

BOEM MASSACHUSETTS OFFSHORE WIND LEASE OPPORTUNITY REVIEW

October 9th, 2017

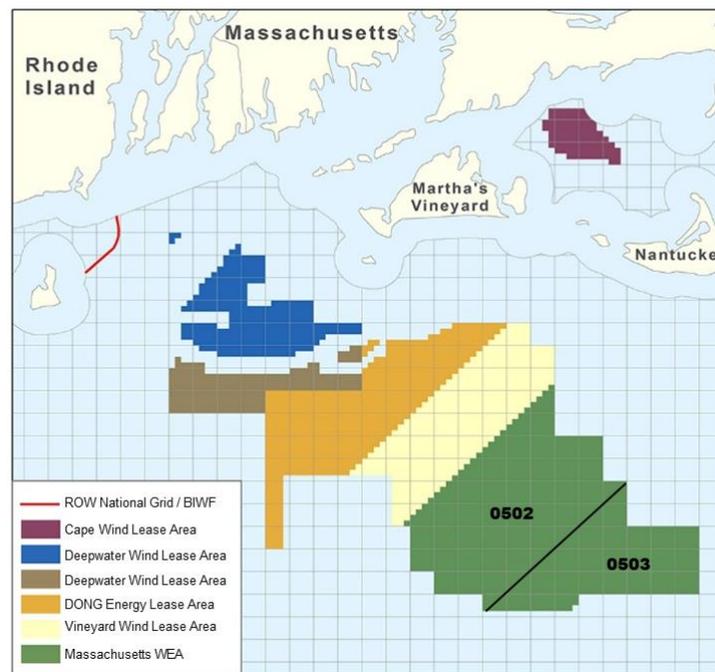
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To: Clients and Colleagues

From: John Dalton, President & Michael Ernst, Executive Advisor, Power Advisory LLC

The Bureau of Ocean Energy Management (BOEM) has indicated that it will be conducting auctions for two additional lease areas for the Massachusetts Wind Energy Area (WEA) in 2018. The auction of the two lease areas, an aggregate of 388,569 acres (248,015 and 140,554 acres, respectively) with a maximum development potential of 4,717 MW, is in response to unsolicited lease applications from Statoil Wind US LLC and PNE Wind USA Inc. from December 2016 (See Figure 1 below). These Norwegian and German affiliated developers have announced plans for multiple +400MW projects, but since both expressed interest in the same lease area BOEM must hold a lease auction in which all qualified parties may participate. Lease Areas OCS-A 0502 and 0503 make up the remaining Massachusetts WEA.

Figure 1: MA and RI Offshore Wind Project Areas



Source: BOEM



The interest in these two additional lease areas is expected to be strong given that lease holders will be able to participate in subsequent rounds of the Massachusetts offshore wind RFPs for 20-year power contracts issued to allow the Commonwealth to realize its legislated objective of 1,600 MW of offshore wind by 2027.¹ The total area to be leased is over four times the size of the New York lease area. This memo reviews the anticipated form of auction to be employed by BOEM and opportunities for interested parties to begin to prepare to participate successfully in such a process.

AUCTION FORMAT

BOEM has typically employed a multiple-factor auction format, under which BOEM considers a combination of monetary and nonmonetary factors. Non-monetary factors are considered by a panel which determines whether the bidder has earned non-monetary credits and the percentage that the credit may be worth. The previous Auction for North and South Rhode Island and Massachusetts lease areas provided for a credit of up to 25% of a monetary bid for a Power Purchase Agreement or Joint Development Agreement.

The auction is based on ascending bidding, i.e., ascending clock auction, over multiple rounds. To enhance competition BOEM shares information with bidders on the number of bidders for each Lease Area for each round. At the start of each round BOEM specifies an asking price for each Lease Area. A bidder must submit a bid for the full asking price for at least one lease area to participate in the next round of the auction. A bidder may submit an intra-round bid, which is greater than the last round's price, but less than the current round. In essence, the bidder may elect to bid less than the BOEM asking price as a final exit bid. When there are multiple lease areas activity rules are employed that allow bidders to switch lease areas that they bid on, but require minimum levels of participation. A bid deposit must cover each bid, and will be deducted from the winning bid price or refunded if the bid is not successful. Bid deposits have been \$450,000 for the most recent BOEM lease auctions.²

To participate in the auction, the bidder must first be qualified by BOEM and become an eligible bidder. Qualification requirements focus on legal, technical and financial capability as specified in 30 CFR 585.106 and 585.107.³ Eligible bidders must complete a Bidders Financial Form, which provides details of accounts from which funds will be provided and to where refunds will be directed and individuals authorized to bid and submit bid deposits generally two weeks prior to the date of the auction. At this time, bidders would also provide a non-Monetary package if they were applying for a credit for community benefits based on an executed agreement with a qualified community organization or municipality.

¹ See Power Advisory's [May 12, 2017 memo](#) that reviewed past BOEM WEA leases.

² The most recent BOEM lease auction was for New York in December 2016. See <https://www.boem.gov/NY-FSN/>.

³ Power Advisory has assisted clients with complying with these requirements.

EVALUATING PARTICIPATION IN THE MASSACHUSETTS WEA LEASE AUCTION

In assessing whether to participate in the BOEM auction, prospective bidders will want to assess the opportunity offered by these two lease areas to ensure that they offer a reasonable prospect of competing successfully with the three existing leaseholders. Specifically, these two lease areas will require a greater transmission investment. However, the four Massachusetts WEAs were delineated to provide roughly equivalent water depths, and thus similar costs for foundations for the initial several hundred megawatts of capacity. Offsetting the greater required transmission investment are greater wind speeds in WEAs 0502 and 0503. Interestingly, the average wind speed in Lease Area 0502 is the highest of the four WEAs according to analysis performed by NREL. More importantly, the lowest depths in Lease Areas 0502 and 0503 are associated with higher wind speeds. This suggests that these lease areas could have lower foundation costs and higher overall output levels. This combination could allow them to compete effectively with other leaseholders in the Massachusetts RFP even with higher transmission costs. Figure 2 reviews the water depths of these lease areas and Figure 3 reviews the wind speeds of these different lease areas, relative to the cost of participating in the auction and the Power Advisory estimates.

Figure 2: Massachusetts Offshore Wind Speeds

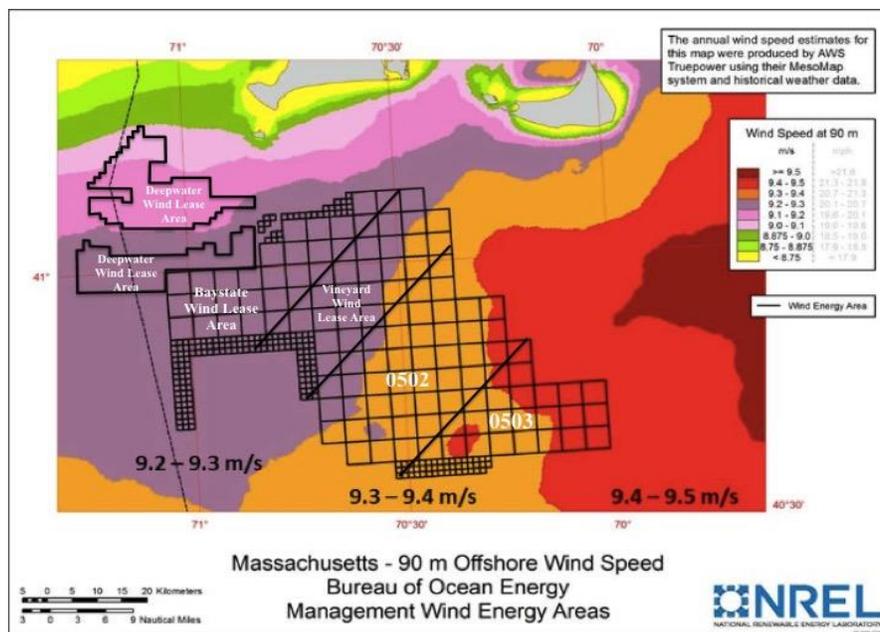
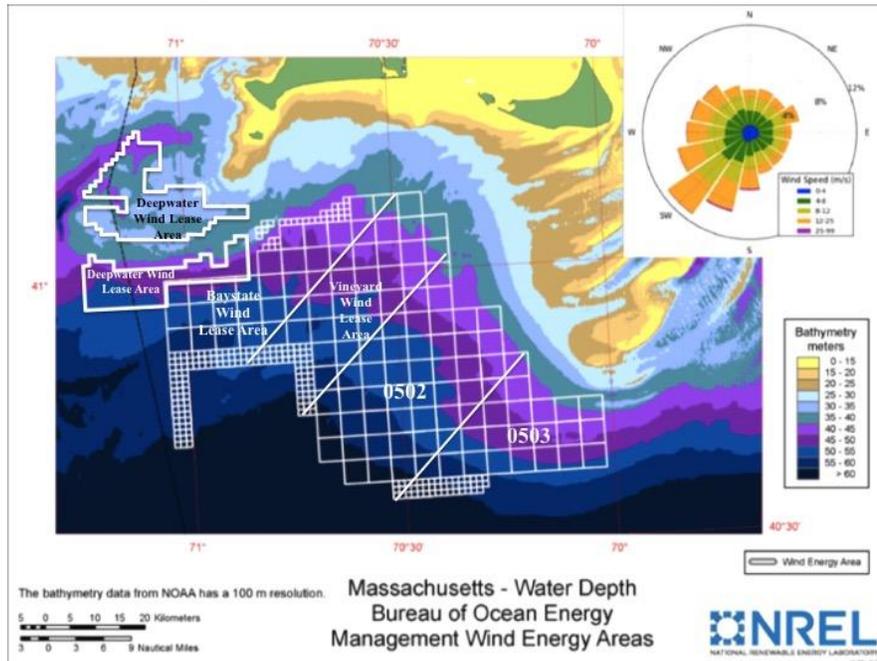


Figure 3: Massachusetts Offshore Water Depths



Source: NREL

BOEM has issued an Environmental Assessment of the entire Massachusetts WEA and issued a Finding of No Significant Impact.⁴ Lease Areas 0502 and 0503 are also located over 20 miles from Nantucket and Martha's Vineyard reducing visibility of the turbines from shore which has been a significant obstacle to earlier proposed offshore wind farms such as Cape Wind off of Massachusetts.

To assess the potential economic value of the higher output offered by Lease Areas 0502 and 0503, we used the increased annual energy output estimated by NREL for each WEA for a 500 MW OSW project configuration and projected the incremental value of the WEA assuming a 20-year PPA term and a PPA price of \$110/MWh. The incremental value was considerably below the estimated incremental cost of transmission interconnection. This suggests that additional cost savings from lower water depths would be required.

In sum, based on this high-level analysis Lease Areas 0502 and 0503 warrant more detailed analysis. On October 4, 2017, the Director of the Office of Renewable Energy Programs for BOEM announced plans to issue the Proposed Sale Notice for these lease areas by the end of 2017 with the auction during the summer of 2018.

Power Advisory would welcome the opportunity to assist clients in assessing opportunities in the US offshore wind market, especially the upcoming BOEM Massachusetts and NY lease sale auctions, submission of comments on the 83C RFP, and participation in subsequent solicitations.

⁴ The EA and FONSI are located here: <https://www.boem.gov/Revised-MA-EA-2014/>.