

## Comments from the Business Network for Offshore Wind - September 30th

I'm Sam Salustro with the Business Network for Offshore Wind. Thank you for making a video and PDF available of our August meeting, and I appreciate the opportunity to offer an observation.

On page 45, it appears that the model will use a power capacity factor for all wind technologies at either 30% or 34%. [Exeter PowerPoint, Page 45]. This seems based on onshore wind performance. It is expected that offshore wind will achieve a higher capacity factor. A number of datapoints regarding offshore wind nationally and regionally backup this point.

- NREL's 2021 Annual Technology Baseline, which is referenced elsewhere as a source, lists a 2021 capacity factor of 45% for offshore wind technology. [NREL, ATB2021, [link](#)]
- An International Energy Agency Offshore Wind Outlook from 2019 reads, "Offshore wind is in a category of its own, as the only variable baseload power generation technology. New offshore wind projects have capacity factors of 40%-50%, as larger turbines and other technology improvements are helping to make the most of available wind resources. At these levels, offshore wind matches the capacity factors of efficient gas-fired power plants, coal-fired power plants in some regions, exceeds those of onshore wind and is about double those of solar PV." [International Energy Agency, Offshore Wind Outlook 2019, [link](#)]
- This is reflected in the recent Round 2 bids before the Maryland PSC. The Maryland PSC commissioned a private report to analyze both bids including the extent the project would meet Maryland RPS targets (including capacity factor). The report finds Ørsted's projected capacity factor is above 40%, and US Wind's is between 30% and 40%. [ICF Report, prepared for the Maryland Public Service Commission, page 37]
- US Wind's Mark Repsher further narrows down US Wind's bid to be above 35%: "While capacity factors will vary by site, typical in-state solar facilities can achieve a capacity factor of approximately 23% whereas OSW facilities located off the coast of Maryland are expected to achieve capacity factors greater than approximately 35%." [Supplemental Direct Testimony of Mark Repsher, page 33]
- Finally, The Maryland Office of People's Counsel testified that the Round 1 bids from Ørsted and US Wind, from 2017, indicated its projects would have capacity factors of 43.3% and 42.1%, respectively. The OPC's testimony indicated that those projections have changed, however shows the higher starting point offshore wind provides. [Direct Testimony of Maximilian Chang, Maryland Office of People's Counsel, page 17 and 18]

Secondly, I just want to ask a clarifying question. Page 43 of the Exeter PowerPoint lists capital costs from NREL's ATB [Annual Technology Baseline]. Will these models factor in expected price drops? The Department of Energy reports experts estimate that the

levelized cost of energy for fixed-bottom turbines will drop 41% in the next decade [Department of Energy, Offshore Wind Market Report 2021, [Page 73](#)]. The same NREL report projects a more modest 25% drop in CAPEX, alone [NREL, ATB2021, [link](#)].

Thank you, and I look forward to the next meeting,  
Sam

**PPRP Response:**

Yes, the 30 - 34% capacity factors in our presentation are for onshore wind facilities – we should have stated that more clearly. The VCE model will calculate the capacity factor for offshore wind based on the resource map provided in VCE’s presentation; we expect it will be around 45%.

Regarding future reductions in capital cost, yes, we’re using the mid-point numbers NREL provides in the Annual Technology Baseline (ATB). Although NREL’s numbers are a little more conservative than other projections, we are not persuaded that we need to make these cost reductions more aggressive. In any event, we can do a “low cost renewables” sensitivity run if this proves to be a sticking point.