Will government intervention and rising costs hinder European renewable energy ambitions?

Renewables remain the cheapest source of new capacity, which could prove vital in alleviating economic pressure from escalating fossil fuel costs.

Marija Simpraga
Infrastructure Research Manager,
LGIM Real Assets

Europe has high hopes for renewables as a solution to the ongoing energy crisis. The RepowerEU plan, published earlier this year as a blueprint for ending the EU's reliance on Russian fossil fuels, aims for over 1.2 terawatts of renewable capacity, more than doubling the current levels.[1] Similarly, the UK targets 50 gigawatts of offshore wind by 2030 – a tripling of current operational capacity.[2]

It's not all plain sailing, though. Government intervention is capping revenues for low-carbon generators throughout Europe. Meanwhile, renewable project capex has risen significantly over the last 18 months. In this article, we look at these developments and whether they dampen the outlook for the renewable energy market in Europe.

Price caps

Power prices have risen to historic highs during this year, primarily driven by scarcity and high gas prices. As a result, the EU has introduced measures to cap the prices received by low-carbon generators in the power market, with the resulting savings being passed onto consumers.

The EU-wide cap is set at 180 euros per megawatt-hour, with some flexibility on how individual member states choose to apply the legislation. The measure will affect primarily low-cost generators such as wind, solar, hydro and nuclear assets.

1. Source: European Commission
2. Source: British Energy Security Strategy, April 2022

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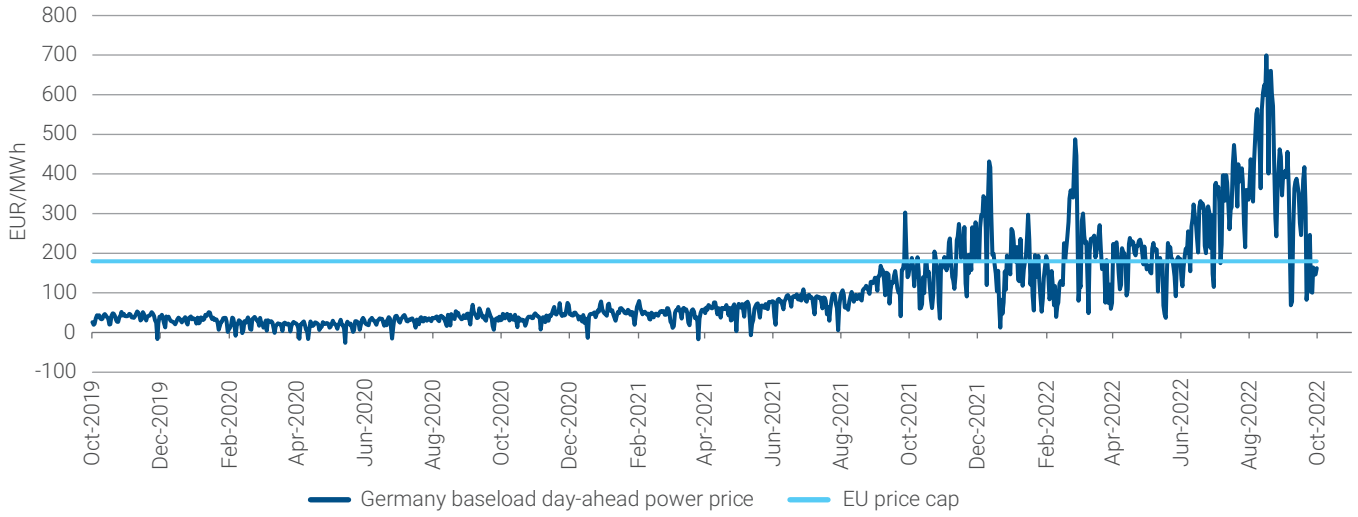
The cap will reduce the prices which wind and solar projects are able to realise in the power market (also called "capture prices"). Our analysis of generation and power price data suggests average prices achieved by renewable projects would have been roughly 30% lower during the twelve months, to end October 2022, if the price cap had been in place.[3]

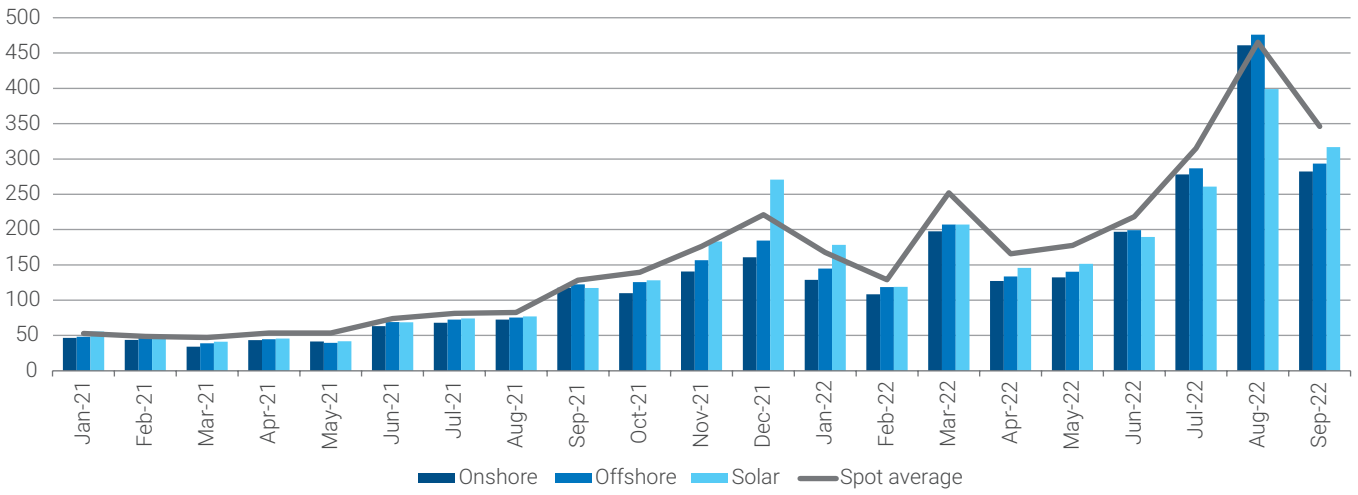
The exact decline in captured prices varies by market and technology. For example, solar assets tend to realise higher power prices than onshore and offshore wind farms. This is because solar generation generally coincides with the period in the day when demand and prices are higher. The prices achieved by solar assets are, therefore, likely to decline more than those for wind, in our view.

German spot power prices vs. EU price cap



Source: EPEX, Bloomberg as at October 2022.

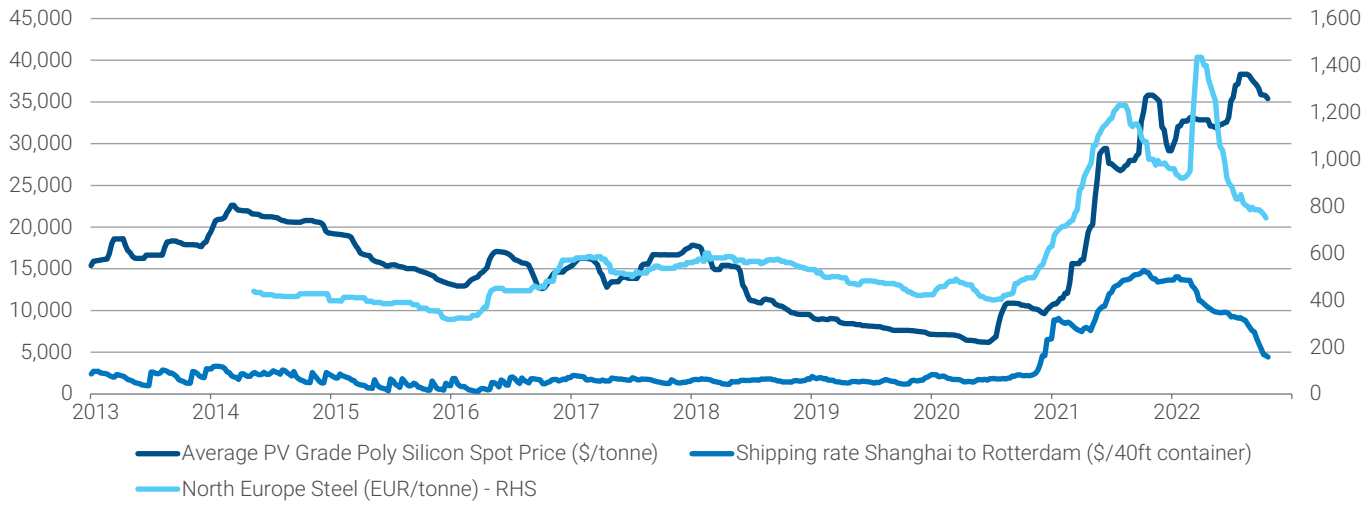
Average monthly captured prices by technology in Germany



Source: EEG Netztransparenz as at September 2022.

3. Source: LGIM analysis of EPEX, Netztransparentz power price and generation data from October 2021 to October 2022.

Input prices remain high versus 2021, despite the recent decline



Sources: PV Insights, Drewry World Container Index, Kalanish Ltd Cmdty, Bloomberg October 2022.

Renewable capex remains high

At the same time, the cost of building renewable projects has risen. While costs over the last ten years declined by almost 90%, the cost of building new solar plants has increased over the last 18 months. This is due mainly to the rising price of polysilicon – a key commodity in solar panel manufacturing. Wind farm costs have also increased over the same period, on the back of higher steel prices and logistics costs. While the input prices and build-out costs appear to have stabilised in the second half of 2022, solar and wind capex remain roughly 40-50% higher in late 2022 versus early 2021.[4]

Will government intervention and rising costs hinder returns?

The question facing clean energy investors is whether the combination of price caps and higher build costs will depress the build-out rates and project returns in Europe.

To address this, we have modelled project economics using current capex forecasts and applied a 30% reduction to 2023-2024 power price forecast.[5] We have used the example of a French onshore wind farm project, but believe the underlying trends are similar across Europe and the conclusions generally applicable to European renewables.

Without the price cap, the equity returns on a fully merchant power project in France would have been 15%, assuming 50% leverage and 6% debt costs. This is a notional return which we use to illustrate the high-level project economics. It assumes an investor owning the project and bearing all the risk through the entire lifecycle – from development and construction through to the end of useful life. In reality, renewable assets are usually owned by different participants at different stages. For example, developers often own a project through the planning and development phase and then sell it on to investors as a "ready-to-build" asset. In this situation, the developer and the investors will bear different risks and earn different rates of return as a result.

Using the same assumptions and applying the price cap of 180 euros per megawatt-hour, the equity returns decline to 13% – a negative, but manageable effect on investor returns.

According to our modelling, we believe the project economics of solar and wind assets in Europe remain sound, despite the price caps and increased build costs. In fact, despite capex increases, solar and wind remain by far the cheapest sources of new power capacity in Europe, according to our analysis and BNEF data.[6]

4. Source: Aurora Energy Research, October 2022.
5. We are taking a conservative view of a 30% captured price reduction due to the price cap. While the cap is scheduled to expire in mid-2023, we are again conservatively assuming it will be extended until the end of 2024.
6. BNEF Energy Project Valuation Tool, version 9.2.2., September 2022

Potential risks

The main downside risk to these results is the possibility that power prices fall sharply, defying forecasts. Power prices would need to decline precipitously for investor returns to fall below the return levels from early 2021, before the energy crisis and the sharp rise in build costs. This would imply some sort of sudden and sustained normalisation of gas flows from Russia or a sudden and prolonged drop in energy demand – a scenario which, we believe, is difficult to imagine given the current political environment.

Another assumption implicit in our analysis is that the price cap is not lower than 180 euros and there is no further regulatory intervention in the energy markets. Member states could choose to apply lower caps and there is no way to rule out further intervention, either by individual member-states, or at the EU level. We have also not modelled the possible effects of the proposed EU cap on gas prices in the above analysis.

Finally, we have assumed that capacity factors – the amount of power that wind farms actually generate compared to their potential capacity – will continue to improve in future renewable projects, driven by technological improvements. This assumption is borne out by historic data – wind farms built more recently in Europe with newer turbines tend to have higher capacity factors, compared to older projects. Improving capacity factors are also a common assumption among energy market research providers.[7] Renewable project economics would therefore be materially affected should those technological improvements fail to materialise.

Offshore wind farm capacity factors in UK, Germany, Denmark

Project age	Average of Rolling 12m capacity factor
<5 years	40%
5-10 years	35%
>10 years	30%

Source: Elexon, ENTSO-E, Energynumbers as at September 2022.

7. BNEF, AER

In conclusion, we believe that economics of future renewable projects remain sound, despite the regulatory intervention and rise in project build-out costs. Renewables remain the cheapest source of new capacity which could prove vital in alleviating the pressure on European households and economy from escalating fossil fuel costs.

While individual drivers may put pressure on project returns going forward, a significant source of support ultimately comes from the fact that regulators – who are in control of many of the levers driving the economics of the clean energy sector – are supportive of the clean energy industry as a tool in ensuring longer-term EU energy policy goals. The current energy crisis, therefore, further highlights the key role renewables are set to play in delivering Europe's climate change and energy security goals.

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Key risks

The value of an investment and any income taken from it is not guaranteed and can go down as well as up, you may not get back the amount you originally invested.

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