

Could the government be about to gamble away the UK's leadership in offshore wind?

The government's Department for Energy Security and Net Zero (DESNZ) is engaged in a game of brinkmanship with renewable energy developers over the investment support available for new projects under the Contracts for Difference (CfD) scheme.

Developers want more revenue security, government wants to pay less – hardly a new phenomenon. However, the stakes are very high indeed. If the industry and government get this wrong, it will have a massive impact on our ability to achieve net zero and create jobs in the low carbon supply chain. It could jeopardise the leadership position we have in offshore wind, and ultimately lead to higher consumer bills and increased import dependency.

This article explores how we got here and how we can get ourselves out of an unnecessary gamble by rebuilding trust and collaboration between industry and government.

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1. Contracts for Difference – driving investment and lower costs

The Contracts for Difference (CfD) scheme is widely regarded as a great UK energy policy success. The scheme has supported investment while, at the same time, driving down cost and passing the benefits of low-carbon energy back to the consumer.

In fact, in 2022, wind and solar PV projects with CfDs paid back over **£357 million**¹ to reduce consumer bills. This is in part due to the very high wholesale prices over the period, but it is nevertheless an extraordinary result given that very low CfD strike prices are a relatively recent development and that many low price projects are still in the construction pipeline. As Regen has argued², this is good news but it also signals a missed opportunity – if the government had backed more wind and solar with CfDs we would be in a far better position now to lower consumer bills and improve our energy security.

Why has the government been slow to support CfD-backed investment when it looks like such a win-win for net zero and the consumer? The answer to that, it seems, is a belief in DESNZ, and perhaps more importantly in Treasury, that any investment support scheme, even one that provides a very significant hedge against higher energy prices, will ultimately cost the consumer money. Shifting this belief, and changing the cost-benefit methodology used, even in the face of evidence, is proving difficult.

1 Based on analysis of LCCC published transition data, 2023: www.lowcarboncontracts.uk/data-portal/dataset/actual-cfd-generation-and-avoided-ghg-emissions

2 Regen analysis of AR4 results: www.regen.co.uk/contracts-for-difference-allocation-round-4/ and <https://www.regen.co.uk/preparing-for-higher-energy-prices>

CfD cost reduction has been most spectacular in the offshore wind sector, which has seen strike prices fall from £150 per MWh to £37 per MWh in under a decade³. A £37 auction strike price, when adjusted for inflation, is currently worth £46.24, around a third of the current average wholesale day ahead reference price⁴. Lower strike prices are a reflection of competition within the market, but also in the case of offshore wind, a joined-up industrial strategy that has focused on capability and supply chain development, including work led by the **Offshore Wind Cost Reduction Task Force**.

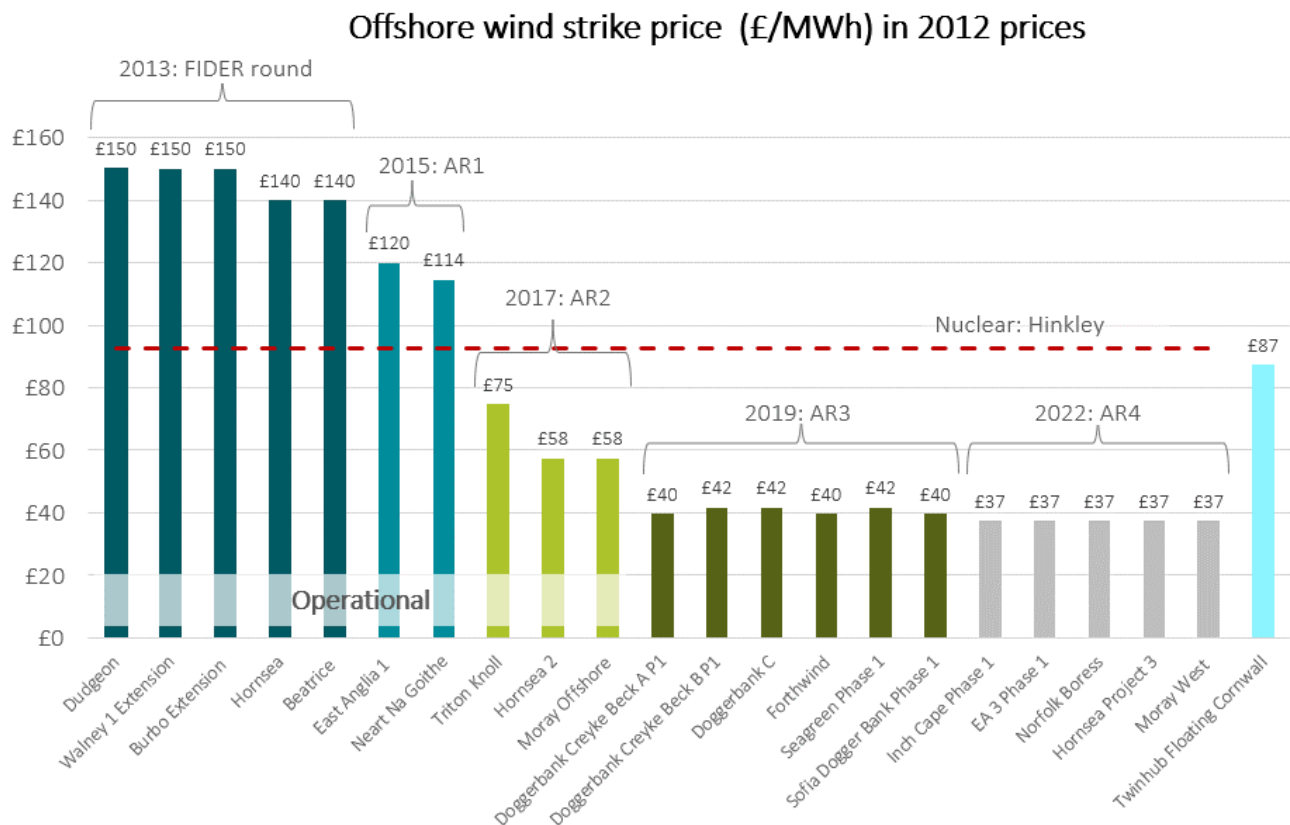


Figure 1. Falling offshore wind CfD strike prices for Allocations Rounds (AR), FIDER to AR4.

The success of the CfD scheme in driving down costs, as evidenced by the very low bid prices that were submitted in Allocation Rounds (AR) 3 and 4, has perhaps led to a belief in the inevitability of falling costs. There has also been a tendency, to which we are all guilty, of counting chickens before they have hatched. This has led to optimistic claims that costs have fallen based on bid prices for projects that are several years away from completion.

Therein lies a problem and a previously unseen risk. Competitive auctions have driven strike prices down towards the limit of project viability. This is good news if you believe that an ultra-competitive market price mechanism delivers best value for the consumer. The problem, however, is that with projects on a knife edge of viability, there is no cost contingency and so delivery risk is increased. All it would take is an unexpected shock to the economy and an uplift in costs to put the entire project pipeline into jeopardy.

3 Strike prices are usually stated in 2012 prices. To convert to current (Q1 2023) prices an inflationary adjustment of 25% should be added. Therefore a £150 CfD auction price currently has a strike price of £187.50. A £37 auction price would now be set at £46.24.

4 The average day ahead Intermittent Market Reference Price (IMRP), as calculated by the LCCC, has been £132.40 from 1/1/2023 to 14/3/2023: www.lowcarboncontracts.uk/data-portal/dataset/imrp-actuals

Of course, that is exactly what has happened. Post-covid inflation, Russia's invasion of Ukraine and global demand for renewable energy technology have led to a very sudden step-change in development and construction costs, which according to an article in the Financial Times may have increased by between 20% and 30%⁵.

The key drivers of this cost increase have been:

- 1. Global commodity costs** for everything from steel to copper and silicon. Copper, for example, which had typically been trading at between \$2 and \$3 per lb prior to the energy crisis, reached a high of \$4.9 in spring 2022 and is currently trading around \$4 per lb.
- 2. Solar panel and wind turbine costs** have risen, with wind turbine manufacturers locked into long-term contracts reporting significant and unsustainable losses. Siemens Gamesa, for example, reported a net loss of nearly \$1 billion in the last three quarters of 2022. The average price of wind turbines is reported to have increased by a third since the end of 2021.
- 3. Supply chain and deployment costs** for everything from installation vessels in offshore wind to legal and professional services fees.
- 4. Operations and Maintenance (O&M) costs and general operating cost** inflation, including rising wage costs for skilled workers.
- 5. Currency, trade and Brexit costs** which have particularly impacted the UK market.

Added to the global cost increase, two other factors have come into the spotlight:

- 6. A jump in the cost of capital** – for both debt and equity – reflecting higher interest rates as well as a higher risk premium. Given the capital intensity of renewable energy projects, cost of capital is the biggest single cost driver and not one that it is possible to lock in ahead of CfD auction bidding. In fact, getting a CfD has previously been a prerequisite to securing lower cost finance.
- 7. Competition for renewable energy investment from other markets such as the US, Asia and EU** which is attracting technology developers, manufacturers, supply chain companies, capital and talented people away from the UK.

The price developers receive for power under a CfD increases with inflation, indexed to the Consumer Price Index. However, the industry argues, that the factors listed above have driven up costs, including the cost of capital, well above the general rate of inflation in the UK. That is the crux of the argument.

Should developers have seen this coming? That's a fair point, especially for AR4 bids which were viewed as surprisingly low at the time. The willingness to bid low, however, reveals how much value investors in renewable energy projects place on having a degree of revenue security and, by extension, their willingness to give up higher profits in the short term to achieve this. This emphasis on revenue certainty is the reason why the CfD scheme works in favour of both investors and consumers, and also has important ramifications for the design of future market arrangements under the Review of Energy Market Arrangements (REMA).

5 The Financial Times, 2023: www.ft.com/content/80dee308-a564-4ee4-b1f2-ab7dbed643cd

1.1 Will cost increases derail the current project pipeline?

That's the big question. Very few developers have broken ranks to say that their current projects are now unviable, and it would be very difficult for them to do so. However, this may conceal a hidden risk that, even if UK projects are not immediately cancelled, deployment may slow as projects are put on hold, with resources and capital diverted elsewhere.

Meanwhile, the rumblings have become louder. Orsted, one of the biggest offshore developers with an international portfolio, has stated that it is considering putting its 2.8 GW Hornsea 3 project "on hold" and is now working through the project finances⁶. Vattenfall and Ocean Winds, two other winners in the AR4 CfD allocation, have also indicated that they are delaying bringing their projects to financial close – in other words, delaying making the final investment decision that would commit them to an expensive construction phase.

To give a sense of what is at stake, of the 12.5 GW of offshore wind projects that received AR3 and AR4 CfD allocations, only one project has already begun construction: the 1.2 GW Dogger Bank A project.

Offshore wind CfD allocations		Potential construction year (MW capacity)							
CfD Allocation Round	Total project capacity MW*	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Project status									
Round 3 Under construction	1,200	400	400	400					
Round 3 Pre-construction	5,066	933	1,667	1,667	800				
Round 4 Pre-financial close	6,614				4,049	783	1,783		
Round 5 Pre-allocation est.	5,000			1,000	1,000	2,000	1,000		
Total	17,880	1,333	2,067	3,067	5,849	2,783	2,783		

* Note: some projects did not put their full capacity into the AR4 CfD allocation.

Table 1. Offshore wind capacity (MW) allocations by year for AR3 and AR4, with a rough estimate for AR5. Note several projects have multi-year deployment plans.

The remaining AR3 projects that are due to begin construction in 2023/24 and 2024/25 are reported to be in a 'pre-construction' phase⁷. This includes the Dogger Bank B, Dogger Bank C and Seagen Phase 1 projects. Pre-construction status implies that they have raised finance, made a final investment decision and will likely have signed contracts for their main 'tier 1' construction contracts, turbines and key components. Some of the cost risks will, therefore, have been passed into the supply chain and financial markets. They could still be derailed, but at least they should by now have crossed the financial close⁸ hurdle.

6 ReNews, 2023: hreenews.biz/84455/orsted-needs-time-to-analyse-impact-of-budget-on-hornsea-3

7 See, for example, the 4C offshore wind project database: www.4coffshore.com/windfarms/

8 **Financial close or Final Investment Decision** – the point at which a project has raised sufficient debt and equity finance to proceed with construction.

The AR4 projects may be in greater jeopardy because, presumably, they will have not yet secured the capital needed to reach financial close. The degree of risk will depend very much on the individual project, where their finance is coming from and whether they can benefit from the recent Budget announcements on capital allowances on corporation tax (see section 1.2).

Offshore wind CfD-backed project potential build out

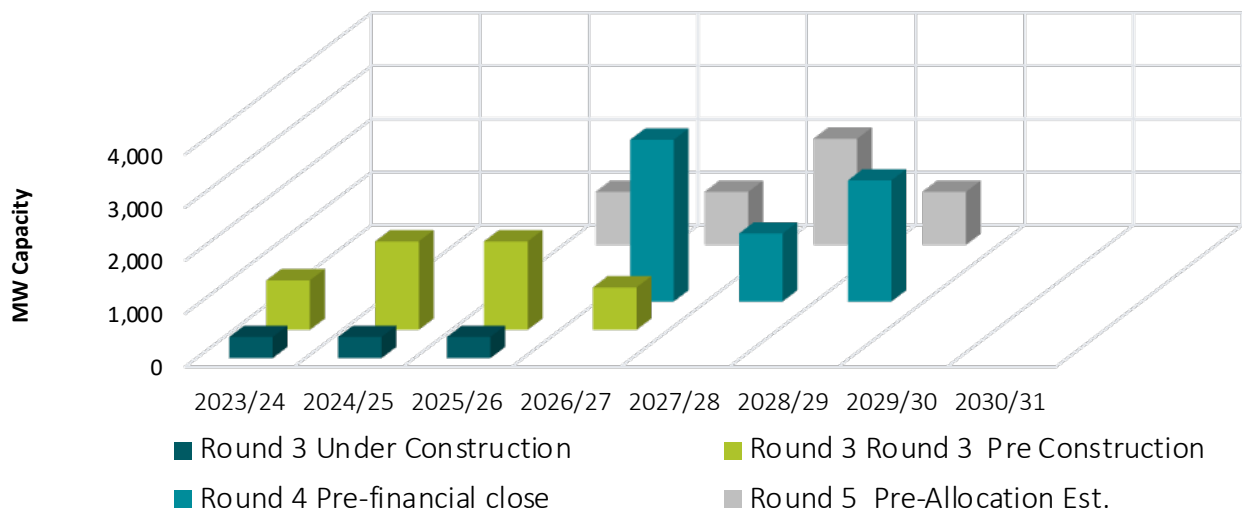


Figure 2. Offshore wind CfD-backed project potential build out.

1.2 The Electricity Generator Levy, tax allowances and the March 2023 Budget

Adding to the very low CfD strike prices, the Electricity Generator Levy (EGL), a windfall tax on what are considered to be excess profits above £75 per MWh, has also had a chilling effect on UK renewable energy investment. In a recent [insight paper](#)⁹ Regen described the EGL as a super-tax rather than a windfall tax. Although the industry is not against the principle of a windfall tax and, in some ways, the EGL design is better than its EU equivalent, the EGL scheme goes well beyond a tax on past windfall profits. It is instead a forward tax that will apply from 2023 to 2028, impacting new investment in projects that were not even built at the time of the recent energy price crisis.

The EGL does not apply to revenues made under the CfD scheme, since the CfD already has a payback return for revenues above the strike price, but it will still have an impact on all renewable energy projects, including those that are CfD-backed, because:

1. The EGL reduces the possibility for projects to be financed based on electricity market prices, without a CfD contract. It will, therefore, increase the level of competition to obtain a CfD and put further downward pressure on strike prices in future auction rounds.

9 Regen, 2023: www.regen.co.uk/electricity-generator-levy-less-like-a-windfall-tax-more-like-a-super-tax

2. The EGL will directly impact project developers who would otherwise have adopted a 'mixed' strategy, putting some of their generation capacity within a CfD scheme and holding some back to trade at merchant risk. For example, in the AR4 auction, offshore wind developer Ocean Winds adopted this approach, putting a third of its capacity in the CfD auction while retaining the rest to enter into long-term PPA contracts or trade in the wholesale market. **See note on market benefits.**
3. Even for projects that are wholly CfD-backed, the EGL raises the precedent risk to investors that the UK government is willing to introduce a mistargeted super-tax that could impact their profits in the period after the CfD contract term has expired (CfDs being for 15 years only, while a windfarm may be operational for 20-25 years, plus repowering).

Note: Market benefits of developers adopting a mixed CfD/market trading risk approach

It is expected that this strategy will become more common in the future as developers weigh up the advantages of being backed by a CfD versus accepting some degree of market risk and upside revenue.

As well as allowing developers to balance their portfolio of risks, a mixed strategy offers several market and system benefits. It would ensure that not all capacity is within the CfD scheme and so reduce the occurrence of negative pricing, and it would increase the liquidity in PPA and forward markets.

The potential loss of liquidity in future markets, caused by the widespread use of CfDs, has been raised in the **REMA consultation**.

As a general point, market efficiency is improved if at least some capacity is not CfD-backed and is trading at market risk at marginal prices or in forward markets.

The imposition of the EGL on future projects, plus the downturn in investment attractiveness in the UK, has caused the industry and its associations¹⁰ to lobby government for more favourable policies, either through an uplift in future CfD auctions and/or by improving other investment levers such as capital investment tax allowances, as has been provided to the fossil fuel industry. Regen has also written a letter to the Treasury asking for new projects to be taken out of the EGL and for investment tax allowances on a par with those enjoyed by the oil and gas sector.

These increasingly strident industry requests for government to consider the risk of an investment hiatus and loss of growth momentum, seem, so far, to have fallen on deaf ears. No specific measures have been brought forward to foster an increase in renewable energy investment, while the government has focused its policy announcements on reviving the oil and gas sector, new nuclear and the support for Carbon Capture and Storage (CCUS).

The March 2023 Budget, followed by the publication of the Finance Bill containing final provisions for the EGL, was especially disappointing. However, the Budget did contain a general additional capital investment allowance for Special Rate Pool¹¹ assets, which could provide some additional tax benefit for larger renewable energy developers who already have a portfolio of profitable projects in the UK.

10 See, for example, EnergyUK, 2023: **UK falling behind in race for clean energy investment**, and Renewable UK, 2023: **Key recommendations for Government to fend off foreign competition in global race for renewables**

11 See summary: www.linkedin.com/posts/johnny-gowdy-25869084_spring-budget-2023-media-factsheet-cutting-activity-7041821846756843521-81ak?utm_source=share&utm_medium=member_desktop

1.3 The big debate around CfD Allocation Round 5

There is a limited amount the government or industry can do about the low strike prices in AR4. It is not possible to re-run the auction and any attempt to adjust prices post-auction would almost certainly run into legal challenges. This is one reason why the industry has focused on other investment support measures, such as capital investment tax allowances.

The industry has, however, been in very serious discussions with government officials regarding the setting of budgets and strike prices for the forthcoming AR5 auction. In brief, their message has been to warn government that past auctions may not be a good guide to future strike prices and that both budgets and administrative strike prices (ASPs), which set a ceiling price for the auction, should be revised upwards. Some would go further and argue that the entire methodology and assumptions behind the setting of auction parameters need to be reviewed.

The issue has also been raised in the House of Commons¹² and in select committee hearings under a broader campaign that has highlighted the need for the UK to urgently support net zero investment or risk falling behind the EU, US and Asian markets.

Is the industry crying wolf? That seems to be the conclusion that has been drawn by the government.

Some weeks ago there was hope that the government was prepared to reconsider the AR5 budget and price parameters, even if that meant a short delay to the allocation process. Most in the industry would have welcomed such a move as it would have provided more time to analyse the real-world cost impacts, and recent changes in capital markets, to design an allocation round that would work for both the consumer and investors. It would also have shown a degree of collaboration and maturity between industry and government, which would itself have sent a positive investment message.

With the publication of the largely unchanged **AR5 Allocation Framework on 23rd March** that door seems to have been closed. The very low ASPs, especially for offshore wind, suggest that the government either believes that capital costs have not risen above CPI inflation since 2021, or that they are prepared to see the AR5 auction fail rather than go through a delay and revision process. This is a high risk strategy.

AR5 Administrative Strike Prices for key renewable technologies (all prices are in 2012 prices)			
Technology type	2025/26 Strike prices	2026/27 Strike prices	2027/28 Strike prices
Offshore wind	£44	£44	£44
Floating offshore wind	-	£116	£116
Onshore wind	£53	£53	£53
Solar (>5MW)	£47	£47	£47

Table 2. AR5 Administrative Strike Prices for key renewable technologies

If costs have risen by c. 20-30% since 2021, then this would suggest that AR5 will fail to bring forward the anticipated capacity. Or, perhaps worse, low bids could still be made for projects which do not then actually get built.

12 North Devon MP Selaine Saxby, who chairs the Floating Wind APPG has been particularly vocal about the need to support both fixed and floating wind technologies.

The position for floating offshore wind may be even more critical. A previous low bid of £87 per MWh set from the Hexicon Twin Hub¹³ project in AR4 has set an artificially low benchmark. This project is building on the demonstration site off North Cornwall, which already has an offshore grid connection, planning and other assets worth around £20 million in upfront cost savings for a new developer.

Other floating offshore wind developers have made a strong case that £116 per MWh (2012 prices) would be a very challenging strike price for a technology that is still in its development phase and for projects that, at c. 100 MW, are still at pre-commercial scale.

Looking at the AR5 Allocation Framework two other parameters stand out:

- The future **Market Reference Prices** that are used for budget calculations are extremely low – much lower than any current forecast of wholesale electricity prices. This suggests an extremely conservative cost estimate for the CfD scheme, which begs the question whether the government is undervaluing the potential savings from increased renewable generation under the scheme.
- The annual allocation **budgets** that have been set – £170 million per year for Pot 1 and £35 million per year for Pot 2 – are tiny compared to the £22 billion the government proposes to spend on CCUS and the billions of tax breaks awarded to the fossil fuel industry.

1.4 Risks of an investment hiatus and its impact

The future outcome is not certain. There is still a scenario where projects that are awarded a low price CfD could go ahead as planned. A failed AR5 could be remedied by a successful AR6, which would be one advantage of moving to more regular annual auctions. This is, therefore, a question of risk and whether policy makers have got the balance right between forcing costs down and allowing investment.

Right now, it looks like there is a significant risk that there will be at least a delay, and potentially a hiatus, in project construction that could kick in from 2025 to 2028; just at a time when the UK should be ramping up deployment and taking advantage of its current leadership position.

If that is the case, the implications for the UK energy strategy would be very serious:

- Any hint of a delay, and even the announcement that a CfD allocation round has floundered, will impact investor sentiment and add to the sense that the UK is becoming a less attractive proposition for low carbon investment. The lack of agreement and dialogue between industry and government also plays into this negative sentiment.
- For offshore wind, a slow-down or gap in construction and deployment activity would have consequences for the industry supply chain – potentially leading to job losses, a loss of capability and a shift in resource away from the UK market. We know that rebuilding supply chains after such a setback is likely to take time and will ultimately lead to higher costs for the consumer. There is even a likelihood that the leadership position enjoyed by the UK, once lost, is not regained.
- For floating offshore wind, which is on the cusp of commercialisation, the stakes are even higher. The next phase of technology development, as well as investment in networks, ports and supply chains, are all predicated on the success of the first round of demonstration projects followed by a rapid scaling up to full commercial projects. Already the timetable to achieve 5 GW of floating wind by 2030 looks to be precarious.

- For net zero the impact of any investment delay would be disastrous, not least in terms of the target to decarbonise the power system by 2035 and achieve the medium-term carbon budgets.
- For the consumer there would be a direct cost impact caused by the delay of projects which would otherwise deliver lower cost energy. The cost of delay in construction could very likely exceed the savings achieved by setting a lower strike price.
- For energy security, any delay in the deployment of renewable energy capacity increases the UK's gas import dependency and pushes back the rate at which the UK could become a net energy exporter.

Given these risks and impacts, it does seem strange that the government has apparently dug its heels in. It also seems inconsistent for the government to pinch pennies on renewable investment, and technologies like offshore wind which have been hugely successful, while at the same time committing billions to the development of new technologies, like CCUS, that have so far failed to deliver.

1.5 Re-committing government and industry towards a common goal

The irony in the current situation is that there is a clear win-win opportunity for the government and the renewable industry. Renewable energy can quickly deliver low cost energy, it is highly scalable, with proven technologies that create jobs and reduce consumer bills. It is the core technology group that will enable the UK to decarbonise the power sector, which in turn will enable the UK to achieve its net zero and energy security goals. The lesson of the past 18 months of extreme energy prices should be lending more weight toward renewable investment. Yet the industry now finds itself knocking on the door of government to once again ask for a fair level of support.

The obvious answer is for the government and industry to come together, quickly, to re-establish their commitment towards a common goal of providing support for investment in return for jobs, growth and lower energy bills.

In terms of practical steps, there is still just enough time to review the strike prices and budget parameters that have been set for AR5, even at the risk of a short delay. To do this, the government and industry need to have a much more rigorous, and honest, look at how costs have changed over the past 18 months and their projection into the future. If necessary, an independent study should be commissioned. At least this would also reset expectations for AR6.

The cost of capital issue is perhaps even more pertinent for which there may be more options. One would be to look at whether the government itself, or via institutions like the UK Infrastructure Bank, could provide a source of lower cost finance. In the future, it may be worth introducing a cost of capital index into the CfD, as there is for inflation.

Other investment signals could be sent by the government including a further look at capital allowances for low carbon investment, bringing these more closely into line with what is being offered to the oil and gas sector.

The most important thing, however, is that the government moves to rebuild the trust and dialogue that has been lost with the renewable sector and especially the offshore wind industry. The 'Energy Security Day' that has been trailed in the media is a golden opportunity to get back on track.