The Offshore Wind Farm Round-Up

Issue #6 October 10, 2022

The Offshore Wind Farm Round-Ups periodically provide a review of recent research efforts in which the effects of offshore wind farms have been studied. In addition, in response to readers' suggestions and questions, Round Ups occasionally include factual, clarifying information,

Research included in Round-Ups points you in the direction of the science and assumes no point of view one way or the other about the presence of offshore wind farms off our shore. Likewise, clarifications are provided without editorial comment; they are there for you to consider so you can draw your own conclusions.

Click on the link to jump to a section:

"Are the wind turbines there forever?"
(*and other questions from readers*)

Once built, will the wind turbines ever go away? Yes, the poles, the blades and the part of the foundations above the ocean floor will. All of these structures are required to be removed by Atlantic Shores at the end of the lease. No, for the part of the foundation that sits **under** the ocean floor.

Is that removal process mandatory? Yes. It is part of every offshore wind farm lease awarded by the Bureau of Ocean Energy Management ("BOEM"), including Atlantic Shores' lease for the wind farm off the coast of LBI.

When is that action required? At the end of the lease and it must be completed within two years of the lease's end. Atlantic Shore's lease is for an operating term of twenty-five years.

What does decommissioning mean? Decommissioning is the term used by the BOEM to describe the process of deconstructing the wind turbines and removing them from the ocean.

What exactly happens during the decommissioning process? From Section 6.1 "Decommissioning Requirements" in the Atlantic Shores Construction and Operations Plan ("COP") submitted to BOEM and available on its website (link below):

> "Atlantic Shores will be required to remove all facilities, projects, cables, pipelines, and obstructions and clear the seabed of all obstructions created by activities on the leased area, including any project easements(s)."

Can you be more specific? Yes. The following components are involved:

The wind turbines themselves: They are first drained, according to specific, established procedures, and then cables are disconnected. When that is completed, the components of the wind turbines (i.e., blades, rotor, nacelle and tower) are disassembled and removed from their foundations, shipped to shore, and recycled or scrapped.

Offshore substations: Cables are first disconnected and then the topsides are disassembled and removed from their foundations, shipped to shore, and recycled or scrapped. In accordance with the specific regulations around disposal, equipment in the station is drained of any fluids, which is collected and then properly disposed of or recycled.

Foundations: They are cut below the mudline (sea floor) and then they are completely removed above that cut. After the foundation is removed, any collected sediment is placed in the resulting depression using a vacuum pump, diver, remotely-operated hoses or all of those options.

Offshore cables: Cables will either be retired in place or removed from the seabed. The decision regarding whether to remove these cables and any overlying cable protection will be made based on future environmental assessments and consultations with federal, state, and municipal resource agencies. For example, if cable protection is functioning as reef habitat, it may be less disruptive and more beneficial to leave such structure undisturbed on the seabed.

For a complete explanation of this process, access Section 6.2 "Decommissioning Activities" in the COP by clicking on the following link and then scrolling down to Section 6.2:

https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Atlantic-Shores-COP-Volume-1-Project-Description.PDF

Can anything be recycled? Yes. From Section 6.2 of the COP: "When possible, the Projects' components removed during decommissioning will be recycled (for example, steel foundation components). However, some materials may have no scrap value or capability to be recycled (for example, fiberglass components in the wind turbine generator). These materials would be broken down and disposed of at an approved onshore solid waste facility."

Speaking of recycling, below is a link to a description of Vestas' recycling program. This information is relevant because last week, Atlantic Shores announced its selection of Vestas, not GE, as the supplier of the wind turbines for this project.

https://www.vestas.com/en/sustainability/environment/zero-waste

Below is a link to Atlantic Shores' October 6, 2022 press release about Vestas:

https://www.atlanticshoreswind.com/vestas-and-atlantic-shores/

Could Atlantic Shore's lease be extended? Yes. The 25-year operating term may be extended or otherwise modified in accordance with applicable federal regulations.

Be aware, however, that the wind farm has been designed with a defined life cycle. As stated in the COP, "Once commissioned, the wind farm is designed to operate for 30 years" (Section 5.0 Construction and Operations, page E-8).

What happens if Atlantic Shores, for any reason, runs short of money at the end of the lease and can't pay for the decommissioning process? Even if the company were to experience financial hardship, that would not affect the decommissioning process, which would still go on as planned. All offshore wind projects are required by BOEM to post a surety bond for decommissioning and that requirement is written into Atlantic Shore's lease in Section 10.

Access Section 10 of the lease by clicking on the following link and then scrolling down to page 5:

https://www.boem.gov/sites/default/files/documents/oil-gas-energy/leasing/OCS-A 0499 Lease.pdf

Access the entire Section 6.0 Decommissioning in the COP by clicking on the following link and then scrolling down to Section 6.0:

https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Atlantic-Shores-COP-Volume-1-Project-Description.PDF

"Is the Atlantic Shores project closer to shore than any other offshore wind farm?"

I read a statement that said the Atlantic Shores project, starting 9 miles out, is closer to shore than any other modern project in the world. Is that true? No. Below is a list of operating offshore wind farms that are closer than or the same distance from shore as the Atlantic Shore project.

Inch Cape: 9 miles off the eastern Scottish coast

Kincardine: 9 miles off the eastern Scottish coast

Beatrice: 8 miles off the northern Scottish coast

Saint-Nazaire: 7.5 – 12.4 miles off the coast of the Guérande peninsula in the northwest part of France

Block Island: about 3 miles off the Rhode Island coast

Formosa 1: 1.25 – 4 miles off the northwest coast of Taiwan (Formosa 2, built adjacent to Formosa 1 and soon to be operational: 2.5 – 6 miles off the coast)

Aberdeen off the northeast coast of Scotland is literally "just off the coast," a direct quote from its website with accompanying photos https://powerplants.vattenfall.com/aberdeen/

What is the significance of the word "modern" in that statement? Not sure. Offshore wind farms have been around for only 31 years, although the first land windmill built to generate electricity appeared in 1887.

The first offshore wind farm built anywhere in the world was the Vindeby Offshore Wind Farm one mile off the coast of the Danish island of Lolland. It was erected by Ørsted in 1991. It was decommissioned in 2017 after 25 years of useful life. Click the link below for more information about Vindeby:

https://orsted.com/en/insights/white-papers/making-green-energy-affordable/1991-to-2001-the-first-offshore-wind-farms

Click the link below to access the article "History of Wind Turbines" published by *Renewable Energy World* November 2014

https://www.renewableenergyworld.com/storage/history-of-wind-turbines/ - gref

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This Round-Up was prepared by a group of writers and researchers from Long Beach Island, New Jersey. Round-Ups are distributed to the voting representatives of the eleven member organizations of the Joint Council of Taxpayers Associations of LBI (JCTA). Each taxpayer and property owners association then distributes this information to its members and the community via its regular communication methods, e.g., through newsletters; posted on websites; social media.

Questions about the content of Round-Ups and suggestions for topics to be covered in future issues can be directed to RoundUpLBI@gmail.com. The Round Up research and writing team welcomes questions and comments.