Save Long Beach Island, Inc.
www.savelbi.org

SUMMARY

The Benefits & Risks of Offshore Wind Projects: The Facts

Visual simulation of what the Atlantic Shores South project would look from Holgate on Long Beach Island, NJ. Source: BOEM.

Science-based research confirms that risks associated with the Atlantic Shores project off the southern coast of NJ far outweigh the purported benefits.

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Contrary to the "clean energy" narrative promoted by advocates of offshore wind (OSW) development, the Atlantic Shores plan to erect two-hundred wind turbines less than 9 miles off the coast of Long Beach Island, Brigantine, and Atlantic City is riddled with risks and irreparable consequences. Unfortunately, facts related to the construction and operation of massive wind-energy complexes in our oceans have been obscured or simply ignored by OSW proponents, including government agencies and the substantial foreign business interests behind these projects.

Save LBI, an environmental organization based in Beach Haven, NJ with more than 10,000 supporters dedicated to protecting our oceans, has prepared this summary report to share the top-line findings of professional research it has conducted over the past four years. (The full technical report can be downloaded here.) Our intent is to challenge rampant misinformation about the Atlantic Shores project — and others like it — with science-based facts and common sense in an effort to clear up misunderstandings and explain how these projects impact the environment, local shore communities, and the cost of electricity. And for those who support offshore wind energy as a means of reducing greenhouse gasses, we offer alternatives that are far less costly and environmentally destructive.

MYTH 1: Offshore wind (OSW) projects reduce global warming.

FACT: These full-scale industrial projects have virtually *no effect* on climate change.
Proponents of offshore wind make vague, unsupported statements of "addressing," "tackling," or "dealing with" climate change but have yet to issue a report demonstrating *how* offshore wind projects mitigate climate change. In contrast, the federal Bureau of Ocean Energy Management (BOEM) — the agency responsible for regulating and managing offshore energy development — plainly states in its Environmental Impact Statement (EIS) for the 200-turbine Atlantic Shores South project that it will have a "negligible" impact on climate change. The agency uses similar language in the draft EIS for the Revolution Wind project off the coast of Rhode Island and, in the EIS for the Vineyard Wind project off the coast of Nantucket, wrote: "Overall, it is anticipated that there would be no collective impact on global warming as a result of offshore wind projects, including the Proposed Action alone."

MYTH 2: OSW projects reduce regional greenhouse gas emissions (GHG).

FACT: Claims of reductions in greenhouse gas emissions are oversimplified and misleading.
In Final EIS documents for multiple OSW projects along the East Coast, BOEM offers no evidence to support the claim that offshore wind farms reduce greenhouse gas (GHG) emissions on a regional scale. This assertion is clearly disputed in the 2017 report, "Evaluation and Comparison of US Wind and Skipjack Proposed Project Applications," submitted to the Maryland Public Service Commission. On page 92, Levitan & Associates wrote: "The market response that will displace 372 megawatts of planned onshore wind resources in western and central PJM *will cause carbon emissions to increase* [emphasis added] in western and central PJM due to increased coal generation." On page ES-25, the report calls US Wind's estimate of reduced power-plant air emissions "an over-simplistic assumption that ignores the fact that Maryland is integrated into the PJM [regional electric transmission] system." The same situation exists for Atlantic Shores, which is also part of the PJM grid. Contrary to statements made in BOEM's Final EIS for the Atlantic Shores South project, regional greenhouse gas emissions could actually increase.

If reducing GHG emissions is the goal, there are many less expensive and more effective ways to achieve reductions, including numerous measures that conserve energy while saving money. The "Global CHG

abatement cost curve…" chart on page 4 of the full report, which shows the cost of removing one ton of GHG for 39 different abatement possibilities, confirms this. Building massive industrial wind farms in our oceans is far and away the most expensive of all.

MYTH 3: Offshore wind projects will reduce or stop sea level rise.

FACT: These projects will only *delay* the coming rise in sea level by a few days.
Although data from the International Panel on Climate Change (IPCC) and World Bank Group's Development Economics Group predict that reductions in greenhouse gas emissions will produce a small decrease in land temperature by the Year 2100, this will not stop or reduce rising sea levels — only -for the Atlantic Shores South project -delay the increase by a week. Why? In simple terms, any rise in sea level involves the transfer of heat from land to the ocean and icecaps, which fundamentally depends on the temperature difference between them and time elapsed. See page 4 of the full report for a technical breakdown.

MYTH 4: OSW projects will lower energy costs.

FACT: Because offshore wind is the single-most expensive source of commercially generated electricity, OSW projects can only increase energy costs.
It costs $250 for an offshore wind project to deliver one unit of electric energy (a megawatt hour), according to Whitestrand Consulting's January 2025 study, "A Comparison of the Levelized Cost of Energy (LCOE) Of Various Generating Sources." This compares with $140 for a Small Modular Nuclear Reactor (SMR), $169 for a natural gas peaking unit, and $63 for a utility solar project — and does not include the use of battery storage, which would be prohibitively expensive to provide back-up for the substantial periods of time when the wind is not there. In an August, 2024 study analyzing the impact of the Atlantic Shores South project on NJ electric rates, Whitestrand found that residential rates would increase by 11%, commercial rates by 13%, and industrial rates by 15% from that project alone.

MYTH 5: Offshore wind projects create thousands of jobs.

FACT: At most, an OSW project will create a few thousand *temporary construction jobs* over a two- to three-year period, but those "gains" would be more than offset by a significant loss of permanent jobs in tourism and in commercial and industrial sectors.
With a capital cost of $19 billion, one would certainly expect some major job creation. But the Atlantic Shores South project would mainly create only temporary construction jobs. Most job creation would be overseas from the turbine manufacturing. Prorating the full job creation to NJ jobs based on data from a job creation report in the New Jersey Offshore Wind Strategic Plan puts actual NJ job gains at 183 over seven years of development, 1,154 over a three-year construction period, and 219 over the operational life of the project. Any gains in temporary employment would be dwarfed by the long-term loss of as many as 5,000 tourism jobs, according to figures from the shore-employment database maintained by the National Oceanic and Atmospheric Administration (NOAA) and job-loss estimates from the tourism impact study sponsored by the Bureau of Ocean Energy Management. Jobs would be further eroded by the higher cost of electricity noted above, which has a direct, negative impact on wages and jobs. In its August 2024 study, "Economic Analysis of the Atlantic Shores South Offshore Wind Projects," Whitestrand Consulting projected the Atlantic Shores South project would increase NJ electric rates 12%, which translates into a statewide annual loss of 13,314 jobs.

MYTH 6: Offshore wind turbines will be barely (or rarely) visible.

FACT: The Atlantic Shores South project in NJ starting less than 9 miles off the coast of Long Beach Island, Brigantine, and Atlantic City will be *highly visible*, forever destroying the view and serenity of the natural seascape.

With an industrial complex of two-hundred 1,000-foot-tall turbines that close to shore, the Atlantic Shores South project would be the most visible modern offshore wind project in the world. The turbines would destroy the natural beauty of an unvarnished ocean vista that stretches 18 miles along a 5,000-year-old barrier island and create a disturbing panorama of rotating blades that will compel some beachgoers to simply turn away — or avoid these beaches altogether. In its Construction and Operations Plan (COP), Atlantic Shores admits the project will forever alter the character of the area: "The presence of the turbines tends to enclose the view and adds substantial visual clutter… The movement of the rotor blades will also attract viewer attention and make the turbines the focus of this view." See pages 6-8 of the full report for more detail, including a visual simulation showing what the turbines would look like 9 miles from the beaches of North Brigantine.

MYTH 7: Noise from the construction and operation of Atlantic Shores wind turbines will not create audible disturbances onshore.

FACT: 1) The pulsating sound of 200 spinning wind turbines is a long-term problem that will be audible onshore during frequent "inversion conditions" that accentuate noise transmission over water. 2) There will be no escaping the continuous pounding of massive hammers used to pile-drive turbine foundations into the ocean floor during a construction period expected to last several years.

Save LBI hired two expert noise consultants, XI-Engineering and Rand Acoustics Inc., and a noise health expert to investigate the effects of airborne noise from the Atlantic Shores South project because neither Atlantic Shores nor BOEM conducted a noise study — even though the Atlantic Shores South project is substantially closer to shore than other wind-energy projects and even though noise assessments were done for other projects along the East Coast, including Revolution Wind (15 miles off the coast of Rhode Island), Kitty Hawk Wind (27 miles off North Carolina), South Fork (35 miles off the easternmost tip of Long Island, NY), and Sunrise (30 miles off Long Island). The Rand study found that noise-intensifying inversion conditions occur frequently at night and on about one third of summer days, increasing noise levels heard onshore by as much as 11 decibels (dB) — the equivalent of a 10-fold increase in sound intensity. Rand ultimately concluded that noise from turbine operation will frequently be audible onshore with the potential to exceed local residential noise standards (50 dB outdoors and 40 dB *indoors*). In other words, noise will be loud enough at times to penetrate walls, which is particularly concerning because of the potential for adverse health impacts, including sleep disturbances and other annoyances. See pages 8-10 of the full report for more technical detail.

MYTH 8: Pile driving operations pose no threat to onshore air quality.

FACT: Emissions created by intensive vessel and diesel-engine activity can exceed onshore air-quality standards.

Case in point: Save LBI uncovered several flaws in the air-quality modeling for the Atlantic Shores South project near the environmentally sensitive Brigantine National Wilderness Area, which led to the realization that concentrations of fine particulates could be high enough to put this federally protected area at risk of significant deterioration of its air quality and visibility. The modeling did not connect the emissions modeled with the (diesel) energy required to pile-drive wind-turbine foundations into the seabed, failed to disclose a daily pile driving schedule to account for inversion conditions that can substantially enhance the propagation of pollutants to land, and apparently ignored the impact of future

repair operations on air quality. The Save LBI comments were the key factor in the February 2025 decision to remand the Clean Air Act permit back to the Environmental Protection Agency (EPA) for further review.

MYTH 9: There is "no evidence" that offshore wind-vessel surveys were the cause of recent increases in whale deaths.

FACT: There is substantial, credible evidence that increased whale deaths are strongly correlated with the increased presence of wind-energy vessel surveys, which use high-intensity noise devices to map the seabed.

A statistician working with Save LBI has provided highly compelling statistical evidence that offshore wind activity was the primary cause of the rapid increase in whale mortalities off the coast of New Jersey in early 2023: A statistically significant 12-fold increase in the mortality rate of humpback whales in the region coincided with a sharp increase in wind-survey-vessel traffic, which nearly tripled from an annual average of 58,895 vessel miles (2015-2022) to 171,440 vessel miles in 2023. During the same period, general shipping traffic rose an insignificant 9%, from 1,800,359 to 1,973,891 vessel miles per year — too small to account for the sharp increase in fatalities.

The same "no-coincidence" correlation is illustrated in the Save LBI report, "Impact of Vessel Survey Noise on Marine Mammals," which also documents numerous overseas incidents linking mammal stranding to the use of air guns in oil and gas surveys. Though the air guns used for these surveys propagate noise mostly downward and are louder at their source, the effect is similar to the "sparker" units used for wind-energy surveys, which also propagate noise energy horizontally where the animals are — meaning the correlation with mammal stranding and the harmful noise produced by both devices cannot be ignored. See pages 10-13 of the full report for more technical detail and charts that illustrate the link between whale deaths and vessel surveying activities.

MYTH 10: The loud noise created by pile driving does not harm or kill marine mammals — it only temporarily disturbs them.

FACT: Extreme noise generated by pile driving wind-turbine foundations into the seabed causes serious injury to marine mammals, including hearing loss and death.

Agency documents significantly underestimate the predicted occurrence of what the Marine Mammal Protection Act (MMPA) refers to as "takes" — incidences of death or serious harm (Level A) and harassment that disturbs animal behavior (Level B). They understate both noise levels at the turbine site and animal densities in the affected area, overstate the "transmission loss" of noise as it propagates through the water, use inaccurate criteria for disturbance noise levels, and apply scientifically unsound auditory weighting to describe a whale's sensitivity to various frequencies — all of which results in a completely unrealistic assessment of "take" estimates that are orders of magnitude less than what they should be. Even so, BOEM does admit in documentation for the Atlantic Shores South project that it will have "major" adverse impacts on the critically endangered North American right whale (NARW) and "could have severe population-level effects." (Official estimates put the NARW population at around 370.) In its MMPA application for the Atlantic Shores South project and in COP documents for the Atlantic Shores North project, the company acknowledges that turbines will sit directly in the migration path of the NARW. Making matters worse, the Atlantic Shores South project was approved even though it was deemed acceptable to "take" 47% of the northern migratory coastal bottlenose dolphin population over five years — a clear violation of even the Agency's very high and unsupportable "small numbers" criteria. The full report (pages 13-15) contains a point-by-point scientific explanation of the actual effects of pile driving on marine life.

MYTH 11: Noise from wind turbine operation is not a problem— it will dissipate down to safe levels within a short distance.

FACT: Operational noise from the 200 super-sized turbines earmarked for the Atlantic Shores South project will disturb whale behavior for miles and impair or potentially block migrations. Once again, since there was no analysis of operational noise from the 1,000-foot Vesta V236-15.0 megawatt turbines Atlantic Shores plans to use for its Atlantic Shores South project — only irrelevant discussions about noise from significantly smaller turbines used in other projects — Save LBI did its own calculations. The study determined that the sound has to travel 12 miles from the perimeter of the turbine field before it dissipates down to 120 decibels, a level scientists agree will not disturb the endangered North Atlantic right whale. Problem is, analysis of the historic migration patterns reveals that under the current plan for projects in the NY Bight area there is virtually no path that allows the whales to avoid those noise levels that put their migration at risk. There are also no practical mitigation measures that can be applied within the proposed array of turbines that would improve this dire situation. With this in mind, Save LBI has petitioned the National Oceanic and Atmospheric Association (NOAA) and BOEM to designate the whale's primary historic migration corridor a turbine-free "critical habitat" to allow the NARW to migrate and survive as a species. See the Full Report, pages 15-18, for more numerical and other detail.

MYTH 12: The impact of offshore wind projects on onshore radar is manageable.

FACT: The presence of wind turbines can significantly impair the effectiveness of radar systems used to defend our nation's air space.
In its 2020 "Radar Interference" study, BOEM reviewed 17 Atlantic Region radar installations but ignored the ARSR-4 air defense system radar system in nearby Gibbsboro, NJ, which is part of the North American Aerospace Defense Command (NORAD) early warning system. The agency did, however, analyze the impact of New York's considerably smaller Empire Wind project (15 miles off the coast of Long Island) on the NORAD radar system in Riverhead, NY and made two shocking discoveries: return signals from small and large aircraft would be obscured by numerous false targets created by turbine operation and smaller aircraft flying just above the turbines (which could include drones) *would not be detected*. The 2021 "Radar and Navigational Aid Screening" study by aviation expert Westslope Consulting, which was included in the appendix of the Atlantic Shores Construction and Operations Plan, also confirmed the potential for significant obstruction and concluded: "Because wind turbines will be within line-of-sight of the Atlantic City ASR-9, Gibbsboro ARSR-4, and the McGuire AFB DASR, Westslope expects that the **DOD and FAA will have concerns** [emphasis added] with the proposed WTGs [Wind Turbine Generators] within line-of-sight at blade-tip heights of 880 feet AGL (Above Ground Level), 890 feet AGL, and 1,048 feet AGL based on electromagnetic interference to air navigation facilities." Finally, all of this was no surprise to BOEM as the agency was advised by the Department of Defense (DOD) on December 15, 2020 that the Atlantic Shores project "will adversely affect NORAD's missions by hampering or degrading air surveillance radar performance." Remarkably, no measures to mitigate or reverse radar degradation were defined in the Atlantic Shores South Record of Decision. Instead, the document contains vague discussions of ongoing consultation with the DOD, which should have been concluded prior to approval. Page 19 of the full report contains a Department of Navy map that defines the inner half of the Atlantic Shores South lease area as a "Wind Exclusion" zone for defense purposes.

MYTH 13: Marine mammals, shipping vessels, and recreational and commercial fishing boats will be able to navigate their way through or around the Atlantic Shores South field of 200 wind turbines.

FACT: Mammals and vessels will face serious, if not catastrophic, challenges navigating those waters.

The presence of 200 wind turbines off the southern coast of New Jersey would pose serious risks and potentially catastrophic consequences for vessels and marine mammals, including the critically endangered North Atlantic right whale. To avoid the turbines, both would have to pass through an 11-mile-wide corridor between the Atlantic Shores South project and an area known as the Hudson South area of the NY Bight. The U.S. Coast Guard has proposed designating the corridor, originally termed a "shipping lane"— an official route ships must follow when they sail from one place to another — a safety vessel corridor. But shipping lanes are subject to historic safety rules and regulations which, when applied here, narrow the corridor to only 6.6 miles. Add to that the potential for on-board marine radar systems to be degraded by turbines operating on either side, as suggested in a recent Academy of Sciences report, and navigation becomes even dicier.

Atlantic Shores acknowledges the risks in the project's Final EIS: "Structures installed under the Proposed Action would pose a long-term navigational hazard and risk of allisions [vessels striking stationary objects] to commercial and for-hire recreational fishing vessels transiting through and fishing near the Lease Area." The document further states: "Impacts on non-Project vessels would include changes in navigation routes, delays in ports, degraded communication and radar signals, and increased difficulty of offshore SAR [Search and Rescue] or surveillance missions within the WTA [Wind Turbine Area], all of which would increase navigational safety risks…The presence of WTGs [Wind Turbine Generators] would result in a widespread, permanent navigational risk to commercial and for-hire recreational fishing vessels transiting through and fishing near offshore wind farms."

There is no doubt that the synergistic impact of changes in vessel traffic and operational noise from the turbines would have a significant disorienting impact on the migration of the North Atlantic right whale and other marine mammals, as noise levels in that restricted corridor would exceed levels considered safe. Making matters worse, experiments have shown that right whales sometimes surface to avoid noise, making them more susceptible to vessel strikes. See pages 19-20 of full report for more detail.

MYTH 14: Long submerged ancient archeological sites in the Atlantic Shores South project area and along cable transmission routes are not that important.

FACT: Pile driving and excavating the sea floor to make way for cables will destroy ancient archeological sites and artifacts of potential great value, including those that could shed light on the first humans to come to North America.

In the project's Final EIS, Atlantic Shores acknowledges the existence of sensitive areas that could be of immense archaeological significance but, ultimately, does nothing to preserve them: "ASLFs [Ancient Submerged Landforms] may be individually eligible for listing in the National Register of Historic Places (NRHP) or considered contributing elements to a TCP [Traditional Cultural Property] eligible for listing in the NRHP. ASLFs are considered by Native American Tribes in the region to be culturally significant resources as the lands where their ancestors lived and as locations where events described in Tribal histories occurred prior to inundation." The Marine Archaeological Resources Assessment (MARA) for the project also states that "the Holocene marine deposits, Holocene-Late Pleistocene transgressive channel sequence, and upper Late Pleistocene sequence contain the highest potential for archaeological

material." (The Pleistocene period includes the time when the first people are thought to have inhabited North America.) Archaeologist Daria E. Merwin further wrote in a 2003 paper, "Data from prehistoric sites dating to the Late Pleistocene and Early Holocene now submerged in the Mid-Atlantic Bight will fill substantial gaps in our knowledge, and allow researchers to explore issues such as the origins of coastal adaptations, settlement and mobility strategies at the coast versus interior, and variation in human subsistence patterns."

Despite all of this, the COP for the project simply states without explanation: "**Atlantic Shores is unable to implement the QMA [Qualified Marine Archaeologist]-recommended avoidance buffers for ASLFs** [emphasis added] which would allow for the Project to have no effect on these historic sites. As such, the undertaking is anticipated to have adverse effects on 59 ASLFs identified in the marine APE." The project's final EIS attempts to downplay the archeological significance of these sites by merely saying "the proposed action may have negligible impacts on 22 marine archeological resources" and "negligible to major physical impacts on 59 ASLF's." Mitigation efforts were discussed in detail but none were adopted.

MYTH 15: It is not that big a deal to remove and dispose of offshore wind turbines at the end of their useful life.

FACT: Removing and disposing of one 1,000-foot-tall structure — let alone 200 — is such a big deal that it might not happen at all.

This scenario is more plausible for several reasons. 1) There is no legal or regulatory requirement to remove the towers, blades, and turbine foundations at the end of a turbine's useful life, and no dedicated funding source for such an operation. 2) The Bureau of Ocean Energy Management has not addressed the technical feasibility of removing these colossal structures, each of which includes a 50-foot-diameter monopile foundation made of 6-inch-thick steel embedded in the seabed. 3) The logistics of cutting the foundation section and then removing that along with the tower and blades are staggering. 4) Disassembly, transport, and disposal of discarded turbine materials involves the release of toxic air pollutants and would require extended, years-long use of specialized vessels and a suitable industrial infrastructure onshore for storing and cutting turbine sections into manageable pieces for rail or truck transport to smelting or disposal sites. Therefore, it is much more likely that turbines will just be decommissioned (put out of service) and left in place, creating very long-term safety risks for vessel navigation, the loss of hundreds of thousands of acres of productive marine territory with a corresponding long-term loss of marine life, and visual blight for generations to come.

CONCLUSION

The minuscule benefit of the Atlantic Shores South project cannot justify the severe environmental, economic, cultural and social harm it would do. Proponents should seek alternate, less costly and less damaging means to reduce greenhouse gas emissions, if that is their concern.

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