



EXAMPLES OF INNOVATIVE FINANCING SCHEMES

2024



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Examples of innovative financing schemes

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CASE STUDIES

INNOVATIVE FINANCING SCHEMES

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, 2022 and 2023.

These are also available for download on the project website : www.eurobserv-er.org



The Eyliac solar power plant, located in Gironde, has been supplying Bonduelle with 13 GWh of solar electricity annually since January 2024.

A SAFETY NET FOR PPAS IN FRANCE

Power Purchase Agreements (PPAs), which are over-the-counter contracts for purchasing renewable electricity, can bring both predictability and uncertainty. In the long term, the risk of buyer default is something that must be considered. To address this issue, the French government launched a guarantee fund dedicated to PPAs in 2023.

Emerging in the early 2020s, Power Purchase Agreements (PPAs) linked to renewable energy have seen an increased adoption amid the recent energy crisis. This tool is favored by many companies wishing to protect themselves against future energy price fluctuations. A PPA is a long-term contract between a renewable electricity provider and a buyer, often a large energy-consuming company. The agreement outlines

the terms of electricity sales (quantity, price, period, etc.), providing long-term cost stability and visibility for the buyer, and secured revenues for the producer. However, certain challenges can hinder the conclusion of PPAs. Given their long-term nature, concerns about the buyer's solvency over time lead banks financing renewable energy infrastructure to raise risk premiums or even refuse to fund projects. In response to this, in 2023

the French government announced the creation of a guarantee fund aimed at securing green electricity supply contracts between renewable energy producers and industrial companies.

PUBLIC SUPPORT FOR PRIVATE SUPPLY CONTRACTS

The guarantee scheme, known as the 'Garantie Électricité Renouvelable' (GER), was launched in France in September 2023. Managed by Bpifrance, the French public investment bank, this fund started with an initial budget of €68 million. This guarantee, with a duration of 10 to

25 years, applies to contracts for a minimum volume of 10 GWh per year for new photovoltaic or onshore wind power plants in mainland France. The fund is aimed at industrial buyers within sections B or C of the French activity nomenclature (corresponding to the extractive or manufacturing sectors), whose headquarters are located in France. There are no criteria regarding company size or turnover, and the accepted financial rating is relatively flexible to accommodate companies that face challenges in obtaining a conventional bank guarantee. In practice, the GER operates as follows: in the event of payment default by the industrial buyer, the producer will sell its production on the spot market. If the market price is lower than the guaranteed price, the GER fund will compensate part of the difference, up to 80% of the price initially agreed. If the market price exceeds the guaranteed PPA's price, the producer retains the excess, which forms a "notional reserve." This reserve will be used before any new compensation if the market turns. At the end of the contract, any excess in this reserve remains with the producer. The high expectations associated with this fund were evident, as the GER quickly gained its audience. In October 2023, renewable energy producer Arkolia and the industrial company Bonduelle signed a 20-year, 10 MW energy supply

contract backed by this newly created guarantee scheme. This contract will enable Bonduelle to secure 13 GWh of electricity per year. Arkolia has become the first beneficiary of the fund, receiving a guarantee for around 90% of the output from one of its 10.5 MW solar power plants in Gironde.

REDUCED RISK FOR BOTH PRODUCERS AND BUYERS

The GER provides several key benefits by mitigating risks for both energy producers and buyers. Typically, in a PPA, the buyer's bank acts as a guarantor and compensates the producer if the buyer defaults. However, these bank guarantees are often limited in duration and coverage, and they need to be regularly renewed and renegotiated. In contrast, the GER offers a fixed rate for the entire contract period. Additionally, unlike traditional bank guarantees, the GER is not considered as a bank debt, which prevents buyers from increasing their debt levels and allows them more flexibility when seeking additional financing. Moreover, by using the GER, industries can stabilize their long-term supply of decarbonized electricity. For energy producers, the GER safeguards against the risk of lost revenue if the buyer exits the contract or goes out of business. In the event of default, the producer continues to receive payment for the electricity gene-

rated over an indefinite period, providing ample time to find a new buyer.

Although the GER is regarded as a useful instrument, stakeholders in the renewable energy sector have identified a limitation. Since the minimum guaranteed contract volume is 10 GWh per year and the

fund operates as a single-buyer scheme, only contracts with companies with high energy consumption are eligible. This threshold, equivalent to the output of a solar power plant with at least 8 MW capacity, effectively excludes smaller companies. Nevertheless, this guarantee scheme remains attractive to eli-

gible professionals, with several applications involving both solar and wind-generated electricity currently under review by Bpifrance. While similar guarantees already exist in Europe, particularly in Spain, it is expected that other countries might follow suit. Indeed, the reform of the European electricity market,

adopted in 2024, aims, among other things, to enhance long-term visibility for renewable energy players by promoting the development of PPAs. It also encourages Member States to establish guarantee schemes for PPAs, whether public or private, to support their development across the continent. □



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Several applications for the guarantee scheme, involving both solar and wind projects, are currently under review by Bpifrance.

CITIZEN BOND FOR AN OFFSHORE WIND FARM IN THE NETHERLANDS

Offshore wind turbines in the IJsselmeer, Netherlands



PHOTO BY MARIËLLE VAN DEN HUL-KUIJTEN ON UNSPASH

CROWDFUNDING AS A TOOL FOR FINANCING RENEWABLE ENERGY INFRASTRUCTURE PROJECTS

Crowdfunding can potentially contribute to narrowing the gap between the supply and demand for financing of energy transition infrastructure projects. It is an alternative source of finance that can foster local participa-

tion and support for renewable energy projects [1]. Crowdfunding is the collective effort by citizens to pool their funds together to raise capital to finance specific projects. This can be in the form of lending, where the principal investment is repaid to citizens along with interest, or equity, where citizens receive shares in the business or project in exchange for a financial

contribution [1]. Crowdfunding can apply to local renewable energy infrastructure projects, like solar PV or wind energy projects, which typically have associated benefits for the community [1] [2]. Crowdfunding can enhance societal support and interest for these projects and improve their legitimacy. The success of a crowdfunding campaign can be influenced by the availabi-

lity of reliable internet access and secure online payment systems. A lack of knowledge of citizens about the business models and risks associated with renewable energy projects is a potential drawback of using crowdfunding in this sector [1]. Citizen bonds are a form of debt-based crowdfunding, where citizens lend funds to a project via

the purchase of bonds, which pay periodic interest and return the principal amount to the citizen by the end of the tenure. An investment management company, Invesdor, ran a successful crowdfunding campaign at the start of 2024 to engage citizens in a local wind farm project, Winpark Fryslân, in the Netherlands in which they raised capital by issuing citizen bonds. The case is described below.

WINDPARK FRYSLÂN: CITIZEN BOND FOR AN OFFSHORE WIND FARM

Windpark Fryslân consists of 89 wind turbines, all with a height of 180m, and produces electricity for around 500,000 households in the Netherlands. More than 75% of the renewable electricity for the province of Friesland is generated by Windpark Fryslân. The wind farm is located in the IJsselmeer, a large lake in central Netherlands, and is the world's largest wind farm in an inland waterway. The wind farm has been operational since 2021 [3] [4].

Local residents in the province of Friesland were able to purchase citizen bonds and benefit from the revenues generated by the project. The issuance of citizen bonds was included in the plans for the wind farm since its inception. The bonds carry an annual interest rate of 7,5% on the outstanding principal amount and have a maturity of 5 years, where the investment, along with interest, is repaid in 10 semi-annual repayments. The minimum investment amount was €500 per person and the maximum was €50,000. The subscription was capped at a maximum of €10 million [4] [5]. The minimum investment

of €500 was chosen primarily to ensure the administrative costs associated with issuing a bond could be covered [5].

The subscription process opened in the middle of February 2024 and closed at the end of March 2024. Over €6 million was invested within the first day, and at the end of the six week subscription period €27 million was raised from over 2,500 investors. This oversubscription made the campaign the largest crowdfunding initiative for renewable energy in Europe and demonstrates the enthusiasm of citizens to support and benefit from renewable energy projects [4]. The main objective of the citizen bond scheme was to enable as many local residents as possible to participate in and benefit from investing in the project. The available bonds were therefore redistributed proportionally among investors and the investment amounts of larger investors were adjusted to allow all interested residents to participate [4] [5].

The bonds were issued three years after the wind farm became operational and the wind farm was already sufficiently financed [5]. Around €700 million of senior debt was provided by 10 banks and the province of Friesland is a shareholder in the project after investing approximately €100 million [6]. The bonds were issued to local residents to allow them to exclusively participate in the revenues of the wind farm [5]. Issuing the bonds after the wind farm was already operational and producing electricity also lowers investment risk for citizens [2]. The proceeds of the bond issuance will be used by Windpark Fryslân to repay a portion of the ongoing debt obligation

to the banks. The interest paid to Friesland bondholders is higher than the interest that was paid to the banks in order to make an attractive investment opportunity for local residents [5] [7].

The risks associated with the citizen bond include lower wind availability than expected, potential wind turbine failures - both leading to lower electricity generation - and a decline in electricity prices. These risks were already accounted for in the wind farm's financial forecasts and are not expected to hinder the repayment of the bonds. The bonds are subordinated, thereby allowing repayments to first be made to the banks and tax authorities in the event of the wind farm underperforming. Bondholders have priority over shareholders in this structure [5].

An impactful marketing and engagement campaign was run by Windpark Fryslân to create visibility for the project and reach as many local

residents as possible. This included information meetings at several locations for citizens to ask questions about the bonds or subscription process, a website dedicated to the project, the project appearing on regional television, in newspapers, on social media, and outdoor advertisements [4] [7] [8]. Bondholders are kept informed via newsletters and annual business updates [5]. The wind farm brings multiple other benefits for the local area. The province of Friesland is a 15% shareholder in the wind farm and uses the returns made to support other sustainability focused projects in Friesland. The Environment Fund of Windpark Fryslân also receives a yearly contribution of €720,000 from the wind farm for the development of other projects locally, along with Windpark Fryslân sponsoring an annual sailing race through the wind turbines for citizens to participate in [5].

Invesdor, one of Europe's largest impact investment and financing platforms, managed the issuance of the citizen bond for Windpark Fryslân [4] [5]. Invesdor has an EU license for crowdfunding as a service issued by the Netherlands Authority for the Financial Markets (AFM) [5]. The citizen bond offering and risks for Windpark Fryslân are extensively described for investors in the prospectus approved by AFM [5] [9]. This case study highlights how citizen bonds can be used to raise financing and foster support from citizens for local renewable energy projects. It is a successful example of how to include the local community in renewable energy projects through alternative financing mechanisms and platforms, such as Invesdor's. The project has enabled local residents to make an economically attractive investment and contribute to a positive environmental impact [4]. □

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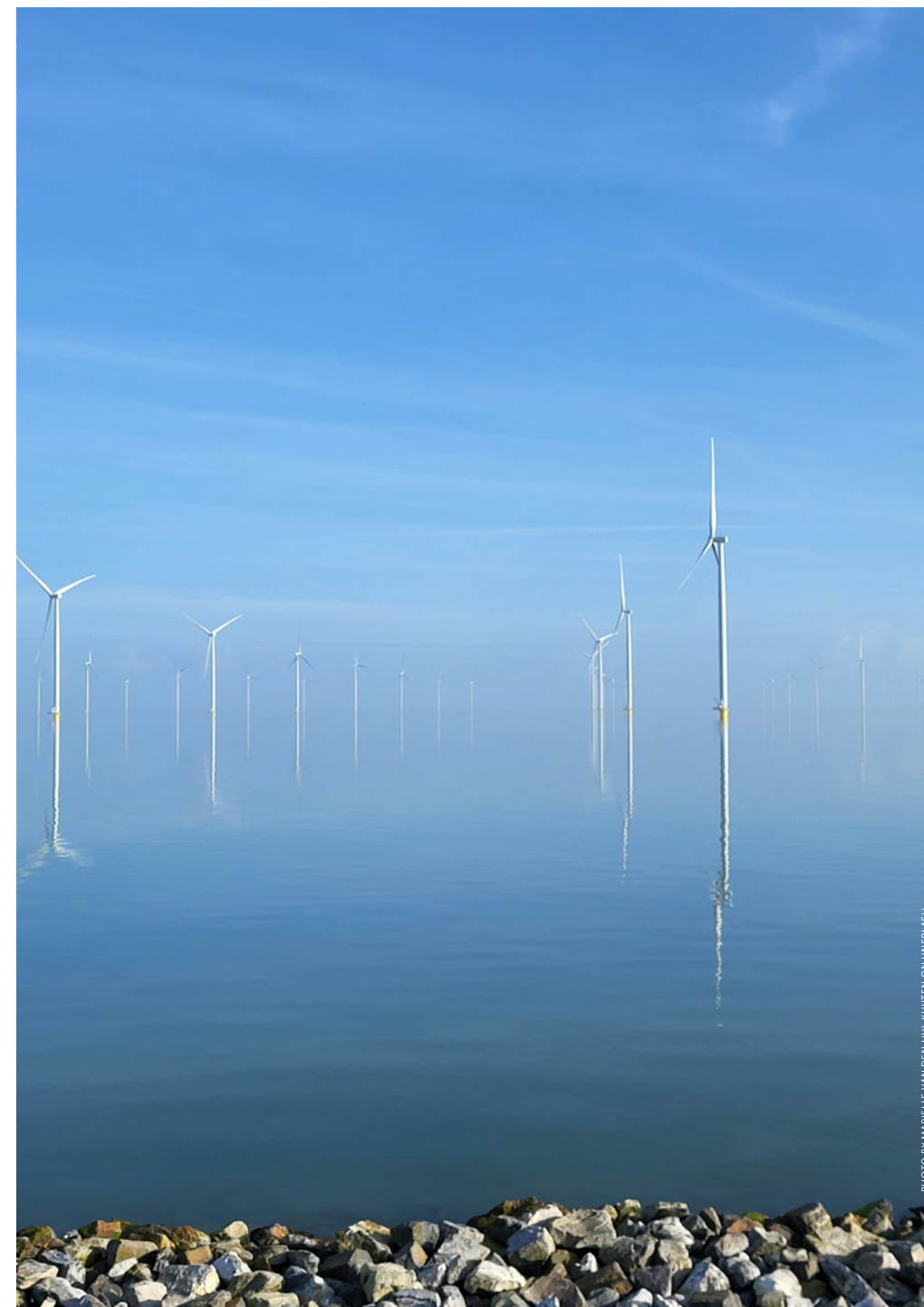
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PARTICIPATION RIGHTS AS A FINANCING INSTRUMENT FOR RENEWABLE HEATING: A CASE STUDY IN HEIDELBERG, GERMANY

PARTICIPATION RIGHTS IN GENERAL

A participation right (in German: Genussrecht) is a form of mezzanine capital. It certifies rights of various kinds, mainly the right to participate in net profit or liquidation proceeds of a company regardless of its legal form. It differs from ownership rights, such as shares, which certify corporate rights. The participation right agreement neither establishes a corporate relationship nor guarantees co-determination rights in the company, voting rights, or any kind of membership. However, the holder of participation rights has rights to certain information. In the context of renewable energy financing, participation rights are significant as they provide a flexible way to attract private investment without diluting ownership or control of the company.

Mezzanine capital can be either debt or equity and displays therefore also characteristics of debt or equity capital. Examples are junior debt, silent partnership, hybrid bond, and participation rights.

Key design features of participation rights are:

- Owner designation: bearer security (any holder of the certificate has the right), registered paper (a named person holds the certificate, transferable through assignment), order security (issued to a person, transferable only possible through documentation directly on the certificate)
- Referenced form: nominal value or share of referenced object or option rights
- Referenced object: profit, liquidation proceeds, fixed amount
- Structuring elements:
 - Remuneration components and timing
 - Term of the agreement
 - Termination modalities

Participation rights could be treated as equity or debt capital. As equity capital, it improves the balance sheet structure, and thus enhances the borrower's creditworthiness and credit conditions. When classified as debt capital, interest is regarded as a profit-reducing operating expense for tax purposes. Its classification as debt or equity depends on the

design features and conditions of the participation right:

- Term of agreement (more or less than 5 years)
- Extent of participation in profit and loss of the participation right holders
- Subordinated or senior capital
- Entitlement of ordinary termination rights
- Position of participation right holders compared to shareholders in the event of company dissolution

Advantages of participation rights include:

- Allows flexible structuring as it is based on an agreement under the law of obligations, which governs contractual relationships between parties and allows for tailored terms and conditions to meet specific needs.
- In case of bearer certificate there is easier trading compared to transferring company shares, making it a good way for smaller companies to raise capital
- No need for a costly prior company valuation
- No need to provide collaterals



- Could be issued in unlimited amounts by corporations and partnerships
- Uncomplicated, fast, and inexpensive processing compared to other financing instruments

Disadvantages include:

- The lack of flexibility, as participation rights are often bound by a specific term, making early redemption relatively costly.
- Difficulty in transferring ownership for registered participation certificates, unlike bearer securities,

which can be traded bilaterally, over the counter, or on stock exchanges.

- No guarantee of the accuracy of mandatory prospectus information and the borrower's creditworthiness, as any legal entity can issue a participation right if they comply with disclosure rules. The regulatory financial authority (BaFin in Germany) checks only for full disclosure but not accuracy, leaving consumers or investors exposed to default risk, especially if the issuer's creditworthiness is unclear.

Entrance of Kurfürsten power plant from Stadtwerke Heidelberg

PARTICIPATION RIGHTS IN THE SUSTAINABLE RESIDENTIAL HEATING SECTOR

Mezzanine capital has long been used to mobilize capital and engage citizens in renewable energy projects, such as wind farms. More recently, profit participation rights have also been issued to finance investments in heat generation and supply in Heidelberg, Germany. In February 2024, Stadtwerke Heidelberg launched a financial investment product to enable citizens to participate in the energy transition and mobilize capital for necessary investments. The issuer is the company Stadtwerke Heidelberg Environment (in German: Stadtwerke Heidelberg Umwelt GmbH), which builds climate-friendly energy generation plants. The product, called Klima-Invest, is offered as a registered participation right with restricted transferability. Its purpose is to refinance the investment in an innovative combined heat and power (CHP) plant. This plant comprises of three CHP plants that can be converted for the use of hydrogen, three large air-to-water heat pumps, and a power-to-heat plant that can convert electricity from wind and sun into heat.

The target groups of Klima-Invest are private and professional customers, as well as suitable counterparties. Investors must be natural persons or legal entities under public or private law with legal capacity. The minimum issue target has been set at 2 million euros and the maximum issue volume at 6 million euros. The minimum deposit is 1000 euros and the maximum subscription amount is 25,000 euros per investor. Increments of 1000 euros are possible in between. In

addition, investors are required to provide a self-certification in which they confirm that their monthly net income does not exceed twice their subscribed investment amount. This does not apply for legal entities. The minimum contract term is five full calendar years, beyond which the participation rights run for an indefinite period.

An annual return of 4.5% on the nominal amount is provided for customers of Stadtwerke Heidelberg and 4.25% for non-customers. This return is not dependent on the development of a specific investment object, but on the economic development of the company Stadtwerke Heidelberg Environment as a whole. In this respect, there are repayment risks due to a possible (partial) insolvency of the issuer. The risks of a profit participation in Stadtwerke Heidelberg Environment are described in detail in the investment information sheet. Information and brokerage of the investment is provided via an electronic portal. This portal is operated by the company Dallmayer Consulting, that has the necessary license under Section 34f in Trade Regulation (in German: Gewerbeordnung, short for GewO) to broker financial investments. The total cost for the issuer is just under 6,000 euros, with

The municipal energy supplier in Heidelberg, called Stadtwerke Heidelberg, is a limited liability company wholly owned by the city of Heidelberg. It consists of a corporate group, together with the city of Heidelberg, who holds shares in Stadtwerke Energy, Networks, Pools, Environment, Tram, and others.

no costs for investors except for updating personal data.

The design elements of the participation right included the following characteristics:

- Registered paper (vinkuliert)
- Nominal value
- A fixed interest rate based on nominal value of 4.25% or 4.5% p.a.



The city of Heidelberg

ANNA BILLENBECK

- Annual payments, earliest repayment of the principal after five years
- Equity-like capital:
 - Termination possible after five years, but unlimited afterwards
 - Subordinated capital
 - same terms and conditions for all shareholder or participation holders, ensuring fair

and equal treatment among all equity holders

- Purpose: refinancing sustainable heating investments, contribution to climate protection
- Ownership of issuer is municipal, which lowers default risks
- Local actors involved

Within four days of the offer being

published in mid-February 2024, the maximum issue target of 6 million euros had been reached and the offer had to be closed. This underlines the great success of the Klima-Invest financing instrument. Due to the high investment and financing needs in the heating sector, this successful instrument can play a decisive role in the coming years. □

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