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Introduction

This note summarises the measures that the European Commission has proposed to replace existing support schemes for low-carbon generation.¹ It then sets out the main implications of these measures for generators.

Reforms proposed by the European Commission

The Commission has proposed that any low-carbon generation that requires financial support from governments should be supported by two-way Contracts for Difference (CfDs) or other mechanisms that provide, in addition to a revenue guarantee, an upper limit on the revenues that generators can earn.² The Commission has not specified that CfD strike prices have to be determined through a competitive tender, meaning that administratively set two-way CfDs may still be used in member states that cannot attract sufficient participation for

The Commission has proposed that low-carbon generation requiring financial support from government should be supported by 'two-way' Contracts for Difference.

¹ For the underlying Commission document that this article is based on (especially sections 2.1 and 2.2), see European Commission (2023), '[Commission Staff Working Document. Reform of Electricity Market Design](#)'.

² The Commission has explained that this will apply to generators with low and stable operating costs, or those that cannot provide flexibility to the electricity system. It is worth noting that in

a competitive auction (as is the case in Poland until 2025, for example), within the limits defined in the latest state aid guidelines.³

The Commission also requires that the design of the two-way CfD schemes should avoid a 'produce and forget' approach, meaning that the schemes must be designed in such a way as to encourage generators to produce when electricity prices are high and not to produce when prices are low (or even negative).

According to the Commission, two-way CfD schemes should avoid a 'produce and forget' approach.

A two-way CfD is defined by a reference price (often a market price index) and a strike price. The generator receives the difference between the strike price and the reference price (this difference is also known as a premium, which varies over time) from its counterparty if the strike price is above the reference price, and pays back the difference if the strike price is below the reference price. The Commission's requirement to avoid a 'produce and forget' approach means that the reference price is likely to be set such that it is not tied to a particular generator's actual revenues. If the reference price is tied to, for example, the average wholesale price, then generators that are able to produce when prices are higher than the average wholesale price can earn wholesale market revenues in excess of the reference price. Therefore, their total revenues (i.e. including the difference between the CfD strike price and the reference price) will be higher than the CfD strike price.

The Commission is also seeking to ensure that generators can access the market independently of government support and is therefore looking to expand the size of the Power Purchase Agreement (PPA) market. The policy instruments that the Commission has mentioned for achieving this goal are: (i) providing state guarantees to PPA counterparties; and (ii) allowing generators to sell only part of their generation through a CfD, with the other part being sold through one or more PPAs. The proposal for the state guarantee seems to be motivated, at least in part, by the desire to protect end-users by increasing the availability of long-term contracting instruments.

order to provide a revenue guarantee, the government would also need to ensure that the counterparty risks faced by generators are sufficiently low. For example, where the support payments are funded by levies collected by retailers that are then passed to generators via a central processing agent, the government could reduce counterparty risks by providing a guarantee to the central processing agent.

³ European Commission (2022), 'Guidelines on State aid for climate, environmental protection and energy 2022 (2022/C 80/01)', February.

Finally, the Commission has explained that it does not consider it appropriate to move existing generation onto two-way CfDs because this would create regulatory risk (i.e. increase the cost of capital for new investments in low-carbon generation) and legal risk (i.e. generators may challenge member states over changes in the regulatory regime). However, the Commission is stopping short of banning the practice, meaning that it may be possible for individual member states to apply two-way CfDs to existing generation.

The Commission will not require all existing generators to transition to two-way CfDs.

Overall, the direction of travel is confirmed in the Commission's review of emergency measures.⁴ Developing long-term markets, through both PPAs and two-way CfDs, is seen as key. This will reduce the impact of volatile short-term markets on both consumers' bills and inframarginal revenues for generators. Moreover, two-way CfDs will generate revenues during periods of high prices that, according to the Commission's proposal, should be used to reduce consumers' bills.

The Commission highlights how two-way CfDs and PPAs have a similar effect to an inframarginal revenue cap, while not presenting the same drawbacks and risks.⁵ For this reason, and in light of the expected reforms on two-way CfDs and PPAs, the Commission does not recommend extending the revenue cap on inframarginal generators.

In the remaining sections we briefly discuss the implications for generators of:

- the use of two-way CfDs for new generation that requires public support;
- the Commission's proposals for growing the PPA market;
- the Commission's views on moving existing generation onto two-way CfDs.

Two-way CfD support for new generation

The requirement for member states to use two-way CfDs will not affect generators that operate in markets where two-way CfDs are already the preferred policy instrument. However, for generators located in

⁴ European Commission (2023), ['Report from the Commission to the European Parliament and the Council on the review of emergency interventions to address high energy prices in accordance with Council Regulation \(EU\) 2022/1854'](#), 5 June.

⁵ Ibid., p. 14.

countries that currently use Feed-in Premia (FiPs) or Feed-in-Tariffs (FiTs), the requirement may result in lower-than-expected remuneration for generators, as they are currently not required to pay back when wholesale prices are 'high'. According to the Commission, c. 60% of auctioned support schemes in 2021 were not two-way CfDs.⁶

The main reason why the Commission wishes to move to two-way CfDs appears to be to protect EU consumers from paying higher electricity prices in any future situation where the wholesale price rises above what is 'necessary' to incentivise investment in renewable generation.

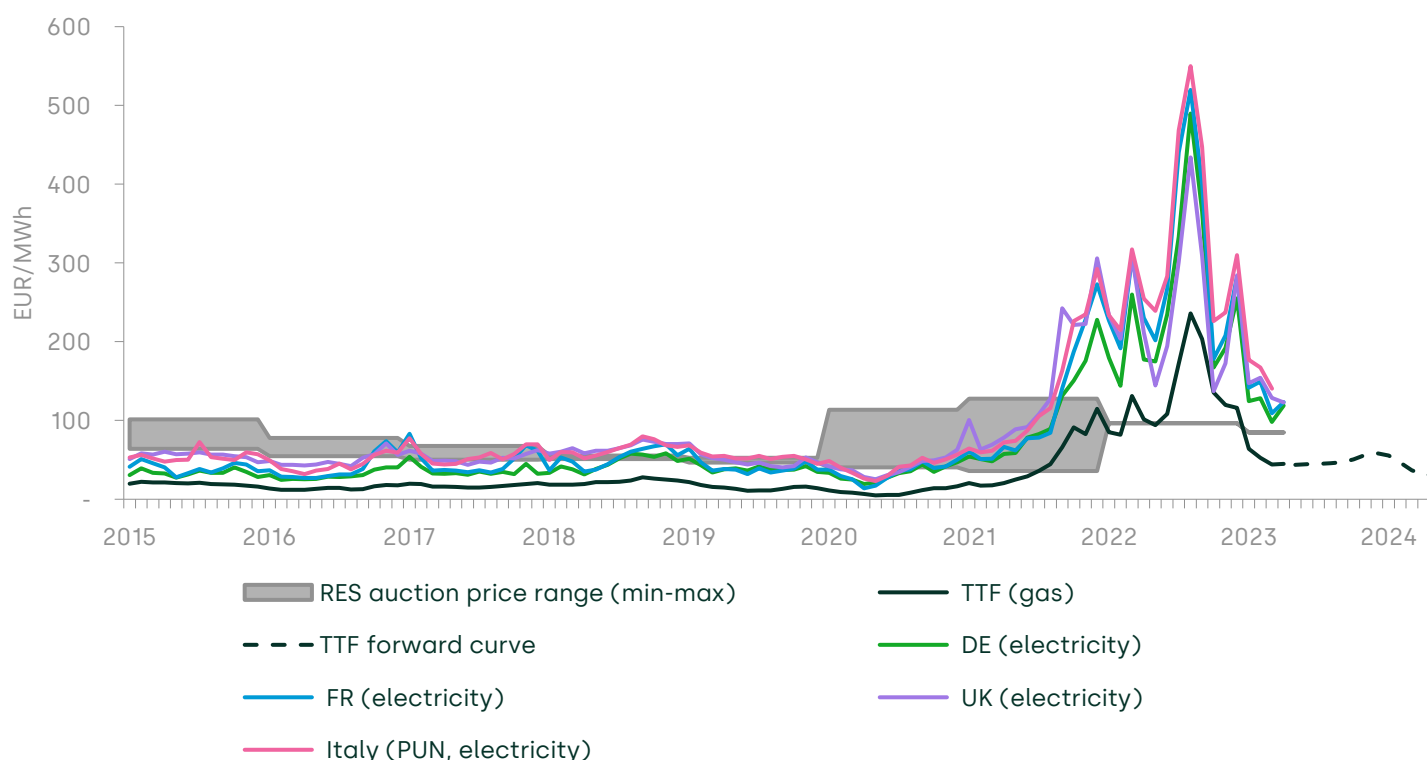
Overall, we consider that this change may be slightly unfavourable to generators because some countries that might otherwise have continued to provide generators with schemes that allow them to benefit from periods of high wholesale prices will no longer be able to do so. However, two-way CfDs have become increasingly common in European countries in recent years, and therefore the Commission's policy may only be accelerating an existing trend.

The cost of renewables has declined significantly in recent years (see auction costs in Figure 1 below). Competitive tendering and two-way CfDs have contributed to this trend, so it is important that any changes in the market design should not reverse it by sub-optimally reallocating costs and risks.

Two-way CfDs have become increasingly common in the EU, so the Commission's policy of championing these may only accelerate an existing trend.

⁶ European Commission (2023), '[Commission Staff Working Document. Reform of Electricity Market Design](#)', Figure 5.

Figure 1 Wholesale prices and RES auction prices



Note: Monthly averages. For electricity, baseload day-ahead prices and the Prezzo Unico Nazionale (PUN) for Italy are used. The weighted average auction prices are based on IRENA data. The range covers solar photovoltaic and onshore wind between 2015 and 2021 and offshore wind between 2020 and 2023.

Source: Oxera analysis on Bloomberg, Gestore dei Mercati Energetici and IRENA data.

The other noteworthy change for generators to consider is that the Commission appears to be open to several designs for the two-way CfD, citing capability-based CfDs, financial wind CfDs and flexibility contracts as different ways in which a two-way CfD could be implemented.⁷ The aim of these different options is to prevent CfDs from being designed such that they encourage a 'produce and forget' approach, as mentioned above. A 'produce and forget' scheme could be introduced through, for example, setting the reference price equal to the actual revenues that a given generator earns from the wholesale market—i.e. the generator's remuneration would be the same irrespective of the time of the day when it chose to generate.

⁷ The Commission explains that capability-based CfDs are based on expected rather than actual generation. Financial wind CfDs provide a stream of fixed monthly payments to the producer, while the producer pays back to the government the spot market revenue that month. A flexibility contract pays generators a strike price, then a further payment equivalent to the difference between the market price and a reference average price calculated over an extended period.

This increased focus on avoiding the 'produce and forget' approach (e.g. by increasing the incentives to produce electricity when wholesale prices are high) may therefore lead intermittent renewable generators to more regularly co-locate with storage.

Some of the designs described above—such as flexibility contracts and capability-based CfDs—have also been introduced with the aim of mitigating generators' market power.⁸ To the extent that this is true in practice, such CfD designs could also reduce the profitability of generators that are owned by companies with high market shares.

Overall, the precise way in which the CfD is designed in a particular member state is likely to affect either the profitability of new generation or the extent to which generators may wish to co-locate with storage (or both). It is therefore likely to be important for generators to have a clear idea of the implications of different types of CfD on their go-to-market strategies. It may then be in the generators' interest to explain to individual member states why the two-way CfD design is appropriate from a broader socio-economic perspective.

While the variation in CfD design is important, the design will generally be introduced for all generators that participate under a given subsidy scheme.⁹ Therefore, any changes to the CfD scheme are likely to affect all generators. For example, changes that increase the level of risk or reduce the duration of support could result in higher strike prices, either because generators increase their bids in a competitive auction process or through direct negotiation.

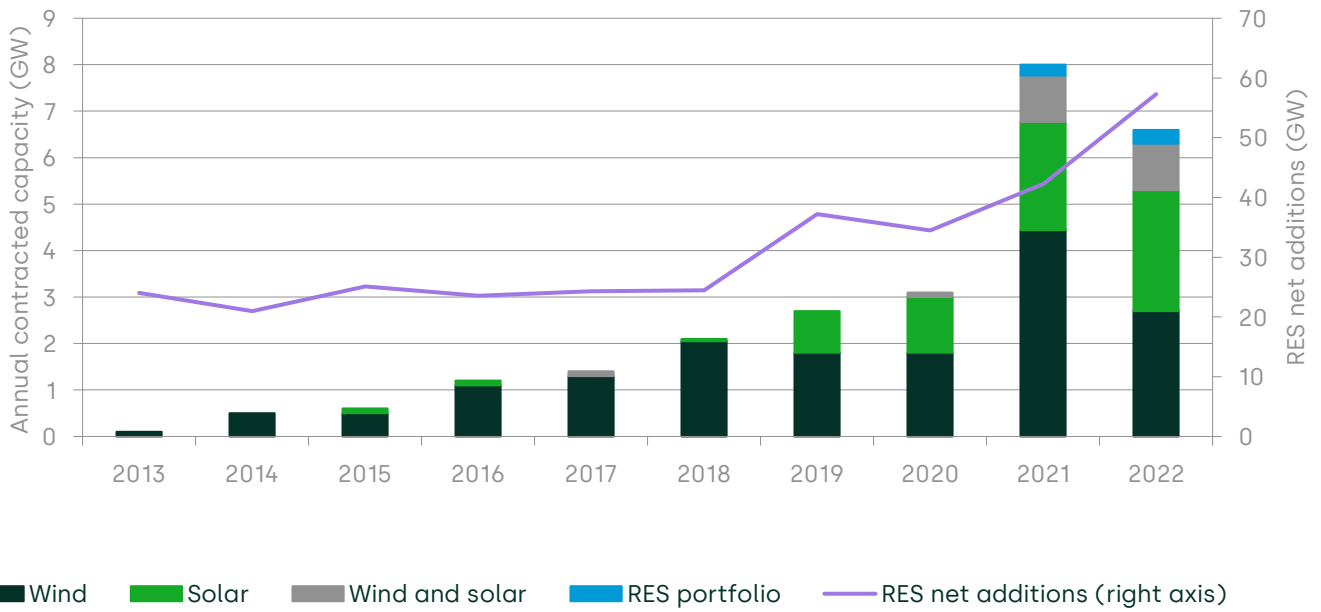
Growing the PPA market

There has been an increased interest in the PPA market recently, with contracted capacity significantly expanding in 2021–22 compared to previous years, as shown in Figure 2 below.

⁸ See for example Fabra, N. (2022), '[Electricity Markets in Transition. A proposal for reforming European electricity markets](#)', 22 November, section 3.1.

⁹ We note that there may be instances where member states introduce multiple pots for RES auctions, and could have different CfD designs for each pot. However, in this case, a given generator is only competing with the other generators in its pot, all of which are subject to the same CfD mechanism design.

Figure 2 Recent growth of the PPA market in Europe



Source: Oxera based on RE-Source platform's Renewable Energy Buyers Toolkit, [link](#) (last accessed 21 April 2023) and IRENA data.

The provision of state guarantees for PPAs could have a substantial effect on PPA market growth, since the main barrier that many generators have faced to date is the counterparty risk of signing a long-term contract with a single buyer.¹⁰ With state guarantees, PPAs could become far more 'bankable' than they otherwise would be, thereby allowing generators to take on longer debt tenors and/or reduce their financing costs. This has been recognised by credit rating agencies.¹¹

The provision of state guarantees for PPAs could have a significant effect on PPA growth.

However, the precise level of guarantee that different member states will provide is yet unclear. On the one hand, the Commission appears to consider PPAs and CfDs to be very different tools, but on the other hand, if governments provide similar guarantees to both then the levels of counterparty risk will also be very similar. A reduction in the difference

¹⁰ More recently, one additional barrier that might have had an impact on existing PPAs and limited their growth is the way in which, in some cases, the revenue cap on inframarginal generators has been implemented in practice—in particular, when the precise design increased uncertainty for investors and reduced stakeholder confidence in forward markets, as highlighted by the Commission. See European Commission (2023), '[Report from the Commission to the European Parliament and the Council on the review of emergency interventions to address high energy prices in accordance with Council Regulation \(EU\) 2022/1854](#)', 5 June.

¹¹ S&P (2023), '[EU's Proposed Energy Market Redesign Mitigates Merchant Risks And Accelerates Renewables](#)'.

between PPAs and CfDs is likely to require governments to determine the appropriate level of these guarantees, taking into account state aid rules, as well as the extent to which their decision could lead to generators preferring to enter the market by adopting CfDs, PPAs, or both. Furthermore, if the guarantee provided for a PPA is at a similar level to that for a CfD, and the price and volume elements of a PPA can be freely negotiated, then the government-guaranteed PPA might effectively start competing against retailers. This would be the case if PPAs were to become a competitive alternative that is accessible to a broader pool of end-users who are also interested in securing long-term contracts with terms that suit their preferences for stable prices that retailers may not currently be offering. These considerations are likely to raise important questions relating to competition, regulation, and state aid in the generation and retail markets.

Allowing generators to commit only part of their volumes to a CfD, and allowing for the other part to be sold through a PPA or on the wholesale market, will provide generators with greater flexibility. Whether that flexibility is desirable is likely to depend on the generator and the precise design of the measures. For example, generators that have strong trading departments may find themselves at an advantage relative to some competitors because if they can derive more value from PPAs or wholesale market trading, they will either be able to bid less in CfD auctions or earn higher revenues from them. It will therefore be important for generators to consider carefully how to optimise their portfolio between CfDs, PPAs and merchant exposure, and potentially to develop their trading capabilities.

Existing generation and two-way CfDs

As mentioned above, the Commission appears to be opposed to the idea of requiring existing generation, whether subsidised or not, to adopt support schemes based on two-way CfDs. However, it also does not appear likely that member states will be stopped from doing so. Therefore, generators that are located in countries with governments that are more supportive of retrospective policy changes may be more concerned about being placed onto two-way CfDs. Defining the strike price for 'mandatory' two-way CfDs would be a challenging exercise.

Overall, while the Commission's proposals provide some useful insights on the direction of travel for future renewable support schemes and arrangements for PPAs, the precise implementation seems likely to be left to member states.

Moreover, it is important to highlight that two-way CfDs, as well as those PPAs with state guarantees, would also be subject to a state aid assessment. For example, in relation to two-way CfDs, among other aspects, it would need to be assessed whether the beneficiary is unlikely to be overcompensated over the duration of the arrangement.

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