



Double materiality agency

The importance of (and challenges facing) renewable generation and independent power producers (IPPs) in increasingly green Spanish and French electricity systems

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1) Executive Summary

In Europe, the race towards a cleaner electricity system is no longer a possibility, but a fast-moving reality. And the two countries taking this transformation most seriously are Spain and France. Both have been promoting renewables for years, and step by step, their electricity systems are starting to look less like they did a decade ago and more like the ones we imagined for 2030. It is true, however, that the pace differs: while renewable energy is advancing rapidly in Spain, in France – although it is also developing positively – nuclear power remains the core component of the energy mix.

Consequently, renewables have ceased to be 'the alternative' and have become a fundamental element of the energy mix. And alongside this, new players have been gaining traction: independent power producers also referred to as IPPs. These companies, many of them medium-sized, are playing an increasingly important role in the development of new projects and in the configuration of a sector that no longer revolves solely around the large electricity companies.

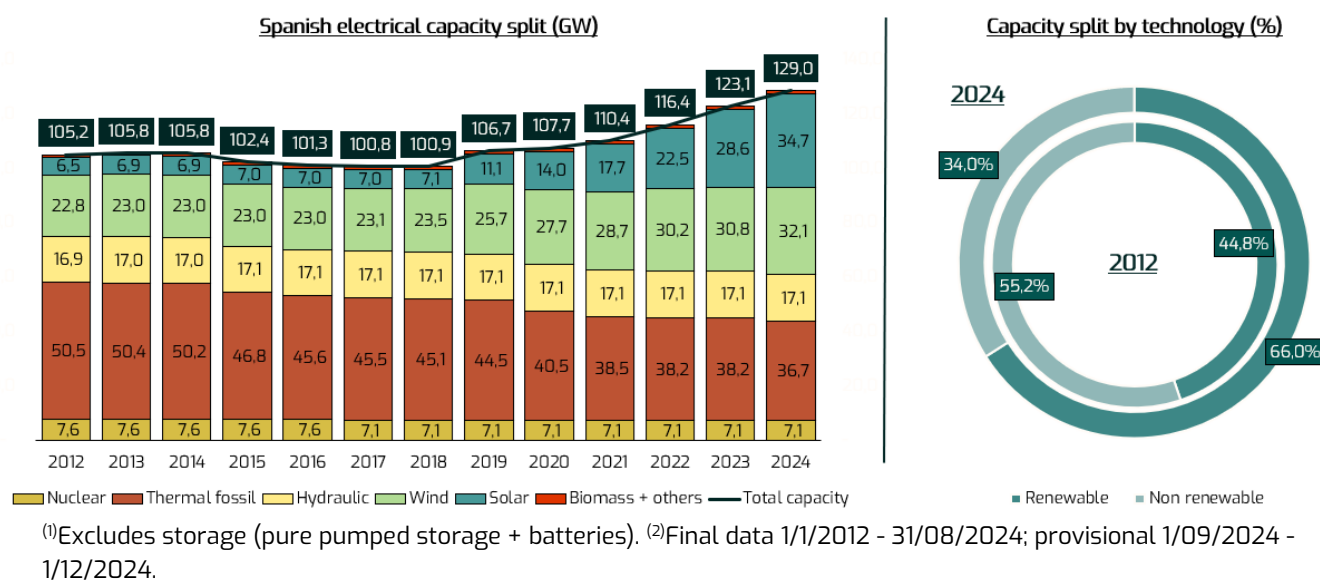
This transition is not without challenges. Beyond growth and investment, the system has to adapt to a new reality: technologies that depend on the sun or wind, more volatile prices and the need to maintain balance and stability in the grid. All this requires reinforcing infrastructures, investing in energy storage, and managing demand more intelligently.

In this article we explore how Spain and France are coping with this transformation, what role IPPs are playing, and what their characteristics are from a risk and rating perspective, in a market that is no longer what it used to be – and never will be again.

2) Energy mix and increasing weight of renewables in Spain and France

Spain: renewable records and structural change

In 2024, Spain reached 129 GW of installed capacity. In the last year alone, the system added 7.3 GW of renewables (6 GW solar and 1.3 GW wind), consolidating a longstanding trend. Today, 66% of all installed capacity in the country is already renewable, compared to just 44.8% in 2012, according to data from Red Eléctrica.



Source: REE.

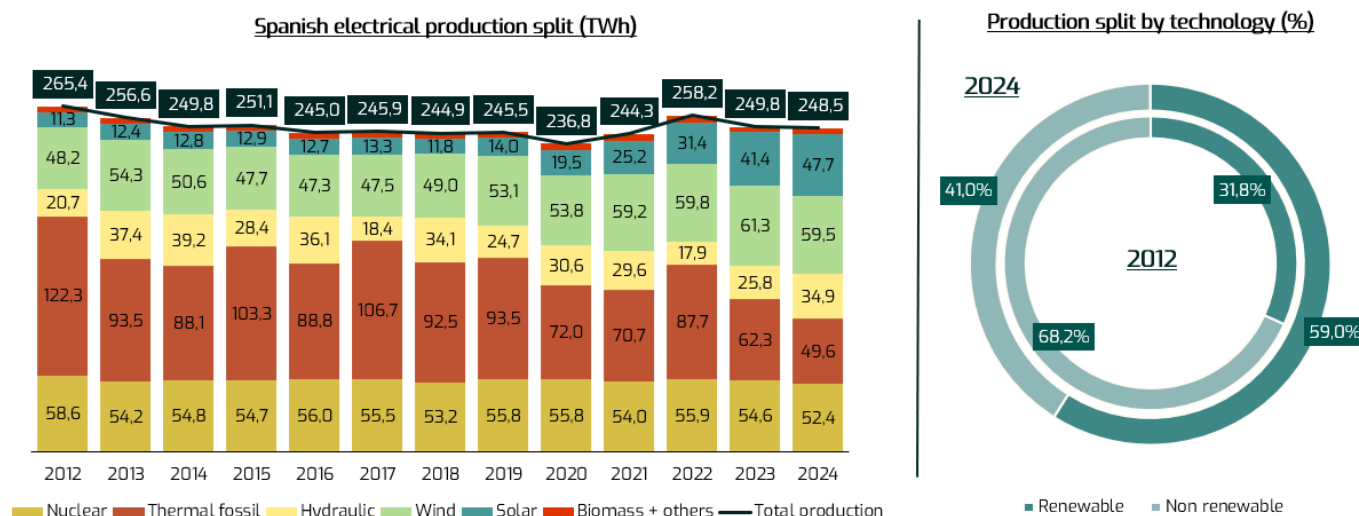
There are several key factors behind this leap. One of them is the 'Plan Nacional Integrado de Energía y Clima (PNIEC)', which sets the goal of reaching 160 GW of renewables capacity by 2030. Another, more tactical, has been the renewable auctions, which have allowed private investment to be channelled under attractive conditions. This has enabled solar photovoltaic power to go from less than 5 GW of total electricity mix in 2012 to more than 30 GW in 2024.

On top of this, costs have fallen sharply. In a decade, the price of installing solar has fallen by more than 80% (due to economies of scale, better technology, and mass production in China, etc.) which has triggered interest from new developers, including many IPPs. And of course, the natural factor adds to the attraction: Spain is one of the countries with the best solar and wind resources in Europe. With an annual irradiation of between 1,600 and 2,000 kWh/m², it exceeds countries such as Germany and the Netherlands by more than 40%. And in terms of wind, the north of the peninsula, mountainous areas, and the Ebro Valley offer very competitive average speeds, according to Global Wind Atlas.

The progressive closure of thermal power plants and the political and social consensus on the need to decarbonise have done the rest. The result is an electricity system that no longer resembles that of the past and which, although it still has challenges ahead, is moving decisively towards a greener, more flexible model involving more players.

Production, measured in TWh, has followed the same path, with renewable generation increasing by 10.3% in 2024 to reach 146.5 TWh out of total electricity production of 248.5 TWh (-0.5% YoY). This development of clean energy has been supported by increased hydro

and solar production, which generated 34.9 TWh and 47.7 TWh respectively during the year. This offset lower wind production in 2024 (-2.8% YoY) due to less favourable weather conditions. This figure marked the second consecutive year in which green production (59% of total) exceeded non-renewable production (41% of total), and this dynamic is expected to



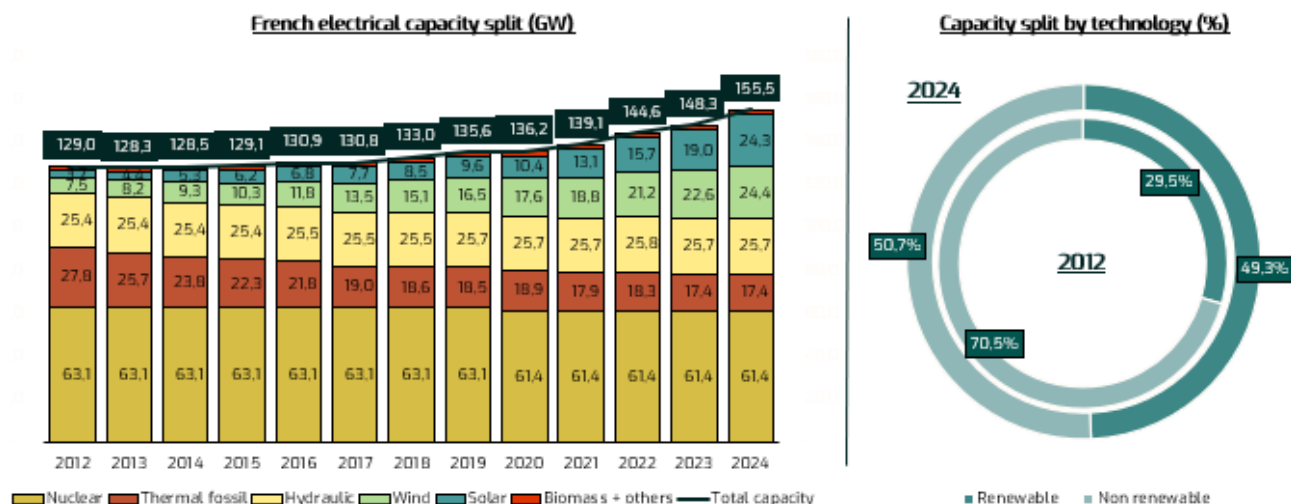
continue going forward.

⁽¹⁾Excludes storage (pure pumped storage + batteries). ⁽²⁾Final data 1/1/2012 - 31/08/2024; provisional 1/09/2024 - 1/12/2024.

Source. REE.

France: renewable energy is also progressing but nuclear remains the core driver

In 2024, installed energy capacity in France continued to rise and reached 156 GW, driven by an additional 5.3 GW in solar and 1.8 GW in wind. Nevertheless, the majority of installed capacity remains non-renewable (61.4 GW nuclear and 17.4 GW thermal fossil). However, renewable energy will likely reach at majority in 2025 or 2026 due to the continuous growth of solar and wind.



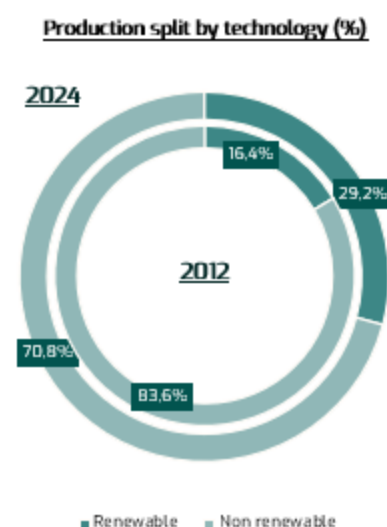
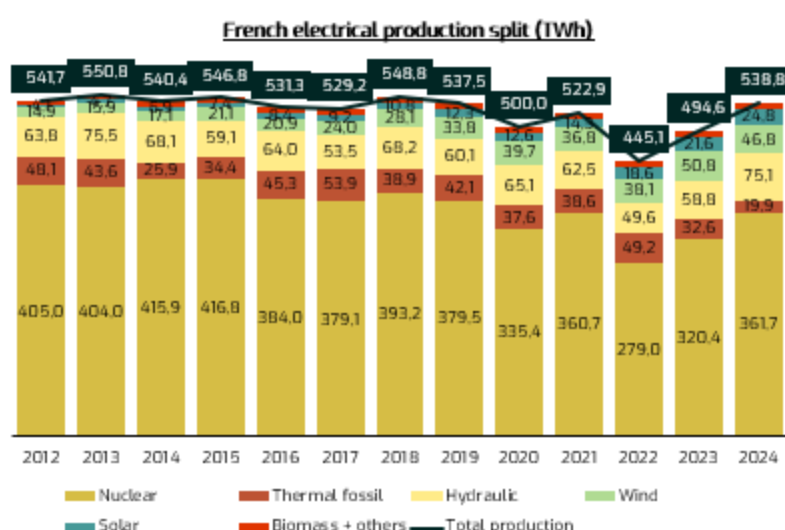
Source. RTE.

The predominance of nuclear in France has been longstanding. France counts 56 reactors (individual capacity of 0.9GW, 1.3GW, or 1.45 GW) that started to operate between 1979 and 2002. It has provided the majority of the French electricity for the last couple of decades with very low CO₂ emissions. Hydraulic capacity has also been stable over the period and also contributed to the low CO₂ emissions of the French electricity system. Nevertheless renewable energy (solar and wind) installed capacity has experienced a strong increase since 2012 as a result of feed-in tariffs helping private investment under attractive conditions. As a result, installed capacity for solar and wind have increased from 11 GW in 2012 to 49 GW in 2024, whereas thermal fossil capacity has significantly decreased during the same period. .

As in Spain, costs for wind and solar have fallen sharply which has supported growth in addition to the supportive regulatory environment. However, recently growth in wind has been more limited due to increasing local and political opposition for on-shore wind projects and also opposition to the more nascent off-shore wind projects which can face a long period of regulatory approval.

Electricity production in France has experienced a rather volatile path over the last 4 years. In 2022 nuclear production experienced a significant 23% decline compared to 2021, due to a combination of maintenance, inspections and repair of nuclear plants. It drove electricity production down to 445 TWh in France in 2022 when it had always been above 500 TWh since 2012. As a result, there was the expectation of a possible electricity outage during the winter of 2022. The same year, France's President Emmanuel Macron announced the construction of 6 new reactors (EPR type) for a total of c.10 GW of capacity with a start of operation expected between 2035 and 2037 in order to prepare to the retirement of the older French nuclear plants.

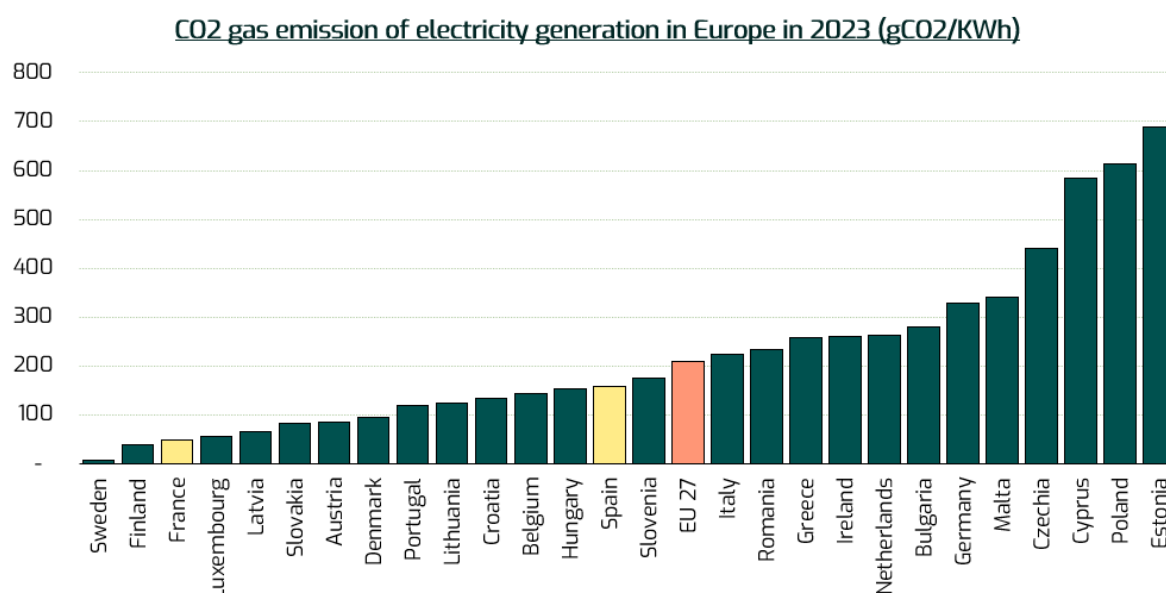
Since 2022, France's nuclear capacity has been back on track, and electricity production was back to a high level of 539 TWh in 2024, largely due to the comeback of nuclear power (362 TWh in 2024 vs 279 TWh in 2022). The proportion of production derived from renewables reached 29% in 2024, of which roughly half came from hydraulic power. This proportion is expected to continue to increase over the coming years, in line with the increase of the installed capacity of sun and wind.



Source: RTE.

Spain and France, top performers in CO2 emissions reduction

These trends are reflected in the latest data from the European Environment Agency (EEA), which show that Spain and France continue to make progress towards an electricity system with lower greenhouse gas emissions intensity. In 2023, France recorded one of the lowest intensities in Europe, just 48 gCO₂e/kWh, thanks to its strong dependence on nuclear energy (electricity production by nuclear fission is practically free of direct greenhouse gas emissions) and a very low fossil fuel contribution to the mix. For its part, Spain reduced its intensity to 122 gCO₂e/kWh, a significant improvement compared to previous years, driven by the growth of solar and wind, and the progressive reduction of coal in the energy mix. This evolution puts both countries - the second - and fourth - largest economies in the European Union- in a better position than the EU average, reflecting their progress in the decarbonisation of the electricity sector and the direct impact of their long-term energy strategies.



Source. European Environment Agency.

3) Our vision of IPPs and the future of the industry

IPPs are playing an increasingly important role in the Spanish and French electricity systems as key players in the development and operation of new generation plants as the electricity mix is increasingly oriented towards technologies such as solar PV and wind.

In Spain, the regulatory framework - auctions, grid access, private power purchase agreements (PPAs) - and the country's favourable natural resources have led to an explosion of new players that develop, finance and operate renewable projects without being part of the traditional large electricity companies. Meanwhile, in France, although the electricity sector remains more concentrated (due to the historical weight of EDF and nuclear power), the advance of renewables has also opened up space for these players.

For more than 10 years, we have observed how these companies have taken on the challenge of becoming energy producers themselves, in addition to their other businesses, such as the development and/or execution of projects, the manufacturing of components, or the commercialisation of energy. The adoption of this strategy, generally linked to very ambitious investment plans for growth in their installed capacity, has been nothing more than a competitive scramble to obtain the sites and resources available on the market. In this regard, we would highlight that the need for equity to accompany external financing when undertaking investments associated with the development of its pipeline has made asset rotation essential. This strategy enables the company to generate liquidity that can be reinvested in the development of other renewable assets.

In this context, what is our assessment of the industry? We believe that the sector has favourable fundamentals despite its complexities and future uncertainties.

To begin with, IPPs usually benefit from the high operating profitability of projects, which serves as a basis for sustaining their high financial leverage. This high profitability is particularly evident in the production companies, which have EBIT margins of over 20%.

Much of the financial leverage seen in this sector comes from the widespread use of non-recourse debt to finance projects. This approach, common among IPPs, allows companies to develop large-scale renewable assets by securing loans that are backed only by the project's own cash flow and assets—without putting the parent company at risk. This is an effective way to grow while keeping corporate exposure under control. That said, this model demands a high level of discipline: solid project evaluation, careful cash flow planning, and well-structured contracts are essential to make the financing viable and reduce the risk of things going off track.

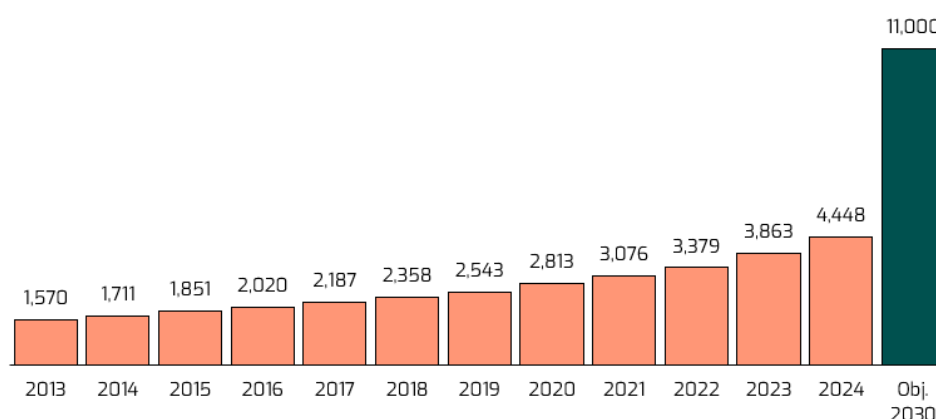
Additionally, this industry is largely supported by regulated projects or private PPAs, a necessary aspect for the financing and which, in any event, contribute to containing the volatility of results.

Although the barriers to entry are not considered as high as in the generic utilities sector, they are considered to be high enough to favour groups with an advanced track record. Thus, the need for a high level of know-how, the need to manage a significant pipeline of projects, as well as a strong financial capacity, are elements that reinforce this assessment.

Finally, we point to growth prospects as a key driver in shaping sectoral risk. Demand for renewable energy, both public and private, is expected to continue to be driven by a number of factors, such as lower costs, environmental awareness, progress in the electrification of society, and development of storage technology. Such favourable prospects strengthen the credit profile of the industry. The European Union is also playing a crucial role in supporting the energy transition through its Green Financing Strategy, which is designed to channel both public and private capital towards renewable infrastructure. This long-term commitment not only improves the financing environment for IPPs but also reinforces the credibility and bankability of projects aligned with EU climate goals.

According to the data observed, the installed capacity of renewable technology worldwide significantly increased again in 2024, with the addition of 585 GW (+15.1% vs. 2023). As a matter of fact, the 4,448 GW of renewables installed globally represent a near tripling of capacity between 2013 and 2024 (2.8x), a pace that will have to accelerate to reach the target of 11,000 GW agreed at the Dubai Climate Summit (COP28) by 2030.

Global installed capacity - renewable energy (GW)



Source: IRENA.

However, it is not entirely good news for IPPs. We would highlight the following challenges and areas of uncertainty:

In Spain:

- **Price volatility.** The renewables market is beginning to suffer from the consequences of its own success. The massive influx of projects has driven down the average electricity market price, with fluctuations that are challenging the profitability of some projects. The main risk now lies in the potential non-viability of many new projects, as well as those operating under merchant schemes or PPAs that may require renegotiation.
- **Difficulty in accessing financing.** In line with the above, uncertainty about future revenues is holding back new investments and blocking financing. Even long-term contracts, which used to provide some stability, are now closed at prices so low that it is difficult to cover costs. Moreover, this constraint slows down small projects or those of developers with less financial muscle.

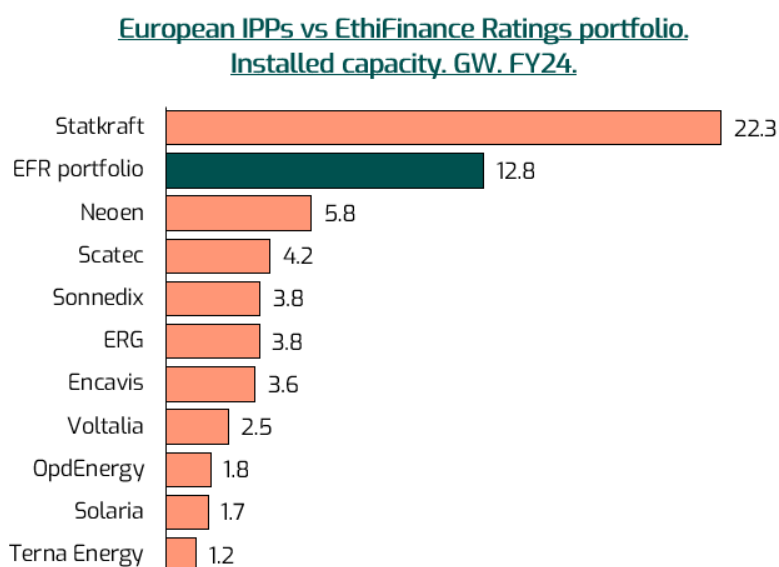
- **Grid access, connection delays and system constraints.** Administrative delays and grid saturation continue to make it difficult to connect new projects, forcing them to wait for long periods of time before being able to discharge energy, with these delays having a negative financial impact on the companies. Beyond the paperwork, recent alerts from Red Eléctrica are making it clear that the grid itself is starting to feel the pressure—especially in regions where renewables have grown rapidly. The risk is no longer just about waiting for permits; it is about the real possibility of temporary restrictions, curtailments or even local outages. In fact, the partial blackout experienced in Spain just a few weeks ago served as a wake-up call, highlighting the fragility of a system increasingly stretched to its limits. For IPPs, this can mean unexpected revenue losses, delays in getting projects up and running, and strained relationships with offtakers. The grid needs to catch up.
- **Regulatory risk.** Exposure to changes in remuneration, taxes, fees or technical requirements generates uncertainty, recent examples being changes in the rate of VAT on electricity or the recovery of the generation tax. These political decisions, especially accentuated in election years, could adversely affect expected returns.

In France:

- **Local/political opposition.** On-shore wind projects have experienced increasing local/political opposition on the back of their impact on the landscape due to the height of the wind turbine. Offshore wind projects are subject to the same opposition, as well as involve long approval times.
- **Regulatory risk.** There has been some attempt - albeit to a lesser extent than in Spain - to change the attractive feed-in-tariffs that were awarded a long time ago, at a time when the cost of building a wind or solar plant was more expensive. The risk is lower for more recent projects as the feed-in-tariffs have been reduced substantially for projects completed after 2017.

4) Focus on our portfolio

With a portfolio of more than a dozen companies operating as IPPs and a current total installed capacity of nearly 13 GW (around 24 GW including projects under construction), EthiFinance Ratings covers a wide range of operators in the sector, each presenting its own distinct characteristics.



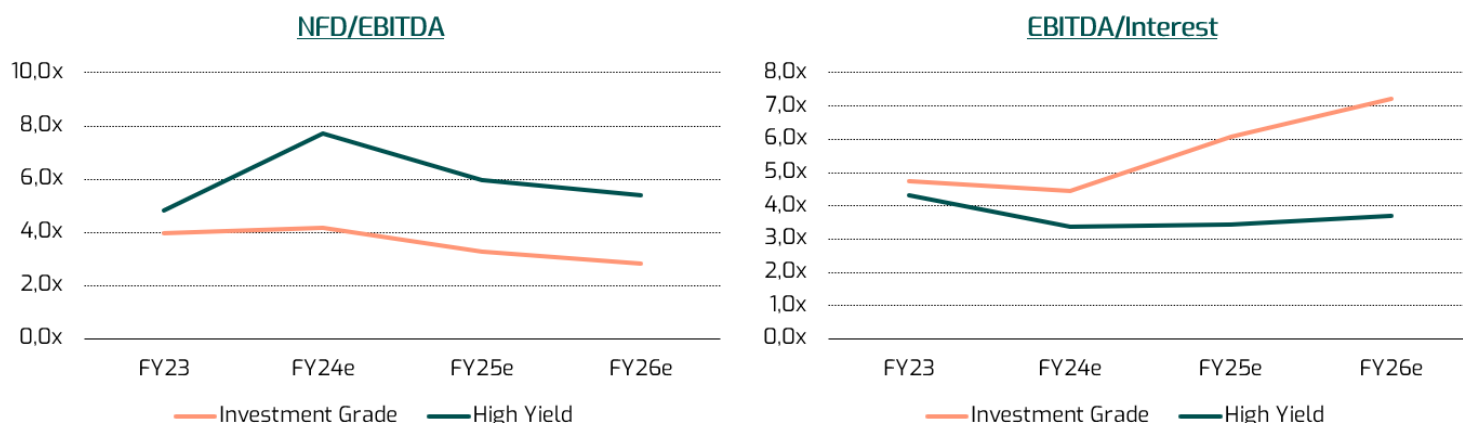
Source: Company's website. Public information.

In this context, we have been observing a clear difference between those companies with an investment grade (IG) credit rating and those with a high yield (HY) credit rating. Generally speaking, these differences are related to the following aspects:

- **Maturity of their business models.** The IG companies show a greater degree of progress in their renewable assets portfolio. They are companies with a more solid qualitative profile based on consolidated competitive advantages, a proven ability to advance in the development of their pipeline and greater business and geographic diversification, which makes them less dependent on a specific country or technology. In addition, their financial figures are based on more consistent generation of sales, EBITDA, and operating cash flow derived from a greater number of MW in operation. By contrast, companies below investment grade tend to be at an earlier stage in the development of their strategy, resulting, qualitatively, in a concentration on a few projects, technologies and geographies, and financially in figures that show greater volatility.
- **How to finance the relevant future investment plans.** In general terms, the aggressive growth plans that characterise the players in the sector tend to result in companies that intrinsically generate negative free cash flows due to the stage of development they are in. In view of this, however, it is important to note that there is a generalised difference between the companies in our portfolio in the way they support this demanding capex. On one hand, there are investment grade companies which, due to the greater solidity of their operating cash flow, their financial profile, or less aggressive growth plans, can better digest the requirements of their business plan. On

the other hand, high yield companies tend to be more dependent on external financing combined with a cyclical rotation of assets. These two aspects represent at least the near future for these riskier companies.

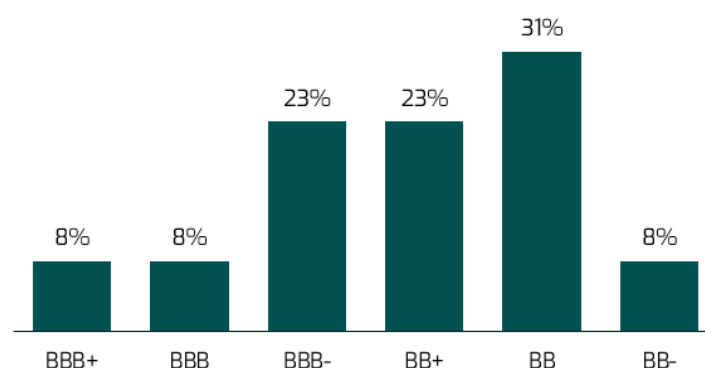
This is reflected in financial metrics, where there is a clear differentiation between the two groups of companies:



Source. EthiFinance Ratings.

Based on these estimated ratios and the various qualitative fundamentals of each of the IPPs analysed, we observe a distribution across our portfolio that generally falls within the BBB and BB rating categories. These rating levels, which are viewed as favourable, are largely underpinned by an industry that, in our view, will continue to offer opportunities in the foreseeable future, supported by a European market in which key players are demonstrating increasingly solid progress in the development of their renewable energy pipelines.

EthiFinance Ratings portfolio distribution.



Source. EthiFinance Ratings.

In conclusion, the role of IPPs in the energy transition in Spain and France is not only becoming more important, but also more challenging. The combination of a growing environment with falling costs and ambitious climate targets, together with challenges such as financial pressure and regulatory uncertainty, compels these players to demonstrate very solid operational and strategic capabilities. At EthiFinance Ratings, we are closely monitoring these developments and believe that, despite the complexities, the sector offers real, sustainable opportunities for operators which are able to adapt, diversify and execute their growth plans without compromising solvency.