



Whitepaper on New Jersey Offshore Windmill Project

Offshore Windmill Projects – What are The Risks?

By John Toth and Arnold Ulrich

To combat climate change by moving our country away from dependence on fossil fuels, major offshore windmill projects are in various stages of being planned or in the process of being implemented. From Massachusetts to Virginia, approximately 2000 windmills are planned to be located off our eastern seaboard. In New Jersey, approximately 600 of them will be 15 to 20 miles off our shoreline. These windmills will be about 800 feet high or more and with blades about 150 feet long. Windmills with this size and numbers have never previously been used in our ocean before. What are the risk factors to the ocean's environment, fishing industry and costs to consumers for going forward with this huge energy producing endeavor?

Environment:

- **Noise and Vibratory Effects** – anchoring hundreds of windmills over 800 feet high will certainly make loud noise on a temporary basis and disrupt movements of nearby marine life. Preliminary research on pile driving has shown adverse effects on marine animals including stress, anxiety and predatory responses as with squid. This research is short term (one day) rather than long term. However, once the windmills have been firmly anchored, the continual swooshing noise created by their blades 150 feet long and the vibratory effects of the windmills columns will last. Sound travels easily in a water environment and the **long term** effects of this noise on the east/west migration of fish and marine life are unknown. If this noise has a detrimental effect on the migration patterns of fish as well as spawning, it can seriously disrupt our entire fishing industry with several years of poor to no fishing prospects as a result. Whales are particularly sensitive to noise and this can seriously disrupt their migration patterns.
- **Ocean Floor Habitat & Ecosystem** – the **2000 windmills** proposed for implementation from Massachusetts to Virginia will certainly have a disruptive effect on the ocean floor and its ecosystem. Not only will their anchoring stir up the ocean floor, but also their many cables that will be



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buried at least six feet to connect them together and to transmit the energy to land. What will the effect of windmill installation on the ocean's floor and its ecosystem be in the near and long term? What will be the impact on the ocean floor and its marine inhabitants due to the scouring of the ocean's floor and deposition of materials for windmill placement and cable installations? Will these wind farms disrupt larval shellfish and finfish transport?

- **Cold Pool** – is a very huge band of cold bottom water in the ocean extending from Cape Cod to Cape Hatteras that is fed by freshwater input from multiple rivers and estuaries. This area experiences one of the largest summer to winter temperature changes of any part of the ocean around the world. Cold Pool has impacts on shellfish, pelagic and other fish. The migration patterns of Atlantic Butterfish and others are influenced by this Cold Pool. The Science Center for Marine Fisheries released a report on July 28, 2020 that windmill projects may have a disruptive effect on this Cold Pool and further study is needed to ensure that this does not occur.
- **Bird and Bat Kills** - will certainly increase with the 2,000 windmills in their path, including the red knot birds. While there is less migration of birds and bats at offshore areas as opposed to inshore, these windmills will have a killing effect on offshore bird and bat life. By changing their migration patterns to avoid windmills, birds and bats may use more energy to do it and die as a result. Determining the number of bird and bat kills will be next to impossible since wind and tide will take them away.
- **Cables and their electromagnetic effects** - on fish movements/migration patterns need a definitive resolution instead of continual conjecture. This issue has come up at several windmill meetings and the response to it is that it is still under review. This uncertainty of the electromagnetic effect needs to be resolved due to its important impact on all types of marine life.
- **Horizontal Directional Drilling** - Orsted plans to connect one of its two power lines from its Ocean Wind project by Atlantic City to the Oyster Creek power plant for use of its infrastructure to disperse its electrical energy. To make this connection, Orsted plans to do horizontal directional drilling under Island Beach State Park so that its power line can connect to



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the Oyster Creek plant. What are risk factors of doing this type of drilling for this park that is enjoyed by so many people?

Fishing Industry – both Recreational and Commercial:

- **Placement of windmills on/by scallop & squid areas** – an issue of contention for commercial fishermen who see this as an impediment to their commercial operations and the potential loss of a valuable food source. Their livelihood is threatened and this issue needs resolution with both commercial operators and windmill developers. Relocating windmills away from these commercial fishing areas does not seem to be an option for windmill developers. Can the lease areas for developers be enlarged by BOEM so that windmills do not have to be placed over the scallop/squid areas? What are other options?
- **Spacing between rows of windmills has been increased from .75 miles to 1 mile-** by developers to appease the concerns of commercial fishermen who claim that .75 miles is not enough space for them to perform their dragging operations. Commercial fishermen have asked developers for at least two (2) mile spacing between rows of windmills for them to effectively and safely conduct their dragging operations. Is a one-mile spacing between windmills safe enough to accommodate both recreational and commercial traffic that will be fishing through it?
- **The New York Bight area is already congested** - with shipping traffic going into the New York/New Jersey harbors. The shipping lane for these boats will be further constricted by the windmills proposed in this area by the developer Equinor with boat and windmill collisions an increasing possibility. For example, if an oil tanker collided with another vessel and created an oil spill, it could create an environmental disaster. Additionally, what impact will the wind farms have on radar for navigation and rescue operations by the Coast Guard?

Cost & Other Issues:



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- **Cost** – windmills cannot economically compete with natural gas and must be subsidized. What can consumers expect to be paying to subsidize windmill operations? This question has not been answered and consumers have every right to know it. At the moment, there are legal challenges to whether windmill developers can even receive subsidies. The Federal Energy Regulatory Commission (FERC) report, published last year but not yet finalized, would require wind and solar power generators to show the actual cost of production instead of showing lower prices due to subsidies.
- **Energy Storage requirements** - for storage of electrical power on land is needed when windmills do not turn for lack of wind or during storms. At this time, the current generation of batteries for electrical storage is too expensive to build and cannot store the energy when it is required. Until and if the technology for energy storage on land for windmills comes on line, this needed energy will continue be backed by coal, gas or nuclear energy.
- **Only solar and wind power for our country's future energy needs** – this is “putting all of our eggs in one basket” approach and other sources of energy should be considered, especially nuclear that is being used effectively around the world.
- **Mono pile (column) construction for most windmills** – will not have the four-legged base like the ones off Block Island. They will have a single round column going into the ocean floor with mounting hardware and capped with an inverted pie plate type of structure, thereby minimizing attraction to sea life. Can they attract fish like the windmills off Block Island?
- **Will Recreational anglers be able to fish by windmills** – developers indicate that recreational anglers can fish by the windmills, but there is nothing in writing to guarantee this access.
- **Security** – who is in charge of security for the windmills? This question has not received an official answer. Without it, windmill power can be easily shut down by terrorists by attacking the substations that transmit power to land.



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- **The ultimate goal of solar and windmill power is to replace all fossil fuel -** generated by coal and natural gas. New York has a goal of having 100% electrical power generated by wind and solar for its state by 2040. Retrofitting homes to provide heat and cooling solely by solar and wind in the future would be very expensive and cost thousands of dollars. Will consumers be able to bear these costs?

We are all concerned about the negative effects of climate change on our environment and the deployment of this huge number of windmills in our ocean is intended to reduce the warming effect of fossil fuels on our climate. However, in the attempt to address the problem of climate change, are we creating another one by seriously disrupting the health of our ocean and the marine life that live in it? Before we move forward with this huge energy project, the above issues need to be addressed. Many of them have been raised at meetings with developers and at seminars held at Rutgers and Stockton Universities, but definitive answers to them have not been forthcoming. Until then, and given the issues raised above, support for these windmill projects should be delayed until we can feel comfortable that our ocean and the marine life in it will not be harmed with so many windmills in it.