BOEM SELLS SEABED OFF THE SEASHORE

A CLOSER LOOK AT THE FEBRUARY 2022 AUCTION FOR NEW YORK BIGHT LEASE AREAS

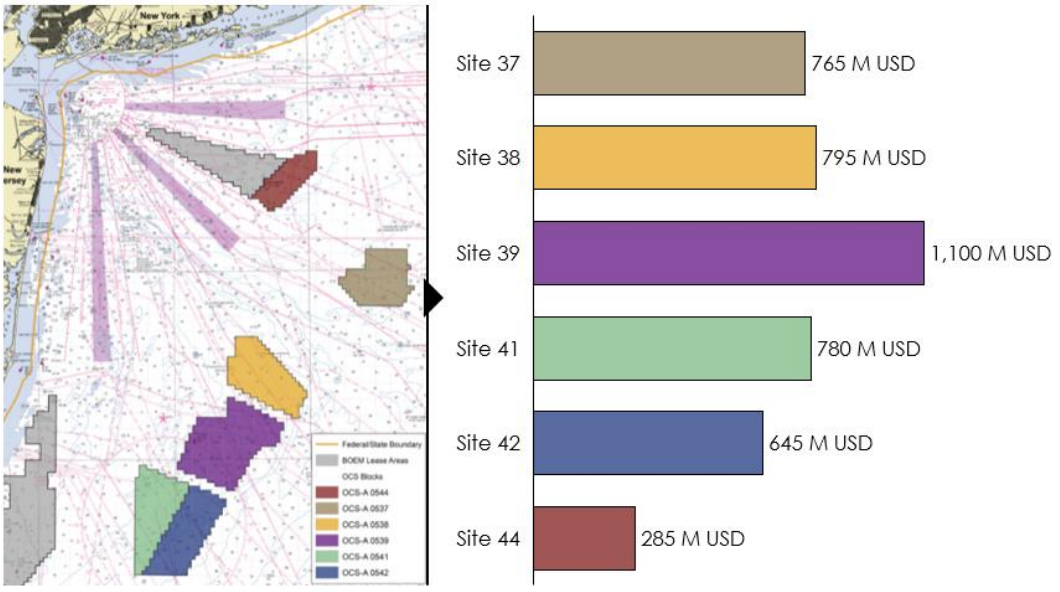
28 MARCH 2022

On 23 February, the Bureau of Ocean Energy Management (BOEM) held an auction to allocate six offshore lease sites in the New York Bight off the coast of New York and New Jersey.

The winning bidders will use the six seabed areas to develop offshore wind farms, which will generate renewable energy for an estimated 1.9 *million* households[1].

The auction has been heralded as a success, with winning bids amounting to a record 4.37 billion USD, which was, according to Reuters, "more than three times the revenue received from all U.S. offshore oil and gas lease auctions over the past five years".[2] Figure 1 below shows the lease sites and a breakdown of the site-specific winning bids in million USD.

Figure 1
The winning bids in the New York Bight auction
Million USD



Note: We have simplified the names of each site to the two last digits of the full titles.
Source: https://www.boem.gov/renewable-energy/state-activities/new-york-bight

In the following article, we briefly describe:

1. How the auction worked and consequently how the outcome can be interpreted;

2. Why, despite this being a record amount in the US, prices were seemingly lower than a recent auction for seabed in the UK (UK Leasing Round 4).

A MULTI-ROUND PROCESS ALLOWED BIDDERS TO RESPOND TO RELATIVE PRICES

The auction format worked by allocating all six lease sites simultaneously in a multi-round process, using a so-called "clock" auction format. Specifically, the auction worked in the following way:

- In each round, the auctioneer communicated an asking price for each of the six sites (starting from 'low' prices in round 1).
- Each bidder could in response indicate demand for a maximum of one site at the asking price in each round.
- For all sites where more than a single bidder indicated demand, the auctioneer would increase the asking price in the following round.
- Bidders could, in the following round, either: a) maintain their demand at the new, higher asking price, or b) switch to another site, or c) drop out of the auction entirely.
- This ascending process continued until there was just a single bidder left bidding for each site, at which point the auction concluded and winning bidders had to pay the final asking prices.

Implementing an auction in this way, where bidders can 'switch' between items as the auction progresses, allows bidders to accurately express their relative preferences. This is because bidders can always bid for the site which maximises their 'surplus' or 'profit', i.e. the site which offers them the largest 'saving' relative to their maximum willingness to pay for that site according to their business cases, at the current asking prices.

Assuming that bidders did in fact bid approximately in this way, in accordance with economic theory, the final prices should reflect the relative value of the different sites.[3] This is because each individual bidder would have an incentive to switch their demand from one site to another when the difference in price between the two sites offsets any difference in willingness to pay. Hence, prices should be pushed up 'uniformly' if/when bidders switch back and forth, triggering alternating price increases.[4]

In round 1, the auctioneer started with prices that were quite similar across the different sites. There was thus a difference of 'only' 8 million between the asking prices of the most and least expensive sites in round 1. However, as the auction progressed and demand was stronger for some sites than others, prices began to diverge, such that the final prices varied significantly. When the auction closed, the difference in asking prices between the most and least expensive sites had grown to around 815 million. Figure 2 demonstrates this development, showing the prices for the different sites relative to site 44 (the cheapest site) in the first and final rounds.

---

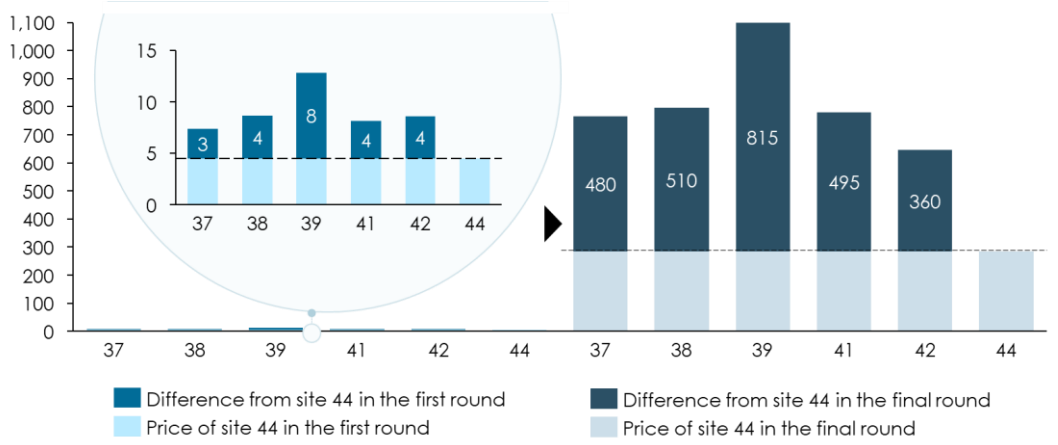
1 https://www.boem.gov/renewable-energy/state-activities/new-york-bight

2 https://www.reuters.com/article/usa-biden-offshorewind-idAFL1N2V027C

3 Although we note that relative values will almost certainly be different between different bidders – meaning that not all bidders will switch in response to exactly the same price differences.

4 We note that bidders will not necessarily bid in this way if, for example, they aim to maximise something other than surplus (e.g. the probability of winning their preferred site), or if they want to use their bids strategically (e.g. to 'signal' something to other bidders).

Figure 2
Prices relative to site 44 in the first and final rounds
Million USD



Note: We simplify the names to the two last digits of the original names
Source: https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/New%20York%20Bight%20Results%20Round%20by%20Round.pdf

There are several reasons why at least some bidders might have been willing to pay so much more for some sites than others, for example:

Differences in expected revenue: the sites differed in terms of size. Since wind turbines need space, larger sites are – all else equal – able to fit more turbines and thus generate more power, which implies a higher value. This is consistent with the outcome: site 39 – the largest site by far – secured the highest price. Sites 37, 38, 39 and 42 were of similar sizes, and generated similar revenue. Site 44 was the smallest and secured the lowest revenue.

Differences in expected costs: apart from size, the sites also differed in geographical aspects, such as water depth and location (distance to the coasts of New York and New Jersey). These aspects can impact the costs of constructing and maintaining a wind farm. All else equal, the sites with the highest expected construction costs should be worth the least at the auction, since the business case of these sites would be less attractive. This might explain the price difference between sites 41 and 42 – which were otherwise almost the same size in terms of acres, but where site 41 was closer to shore.

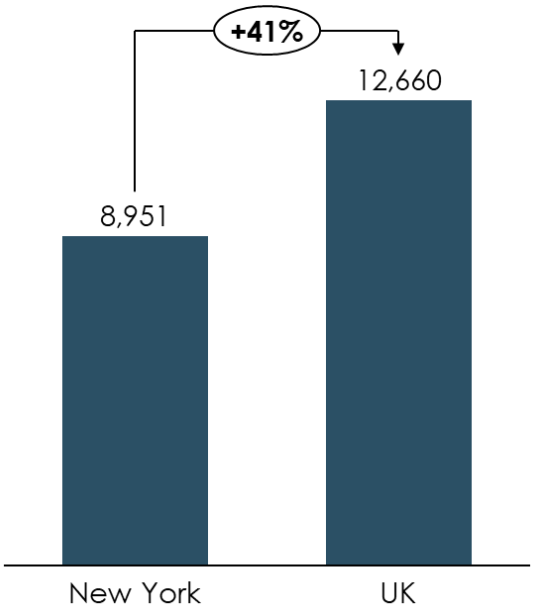
PRICES SEEMINGLY LOWER THAN IN THE UK

In 2021, the Crown Estate held a similar auction for seabed rights in the UK – called UK Leasing Round 4. As in the New York Bight process, UK Leasing Round 4 allocated a total of six sites/projects.

In UK Leasing Round 4, winning bidders had to pay an option fee[5] (their winning bid) every year between the award of the seabed rights (expected to happen in 2022[6]) until their sites are in construction, for a maximum of ten years.[7] The final prices in the UK auction, therefore, depend on how long it takes for the bidders to start the construction of the wind farms. According to industry experts, anything below four years is highly unlikely, and eight years is a more realistic period.[8]

Therefore, although the outcome of the New York Bight auction is impressive, the realised average seabed prices do not quite reach the levels in the UK when compared with the benchmark of eight years, see Figure 3 below.[9]

Figure 3
Final price comparison, New York Bight and the UK
USD per acre



Note: Assuming the winning bidders in the UK pay their option fees for eight years. We use an exchange rate of GDP to USD of 1.34 and a discount rate of 5%.
Source: https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/New%20York%20Bight%20Results%20Round%20by%20Round.pdf, https://www.thecrownestate.co.uk/media/3920/round-4-tender-outcome-dashboard.pdf

5 The option fee is CPI indexed, making the UK prices even higher in comparison to the prices in the NY auction. Therefore, our conclusion of prices being lower in the NY auction is conservative.
6 https://www.thecrownestate.co.uk/round-4/
7 https://ore.catapult.org.uk/blog/miriam-noonans-thoughts-seabed-leasing-4/, https://www.offshorewind.biz/2021/02/08/renewableuk-voices-concerns-over-round-4-option-fees/
8 See for example https://ore.catapult.org.uk/blog/miriam-noonans-thoughts-seabed-leasing-4/
9 In January 2022, another leasing auction also concluded, namely ScotWind. The winning bids for the sites in this auction were much lower than both UK Leasing Round 4 and New York Bight. The reason for the lower winning bids in that auction is simple: in ScotWind, the bidders faced a cap 100,000 GBP per km^2. The price in the New York Bight auction was between 12 and 20 times larger than this cap. See https://www.offshorewindscotland.org.uk/news-events/2022/january/scotwind-1-results/ and https://www.bbc.com/news/uk-scotland-scotland-business-60002110 for more about the ScotWind auction.

Several reasons could explain why the price of the seabed was seemingly lower in the New York Bight auction compared to UK Leasing Round 4, including:

Auction format: the two auctions used different formats. The format used in New York, where prices increased for each site depending on excess demand, pushed prices only just as far up as they needed to go, and thus protected against extreme prices and the risk of "winner's curse". Additionally, the cap of one site per bidder served to keep prices slightly lower, as this reduced demand relative to supply. This contrasts with the UK auction, where bidders a) were forced to submit sealed bids for sites, having to gamble with their bids, and with the risk of a winner's curse that bidders did not necessarily account for, b) could not express their relative preferences for their sites but were forced to bid high in early rounds to secure their preferred sites, and c) were allowed to buy up to three sites each, meaning that the most aggressive bidders could secure more sites.[10]

Economies of scale: the sites in the UK were on average 30% larger than in New York (in terms of developable acres). Economies of scale could mean that the larger sites available in the UK were worth more per acre.

Financing: in New York, there may be less revenue certainty regarding the selling price of energy – whereas in the UK, there is a degree of transparency regarding the CfD mechanism offered by the UK government (although winning bidders in UK Leasing Round 4 are not guaranteed a CfD). This could mean a larger risk for the developer in the US, which would result in lower site values.

[10] We note that in the UK auction, two of the winning bids (both submitted by a consortium of EnBW and BP) were significantly larger than the rest of the winning bids. Disregarding these winning 'extreme' bids, the average price per acre is very similar in the UK and New York.