, without whose support the project would not have been possible.

Another well-established model in Slovenia is Zadruga Sončnih Elektrarn Slovenije, the Cooperative of Solar Power Plants of Slovenia or ZSES, founded in 2014 in Ptuj, responding to dwindling state support for solar installations at the time. Today the cooperative installs turnkey solar power plants throughout the entire country, with the total installed solar power capacity amounting to 6.3 MW. Both these cases demonstrate that local energy cooperatives as well as crowd-investing in renewable energy is already working in the country.

The most recent development in Slovenia, however, is Zeleni Hrastnik, Green Hrastnik, again taking the form of an energy cooperative. As of the end of 2023, the Municipality of Hrastnik, located in central Slovenia, will be operating the largest community solar power plant in the country, offering its citizens the possibility to make use of energy from the sun. The first project of the newly established energy cooperative will be the construction of a community solar power plant with a capacity of 300 kW on the roof of the local primary school. The financial model is built on co-financing from the Slovenian Ministry of Infrastructure as part of a public tender for grants for solar power plants, while a significant portion will be covered by loans from the Slovenian Ekofund.

These examples showcase the remarkable potential and existing financial backing for biomass heat and solar power community initiatives in Slovenia. According to Tim Taylor, a local expert wor-
In 2019, the European Union, via the Clean Energy for All Europeans package, took a significant step forward in fostering sustainable, community-driven energy initiatives by formally introducing and defining the notion of energy communities. This is evident through the inclusion of definitions and regulations for energy communities in the Renewable Energy Directive (Directive 2018/2001) and Internal Electricity Market Directive (Directive 2019/944), further defining the regulatory framework for citizen energy communities (CECs) and renewable energy communities (RECs). Energy communities as a distinct concept can take various legal forms, such as associations or cooperatives, and aim to provide environmental, economic, and social benefits to their members and the areas that they operate in. The concept explicitly recognises the significance of local players in advancing the energy transition. Since then, developments have been occurring throughout Europe. In addition to transposing the Directives into national law, Member States have started to create enabling frameworks, implementing specific national policies to support the establishment and financing of energy communities.

**ENERGY COMMUNITIES DEVELOPMENT THROUGH PARTNERSHIPS BETWEEN CITIZENS AND CITIES IN CROATIA**

Turning our attention to neighboring Croatia, Zelena Energetska Zadruga, the Green Energy Cooperative or ZEZ, is one of the key players. The mission of ZEZ is to empower Croatians to take their energy destinies in their own hands, becoming an active part of the energy transition. “We see a huge role and potential for community energy in Croatia in electricity generation and supply, collective self-consumption, demand flexibility and data management,” says Zoran Kordić, Manager and co-founder of ZEZ. Community energy is not yet widespread in Croatia, but ZEZ has played a key role in co-designing, implementing and testing different concepts in various local communities in the country, also cooperating closely with partners across borders. One of the most notable initiatives is Križevci Solar Roofs, which was the first example of crowd-investing in renewable energy in Croatia. In collaboration with the Municipality, ZEZ developed the business model, organised the campaign and citizens financed the installation of solar power plants on two public buildings in the Northern Croatian town via microloans in 2018 and 2019. The interest from the local community was huge, as shown by the short amount of time needed to finance the installations. The initiative also led to the forming of KLIK - the Križevci Laboratory for Innovation in Climate which has since played an important role in the municipality’s path to become zero-carbon. Again, the proactive role and the vision of the Mayor of the City of Križevci to become an energy-independent city by 2030 was instrumental in driving change. The next step for ZEZ is called ZEZ Sunce (or ZEZ Sun). It is a recently formed European energy cooperative in Croatia as an open platform for citizens to invest in solar power plants, mostly on public buildings roofs, which are currently empty. The goal is to collaborate with Croatian cities and use the power of citizens to mobilise investments in solar energy in a democratic way, with the purpose to produce renewable electric energy, but also to ensure income that will be reinvested in local communities. ZEZ Sunce has 40 co-founders and more than 300 of those who expressed interest to be amongst the first investors in the cooperative solar roofs. The administrative and legal procedure of ZEZ Sunce coop registration has started in January 2023 and is still not completed but in parallel the first roofs are on the horizon. ZEZ hopes that by the end of 2023 the legal registration will be completed and the first kilo-

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1. Prostofer is a volunteer-run mobility concept for elderly people in need of transportation, connecting them to volunteer drivers via a central platform.
watts projected for roofs of public buildings in Zagreb, Cakovec and Križevci.

**NAVIGATING SUCCESSES AND OVERCOMING OBSTACLES**

In conclusion, the case study illuminates the promising landscape of community energy in Southeast Europe, where seeds of change have undeniably been planted. Numerous inspiring projects serve as promising examples of what can be achieved when communities come together to shape their energy future. Despite the progress, certain uncertainties loom, notably concerning the regulatory framework. Croatia’s exclusion of energy cooperatives from forming energy communities and Slovenia’s impending abolition of favorable net-metering provisions by the end of 2023 cast some question marks over the future of these initiatives which will have to adapt themselves to the circumstances, while advocating for change. However, amidst these challenges, one thing remains clear: communities stand ready to come together to take their energy future into their own hands. That said, capacity-building and tailored support to municipalities and other key actors could greatly contribute to accelerating the speed of change.

By fostering collaboration, advocating for supportive policies and support systems, as well as nurturing innovative approaches, Southeast Europe has the potential to unleash the full force of community energy, catalysing the much-needed systemic change for a more sustainable future for generations of Southeast Europeans to come.

**SOURCES:**

- The case study has been prepared following interviews and exchanges with local experts. We would like to sincerely thank Barbara Kvac (Focus Slovenia), Tim Taylor (Korimako), Sandra Vlašić, Zoran Kordić and Kristina Lauš (ZEZ).
- Thriving Communities initiative, https://thriving-communities.org/where-we-work/