FINANCING WIND ENERGY BEYOND 2020

A DEDICATED FINANCE INSTRUMENT TO MEET THE EU 2030 RENEWABLE ENERGY TARGET

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windeurope.org

1. KEY MESSAGES

1. **WindEurope calls for a dedicated financial instrument in the post-2020 period** in order to meet the EU-wide 2030 renewable energy target.

2. **This financial instrument should replicate the European Fund for Strategic Investments (EFSI) model and include wider risk-mitigation tools based on credit enhancement financing** that:
   - provide first loss provisions to leverage private investment;
   - facilitate the pooling of different sources of domestic and international capital through project bonds;
   - improve the creditworthiness and bankability of corporate renewable power purchase agreements (PPA).

3. **Funds should be channelled through the European Investment Bank through geographical and thematic investment platforms**.

4. Investment platforms should have an **integrated approach that combines policy dialogue, technical cooperation and direct financing in projects**.

Why is this needed?

5. **The EU needs a fair, stable and predictable risk-reward mechanism for investors.** EFSI's design has made it possible for renewable energy projects to feature predominantly in the investments committed so far. However, EFSI and the remodelled EFSI 2.0 (currently under discussion) will come to an end by 2020;

6. Meeting the collective EU renewable energy target will necessitate a **stronger focus on equal distribution of funds across Europe.** However, this activity is concentrated in a handful of countries, with the South East Europe region being under-represented in EFSI energy sector financing. A stronger focus is therefore needed to ensure an equal distribution of funds across Europe;

7. **Regional cooperation may not be sufficient to incentivise Member States to make the necessary commitments to deliver on the EU wide 2030 Renewable Energy target**. Financial incentives would need to be tied to financing renewable energy projects across borders to help kick start regional cooperation.

8. **High potential wind energy markets need EU support to provide financial and regulatory certainty to investors.** In many important markets (e.g. Poland, Romania and Bulgaria) there are currently no wind investments happening despite these countries having significant potential for further expansion of wind power. One of the main problems in these countries is that regulatory uncertainty has driven up risk premiums. At the same time, smaller projects in fragmented markets find it difficult to raise financing or access low-cost financing options. Regional investment platforms and other financial incentives would enable a more targeted outreach to countries with a poor regulatory track record

9. **Addressing merchant risk of wind power projects as they move towards more market oriented support mechanisms.** As the industry moves towards more market oriented solutions for the allocation of renewables support, wind energy projects become more exposed to market prices. Corporate renewable power purchase agreements (PPAs) could help in mitigating merchant or quasi-merchant risk. However, financial incentives need to be tied to such initiatives to scale up the market and make it accessible also for smaller enterprises.

2. INTRODUCTION

The Clean Energy Package foresees an EU level financing framework to help the Union deliver on its collective binding target of renewable energy in final energy consumption (Art 3.4 of the recast Renewable Energy Directive). This financing facility could support and incentivise countries to deliver on their national plans and avoid any potential gaps in the target.

In the absence of legal binding renewable energy national targets, there is a need to incentivise Member States to deliver on the collective commitment by providing them with tools that attract investors to their markets. This paper elaborates on the main risks that investors will face in the post-2020 renewable energy context, and propose solutions at EU level to address the potential gap between available finance for renewables and deployment needs to meet the EU's 2030 targets.

The International Energy Agency (IEA) estimates that in the European Union, wind energy alone will need €20bn in average annual investments until 2025, and €21.6bn in average annual investments from 2026 to 2040.

In 2016, Europe raised a total of €43bn for the construction of new wind farms, refinancing operations, project acquisitions, and public market fundraising. Banks extended €12bn in project finance loans, or 28% of the total investment activity in 2016. However, encouraging these figures are, the post-2020 period is very uncertain on whether finance flows will continue at this pace.

Moreover, wind energy markets are getting very concentrated both in terms of new capacity additions and investments. In 2016, 44% of Europe's new wind installations took place in Germany alone. 46% of

investments announced in 2016 were in the United Kingdom, while 15 EU Member States announced no new wind energy investments.

By 2020, WindEurope expects 205 GW of cumulative installed capacity, 180 GW onshore and 25 GW offshore wind. This is expected to grow to 328 GW of cumulative installed capacity by 2030, 258 GW onshore and 70 GW offshore. This capacity could cover up 28% of EU's power demand in 2030.

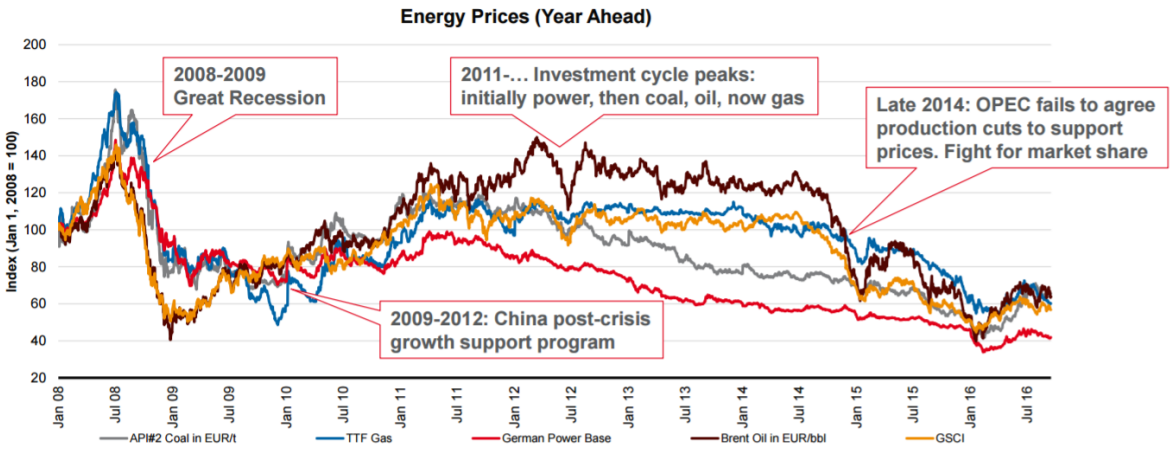
3. INVESTMENT CHALLENGES FOR RENEWABLES POST-2020

3.1 TRENDS IN POWER PRICES

Despite the cost reduction trend in the industry, wind assets are still unable to recover the cost of their plants over their asset lifetime through today's price levels in the spot market. In most cases, the full cost of wind energy still exceeds the average wholesale electricity price.

Wholesale power prices have been on a downward trend since 2012, with three factors at play: overcapacity at domestic level, declining power demand and the European Emission Trading System failing to provide adequate price signals.

Figure 1 Global trends and business cycles drive European power prices



Source Bloomberg and AXPO

Increasing renewable energy generation is also putting downward pressure on the power prices. This however is mainly in the short-term markets, which depend largely on consumer patterns

and weather[1]. This effect is relatively small in the long term framework, where wind power generators are price-takers. Unlike fossil fuels, they have very little influence on the price. Fossil fuels are considered the primary driver for such low power prices[2].

3.2 INCREASED EXPOSURE TO MARKET PRICES

As the renewables industry moves towards more market based mechanisms for allocating renewables' support, wind energy investors will eventually become more exposed to both volume and price risk. The revenues of a power plant depend on the produced quantity and the average unit price at which electricity it is sold. The uncertainty on both unit and price, which make up the merchant risk, will become an issue for wind power projects.

Risk exposure is the defining characteristic of a merchant power plant. Without a long-term power purchase agreement in place, the project runs the risk of not generating enough revenue to cover all its obligations, including the servicing of debt and the dividends to shareholders.

Equity financing by the developer is usually the main source of capital in a merchant power project. With the current price levels in the wholesale electricity markets, institutional investors looking for long term stable revenues may not be comfortable in taking over merchant risk. Similarly, lenders may not be willing to finance a project structure without a long-term off-take agreement in place.

Wind energy projects are very sensitive to cost of capital due to their high Capex – low Opex structure. These merchant structures can therefore lead to significant increases in the cost of capital. A 2.4% change in the Weighted Average Cost of Capital for an onshore wind farm can lead to €1.3 bn of savings per year on average for consumers.[3]

Power producers have traditionally lifted the major equity requirements in the sector. However, they are now faced with balance sheet constraints due to shifting business models and the corporate disposal of conventional power generating segments. Fundraising remains critical, in particular through the development phase where equity capital is most expensive. Only in the last two years wind energy investments have topped €50bn.

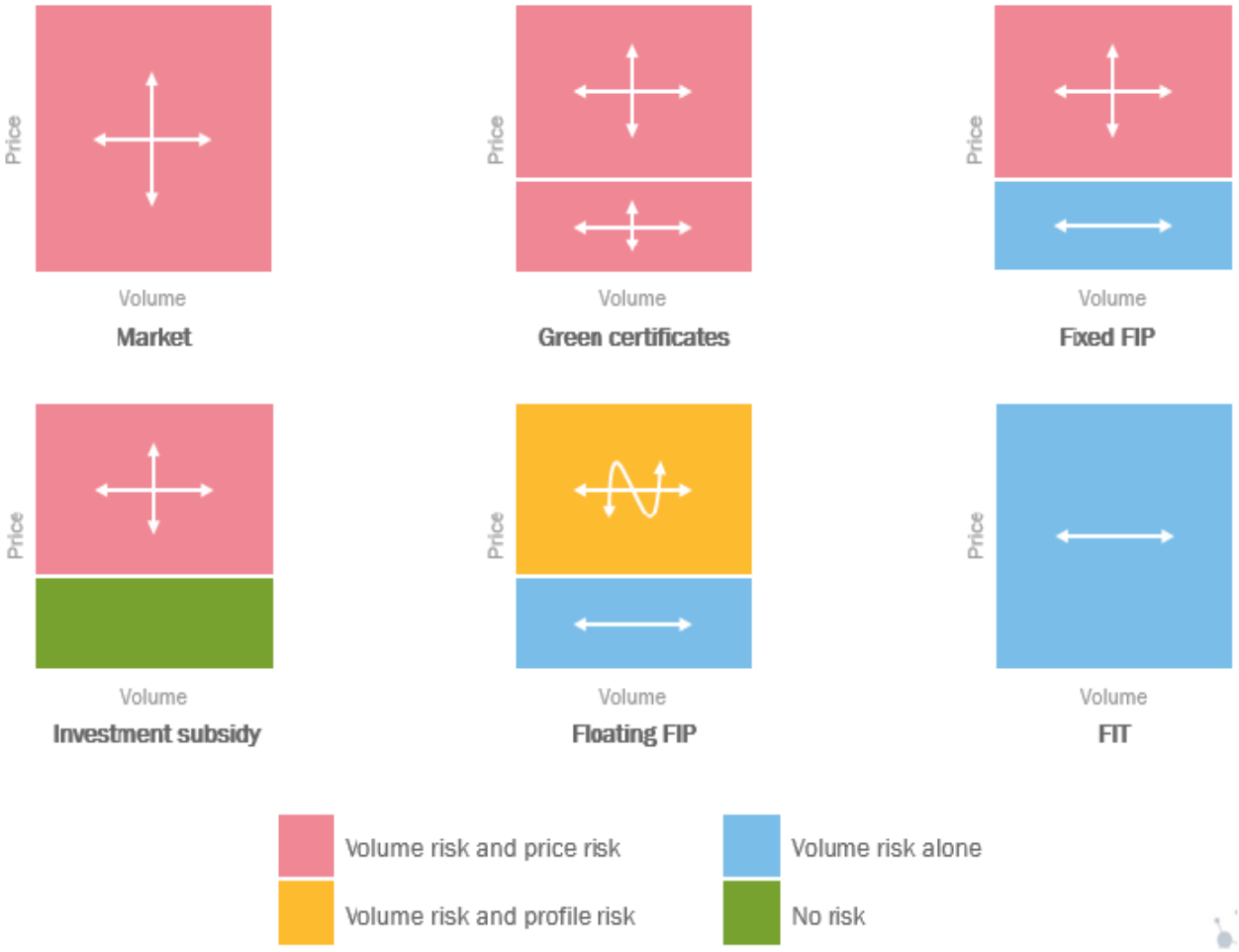
Figure 2 presents the correlation between the merchant risk an investor bears and the underlying support scheme of the project. The squares represent the revenues as the product of a volume of sales and a unit price and are split when the project has several different sources of revenues (e.g. the market plus a premium). The arrows represent the dimension about which the project developer has uncertainty.

[1] "Merit order effect". See EWEA, Wind energy and electricity prices (2010)

[2] European Commission, Energy prices and costs in Europe (2014)

[3] Diacore (2016) Please add link to project page

Figure 2 Type of risks supported by investors according to the type of support scheme[4]



Source WindEurope based on Market4RES project

Different support schemes will have very different implications on the risk taken by investors. While auctions will mostly leave projects exposed to the volume of sales, there is also some limited exposure to price risk coming from the spread between the strike price and the reference price. Thus, there is a need for future financing instruments to focus on flexibility in order to mitigate the shorter term risk inherent in merchant wind power projects.

[4] Market4Res project (2016): http://market4res.eu/

3.3 CORPORATE RENEWABLE PPAs AS AN ADDITIONAL REVENUE STREAM

Corporates and industrial consumers are playing an important role in helping the EU deliver on its climate and energy goals. Driven by economic and sustainability reasons, more corporates are aiming to directly procure green electricity from power generating assets. The RE100 initiative today counts more than 95 companies committed to go 100% in the near future.

In Europe, the volume of corporate renewable energy sourcing almost tripled in 2016 compared to 2015. In the US, they accounted for almost half of the installed renewable energy capacity in 2016.

The conclusion of such agreements has several economic benefits for the generators as well as the wider industry. First, they facilitate investment for utility scale projects and therefore help to bring new and additional renewable capacity online. Second, they provide a project with a stable income stream, in particular in countries where generators are exposed to some degree of merchant risk, such as Norway and Sweden.

In spite of the recent European and global growth of renewables corporate sourcing, the potential of this business model is largely untapped. The current speed and volume are inefficient to bring the volume of renewable energy needed to meet the 2030 targets.

Regulatory regimes in some countries do not allow for direct marketing agreements such as corporate PPAs. Support schemes and corporate PPAs have been an either/or option for power producers. The value proposition is difficult in particular in Feed-in-Tariff jurisdictions or those with a sliding Feed-in-Premium.

While the new Renewable Energy Directive[5] opens the door to addressing regulations and market risks, issues related to financing still remain. Financing wind power projects with a corporate off-taker is more challenging than financing a project with a regulated counterparty (i.e. utility).

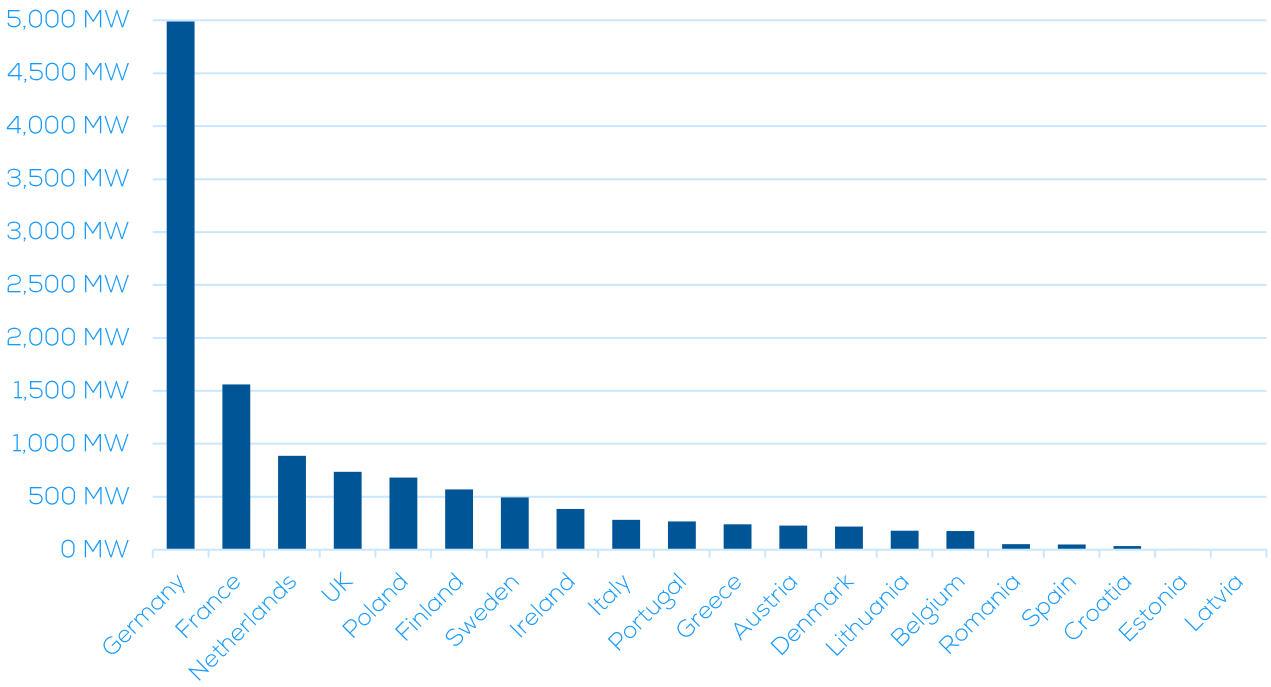
Corporates have a lower creditworthiness as off-takers (compared to utilities), because of their frequent fluctuations in power demand. This can lead to high financing cost and a number of other requirements related to credit risk guarantees.

[5] Article 15.9 of the recast Renewable Energy Directive

3.4 UNBALANCED GEOGRAPHICAL DEPLOYMENT OF WIND ACROSS EUROPE

In many important markets there are currently no wind investments happening, despite these countries having significant potential for further expansion of wind power. In 2016, 44% of Europe's wind energy installations were in Germany alone.

Figure 3 New wind energy installed capacity during 2016[6]



Source WindEurope

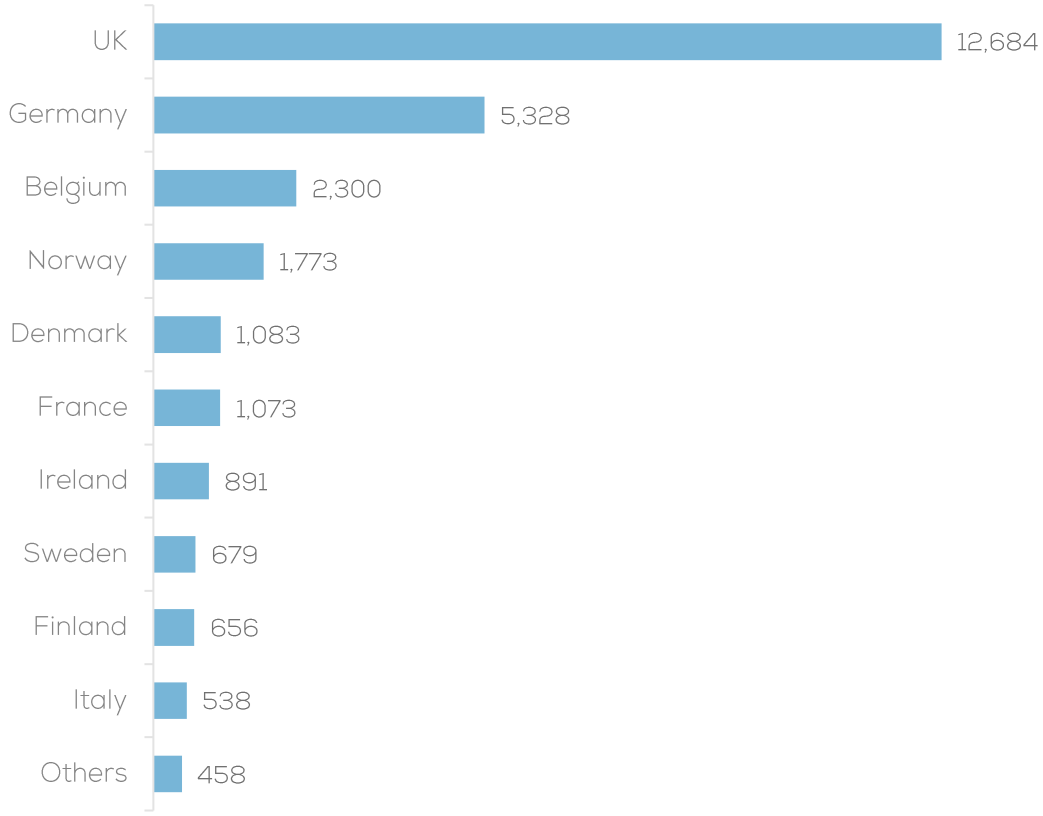
46% of new investments announced in 2016 were in the UK, while there were no new wind energy investments in half of the EU member states.

Investments in Southern and Eastern Europe remain very low. Regulatory concerns and lack of macroeconomic stability have reduced investments in some of the SEE markets over the last years.

At the same time, significant competition for investments offering long-term and steady returns, coupled with low interest rates across Europe have triggered risk-return imbalances for renewable energy assets.

[6] Wind in power: 2016 European Statistics

Figure 4 New asset financing in 2016 by country in mEUR[7]



Source WindEurope

The European onshore wind sector remains heterogeneous with respect to pricing of assets and capital. The Weighted Average Cost of Capital (WACC) varies considerably across the European Union, with cheaper capital in the North and West and expensive in the South and East.

Countries with a high cost of capital are failing to attract investments. Cost reduction efforts are often offset by increasing costs of capital. This can be as high as 12% in Croatia, 11% in Romania and Czech Republic, and as low as 3.5-4.5% in Germany.[8]

The cost of capital is closely tied to policy and regulatory stability, with uncertain future events being priced as risk premium in the cost of financing. In this context, risk sharing with direct public involvement on a commercial basis becomes important to lower the cost of capital.

[7] Wind in power: 2016 European Statistics

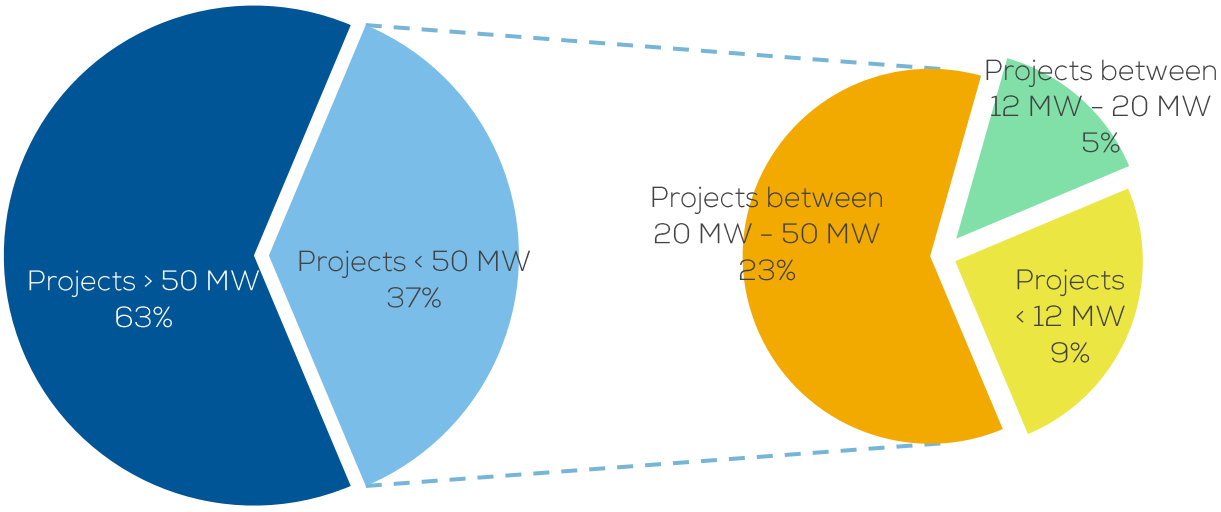
[8] 2016 DiaCore Project: comparison of cost of capital for onshore wind in the EU28

3.5 FRAGMENTED ONSHORE WIND ENERGY ASSETS

Ownership of wind power assets is becoming more fragmented with smaller entities taking control of projects. In 2017, 96% of the awarded capacity in the first onshore wind auction completed in Germany resulted in community based projects. In total, 807 MW were awarded across 70 projects. That brings the average project size in the auction at approximately 10 MW.[9]

In Europe today, at least 60 GW out of a total 154 GW of installed capacity comes from projects smaller than 50 MW. Within these, 26 GW are from projects smaller than 20 MW, and 14 GW from projects below 12 MW.

Figure 5 Project breakdown per capacity



Source WindEurope

As they are unable to reach economies of scale, smaller projects find it difficult to raise or access low-cost financing, unless aggregated in large portfolios where risk is better diversified. For example, the European Investment Bank lending threshold is €50m. Similarly, attracting institutional investors is challenging for small scale assets due to the high frequency of transactions. The means to bundle these assets are still limited.

The best way to link such projects to capital markets is to pool them into special entities and bring small transactions to scale. This becomes particularly important in countries like France, Germany and the UK that have a growing secondary market for power generating assets. International investors are also returning to Spain, looking to hedge their positions and find attractive returns in the existing asset base.

[9] Platts, 2016. Issue 750

4. KEY DESIGN ELEMENTS OF RES INVESTMENT PLATFORMS

Investment platforms channelled through the European Investment Bank are outlined as a possible financing tool for a cost effective energy transition. These have been considered under EFSI as a key instrument for closing market gaps under long-term infrastructure financing, guaranteeing maximum absorption of funds and ensuring a geographically balanced distribution of funds.

They should be further promoted also in the renewable energy sector, given the many benefits they bring. The European Commission and the European Investment Bank could bring such a tool forward in cooperation with relevant and committed stakeholders for supporting the deployment of renewables in the post-2020 period.

Cross-border investment platforms help the regions take ownership of their renewable energy deployment. By bringing together relevant key actors and sources of finance such as the European Commission, the EIB, National Development Banks and private actors, investment platforms contribute to a higher leverage and efficient use of public funds.

They also provide the means to bundle small projects, help them reach scale and attract affordable finance. Moreover, their flexible set-up allows for different forms of financial support, depending on the risk profile of a project.

Compared to an EU wide approach, regional (or national) investment platforms are flexible enough to accommodate different sector or country specific needs. The benefits would go beyond pure cost savings and risk sharing between the countries. Such an instrument would help avoid the duplication of efforts and promote specific technologies through economies of scale.

Ultimately it would also incentivise Member States to align regulatory frameworks and bring down administrative-related project costs.

In the post-2020 energy context, there will be a need for credit enhancement solutions to address the economic risks inherent in merchant wind power plants. While credit enhancement facilities should support the different forms of financing currently on offer from the EIB, the focus should shift over time from direct lending.

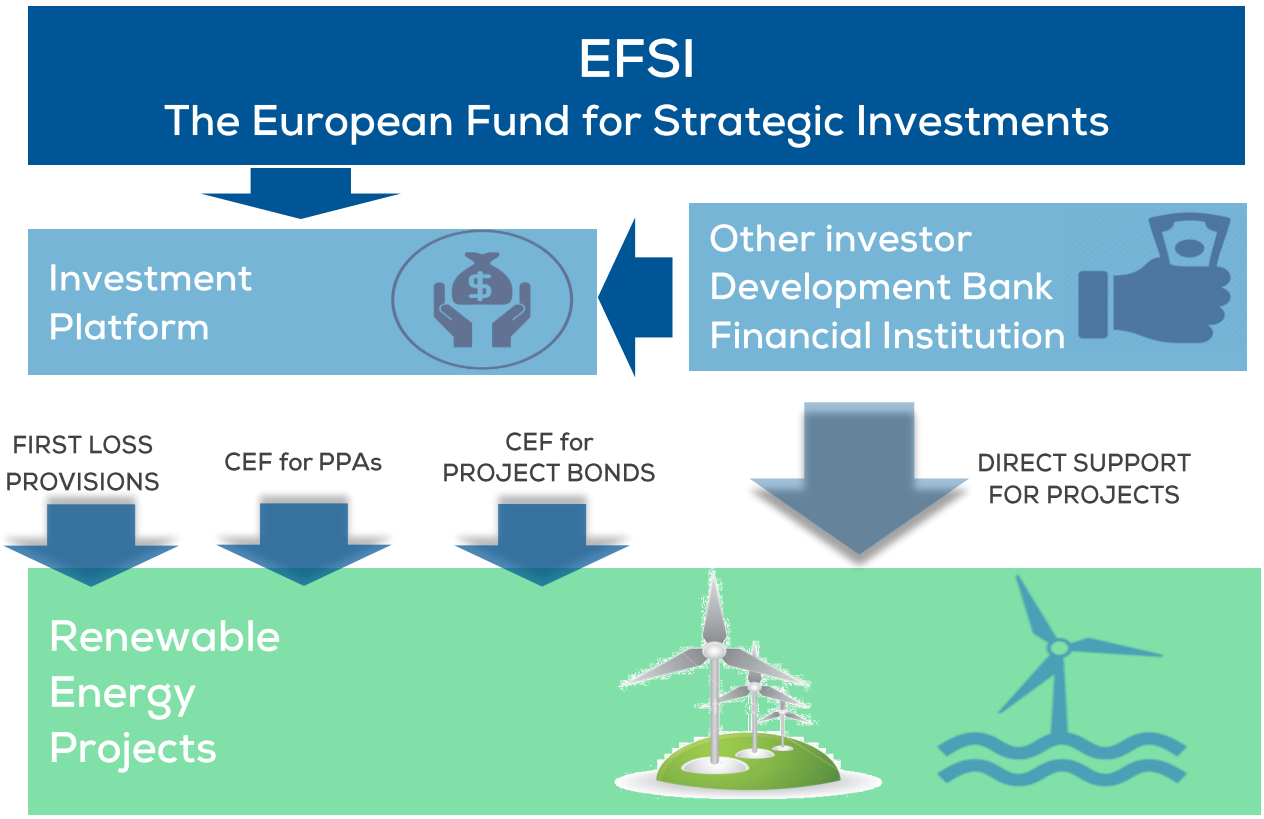
Wider risk-mitigation instruments should be considered that:

- facilitate the pooling of different sources of domestic and international capital;
- improve the creditworthiness of a particular investment opportunity;
- adjust the risk-return imbalances, and
- contribute to a flow of capital in the sector.

Backed by a guarantee fund modelled on EFSI, these investment platforms should be able to provide first loss provisions, credit enhancement project bonds, and underwriting of corporate renewable power purchase agreements. To ensure a maximum absorption of funds, these initiatives will have to follow an integrated approach, by combing policy dialogue, technical assistance or technical cooperation in the case of joint projects, as well as direct financing to projects.

Examples of investment platforms have emerged under the European Investment Bank (EIB) or other international financial institutions, such as the European Bank for Reconstruction and Development (EBRD). Experience could be built on the pan-European Marguerite Fund of the EIB[10], the investment platform for social infrastructure in Poland established under EFSI[11], or the EBRD facility for renewable energy projects in Greece[12].

Figure 6 Example of an investment platform under EFSI



[10] http://www.marguerite.com/

[11] http://www.eib.org/infocentre/press/releases/all/2017/2017-126-eib-and-bgk-establish-investment-platform-for-social-and-affordable-housing-in-poland-under-juncker-plan

[12] http://www.ebrd.com/news/2017/ebrd-adopts-300-million-renewable-energy-framework-for-greece.html

4.1 FIRST LOSS PROVISIONS

First loss provision instruments support the goal of tapping unused sources of finance and crowding-in private investors. They directly mitigate a project's financing risk by shielding investors from a pre-defined amount of losses. These first loss provisions can be adapted to target specific project risks. They can take the form of guarantees, equity injections or credit lines that can be drawn upon when needed. As such, they are very well placed to address the shorter term merchant risk in wind power plants.

Under the present credit enhancement activity of the EIB channelled through EFSI, wind energy has received over €1bn finance in direct loans. This has leveraged a further €5bn in private investment. Offshore wind in particular has been the biggest recipient in the EFSI renewable energy financing. It is important that EFSI modelled first-loss guarantee instruments continue beyond 2020 to sustain a healthy pipeline of climate and energy projects.

4.2 CREDIT ENHANCEMENT PROJECT BOND

Project bonds are slowly emerging as alternative sources of debt for financing wind power projects. They allow the project sponsors to access competitive funding in the capital markets and facilitate the intervention of institutional investors.

To date there have only been a few transactions of capital market financing. While onshore wind assets are less attractive to investors unless aggregated in larger portfolios, offshore wind and offshore transmission lines have successfully issued investment grade project bonds for construction and refinancing.

These developments suggest that investors in the wind energy sector are now better placed to assess, price and mitigate project risks. However, such transactions still remain risky and only accessible for a number of players with strong balance sheets. Institutional investors are not always comfortable with construction risks, while credit rating agencies put stringent requirements on such investment vehicles.

Current project bond initiatives of the EIB exclude the construction of wind power projects. Given the financing needs of our sector and the scale of investments required in the energy sector in general, there is consensus that a bond solution will absolutely be needed.

Box 2: Mitigating merchant risk in project bond transactions[13]

The 2015 refinancing of Meerwind (WindMW, 288 MW) offshore wind farm in Germany has been the first European transaction to approach merchant risk in a project bond structure. Having previously reached financial close in 2011, Meerwind is now in the operational stage.

The initial debt maturity was for 11.5 years, matching with the support scheme of the project. However, in the post Feed-in-Tariff period the project was exposed to merchant risk. Merchant risk is shorter term in nature and requires a more flexible approach to financing. This makes it difficult for investors to commit long-term sources of finance to the project.

In Meerwind, a reserve fund was structured to minimise exposure to merchant risk. During the final years of the transaction, the reserve funds are indexed to spot and forward energy prices. If spot prices decrease below certain thresholds, funding of the reserve from project cash flows is required to meet the obligations.

The bonds were issued to a group of around 20 international institutional investors, some of them entirely new to the sector. With an investment grade rating from three main rating agencies, the transaction raised €960m.

4.3 SHORT TERM LIQUIDITY INSTRUMENTS FOR BANKABLE CORPORATE RENEWABLE POWER PURCHASE AGREEMENTS (PPAS)

There is a consensus in the industry that the economic context post-2020 will be an important driver for corporate PPAs in Europe. Cost reduction progress will make more technologies accessible from corporates, whereas market exposure will incentivise renewable energy developers to look for alternative off-takers or additional sources of revenue.

Most wind power projects are financed through non-recourse long-term debt, with the cash flows of the project serving as the primary means for debt repayment. As such, long-term offtake agreements that (in part) address the demand and price risk, are necessary for a project to make sufficient returns to cover its debt obligations.

One of the key elements of a bankable PPA agreement is a creditworthy counterparty. Depending on the size of the project and the credit rating of the corporate off-taker, this might result in stringent credit support requirements from lenders.

[13] Credit Agricole (2016). Project bond focus, Issue nr.3

In the absence of a rated counterparty, then parent company guarantees or bank guarantees will be required to prove the commitment or financial standing of the corporate buyer. These guarantees increase the cost of financing, therefore limiting the pool of companies willing to enter into such agreements.

Credit enhancement mechanisms are crucial to improve the economic viability of a project financed through a corporate PPA. These credit enhancement facilities can take the form of an insurance coverage, short-term liquidity instruments, or underwriting corporate offtake agreement for small and medium sized enterprises.

Box 3: EBRD facility for renewable energy projects in the SEMED region[14]

In 2015, the European Bank for Reconstruction and Development (EBRD) launched a US$ 250 million financing facility for the Southern and Eastern Mediterranean region. More specifically, the fund will assist private companies in Morocco, Egypt, Tunisia and Jordan to build new renewable energy generation capacity.

Supported also by other EBRD partners and local promotional banks, the facility follows regulatory changes in the region to incorporate third party electricity trading in their national legislation. Most of the produced electricity will be sold directly through power purchase agreements to industrial consumers, including cement factories and hotels among others.

Khalladi (120 MW) onshore wind farm in Morocco is the first project to receive financing under this scheme, and one of the first private renewable energy projects in the country.

5. CONCLUSIONS

This paper outlines the key elements of a dedicated financial instruments for renewable energy projects as per Article 3.4 in the new Renewable Energy Directive. This financial instrument should replicate the European Fund for Strategic Investments (EFSI) model, with the European Investment Bank as a key player.

The paper also calls for wider risk-mitigation instruments to be considered under these investment platforms, with the focus shifting over time from direct lending towards more equity and credit enhancement facilities. In the post-2020 energy context, there will be a need for credit enhancement solutions to address the economic risks inherent in merchant wind power plants.

[14] EBRD (2017): http://www.ebrd.com/ebrd-donors-and-the-SEMED-region.html

These could take the form of:

- first loss provisions to leverage private investments;
- credit enhancement for project bonds to facilitate the pooling of different sources of domestic and international capital;
- credit enhancement for corporate renewable power purchase agreements to improve their creditworthiness and bankability.

The financing should be channelled through geographic and thematic investment platforms that follow an integrated approach combining policy dialogue, technical cooperation and direct financing in projects. Investment platforms can be a key instrument for a cost effective energy transition, in particular in view of the following:

- ensuring a fair, stable and predictable investment environment for wind energy;
- ensuring a geographically balanced distribution of public funds and wind energy deployment across the European Union;
- incentivising regional cooperation in renewable energy deployment.

These measures will help to facilitate the pooling of different sources of domestic and international sources of finance and contribute to a capital flow in the sector.