

ECCO - Creating Energy Community Cooperatives

Entwicklung lokaler Energiegemeinschaften

ECCO-Financing Best Practices Guide

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Introduction

Democratizing energy through citizen-led renewable energy cooperatives is a challenging attempt when it comes to financing. Hurdles range from an initial lack of support of local political institutions and residents due to concerns about the initiative's success, financial risks or negative impacts on the landscape, over collecting enough funds for the construction of the power plants to the high dependence on the subsidized feed-in tariffs.

Therefore, the purpose of the ECCO-Financing Best Practices Guide is to provide some evidence on how our Beacon ECCOs achieved to overcome these challenges in order to fund their cooperative and to implement their energy projects. By focusing on well established energy cooperatives of the ECCO-network, this Guide informs (future) ECCOs and policy makers on what kinds of financial supporting schemes already exist and do function well for realizing local energy cooperatives.

The ECCO-Financing Best Practices Guide summarizes common as well as activity-specific financing problems encountered in the development, construction and operation phase of community-centered energy cooperatives. Additionally, it gives an overview of commonly used financing instruments and, simultaneously, provides some specific funding solutions that some ECCOs applied. The Guide concludes with more detailed insights in the funding schemes of three energy cooperatives of the ECCO-Programme.

Table of Contents

1	What is an ECCO?	i
2	What is the Interreg-project ECCO about?.....	i
3	Common financing problems	1
4	Financing instruments	4
5	Case Examples	7
5.1	Llangattock Green Valleys	7
5.2	Bioenergiedorf Oberrospe	12
5.3	Énergies citoyennes en Pays de Vilaine.....	15

1 What is an ECCO?

Energy community cooperatives (ECCOs) are **citizen initiatives to develop and operate electricity and heat production within their village or city**. Such initiatives contribute to a clean energy supply, create Revenue for their region and create synergies by using regional economic potentials. Therefore, ECCOs are an essential part for the European Energy transition and for vitalizing remote areas.

2 What is the Interreg-project ECCO about?

In the Interreg-project ECCO, we aim to **accelerate** the growth of ECCOs, both in **effectiveness** and in **numbers**. To create a sustainable, long term organizational framework for these ECCO activities, we will establish a transnationally connected Accelerator Network that functions as an ecosystem for ECCOs: A rich environment designed to inspire and share knowledge, and dedicated to promote and support the start-up and development of ECCOs.

Emerging local community initiatives are presently facing barriers. They lack adequate knowledge (of finances, technology, marketing, and management), which prevents them from becoming reliable RE providers.

We start off bottom-up with the combined experience and best practices of **9 existing ECCOs** spread around North-West Europe. The transnational work of these pilots will function as 'beacons' for us during the project period and beyond **to inspire policymakers and prospective ECCOs**. Individually, the existing ECCOs experienced how difficult it is to access knowledge and grow beyond their initial level. The project partners and the 9 pilots are at the core of this expanding ACCELERATOR NETWORK. Together they combine their experiences and expertise to search for tools and methodologies to overcome the barriers that ECCOs are facing: dealing with the legal framework, attracting sufficient investments, establishing an elaborate community involvement, keeping up with technical and organizational demands.

The project will offer valuable 'hand-on' support for initiating and developing more and more ECCOs. By the end of the project we will have engaged **50 new ECCOs**.

For further information on the ECCO Interreg-project and our Beacon ECCOs visit us on <http://ecco.nimbu.io/>

3 Common financing problems

This section provides an overview over common financing obstacles of energy cooperatives. They are categorized by the different development phases that an ECCO undergoes from its emergence to its operation. Here, the phases of awareness and emergence are not considered since they don't concern aspects of financing. Financing problems encounter particularly in the development, post-development and operation phase, while the ECCOs didn't face any financing problems during the phase of construction. Additionally, there are also two general problems regarding financial issues.

Development and Post-Development Phase

Financing problem	Country specific	Energy Resource/ Activity specific
<p>Low & reluctant political support due to lack of conviction of citizen-led renewable energy projects and concerns about the risk of losing the high up-front financing costs</p> <p><i>Solution:</i></p> <ul style="list-style-type: none"> • <i>Persuasive efforts and providing evidence of first achievements helped to convince the local government</i> • <i>Self-financing of professional feasibility study in order to obtain political support</i> 		
<p>Higher entry barriers due to regulatory changes for subsidizing new renewable energy plants: Shift from governmental determined and guaranteed remuneration rates (feed-in tariff guaranteed for a duration of 20 years) to a tendering process of the Federal Grid Agency (except for small producers) (EEG 2017)</p> <ul style="list-style-type: none"> • Uncertainty if the calculated costs and revenues required for the tendering process will at the end cover the actual costs of construction • Lower assertiveness in the tendering process due to strong price pressure of competitors 	GERMANY	
<p>Lower incentives to engage in renewable energy production due to a sharp decline in subsidies for new power plants and the abolition of subsidies for wind, solar, hydro projects since 2019 (except for heat production projects)</p>	UK	Wind, Solar, Hydro
<p>Difficulties in obtaining loans of (local) traditional banks due to concerns regarding the success and rentability of community-centered renewable energy projects</p> <ul style="list-style-type: none"> • Demand of high interest rates of banks • Rejection of granting a loan <p><i>Solution:</i></p> <ul style="list-style-type: none"> • <i>Borrowing through the local government allowed for better conditions</i> • <i>Founding Investor Clubs (see the case of Énergie citoyennes en Pays de Vilaine)</i> • <i>Demanding loans at banks which have already financed citizen-led projects</i> 		

Financing problem	Country specific	Energy Resource/ Activity specific
Rising costs for environmental permits	UK	
The timeframe to receive subsidies for construction is very tight. For some cooperatives it is difficult to generate the required equity through shares within that timeframe.	UK	
<p><i>Solution:</i> Taking a loan from the regional government, after the construction the local citizens were more willing to buy shares due to reduced investment risks</p>		

Operation Phase:

Financing problem	Country specific	Energy Resource/ Activity specific
High reliance on public support schemes causes financial gaps		
<ul style="list-style-type: none"> The high reliance of the cooperatives' business models makes them financially vulnerable after the 20 years of guaranteed feed-in tariffs have expired 	UK, GERMANY	Energy production & supply
<p><i>Solution:</i> Solutions range from alternative financing strategies (e.g. diversification of services provided by the cooperative), over paying-off the debts before FIT-duration ends to the close-down of the cooperation</p>		
<ul style="list-style-type: none"> Unpredictable changes in financial (regional) government support (e.g. shortening of financial means that were provided for salary payments of employees) 		all
Lack of specific subsidies for renewable energy cooperatives, the available subsidies account for every legal form of green energy producer	BELGIUM	
Running hydropower plants under the legal form of a community interest company requires tax paying and impedes receiving grants	UK	Hydro / Renewable Energy advisor & developer registered as Community Interest Group
<p><i>Solution:</i> Separating the hydro-project from the central organization body and incorporation as a Share Cooperation</p>		
Competing with the low electricity price of nuclear power	FRANCE	Renewable Energy supplier

Financing problem	Country specific	Energy Resource/ Activity specific
<p>Competition with conventional gas heating</p> <ul style="list-style-type: none"> • lower price for gas heating • gas heating is more user-friendly (wood-chip heating is not as convenient as gas heating) <p><i>Solution:</i> <i>Creation of a Win-Win-Situation for public authorities by providing a solution for place-specific public needs of landscape management in exchange of heating supply</i></p>		<p>Solid Biomass / Local heat producer & supplier</p>
<p>High sieving costs of the wood-chips to avoid contamination of the burning facilities</p>		<p>Solid Biomass / Local heat producer & supplier</p>
<p>Local raw material (wood) has to be purchased due to regulations for public bidding</p> <p><i>Solution:</i> <i>Burning material also comes from local citizens who provide residual wood that is chopped once per year</i></p>	<p>GERMANY</p>	<p>Solid Biomass / Local heat producer & supplier</p>
<p>Strongly fluctuating bulk prices and diverse quality of wood-chips</p>		<p>Solid Biomass / Local heat producer & supplier</p>
<p>Temporary character of political funding programs (EU-projects, regional projects) impedes long-term planning</p>		
<p>Grants are usually determined to be used for a specific purpose or project and can't be used flexible (e.g. for administrative costs)</p>		

General financing problems:

- Temporary character of political funding programs (EU-projects, regional projects) impedes long-term planning
- Grants are usually determined to be used for a specific purpose or project and can't be used flexible (e.g. for administrative costs)

4 Financing instruments

The following tables summarize financing instruments that are commonly used among local energy cooperatives during the (post-)development and operation phases. The tables also exemplify some creative or specific financial solutions.

Development and Post-Development Phase

Common financing instruments	Specific financial solutions
(Co-)financing with grants provided by local, regional or national public actors to finance the feasibility study or the organizational development of a cooperative	
Grants of national energy agencies	
	Self-financing of the feasibility study by individual group members due to a lack of political support
Loans (with a middle- or long-term payback period) from <ul style="list-style-type: none"> • (local) conventional banks • Social banks • Regional/national banks for economic development and infrastructure 	Covering bank loan by a local authority
Subsidies/grants provided by <ul style="list-style-type: none"> • Local municipality • Regional government or other regional authorities • The European Union • Foundations • National investment funds for projects in renewable energy (if existing) 	Cooperation with other community-groups allows in some cases further grants of public and private actors
Financial participation, provision of the production site or of a (already existing) power plant of individuals (farmer, landowner)	
Fonds of regional/national institutions	
	Prize money of a national competition to promote renewable energy
	Donations of individuals

Common financing instruments	Specific financial solutions
<p>Sales of shares to</p> <ul style="list-style-type: none"> • local/regional citizens • municipalities • regional political institutions (for development) • (local) social organizations • National investment funds for projects in renewable energy (if existing) <p><i>Note: In some cases, shares were sold after the construction of the power plant (e.g. to reduce risks and build trust for potential shareholders, particularly, when there was a sense of initial skepticism among residents)</i></p>	<p>Linking the purchase of member shares to conditions</p> <ul style="list-style-type: none"> • determined number of shares • determined one-time payment that includes shares and the installation costs for the individual household • contract with a mandate to use the energy generated by the cooperative as their only source <p><i>In France:</i></p> <ul style="list-style-type: none"> • local citizens organized as <i>Investor Clubs</i> (see the Case Example of <i>Énergies citoyennes en Pays de Vilaine</i>)

Operation Phase

Common financing instruments	Specific financial solutions
<p>Subsidized remuneration (feed-in tariff) for supplying the green electricity generated to the regional/national grid (guaranteed for a duration of 20 years)</p>	
<p>Collecting fees for the heating/energy supply of individual households (mainly members of the cooperative) or public buildings</p>	
<p>Individual households pay for the installation costs to get connected to the grid</p>	<p><i>In Germany:</i> Making a contract with public facilities to purchase the green electricity directly from the cooperative allows for a fixed fee for the consumed electricity and a bonus for direct marketing ensured by the Renewable Energy Sources Act (EEG)</p>
	<p>Funds through cooperation projects with universities</p>

Common financing instruments

Specific financial solutions

Strategies for saving costs:

Institutionalized cooperation with other Bioenergy villages by establishing an umbrella organization to purchase raw material, operate machinery and dispose waste collectively

Keeping operational costs for administrative work and meadow management as low as possible (e.g. working in home office instead of renting a building or providing the meadow around PV-plants to local shepherds instead of hiring a firm to mow the lawn)

Additional income strategies:

Holding shares of other renewable energy actors generates additional income through dividend payout

Diversification of activities and services:

- Conducting paid energy consultancy (e.g. for local/regional authorities amongst others through the participation in public tendering)
- Combining the installation of the heating grid with the installation of a fiber-optic network that is leased to the county to provide broadband connection to individual households
- Sale of products (e.g. of forestry management: wood fuels, charcoal, apiculture products, crafts)
- Adding new projects to the core activity (e.g. of another type of renewable energies, local car sharing, etc.) (sometimes implemented in collaboration with other energy cooperatives)

For bigger cooperatives with dispersed energy production sites which are operated independently (e.g. by subsidiaries of the cooperation):

Self-commitment of the operators to provide an annual amount to the umbrella organization for sensibilization work

5 Case Examples

This section of the Guide focuses on practical financing cases of three local energy cooperatives among the Beacon ECCOs.

5.1 Llangattock Green Valleys

Country:	United Kingdom (Wales)
Activity:	Consultancy, developing and facilitating renewable energy and environmental community projects
Type of RES:	Hydropower, Solar PV
Founded:	2010
Number of members:	over 500
Geographical scope:	regional
Legal form:	Community Interest Company

Description of the project

Llangattock Green Valley (LGV) was formed in 2009 by a group of local residents and incorporated 2010 as a Community Interest Company. The key aim of the organisation is to make Llangattock carbon negative by the end of 2015 by harnessing natural, local resources including water, wood fuel and solar power. LGV forms a central organising body who inspires and facilitates a range of environmental activities, develops initial project ideas and creates new, focused groups to take on and deliver those projects. With its trading subsidiary LGV Ventures, it has delivered a range of innovative energy-saving and renewable energy project in Llangattock and the surrounding area in the Brecon Beacons National Park in South Wales. Primary amongst these was the development of five micro-hydro schemes. The produced electricity is sold and feed-in tariffs generate income.

LGV was involved in the British Gas Green Streets competition which was a year-long project to encourage communities across the UK to find solutions to save energy and generate renewable energy. After winning initial funding for several projects (energy efficiency improvements to local homes, solar panels on Llangattock School, feasibility studies for an anaerobic digestion plant, potential micro hydro schemes), LGV was named winner of the competitions in 2011 with an award of £100,000. This amount was specifically determined for developing community micro-hydro schemes. There are now 5 schemes in the surrounding of Llangattock with a total generation of around 534 MWh.

Financing instruments used

The financing tools presented in the following table are a recapitulation of the establishment of LGV itself as well as of its' broad portfolio of local energy projects which were developed and facilitated by LGV and/or its' several distinct legal entities (including Energy Local, Llangattock litter Pickers, LACAS Allotments, Llangattock Woodland Group, LGV Ventures and Micro-hydro Share Coop). After supporting them in the development and implementation process the groups focusing on those projects are then empowered to succeed and become self-sustaining and self-financing.

Project Phase	Financing instruments	Used for
Development/ Post- Development	Public grants of the government of Wales	Organizational development and infrastructure of LGV
	Grants provided by <ul style="list-style-type: none"> • <i>Ynni'r Fro</i> programme of the Welsh government • <i>Brecon Beacons Trust</i> • <i>Brecon Beacons National Park Sustainable Development Fund</i> <p><i>Important fact: Cooperation with other community-groups allowed to receive further grants of public and private actors</i></p>	Development and Construction work for the five micro-hydro schemes
	Prize money of the British Green Street competition (2011)	
	Share capital raised through the first cooperative share offer of LGV's subsidiaries LGV Ventures and Llangattock Green Valleys Micro Hydro Cooperative Ltd (2013)	
	Financial participation, provision of the production site or of a (already existing) power plant of individuals (farmer, landowner) of individuals (farmer, landowner)	
	Sale of shares to local citizens	Development and construction of the five micro-hydro schemes
	Repayment of development costs to LGV Ventures (subsidiary of LGV) to allow LGV Ventures to re-use its risk capital to develop additional micro hydro schemes	

Project Phase	Financing instruments	Used for
Development/ Post- Development	<p>Fonds such as</p> <ul style="list-style-type: none"> • <i>Brecon Beacons Trust</i> • <i>Brecon Beacons National Park Sustainable Development Fund</i> 	Financing of different projects (including feasibility and environmental studies)
	<p>Grants provided by</p> <ul style="list-style-type: none"> • <i>Energy Saving Trust</i> of the Welsh government • Programme of the European Union for rural development • Esmée Fairbairn Trust and Tudor Trust (independent British Foundation who supports charitable work) 	
	<p>Loans from</p> <ul style="list-style-type: none"> • social banks • conventional banks 	
	<p>Sale of shares to local citizens (in a particular case shares were sold after the construction (see problems encountered))</p> <p>Donations of individuals for specific projects</p> <p>Prize money of the British Gas Green Streets competition for initial funding of projects (2009)</p>	Financing of different projects (including feasibility studies for the micro-hydro schemes, insurance, launching of the website, administrative work, register fees)
Operation	<p>Subsidized remuneration (feed-in tariff) for supplying electricity generated by the hydro schemes to the regional grid (guaranteed for a duration of 20 years)</p>	<ul style="list-style-type: none"> • to generate reserves to pay back investors • to pay interests • to create a Community Fund for future local projects • for maintenance costs of the micro-hydro schemes
	<p>Sale of products from the Llangattock Community Woodlands (a project for forestry management that produces wood fuels, charcoal, apiculture products and crafts)</p>	Additional income

Project Phase	Financing instruments	Used for
Construction	<p>Conducting paid energy consultancy (e.g. for local authorities: production of information material, development of simulation models)</p> <ul style="list-style-type: none"> amongst others through the participation in public tendering of the Welsh government <p>LGV got a middle-term contract with the Welsh government</p>	Additional income
	<p>Keeping operational costs for administrative work as low as possible (e.g. LGV doesn't have any expenses for renting offices, work is done in home office)</p>	Cost savings

Problems encountered

- The timeframe to receive subsidies for construction is very tight in the UK. For some projects it is difficult to generate the required shares within that timeframe.
 - Solution: A loan was provided by the government of Wales to build a wind turbine. After the installation the shares were sold and the collected capital was used to pay back the loan.
- The micro-hydro power project had to be separated from the legal entity of LGV and registered as a cooperative because running hydropower plants under the legal form of a community interest group requires tax paying and impedes receiving grants.
- There is uncertainty about how the projects will continue when the 20-years-period of guaranteed feed-in tariff has expired. Thus, LGV limited the project lives as well as the leasing contracts with the landowners to 20 years because after this period the income will drop significantly and the equipment will be fully depreciated. Ownership of the hydro-turbines will be transferred to the landowners and the cooperative may either choose to continue in business or to close down, as appropriate.
- TGV faces financial pressures arising from the sharp decline in subsidy support via the feed-in tariff and the abolition of subsidies for wind, solar and hydro projects (except for heat production projects) in 2019. This causes a lack of financial means for the development and construction of new energy systems and thus reduces investment incentives for community groups. Consequently, the Micro-hydro subsidiary of TGV couldn't work on any new construction projects in the last two years and risks to be dissolved.
- There is a high unpredictability how the Brexit will affect the prices of installation material since they are mainly imported goods (e.g. solar panels, hydro-pipes, generators).
- Due to the limited duration of support programmes of the EU or of contracts with the Welsh government TGV is constantly searching for subsequent funding sources.
- Grants are usually determined for a specific purpose, location or project or for covering specific costs (e.g. only construction costs). This lowers the financial flexibility of TGV and costs such as administrative ones have to be covered by other means.
- The fees for environmental permits to build hydropower plants got much more expensive over the last years.

Particular success factors

- **APPLIANCE OF A BROAD MIX OF FINANCIAL TOOLS**

- The financing instrument presented above have certainly contributed to the success of LGV and its delivered projects. Amongst traditional financing tools (traditional bank loans, grants, fonds, share capital) LGV found also alternative ways to receive financial means such as participating in competitions or public tendering, loans of social banks, involving farmers and landowners in the projects. Whereas grants are usually linked to conditions (e.g. only to be used for a specific project or specific costs), having more funding sources allowed for more flexibility in covering expenditures. Also saving rental costs by working from the home office is not a neglectable aspect.

- **ORGANIZATIONAL DESIGN OF LGV:**

- **ALLOWS TO ACQUIRE EXPERTISE IN REGULATORY AND FINANCING ISSUES TO SUCCESSFULLY PLAN AND IMPLEMENT ENVIRONMENTAL PROJECTS:** Assisting a range of community groups in planning, developing and implementing their local energy projects enabled the LGV Board to accumulate experience and knowledge on the required legal steps to take as well as on how and where to receive funds and which financial tools work in practice. Simultaneously, the nature of LGV working in different energy and environmental fields and thus coordinating several distinct legal entities required dealing with various governance, legal and financial issues. Facing and overcoming numerous obstacles, such as permitting and land owner negotiations to enable construction of the hydro schemes, financial pressures arising from the rapid drop in subsidy support via the feed-in tariff and several technical issues affecting the initial performance of hydro schemes, also allows for learning. However, the decline in subsidies confronts LGV with less demands for project assistance, particularly in the hydro sector, and there is a need for new, creative and FIT-independent solutions.
- **ALLOWS FOR DIVERSIFICATION OF SERVICES OFFERED:** By delivering projects the committed Board of LGV professionalized its' abilities and skills which enables them to engage also in consultancy work. Due to its expertise and convincing performance LGV is hired by local municipal authorities to deliver information material or to develop a simulation model of how the energy use in the National Park will look like in 2032. The participation in public tendering enabled LGV to get a middle-term contract of the Welsh government in order to advise them on how to make community buildings energy efficient.

- **COMMUNITY SUPPORT**

The wide approach to environmental project that benefit the community resulted in engagement across the community and the development of a number of other projects outside of direct energy generation. Numerous public meetings, promotion and regular communication with members through project delivery also strengthens the willingness of citizens to work on community projects.

5.2 Bioenergiedorf Oberrosophe

Country:	Germany (Hesse)
Activity:	Local heat production and supply
Type of RES:	Solid Biomass / Biomass
Founded:	2007
Number of members:	138
Geographical scope:	local
Legal form:	Cooperative

Description of the project

The cooperation “Bioenergiedorf Oberrosophe eG” was founded by citizens of Oberrosophe with the aim of developing a local heat supply system that supplies the village with climate neutral heating. It operates a biomass heating plant, a local heating grid and several photovoltaic plants. The biomass heating plant supplies biogas to a privately-owned combined heat and power plant that produces electricity and feeds it into the regional electricity grid. While the exhaust heat of the electricity generator is fed into the local heating grid of the cooperative to provide basic heating during the entire year, the biomass heating plant supplies the village with heating during winter season. The plant has the capacity of connecting 180 houses. Currently, 138 houses are connected and the plant consumes about 3.000 m³ of wood chip material annually.

In addition to heat supply, a photovoltaic rooftop on the biomass plant generates clean electricity that can be used either for the plant or for feeding into the grid for additional revenue. The cooperative also creates supplementary income through several other solar PV-plants by supplying the generated electricity to the regional grid.

Financing instruments used

Project Phase	Financing instruments	Used for
Development/ Post- Development	Co-financing by regional public actors <ul style="list-style-type: none"> the town of Wetter the Development group of the region 	Feasibility study (16,000 EUR)
	Loans (with a payback period of 25 yrs) provided by <ul style="list-style-type: none"> Local bank German development bank (KFW) <i>Important fact: Bank loan was covered by the community of Wetter</i>	Up-front infrastructure investments (construction of the biomass heat plant and the local heating supply grid)
	Subsidies provided by <ul style="list-style-type: none"> the state of Hesse the European Union 	
Operation	Sale of shares to <ul style="list-style-type: none"> Citizens County of Marburg-Biedenkopf Particularity: Purchase of member shares is linked to conditions <ul style="list-style-type: none"> If a household intends to connect to the local heating grid, it must enter the cooperative and purchase 14 shares of 500 EUR each (7,000 EUR in total) It also has to sign the heating supply contract 	Equity
	Amount paid by the individual household	Installation costs for connecting the individual households to the heating grid
	Collecting fees for the heating supply of individual households or public buildings	Payback of the loan for installation
	Remuneration for supplying electricity generated by solar PV-plants to the regional grid	Additional revenue
	Institutionalized cooperation with seven Bioenergy villages from northern Hesse and establishment of an umbrella organization to purchase wood, operate machinery, dispose waste and exchange experience collectively	Cost savings

Problems encountered

- Regulations impede the delivery of wood material from the regional forest
 - The cooperative has to purchase wood chips through a public bidding, since the forestry must issue a public bidding each time it sells wood.
 - Additionally, burning material for the biomass heating plant also comes from local citizens who provide residual wood that is chopped once a year

Particular success factors

- **CITIZEN SUPPORT**
 - A sufficient number of local citizens was convinced of the project idea and decided to support it.
- **POLITICAL SUPPORT**
 - **HELPED TO REDUCE FINANCIAL RISKS:** By covering the bank loan, the municipality of Wetter significantly minimized the risk for the cooperative and its members to face financial difficulties in case of a loan default.
 - **HELPED TO ESTABLISH TRUST FOR FURTHER CITIZEN SUPPORT:** The fact that the municipality of Wetter financed the feasibility study and backed the bank loan was not only of particular importance for the financial security of the cooperative but also allowed for establishing the necessary trust in the cooperative and the perspective of the project. Supporting the initiatives means for citizens to invest a significant amount of money upfront without being sure if the project will work. Thus, building trust was critical in order to further mobilize local citizens to join the cooperative without having to accept high risk in the event of a loan default.
 - **STRENGTHENED FURTHER POLITICAL SUPPORT:** The involvement of the municipality of Wetter in turn raised political support for the project, because the municipality had a vital interest in the project's success and to avoid a loan default.
- **RESTRICTIVE CLAUSE IN THE HEATING SUPPLY CONTRACT**
 - **PREVENTS COMPETITION WITH OTHER HEAT SUPPLY SYSTEMS AND EVENTUAL LOSS OF INCOME:** Households signing up for connecting to the local heat supply grid are mandated to use the heat generated by the cooperative as their only source of heating. This strategy prevents households to obtain heat from different sources and to choose the cheapest source of heat supply at a given time (e.g during times of low oil prices). This particular aspect has caused another initiative in the region to fail.

5.3 Énergies citoyennes en Pays de Vilaine

Country:	France (Brittany)
Activity:	Advisor and service provider for wind turbine projects
Type of RES:	Wind energy
Founded:	2003
Geographical scope:	regional
Legal form:	Cooperative

Description of the project

Énergies citoyennes en Pays de Vilaine (EPV) was the firsts citizen-owned wind energy project in France. Initially, the cooperative was founded to implement wind turbine projects but, over time, it has evolved to a regional-level association. After successfully developing two wind projects themselves, EPV's role has shifted from a project developer into an advisory and services association that supports similar initiatives with its expertise, with communication and promotion, by facilitating policy support and with the technical services of *Site à Watts Développement*. EPV helps the new projects to develop successfully and overcome the challenges which EPV experienced at the beginning of its activities.

In total, three wind parks were developed and entered operation between 2014 and 2017. The third wind park in Auessac was commercially developed with the support of EPV and is now owned by the government. To date, all three wind parks operate a total of 13 wind turbines, with an overall installed capacity of 26 MW and an annual production capacity of 60 GWh. While EPV offers engineering and maintenance services, the governance, maintenance and operation of the wind parks is managed by the newly found companies *SAS Bégawatts* and *SAS Isac-Waats* which are owned by the same shareholders as EPV.

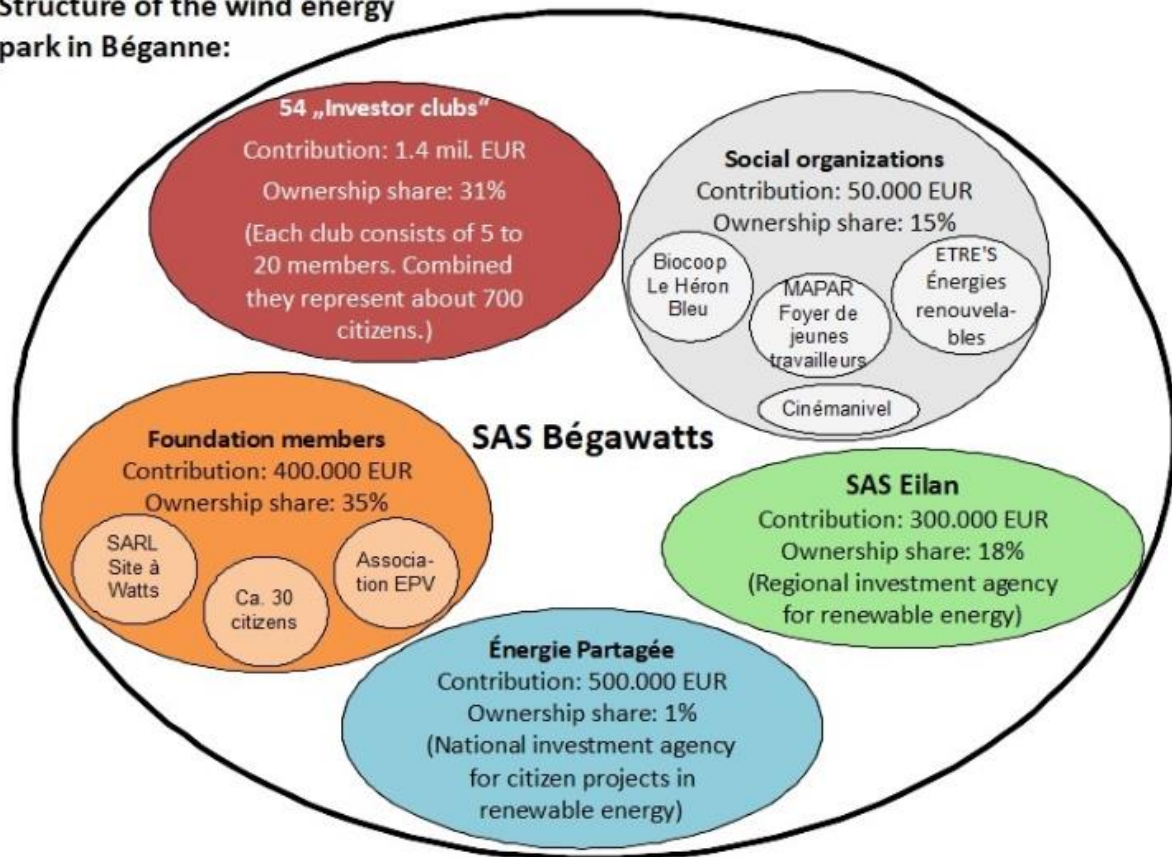
In 2020, EPV will be able to pay out the first dividends to its members as promised. The dividend will be calculated on the basis of the total electricity production since the start of production (last five years).

Financing instruments used

Project Phase	Financing instruments	Used for
Development/ Post- Development	Public grants from <ul style="list-style-type: none"> • French Ministry of Environment • Regional government of Brittany • French energy agency <i>ADENE</i> 	Organizational development of EPV (including financing of one employee responsible for project management, office infrastructure)
	Self-financing of around 90 citizens	Feasibility and other environmental studies
	Sale of shares to <ul style="list-style-type: none"> • Local individual citizens (founding members) • Local citizens organized as <i>Investor clubs</i> (each club consists of 5 to 20 members) • Local social organizations • The national investment agency that facilitates crowd-funding for citizen projects in renewable energy <i>Énergie Partagée</i> • The regional development agency of Brittany 	Installation costs for the first four wind turbines
	Bank loan (with a payback period of 15 yrs)	
Operation	Sale of electricity generated by the wind parks to the grid supplier	Repayment of bank loan, other expenses
	Shareholder of <i>Énergie Partagée</i>	Additional income through dividend payout
	Self-commitment of the 3 wind parks to provide an annual amount of 25,000 EUR	Sensibilization work (workshops, presentations, salary of 3 employees, etc.)
	Voluntary workers in the wind parks	Cost savings

The following figure summarizes the shareholder structure of the first wind energy park in Béganne that contributed to cover the costs for construction.

Structure of the wind energy park in Béganne:



Problems encountered

- **Initial skepticism of local politics, banks as well as citizens to support the project led to the failure of the first attempt to initiate wind projects.**
 - The founding group did not obtain local policy support, because the up-front investment was perceived to be too risky. Before realizing the wind project, a feasibility study needed to be conducted and paid for with the risk that the study's result is negative.
 - **Solution:** The cost of the feasibility study was shared among 90 individuals of the association. The positive results of the study convinced the local government to support the project.
 - The local residents were concerned about the impact of wind turbines on the local landscape, noise and potential electromagnetic fields. Also, the nearby airport was worried about the impact on airplane traffic. Even now, during the implementation of new projects citizens express their concerns.
 - **Solution:** Citizen concerns were addressed with proactive communication and using tools like 3D-simulation to visualize the expected impact of the turbines on the landscape. EPV also conducts professional bio-geological studies on a voluntarily basis in order to avoid any electromagnetic effects. Another important aspect was to incorporate those concerns in the decision making of the project development and operation.

- Receiving loans from local banks was difficult in the beginning since they were worried about the success and rentability of citizen-led energy projects.
 - Solution: EPV founded Investor Clubs who consists of a maximum of 20 members each. This was a critical step because, at that time, there was no other possibility to obtain money from citizens. Since promotion for investment is not allowed in France, the founding members had to contact numerous people and associations personally to join the Investor Clubs. Additionally, EPV was granted a loan from a Belgian Bank who has already supported community initiatives. Later on, the local banks gained trust in the wind projects and were willing to offer financial support.
- **Consumption and supply regulations for generated energy didn't allow for a suitable sales market for green electricity** (as in many other European countries). In France the electricity generated is not allowed to be consumed by its' own producer. Instead TGV had to feed the electricity produced into the grid. Even though they received guaranteed subsidies, the fact that the cooperative's green electricity was mixed with nuclear electricity from nuclear power plants was in conflict with the values of the cooperative. Fortunately, the dependence on the public subsidies could be substituted by arranging a contract with an alternative green electricity provider (*Enercoop Bretagne*) in 2018 who pays a tariff equal to the subsidized one for conventional electricity supply. So far, there is only one wind park supplying *Enercoop*, the other two will follow.

Particular success factors

- **PERSISTENCE AND CREATIVE FINANCIAL SOLUTIONS IN THE INITIAL PHASE:** Even though the first attempt of the project failed, the dedicated founding members achieved to overcome the difficulties by finding alternative solutions for funding.
 - **HELPED TO OBTAIN POLICY SUPPORT:** The main success factor for EPV was that the group was able to mobilize enough financial resources for the feasibility study by themselves. This action was essential to obtain institutional support for the implementation of the project, since the positive result of the study significantly reduced the risk of project failure.
 - **ALLOWED FOR CITIZENS FINANCIAL CONTRIBUTION:** Another critical aspect was the establishment of *Investor Clubs* that allowed citizens to contribute to the share capital and, thus, to the construction of the wind turbines.
 - **ENABLED LEARNING:** Simultaneously, with the failure of the first attempt the group obtained valuable expertise and professionalized its approach.
 - **FACILITATED THE FINANCING OF THE FOLLOWING TWO WIND PARKS:** By providing evidence for the success of citizen initiatives in the green energy sector EPV could convince hesitant but important actors, such as the local government, residents and local banks, to invest in those projects. This establishment of trust was a helpful precondition that facilitated the financing of the two following wind parks. Additionally, the successful track record of EPV also helped similar community projects in Brittany and Pay de la Loire to more or less instantly obtain policy support.
- **RATIO BETWEEN THE TIME FOR LOAN PAYBACK AND THE TIME OF THE PARK'S PRODUCTION CAPACITY:** Whereas the period for the payback of the bank loan is set at 15 years, the park can produce for about 20 to 25 years. This allows that the profit of the wind parks will directly benefit the region, after paying back the initial investment costs.