BBLA presents the following information in order to help inform members about offshore wind farms in general, and about the current status of the proposed Orsted/Skipjack Wind Farm to be constructed in an area leased from the Federal government about 20 miles off the coast of Bethany Beach. The BBLA Board is not taking a formal position on the Orsted/Skipjack Wind Farm Project in this writing. However, the Board is interested in this localized project as part of a national effort for exploring and fully evaluating all potential, viable forms of renewable energy, such as wind power. Please note that we have provided numerous references, and examples of the most commonly heard pros and cons are included throughout the article.

BBLA Board of Directors

Offshore Wind Farms – Overview

Middle Photo Indicates View from the Shore – from 2 miles to 20 miles
Source

Wind Farms provide renewable energy without burning fossil fuels, consuming water, or requiring transportation (trucks, rail) extractive activities. Wind Farms, or even single turbines, are located where studies have shown that wind velocities and occurrence are sufficient to cover the cost of construction and operation, and to generate enough of a profit to incentivize investments (unless the project involves a non-profit, educational, or research entity).

Offshore Wind Farms typically benefit from higher and more consistent windspeeds, and they typically have the potential to generate more electricity at steadier rates than their onshore counterparts. Small increases in wind speed yield large increases in energy production. For example, a turbine in a 15-mph wind can generate twice as much energy as a turbine in a 12-mph wind. Faster wind speeds offshore mean much more energy can be generated.

Wind energy is considered the cheapest form of "new electricity generation" available today. Wind power plants reportedly can generate electricity for less than 5 cents per kilowatt-hour, a price that is competitive with new coal-fired or gas-fired power plants. Another stated advantage is that wind farms do not produce and emit greenhouse gases or other pollutants, which is a major health benefit in comparison to fossil fuels. As the wind turns the carbon-fiber blade on the unit, a motor turns, which turns **kinetic energy into electricity**. This energy is transferred to the gearbox, which converts the slow speed of the spinning blades into higher-speed rotary motion — turning the drive shaft quickly enough to power an electricity generator. The energy produced is sent to an energy storage facility where it is stored in batteries until it is needed.

Block Island Wind Farm, Rhode Island – Pioneering Project on the East Coast

This is the first of many offshore wind farms established in the United States. The construction of this 30-MegaWatt Wind Farm began in 2015. It is located about 4 miles offshore, has 6 turbines (150m), designed to serve the Block Island population of ~2,000 residents, along with resorts, and other parts of Rhode Island. This Wind Farm can potentially provide power for up to 17,000 homes and reduce electric costs by 40% on Block Island. The project will also offset 800,000 tons of carbon dioxide emissions over its estimated operational life of more than 20 years, which is equivalent to taking 150,000 cars off the road. An estimated 300 jobs were created during construction.

Based upon the overall success of the Block Island Wind Farm, at least in the opinion of many residents and developers, between 20 and 30 projects off the east coast of the U.S. are in various planning and permitting stages. Offshore wind energy (plus wind energy in general, and solar; as well as other renewables), should serve a more significant role in the production of American energy, according to the Green City Times. Click on these two links for more information on the Block Island Wind Farm from Inside Climate News).

This Wind Farm project is just 407 miles north of Bethany Beach. Our community can learn a lot from this project, how it was planned and constructed, and now being operated. Since the project has been operational for a few years, what lessons can we learn about the pros and cons of Wind Farms, how was the planning and public involvement process conducted, and what questions might BBLA members want to ask Orsted about its proposed Skipjack Wind Farm Project in future public meetings? To learn more about the project, its submarine cable, equipment, and on-land connector facilities, and how operations and maintenance are being done, click information.

"According to the U.S. Department of Energy, more than 25 offshore wind projects with a generating capacity of 24 gigawatts are now being planned, mainly off the U.S. Northeast and mid-Atlantic coasts. And although some of these projects may not be built, and only one commercial offshore wind farm has actually been constructed —the tiny, five-turbine "Block Island Wind" project off Rhode Island — analysts say that U.S. offshore wind is expected to enjoy significant growth in the coming decade." Quote from e360.

Wind Turbine at the University of Delaware (UD) Since 2010

UD joined forces with Gamesa Technology Corporation (now Siemens Gamesa Renewable Energy) to install and operate what they called "a utility-scale 2-megawatt (2-MW) wind turbine" at UD's Hugh R. Sharp Campus in Lewes. UD's College of Earth, Ocean and Environment and College of Engineering collaborated with the State and city of Lewes to explore, test, and better understand "the effects of marine conditions such as salt spray on turbine coatings, corrosion, and avian impacts." The turbine powers the campus and about 100 homes in Lewes too. Revenues fund research, students have opportunities to study how a wind turbine performs and its effects, and the importance of seabed geotechnical characteristics, and much more. To learn more about the wind turbine, visit the official site.

Common Pros and Cons of Offshore Wind Farms

Example Pros:

- Clean Energy is generated more efficiently, reliably, and abundantly
- Towers can be taller than onshore counterparts (more energy collection)
- Less intrusive physically and visually than onshore counterparts, allowing for more towers/turbines per square mile
- When sited properly, environmental impacts of construction and operation are minimal
- No issues with physical restrictions such as hills or buildings that could block wind flow
- Jobs during and after construction

Example Cons:

- High construction and operation/maintenance costs paid by taxpayers in government subsidies and consumers in electric bills
- Concerns about radiation from onshore transmission cables and facilities
- Threat to birds and bats **(**between 140,000 and 500,000 collisions/yr.) and marine life
- Turbine foundations disturb the ocean floor
- Turbines susceptible to storm and hurricane damage, winds and waves
- Overall impacts to fish and wildlife species are still poorly understood
- The production and installation of power cables under the seafloor to transmit electricity back to land can be very expensive
- Offshore wind farms built within view of the coastline (up to ~26 miles offshore, may be unpopular among residents/visitors, and may affect tourism and property values

For detailed information on these examples, click here and here.

Update on Orsted's Skipjack Wind Farm Project Near Bethany Beach, DE

Orsted announced in early July 2020 that construction of the Skipjack Wind Farm off the coast of Bethany Beach would be delayed at least until 2023 because of the federal government review process. Orsted indicated that after completing more thorough evaluations of the area proposed for the facility, they determined that a large portion of the site is comprised of undisturbed wetlands. Accordingly, Ørsted notified the Delaware Department of Natural Resources and Environmental Control (DNREC) that it will no longer pursue plans to build the interconnection facility at Fenwick Island State Park as initially proposed. Ørsted and DNREC have been working together since July 2019 to

identify an environmentally acceptable and technically feasible connection point for the Skipjack Wind Farm. Orsted is pursing an alternative interconnection site and have continued ***discussions with DNREC and other stakeholders in the region to complete a satisfactory Delmarva project.*** On September 4, 2020, the Cape Gazette (p. 13) reported that "*the Maryland Public Service Commission has approved the use of the General Electric Hailade-X, a 12 megawatt turbine that has a height of more than 850 feet when the blade is straight up in the air.*" Using these larger turbines Orsted can reduce the total number of turbines from 15 to 12 or less.

Community Views on the Proposed Orsted/Skipjack Wind Farm and Onshore Transmission Facilities

In recent years, there has been a lot of interest in this proposed project. In February of 2020, the Bethany Beach Town Council passed a Resolution recognizing "the potential for offshore wind power as a source of clean energy when constructed in a responsible manner that respects the natural environment. . . ." The Council noted public concerns about the project, including: construction of the onshore transmission facilities in Fenwick Island State Park in normally protected wetlands; the potential effect on public health and safety; increased traffic; and the absence of any provision in the tentative agreement between Orsted and DNREC for ongoing revenue to address adverse impacts on local communities and other funding needs.

There have been public meetings, meetings with local governments, and a number of articles and "Letters to the Editor" in newspapers. Here, the BBLA highlights some recent letters to the Editor of the *Coastal Point* newspaper for the purpose of providing BBLA members with brief summaries of expressed opinions and access to the links provided by the writers.

On July 30, 2020, *Coastal Point* published a letter to the editor from **Mr. Geoffrey Pohanka,** Bethany Beach, DE, expressing concerns about offshore wind turbines. In short, Mr. Pohanka has concerns about impacts to birds, crustaceans, fish and commercial fishing, and marine mammals. He also notes concerns with noise, visual impacts, potential loss of tax revenues, and higher energy costs (potential).

On August 13, 2020, *Coastal Point* published a letter to the editor from **Mr. Ken Niehaus**, Ocean View, DE, specifically responding to Mr. Pohanka's July 30 letter. Mr. Niehaus' letter expresses support for "wind power." Mr.Niehaus argues that impacts to birds, crustaceans, fish and commercial fishing, and marine mammals can be minimal. He also mentions studies regarding visual impacts (which decrease significantly after about 12.5 miles) and on whether there would be impacts on tourism (minimal if any).

Mr. Pohanka wrote a second letter to the editor that was published in the *Coastal Point* on August 27, 2020 responding to Mr. Niehaus' August 13 letter to the editor. He again argues that the wind farm would damage the local economy and environment as

reported in studies by North Carolina State University and the University of Delaware. He asserts that birds, mammals and marine life would be harmed.

Save Our Beach View (SOBV)

The SOBV website contains extensive information, including a number of weblinks, on wind farms in general, and specifically those under consideration between Ocean City, Maryland and Rehoboth Beach, Delaware. In addition to a number of illustrations and photographs, the SOBV website also provides information on project costs and benefits, potential impacts on local property values and the tourist/recreation industry, jobs, views of local governments (when available), and impacts to terrestrial and marine fish, wildlife, and plant species. For more information on beach view issues, refer to the North Carolina State University study and a University of Delaware study discussed on the SOBV website. According to these studies, near shore wind turbines would affect coastal tourism, resulting in a loss of revenue, taxes and fees, and jobs. In 2016 and 2017 (2016 report revised), Levitan& Associates, Inc., published a report "*Evaluation and Comparison of US Wind and Skipjack Proposed Offshore Wind Project Applications.*" The 42-page Executive Summary and the 162-page main report contain extensive information and analysis that may be of interests to BBLA members. As property owners within 3 miles of the ocean, BBLA members should have received a mailer from SOBV in August that summarizes their concerns, and which includes illustrations, photographs, and web links to where readers can find more information on environmental effects and view shed issues.

The BBLA Board will continue to monitor the local wind project as it moves through the regulatory and environmental compliance process and keep our members informed.

General References:

Offshore Wind Energy *Bureau of Ocean Energy Management*

Advantages and Challenges of Wind Energy *U.S. Department of Energy*

Large-Scale Offshore Wind Power in the United States - Executive Summary (2010) *National Renewable Energy Laboratory*

Environmental Impacts and Siting of Wind Projects *U.S. Department of Energy*

Offshore Wind Turbine Visibility and Visual Impact Threshold Distances *Argonne National Laboratory*

Learn More:

Offshore Wind Energy (Website), *Bureau of Ocean Energy Management* Website providing a broad overview of offshore wind technology, including history, technology, national resources, current and future U.S. wind power, and environmental considerations

Offshore Wind Research and Development (Website), *U.S. Department of Energy* Website outlining how the U.S. Department of Energy's Wind Program is working to help develop offshore wind energy in the United States

Assessment of Offshore Wind Energy Resources for the United States (Report), *National Renewable Energy Laboratory* 2010 report on the potential for offshore wind energy development in the United States

2016 Offshore Wind Technologies Market Report (Report), *National Renewable Energy Laboratory* 2016 report on the status of the U.S. offshore wind industry, including domestic and global market developments, technology trends, and economic data

2017 Offshore Wind Technologies Market Update (Presentation), *National Renewable Energy Laboratory* Supplement to NREL's 2016 report on offshore wind technologies providing an update with 2017 data

Advances in Earth Science: Offshore Energy (Webinar), *American Geosciences Institute* 2016 webinar on advances in offshore energy production, technologies, and challenges, including both oil & gas and wind energy