CATAPULT
Offshore Renewable Energy

AR6 announcement and what it means for the offshore renewable energy industry.

REPORT

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Date: 7 March 2024

1 EXECUTIVE SUMMARY

The parameters for Allocation Round 6 (AR6) were published yesterday. We have analysed the details along with our view on eligible projects to understand what this means for offshore wind deployment in the UK against the 2030 targets.

The UK government has set a target of 50GW of offshore wind deployment by 2030, including 5GW of floating wind. Longer-term, legally-binding net zero targets by 2050 will likely require over 100GW of offshore wind to be deployed. In order to meet these targets and maximise the economic opportunity available, the CfD auctions to the end of the decade are critical.

The budget for offshore wind in AR6 has been initially set at £800m. This is a very big uplift on previous rounds, and goes some way to achieving the level of ambition required. However, the industry has been hit with inflation, high commodity prices and supply chain constraints which has resulted in an increase in the maximum strike prices (ASP) set by government. While this increase has been received favourably by industry, it means the budget for each AR is used up more quickly, effectively buying less capacity with every pound.

If developers bid at the ASP, then with the current budget a maximum of 3.1GW could be awarded. This is far short of what is required, to catch up on the lack of capacity awarded in AR5, and to meet 2030 targets. If this volume does clear in AR6, then it will put more pressure on future rounds to deliver.

This delay has knock-on impacts which need to be considered. Electricity demand which could have been met with offshore wind will likely be produced by gas-fired power stations, increasing UK emissions. Supply chains require a steady pipeline of contracts to have the confidence to invest. This, combined with the delay in project spending, means there is a lost opportunity for enhanced UK content, economic benefit and job creation.

Floating wind will play an important role in meeting targets, but is a nascent technology which needs significant support to commercialise. The budget for AR6 is underwhelming, likely permitting only one of three eligible projects to win a CfD (a maximum of 135MW if bids coming in at the ASP). If the UK government wants to achieve 2030 targets, we need to pay a premium for stepping stone projects to deliver cost reduction through innovation and learning. Floating wind projects will also differ depending on which region they are installed, so it is important to test novel designs in a range of seabed and metocean conditions.

2 ANALYSIS

The unveiling of Allocation Round 6's (AR6) pot sizes and accompanying parameters in the Spring Budget marks an important moment for the offshore renewable energy sector. This blog post delves into the implications of these results. Back in November 2023, the release of the Administrative Strike Prices (ASP) saw substantial increases compared to AR5. ORE Catapult produced an analysis, the insights of which can be found in this article (link). With the recent release of additional parameters, it is possible to analyse how much capacity could potentially be awarded for offshore renewable technologies.

There is a welcome increase in the pot sizes from AR5. Most notably fixed-bottom OSW has its own pot with a budget of £800m. There has also been a slight decrease in reference prices and capacity (load) factors. The decrease in reference prices, which are the Government's projections of energy prices, increases the budget impact of a project, while a decrease in the capacity factor decreases the budget impact.

It is important to note that the term "budget" can be misconstrued. This is not money that the government will pay to offshore wind developers, but simply a figure used to limit the amount of capacity which can be secured in an auction, and to maintain competition. The budget is "used up" by calculating the difference between the price developers bid at and a reference price which the government sets to forecast future electricity price (and needs to reflect the capture price for renewable energy). In reality, the cost of the CfD depends on actual power prices and is paid by consumers. However, we could see continued high wholesale prices, in which case developers will be paying back to the Low Carbon Contracts Company (and ultimately consumers). In this way, the CfD acts as a hedge against volatile power prices and can protect consumers.

Below is a simplified formula for calculating the CfDs:

Budget impact = (Strike Price – Reference Price) X Load Factor X Capacity X (Hours per year)

It's important to highlight prices for CfDs are listed in 2012 terms, to get to January 2024 prices they must be multiplied by 1.3956. The updated prices are shown in the table below:

Table 1

£	AR5	AR6	AR6 (2024 prices)
Fixed-bottom	44	73	106.07
FLOW	116	176	245.63
Tidal stream	202	261	364.25

Using the release today, this equation can be used to solve for how much capacity can be awarded at different strikes prices. Below, are the outputs from this calculation. Note, this analysis assumes the full budget is used up, which is not usually the case given the range of project capacities bidding in any auction.

1.1 Fixed-bottom wind

Fixed-bottom wind's ASP increased from £44/MWh to £73/MWh. Using the £800m pot size at a strike price of £50/MWh, 5.8GW could be awarded; at £60/MWh, 4.2GW; and at highest possible strike price of £73/MWh, 3.1GW. The relationship between strike price and capacity is shown in Figure 1.

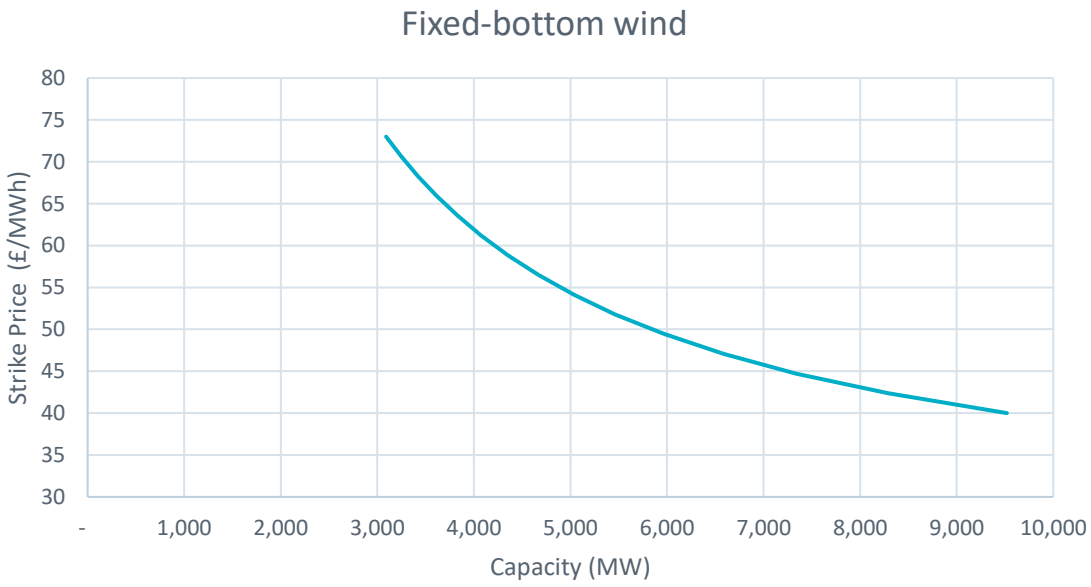

Figure 1: Capacity potentially awarded at each strike price (assuming budget is fully used)

Today's announcement allows analysis of the scale of deployment needed in each AR to reach the Government's 2030 targets of 50GW. There is currently 14.7GW of installed offshore wind capacity fully commissioned and approximately 10GW either partially commissioned, being built, or with a CfD secured, giving us approximately 25GW in the pipeline. The following projects are eligible for CfDs in this AR are shown in Table 2: Note that additional projects such as Berwick Bank may reach consent and be eligible by the time of the auction.

Table 2

Name of project	Fixed-bottom Capacity (MW)
Norfolk Vanguard 1 & 2	2,760
Hornsea 4	2,600
Awel y Môr	1,100
East Anglia Two	900
East Anglia One North	800
Seagreen 1A	500
Forthwind (demonstrator)	8
AR4 rebid	
East Anglia Three	*318*
Hornsea 3	*753*
Inch Cape	*270*
Projects from AR4 subtotal	*1,341*
Total capacity eligible for AR6	**10,009**

To reach the Government's target of 50GW of capacity by 2030, 25GW capacity needs to be awarded across the next four ARs, which spread equally comes to 6.3GW per AR. With today's announcement only if projects bid in at c£48/MWh will AR6 reach the required 6.3GW. At £60/MWh there is capacity for 4.2GW, meaning 7GW must be cleared in each of the next 3 ARs (assuming a construction time of three years after CfD is awarded). This is shown in Figure 2.

An added complication is that projects awarded CfDs in AR4 are able to give up 25% of their allocated capacity and bid into AR6. These are highlighted in Table 2. These projects may bid in at lower prices than other projects, the impact of which is not entirely clear. This may ensure projects, that were marginally viable at AR4 prices, are now on safer ground and are definitely commissioned, it may also mean they out compete other projects and push their commissioning back further.

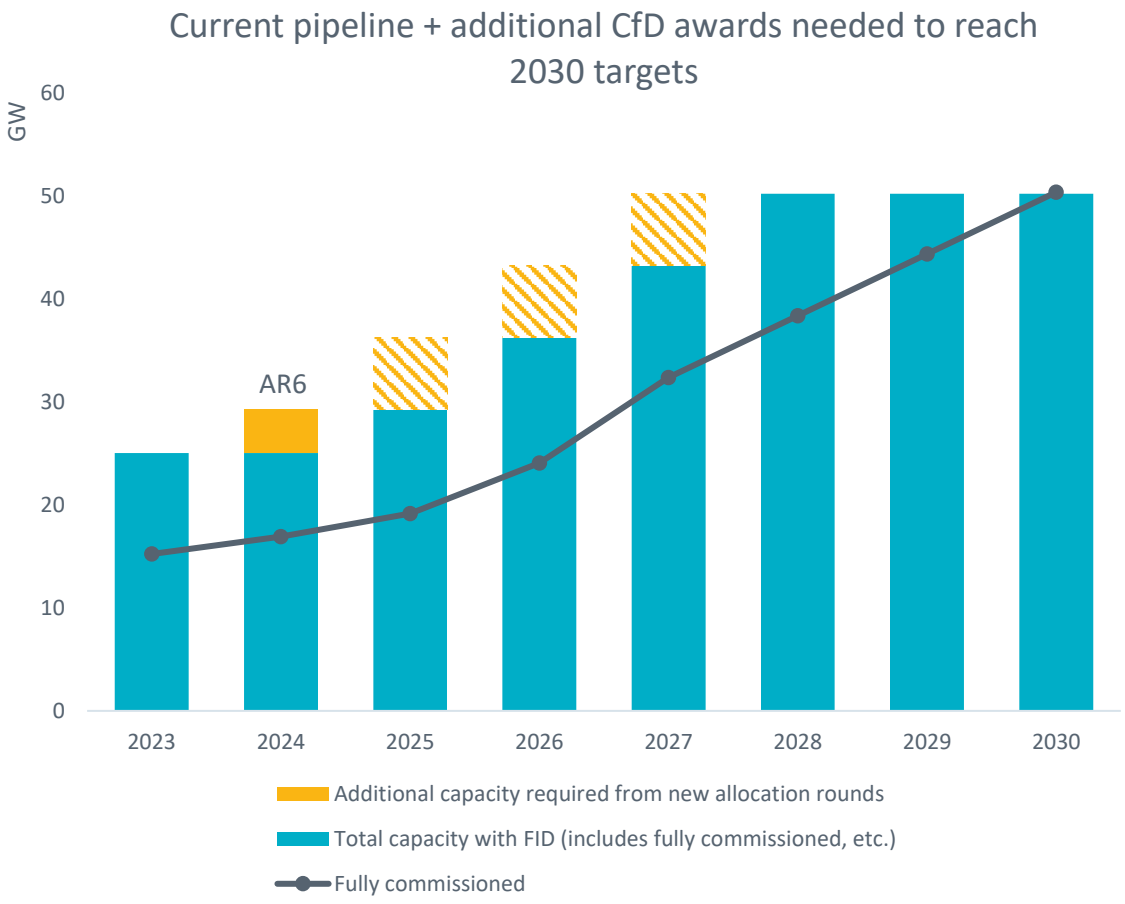

Figure 2: Pathways to achieving 2030 offshore wind targets

1.2 Floating wind

FOW ASPs were increased, as can be seen in Table 1 and the budget for the pot FLOW bids into has been set at £105m. However, tidal stream has £10m ring-fenced, meaning there is a budget of £95m if tidal stream uses all the ring-fenced budget. There are three projects which are eligible to bid into AR6 totalling 258MW. Given the parameters of the AR, these projects would need to bid in at approx. £85/MWh to clear all this capacity. To get two projects through, bids would need to be approx. £145/MWh. The relationship between capacity and strike price is shown in Figure 3 and eligible projects are shown in Table 3.

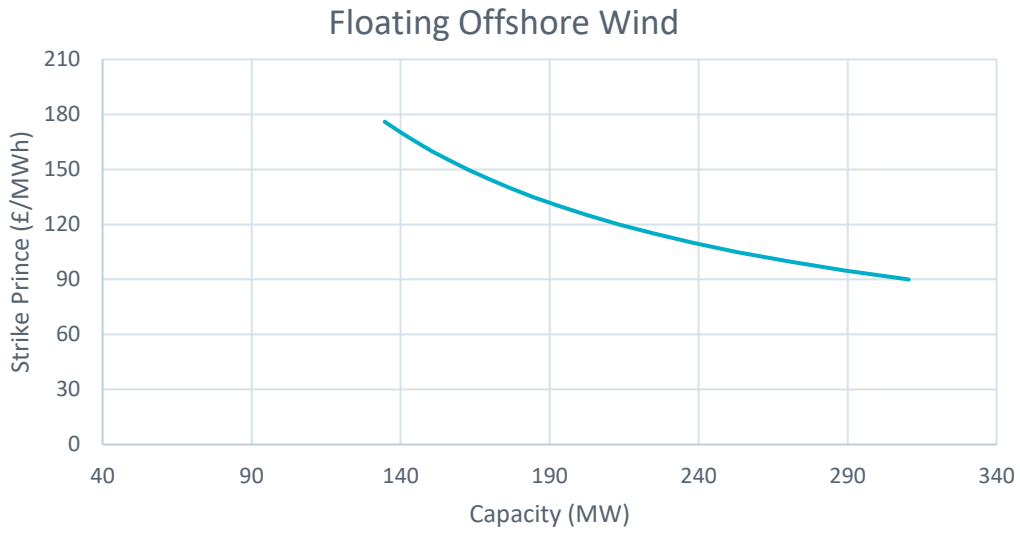

Figure 3: Capacity potentially awarded at each strike price (assuming budget is fully used)

Table 3

Name of project	FLOW Capacity (MW)
Pentland (FOW)	100
Blyth 2 (FOW)	58
Erebus (FOW)	100
Total eligible for AR6	**258**

The high ASP is great signal from the Government of its commitment to FLOW, however, if the 5GW of capacity by 2030 is to be met, getting demonstrator projects running earlier is vital. Delays to demonstrator projects will slow down the deployment of FLOW, as demonstrator projects allow developers and manufacturers to de-risk projects and bring down overall costs through innovation and learning. They also signal to the supply chain the opportunity is there to invest in. The FOW Centre of Excellence has done an excellent job of identifying and mitigating manageable hurdles, and supporting them to develop these demonstrator sites will allow for faster development and deployment of FLOW. Although doing so may come at a premium in the short-term.

1.3 Tidal steam

Tidal stream has £10m ring-fenced in pot 2. If the number of projects is greater than this, more expensive projects will have to compete with other technologies in this pot. At the maximum strike price only 13MW can be awarded CfDs. MeyGen has capacity of 30MW, which would have to bid in at £130/MWh to be awarded the ring-fenced amount. Given this it is likely, that only the smaller projects listed below will be awarded CfDs through the ring-fenced budget. The relationship between strike price and capacity is shown in Figure 4 and tidal stream projects without CfDs are shown in Table 4

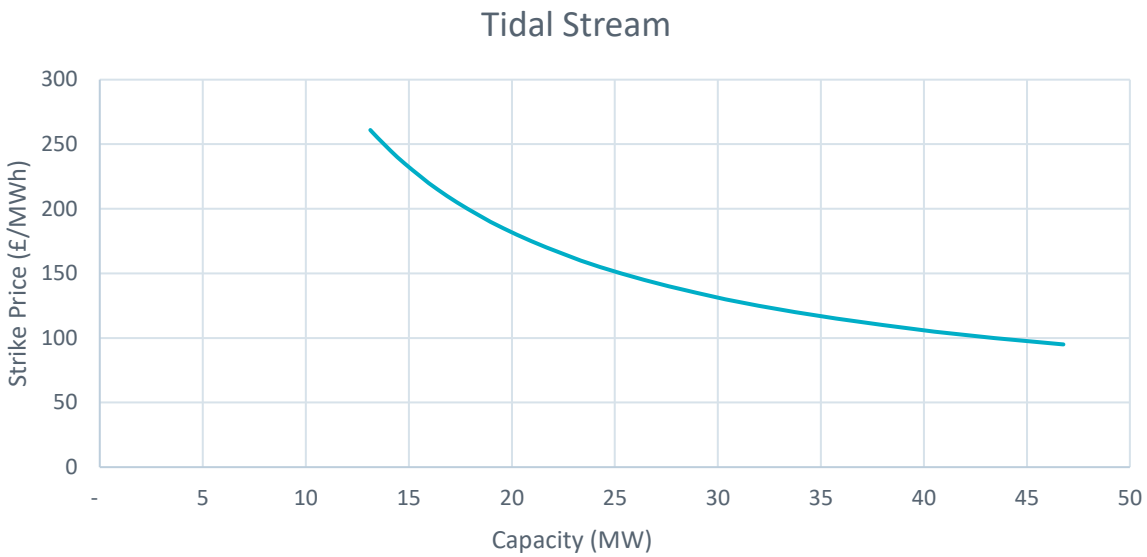

Figure 4: Capacity potentially awarded at each strike price (assuming budget is fully used)

Table 4

Name of project	Capacity (MW)
Morlais Orbital O2	2.00
Perpetuus Tidal Energy Centre (PTEC)	20.00
MeyGen Phase 3	30.06
Total	**108.27**

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