

Renewables funding: Consistent market integration instead of full state funding. Why state-guaranteed contracts for difference (CfD) are not the right solution for the expansion of renewables

At present, there is a heated debate about the future of renewables in Europe and, specifically, in Germany. For example, in the context of the revision of the offshore wind energy act (WindSeeG), there are demands for a fundamental change in the funding regime and the introduction of so-called contracts for difference (CfD). The mechanism behind contracts for difference covering fluctuations against an underlying asset is anything but new in energy trading – it is common practice. Derivatives market contracts are used to hedge a price. Deviations in the underlying physical spot market are settled between the counterparties. This is guaranteed by the exchange and its clearing house. However, the decisive difference compared with the present discussion regarding the introduction of CfD is that trading participants assume the risks involved in their contracts. But, at present, advocates of this instrument for funding of renewables are asking for the full socialisation of the risk of investments, with the state assuming this. Instead of commercial contracts and hedging, the state would become the counterparty of all transactions.

The introduction of contracts for difference (CfD) for the expansion of renewables would constitute a break with the approach of gradual market integration of all types of generation in a joint market, which has been developed and implemented over many years. It would also move away from the principle of a market-based energy transition in which trading participants align their activities to the market price signal, thus making the overall system efficient as a result. A fundamental change to the funding system would call into question the strength of the market price signal. The prices determined on the wholesale market are important indicators for scarcity in the power system both in the short- and long-term perspective. Wholesale market prices are the impulses for generation, consumption, hedging, flexibility and act as a driver for innovation. These incentives coordinated the power market and are indispensable for the energy transition.

Especially at the current point in time at which funding for a significant number of plants is ceasing for the first time, and when these plants have to compete on the market, while, concurrently, we are also seeing a significant decline in costs for new plants, the energy market needs a clear commitment to the continuity of the existing energy policy. This is particularly important in view of the upcoming strategic decisions on energy focuses for the future. An example of this is the fundamental question how new, decarbonised energy sources are incentivized. These include, for example, the question of whether hydrogen demand and supply as a particularly versatile energy source are, in principle, to be controlled via market mechanisms or not.

In the debate, reference is often made to the fact that contracts for difference would lead to higher legal certainty and cost reductions. However, in particular for a second bid component of any type, legal certainty is easier to address through targeted measures in this segment. This does not require a change to the entire funding system. In contrast, it does not come as a surprise that funding costs go down if the state assumes the risks. As is being discussed at the moment, assuming risks means “capturing additional revenue” and, in particular, having to defray reduced revenue. Generally speaking, with guaranteed remuneration, renewable energies will be based less on the market price signal – and, hence, demand and supply (“produce and forget”, see section 8). Therefore, it appears likely that state-guaranteed CfD for renewables might lead to oversupply and, hence, to a trend towards declining prices. Lower power prices, in turn, mean higher costs for the state in order to refund the differences due to the guaranteed remuneration set. If costs are included in a levy, they will simply be transferred to consumers.

Another argument which is mentioned in the political discussion is the claim that CfD would promote diversity in the wind offshore sector. This could for instance be in the form of municipal suppliers taking part in tenders. The main argument brought forward for this are decreased financing costs. However, it is important to note that all market participants would benefit from changed framework conditions and this would not represent a specific advantage for smaller companies. On the contrary, it seems likely that companies with international experience in CfDs would benefit from such a system significantly compared to smaller companies without this experience.

This shows that there are number of political and energy industry reasons that suggest that the promotion of contracts for difference is counter-productive:

1) Clear, long-term framework conditions provide protection against regulatory risks rather than state-guaranteed CfD.

Recently, limited bidding volumes or a lack of long-term expansion paths, as well as delays and uncertainties in the permissions procedures and the required grid expansion have formed the biggest obstacles to the expansion of renewable energies. Contracts for difference are not necessary to remedy that – instead, clear, long-term framework conditions based on political resolutions are needed.

2) Uncertainty as to how the state-guaranteed CfD for offshore systems can be integrated into a future overall concept for the expansion of renewables and the funding system

A change in the funding system for a specific renewables technology would call the consistency of the entire renewables funding framework into question. The current discussion does not provide answers to the question of how the contracts for difference are to be integrated into the overall concept for renewable energies, including the future funding and financing framework across all renewables. This is where we have to explore new mechanisms which limit support to a minimum while continuously increasing participation in the market. Support through an investment grant would in particular be suitable for this purpose (see point 10).

3) Danger of a slippery slope away from market principles

Germany is phasing out nuclear energy by 2022 and coal-fired power generation by 2035/38. If renewable capacities are to be financed primarily through subsidies and only be based on market signals to a limited degree – as has been the case so far, this raises the question of how much of the market will survive. As a result, this also raises the question of what this means for old renewable plants, for gas-fired, co-generation power plants, for flexible demand and storage facilities, etc. This involves the risk of a “slippery slope effect” possibly leading to further administrative tools, such as subsequent funding for old renewable plants, capacity payments for guaranteed generation capacity (gas-fired power plants/co-generation and flexibility options) and, on the part of the power consumers, regulated industrial power prices.

In the current discussion of state-guaranteed CfD, the fact that, in order to function, contracts for difference require a liquid power market with a meaningful price signal has not been sufficiently considered. The CfD payments are directly based on the market price signal. On the other hand, those very contracts might undermine the market price signal and, as a result, damage their own basis by withdrawing significant power volumes from the effect of the market price signal. In this case, the introduction of CfD ultimately leads to them devaluing themselves.

4) State-guaranteed contracts for difference have a detrimental effect on the market and system integration

Under the current market premium model, there is an incentive for operators or distributors to generate increased revenue, as against the value to be assessed through effective marketing. As a result, their activities usually support the system. However, in the event of state-guaranteed contracts for difference, this incentive for market integration would cease to apply since increased revenue would be absorbed.

Moreover, state-guaranteed contracts for difference could lead to disadvantages or lost advantages in system integration by suppressing incentives to offer system services. In recent years, the system service segment has been consciously opened for renewables in order to responsibly integrate them into the system and facilitate additional revenue options with increased market participation. If the marketing incentive ceases to apply because of an advantageous funding system, the incentive for activities supporting the system also disappears.

5) Sector integration is called into question.

Having a strong market price signal is also of decisive importance in answering the major questions for the future of the energy market – the key word being sector integration. For example, the market price signal can and should provide incentives for producing and trading in hydrogen. This creates the basis, e.g. for efficiently replacing fossil fuels with hydrogen in industry and lowering CO₂ emissions to the required extent, as a result. These incentives should come from the market, since, otherwise, special provisions could expand without any control and constant re-adjustments would become necessary in order to set the right incentives.

The German renewables energy act and, as a result, power consumers have already financed the learning curve for renewable energies for 20 years. The switch of the funding regime to contracts for difference would permanently establish the rationale of funding, as a result of which there is a risk of a long-term lock-in effect instead of a gradual phase-out of funding.

6) Lasting increase on the expense side of the EEG account

Since the introduction of state-funded contracts for difference leads to a significant expansion of the period during which renewable energies receive subsidies (even though they do not necessarily need it), costs, which in turn have to be financed, are incurred during that period. In view of the lead times (for tenders with implementation periods starting in 2025), the assumed period of use in various tendering procedures over several years and a usual funding period of 20 years, substantial funding payments would have to be expected until the year 2050.

Under the current system, this would lead to a further increase in the EEG account and, as a result, in the EEG levy or, in the event of budget financing which might be possible in future, it might also put a strain on the federal budget. Accordingly, budget financing comprising not only old costs (“baggage”) but also future funding costs for new plants raises questions with regard to state aid law.

Firstly, potential repayments to the EEG account in those cases in which the market price exceeds the exercise price of the contract for difference are uncertain and, secondly, they would probably be low compared to actual funding costs incurred. Specifically, there is the risk of incentives for bidding strategies in the tenders for contracts of difference under which the value to be assumed (exercise price of the CfD) is offered at a price which is not too low or even consciously high in order to minimise or avoid repayment.

7) New, extensive funding programmes worsen the market perspective for plants after the end of their funding period.

In 2021, funding for renewable energy plants will expire for the first time, initially only for small volumes; however, these will increase in the coming years. These plants then need to generate revenue on the power market in order to stay in operation. Therefore, these plants will base their sales on the price signal of the power market. In the long run, the further extension of funding programmes for large volumes of renewable energies will lead to an imbalance in which one part of renewable energy plants (old plants) responds to the market signal, while a significant part of renewable energy plants (new plants) will not do so. It is also crucial that new funding programmes worsen the market perspective for plants after the end of their funding period. This may lead to a removal of these plants at significant scale. Ultimately, it risks the attainment of the renewables energy share targets for the power sector.

8) Financing costs largely depend on competition, the learning curve and framework conditions.

In the long run, financing costs and, as a result, the power generation costs can be reduced, in particular, through efficient competition. The experience gathered so far in the offshore wind segment shows a high level of competition. This is supported both by the tender result and by continuous technological innovation as material cost reduction drivers. This was also recently confirmed by an article in "Nature Energy"¹. It shows that in Europe's mature energy market – first of all Germany with the highest liquidity in Europe – wind offshore without subsidies guaranteed by the state is now a competitive option. Instead of continuing to focus on the support regime, the authors recommend putting the focus on the overall framework conditions.

Renewable energies will become more competitive also as a result of the growing CO₂ price in the EU ETS in the framework of the Green Deal and the aim of climate neutrality by 2050.

In particular, high expansion volumes as well as clear regulatory and legal frameworks provide potential for cost reductions since they are advantageous for technical innovations and economies of scale. For example, a switch to the so-called central model can cut costs by considering the value of the previously developed areas and guaranteed grid connections upon the submission of the bid. The German Federal Ministry for Economic Affairs and Energy already had the option of corresponding tenders from 2026 onwards examined in a study in 2019.

Compared with other countries with a similar development level of offshore wind power, in Germany the power generation costs are only slightly higher than, e.g., in the UK and NL and are generally at a comparable level. This slight difference in costs is due, in particular, to the lower development and grid costs in the UK and NL because of state financed preliminary work and lower project costs resulting from longer experience and economies of scale which have already been achieved.

Experience gathered in tenders regarding offshore wind power in an international environment has shown that comprehensive pre-development of areas in consultation with potential bidders, large lot sizes and a high level of competition support the submission of lower bids.

¹ Jansen, M., Staffell, I., Kitzing, L. et al. Offshore wind competitiveness in mature markets without subsidy. *Nat Energy* 5, 614–622 (2020). <https://doi.org/10.1038/s41560-020-0661-2>

9) Tried and tested instruments are available on the power market to hedge market risks.

Market risks form part of every investment decision. The question is just who is to assume these risks – the individual company or the state. These risks are not caused by the market – rather the market provides tools to manage these.

In principle, contracts for difference are a bilateral hedging transaction. The state guaranteed model has the special characteristic that the state is a counterparty on one side of the contractual relationship and assumes both the price and the volume risks, socialises the financial risk through the EEG levy and puts the energy volumes on the power market independently of the price in accordance with the “produce and forget” principle pursuant to the feed-in and marketing rules of the EEX.

However, this “programme of full supply by the state” is not even necessary since there are tried and tested processes and tools on the power market for both the physical feed-in and for financial marketing.

On the spot market, physical power volumes are marketed for specific 15-minute periods based on the short-term power price signal. Because of the high liquidity and European integration, there is de facto no volume risk in marketing.

On the derivatives market, price risks can be hedged on a long-term basis. In this context, OTC forward contracts and renewable PPA as well as exchange futures contracts are similar to contracts for difference. The difference being that the risk is not covered by the state here but – as is usual in market economies – it is shared by the market participants and responsibly assumed by them. Experience from other European countries has confirmed the potential, in particular, of renewable PPA. For example, on the Spanish market, significant parts of the expansion of renewable energies are already being financed on the market through PPA. In view of the even more favourable economic framework conditions in Germany compared with the other countries, it can be assumed that the potential is many times greater here.

The introduction of state guaranteed contracts for difference would involve significant risks for the high liquidity, in particular, on the German power derivatives market. The restriction of hedging options on the market would impair all market participants’ ability to manage their risks. Moreover, the high market liquidity also forms a decisive locational advantage for the energy industry in Germany which can use this market without any basic risk. The attractiveness of the market is shown by the fact that market participants from the entire European single market are using the German market for hedging, in spite of the basic risk they are assuming.

10) Funding through an investment grant would be more cost-efficient and market-oriented.

The investment aid tool seems very appropriate to limit funding of renewable energies to the required minimum and to consistently expand the need to participate in the market. As, in this case, plant operators first and foremost use the power price signal, they operate on a commercially efficient basis, which also supports the system. Market-based activities do not only maximise the power volume generated but also their value. Even today, the “offshore wind power” special programme offered by KfW, the German development bank, already supports the construction of offshore wind farms and, in particular, to facilitate financing of such. Based on this, a funding pool for investment grants could be established.