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LOOKING FOR FLEXIBILITY



Germany needs flexibility to cope with increasing volumes of intermittent renewable power. Contrary to some of the solutions that have been mooted in response, **Steffen Köhler** argues that the best way to achieve this flexibility is by working with market forces

Renewables are increasingly having an impact on European energy markets. The marked rise in the share of renewables in power generation poses a number of challenges, particularly for Germany, where the trend is most stark.

The increased volume of electricity being generated from renewables is leading to lower wholesale prices and severe difficulties for conventional thermal plants, which are fast becoming uneconomical. Yet these conventional plants are still needed. Renewables are highly

volatile in nature. The sun and wind are not constant and – despite the development of highly sophisticated weather forecasting systems – cannot be predicted or planned for with total accuracy. This means short-term volatility has increased. To take an extreme

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example, the solar eclipse caused heavy fluctuations in Germany's solar output in March, forcing electricity suppliers to compensate for the lost capacity with conventional power sources.

Is the current regulatory framework sufficient to ensure a secure power supply? Crucially, market participants have to be able to adjust their short-term positions when there is a lull in wind and solar generation – also known as 'dark calm'. The consensus appears to be that the market must be reformed to provide flexible solutions that account for the volatility of renewable supply.

How do we go about reforming the market? Proposals for the

development of an "electricity market 2.0" have already been set out by the German Federal Ministry for Economic Affairs and Energy in its October 2014 green paper, *An*



In Germany's case... there is much additional flexibility that can be created within the current market design

electricity market for Germany's energy transition. Alongside a range of 'no-regrets' measures to strengthen balancing and control power markets, these proposals include a call for flexibility to become a priority on

The German government is considering options for reforming the country's power market

both the supply and demand sides. But there is still heated debate over how the market, regulators and the government should respond. Is intervention necessary to determine the price of flexibility, or should the market be left alone to work this out?

I believe we should give the market a chance to find its own solution. In Germany's case, I don't believe a capacity mechanism is needed, as there is much additional flexibility that can be created within the current market design. Strengthening the price signal is an important part of this, and is something that is

The March 2015 solar eclipse caused volatility in power markets

addressed in the government's green paper. More market participants must bear responsibility for balancing the grid; at the moment, this function is mostly carried out by traditional power stations. We also need to



improve flexibility on the demand side. With the right incentives, a greater number of large consumers will be interested in providing flexibility to the market. On top of that, the market needs a strengthened grid with more interconnectors – not only between different parts of Germany, but also with neighbouring countries. A more integrated market will decrease the cost of providing flexibility.

Finally, we must accept the idea of price volatility as an inevitable consequence of renewable generation. For the owners of conventional plants that only run for a limited number of hours per year, price peaks are the only way they can possibly recoup their investment. For renewable generators, these price peaks represent a risk to their business, since they are not reflected in the day-ahead market most generators use to sell their output on a forward basis. Those two sides can be united through a product that enables the hedging of intra-day price peaks, bringing together generators providing flexibility and those requiring it.

If a capacity mechanism were to be implemented, then it should at least follow a market-based approach, with prices based on supply and demand. In essence, we would have to find a way to assess the risks arising from short-term volume fluctuations and assign those risks a financial value that can be hedged.

Let's consider the argument in favour of capacity mechanisms in more detail. On a general level, there are two options available. Either the price for a specific reserve capacity is set and fixed for a period of time, using only the information available at the time the decision is made, or the price determination process is left to the market.

Fixed capacity payments would decide the price of capacity for a predetermined period – five years, for example. However, the capacity would only be used for a limited number of hours per year, and then only on the rare occasions when it is required. If you define a payment for the entire year, you would have to relate it back

to the small number of hours during which the capacity is actually used. All of a sudden, the price is no longer €100,000 a year, but €20,000 an hour.

A better system would allow the market to find an efficient price for capacity. In such a market, we would only need to fix the total amount of guaranteed capacity that is needed. This could involve market participants having to procure certificates for secured capacity, which would be provided by other sources of supply and demand that are able to provide it. The use of such tradable certificates would allow market participants to

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find the flexibility they require at the least possible cost. This contrasts with the use of a simple fixed price based on today's market conditions, which would be effective for the next five years. Flexibility is still achieved, but is it the best solution for the market as a whole? Personally, I don't think so.

Of course, those who want to justify regulated capacity payments point to the possibility of extreme volatility when the market is left to set prices. I accept that if you leave price determination up to the market, the price may sometimes be a little high or a little low. But if you compare this with a fixed payment, I am convinced it is a much fairer and more efficient mechanism. Prices would directly reflect supply and demand, without an official body attempting to estimate them. Moreover, the price determination process would be continuous and not something that is defined every year or every five years.

More generally, I find it difficult to understand how a fixed price can be closer to reality than the market deciding how much it is willing to pay on a continuous basis. Is it not important to include as many stakeholders as possible in the decision-making process? By doing this, we could better define the true

and fair value of a certain asset. In this case, the asset is flexibility – something that is fast becoming essential for a market in which volatile renewables are having a growing impact.

Ultimately, the decision on how the market is reformed will be made by the German government. The green paper is to be followed by a white paper, which will lay out the government's plan in more detail, and start the debate on the concrete legislative measures to be taken. The market must contribute to this discussion, and the market will no

doubt support the approach that is finally chosen.

Whatever decision is made, it is likely to have profound consequences for all of Europe. The German market is not just the largest European energy market, but also the most integrated, so these decisions will have a significant knock-on effect throughout the region. ■

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