Offshore Wind Energy

Tourism Impacts

For Brigantine and Atlantic County

Defend Brigantine Beach, INC
www.DefendBrigantineBeach.org
July 2023

About Defend Brigantine Beach, INC

- Non-profit, nonpartisan organization, close to 4,000 supporters, not opposed to green energy solutions.

- Working to protect the prized New Jersey Shore.

- Our mission is to provide services to the community by educating the public on the impacts of alternative wind energy options, current power plant development projects and their impact on the economy, environment, and ecosystems at the Jersey Shore.

- Our goal is to increase the public's awareness and inspire our community members to become active participants in preventing harm to our community.

- This is a service to the community's regard for the symbolic significance of the ocean and beaches, and the role they play in both the meaning and quality of Brigantine and the wellbeing of our residents and visitors; and, to the community's prevention of tangible negative impacts to our ocean and beach ecosystems and the lives they support.

The Wind Projects Proposed Just Off of Brigantine

- **Up to 556, sized up to 15.0 megawatt noisier, gearbox turbines, along the entire coast. Brigantine will be surrounded by 4 wind turbine projects, Ocean Wind I (906 ft. high), II and Atlantic Shores South and North (1049 ft. high). Atlantic Shores South will be directly in front of Brigantine.**

- **Ocean Wind I Project will be 15 miles off the coast of Atlantic City to Ocean City. Ocean Wind II project has wind turbines 9 miles off the coast of Atlantic City and extends down to Cape May. Atlantic Shores South will be 9 miles directly off the coast of Brigantine. Atlantic Shores North will be located at the north end of Brigantine and continue up the coast of Long Beach Island.**

- **Closely spaced, .6-1 mile apart, Up to 1049 feet (3 football fields) high above sea level**

- **According to BOEM, there will be a total of 722 wind turbines visible from the beaches in Brigantine. (Measurement taken from Brigantine Hotel on 14th St)**
  Atlantic Shores Offshore Wind South Draft Environmental Impact Statement: Cumulative Historic Resources Visual Effects Analysis (boem.gov)

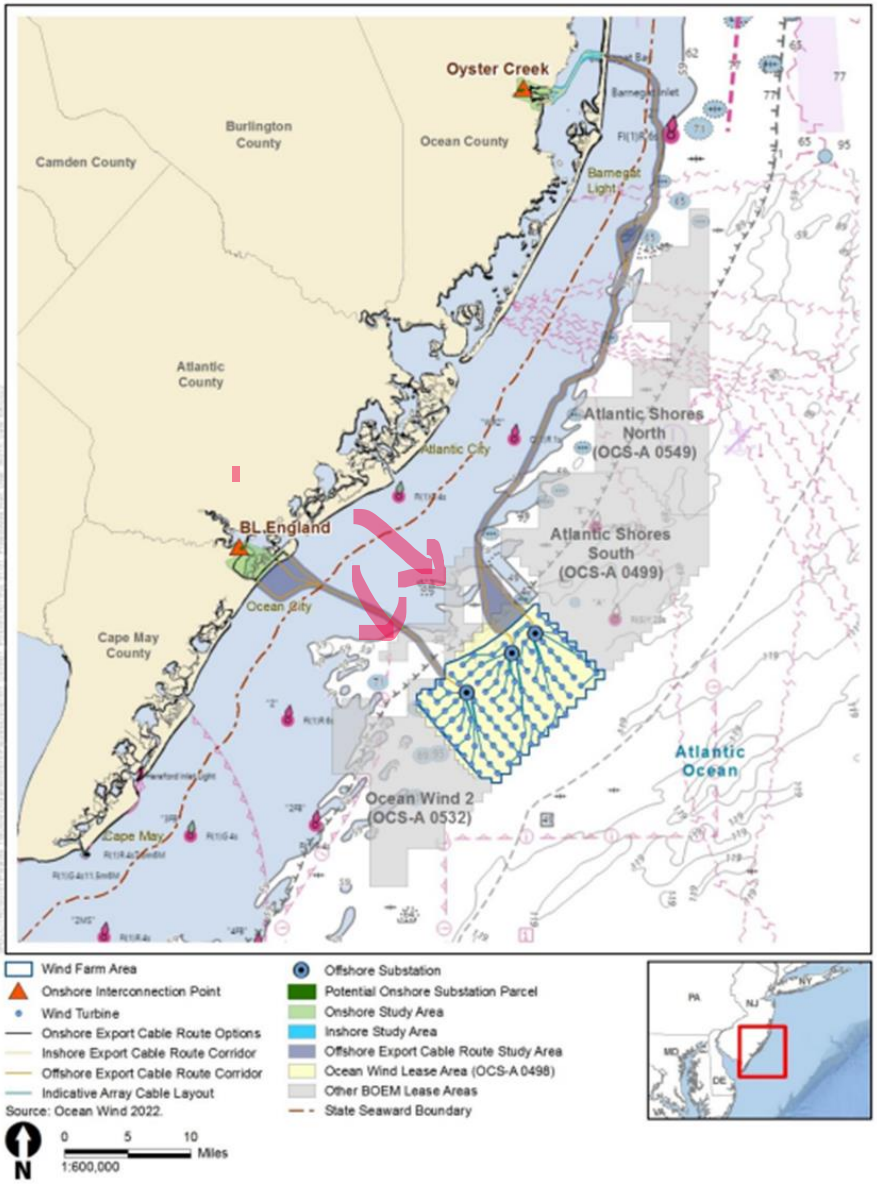
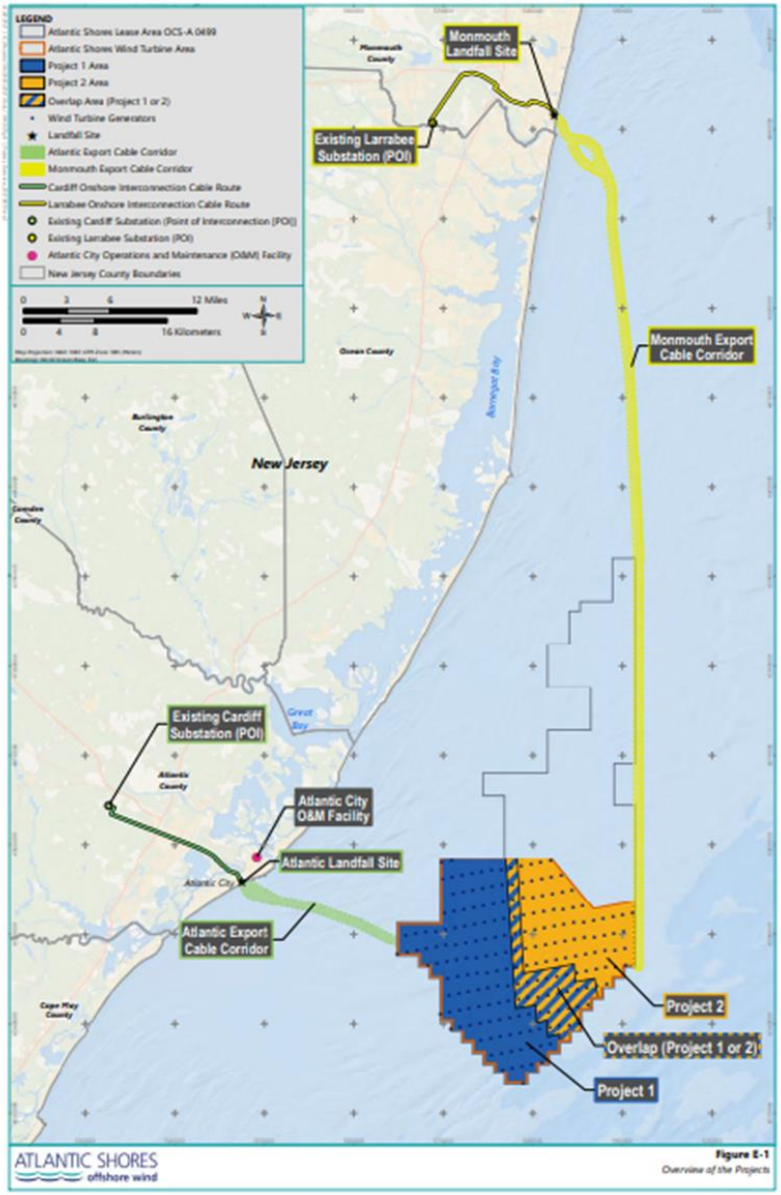


Figure S-1 Ocean Wind 1 Project



Ocean Wind I (yellow) Other Projects in grey shaded areas

Atlantic Shores South

Offshore Wind Farms Visible to the Jersey Shore

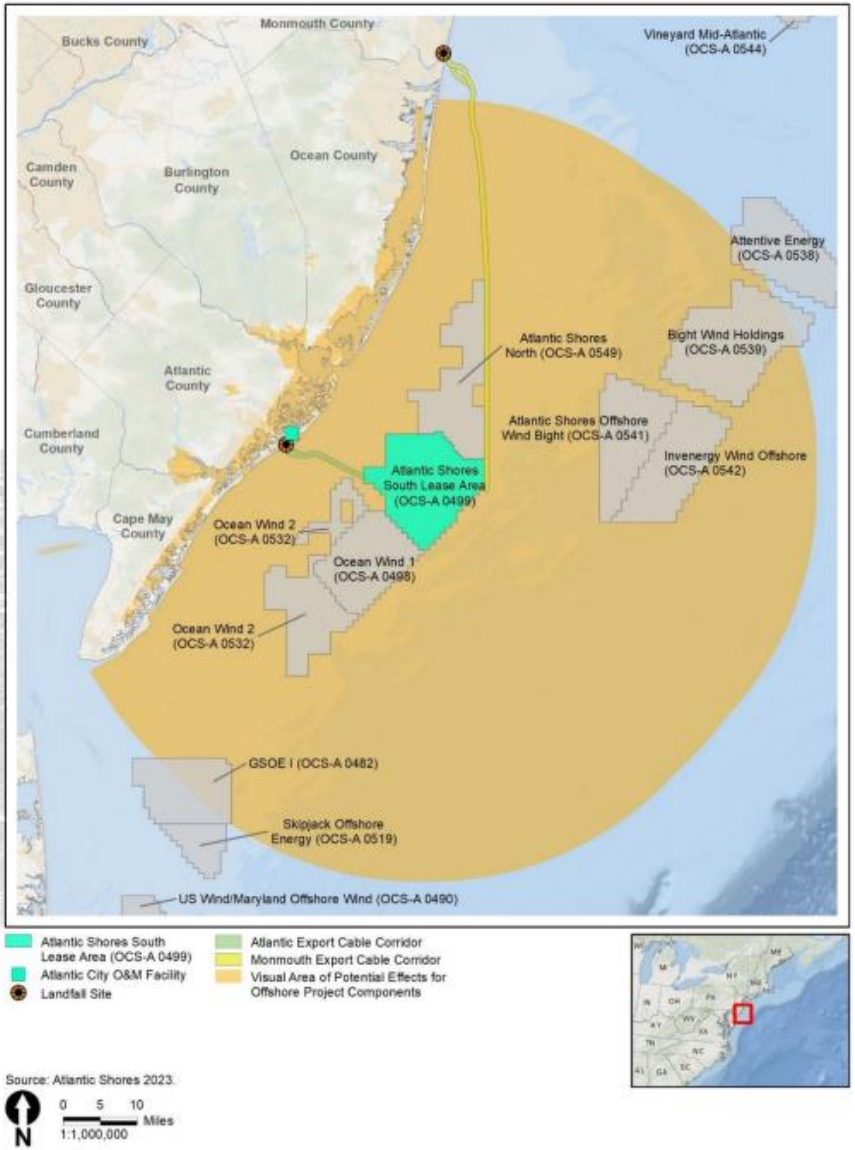
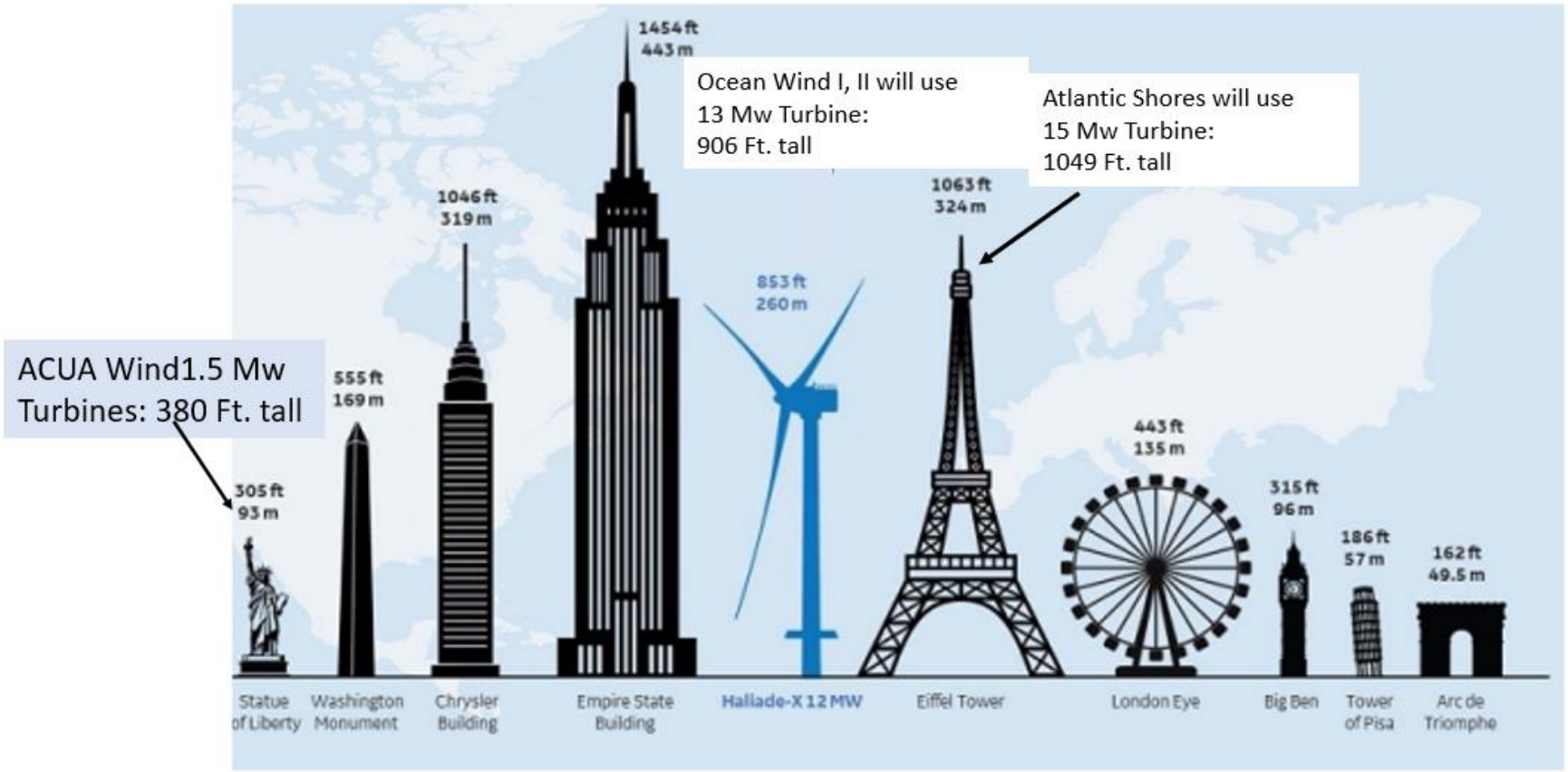


Figure 1 **APE for visual effects analysis within the maximum distance for potential visibility of Project facilities**

[Atlantic Shores Offshore Wind South Draft Environmental Impact Statement: Cumulative Historic Resources Visual Effects Analysis (boem.gov)]

Comparisons of Wind Turbine Size



ACUA, in AC	**Hub Height 262 feet**	**Rotor Blade Diameter: 240 feet**
Atlantic Shores	**Hub Height: 574 feet**	**Rotor Blade Diameter: 919 feet**
Ocean Wind I, II	**Hub Height 512 feet**	**Rotor Blade Diameter 788 feet**

Modern Offshore Wind Projects

2016 Brigantine Master Plan Re-examination Report (2016)

An objective identified from the previous planning documents includes an objective to "implement programs and regulatory controls designed to protect the scenic resources of the community ". Previous actions taken to address this objective include zoning control include building height restrictions and setbacks. A "2016 follow-up" within this section of the report identifies public concern for access to scenic resources: "Another aspect of the planning process has been the desire expressed by local residents for scenic views and resources to be protected and accessible to all. The development of the waterfronts, in particular the back bay areas has provided limited public access to street ends and points of access to the bay visually in many locations." It also identifies that there is "…an ongoing concern about visual access and scenic corridors on the Island, and there is a continuing desire to renovate some of the less desirable views…" and a need to promote and preserve access to the Bay and Atlantic Ocean. A general goal "to promote a desirable visual environment through creative development techniques and good civic design and arrangements" is made created in the 2016 General Goals and Objectives Statement section. Provisions are made in subsequent sections to respond to this objective and improve the visual environment through changes to building setbacks, height restrictions, and similar measures. However, no additional measures intended to protect or enhance visual access and protecting scenic corridors are proposed.

The Resilience Plan Element

Became a part of the master plan since two major storm events in 2011 and 2012. The reexamination of the Master Plan includes the Resiliency Action Plan that incorporates actions to protect against flooding, extreme storm events, and sea level rise.

ATLANTIC SHORES INCORRECTLY STATES THAT THEIR PROJECT IS CONSISTENT WITH BRIGANTINE MASTER PLAN! NO WHERE IN ANY OF THEIR DOCUMENTS DO THEY STATE THAT THEIR PROJECT WILL MITIGATE FLOODING, STORMS, SEA LEVEL RISE IN BRIGANTINE, AND THEY ADMIT THAT IT WILL HAVE A MAJOR ADVERSE IMPACT TO THE VISUAL SEASCAPE. Appendix II- M1 VIA (boem.gov), page 172/599

BEACHES AND PRESTINE OCEAN VIEWS ARE OUR LIFE BLOOD IN BRIGANTINE

The major factor of tourism real estate in Atlantic County is its beaches.

Visitors go to beaches for the unbridled nature and to escape their cities and industrialization.

Beautiful Brigantine Beaches Featured in the News

***US News Travel*, *www.thetravel.com*, https://*thedigestonline.com*, *and New Jersey Monthly* rate Brigantine in Atlantic County one of the top best beaches in New Jersey. Tourism drives the local economies, and location and view are the primary factors determining housing prices.**

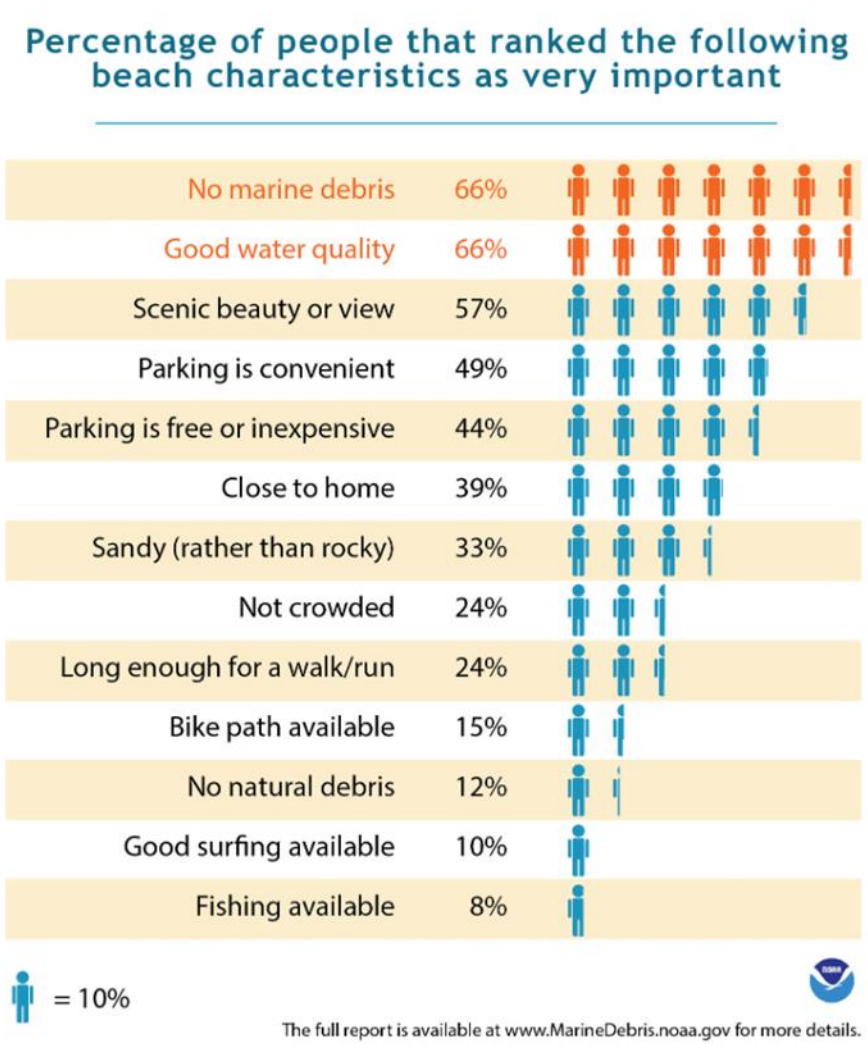
15 Best New Jersey Beaches | U.S. News Travel (usnews.com)

https://www.thetravel.com/best-beaches-in-new-jersey/?fbclid=IwAR0sgA02VnNMNTF6MjDTWNZWV_8epWmjHDtNHGmvm11kZSkCwIMo7hiVsL4#brigantine-beach

https://thedigestonline.com/news/9-secret-beaches-in-new-jersey/

7 of Our Favorite Hidden Beaches | New Jersey Monthly (njmonthly.com)

Marine Debris Program OFFICE OF RESPONSE AND RESTORATION



2019.07.Econ_.Impacts.Marine.Debris.complete.wFN_30Aug2019_508 (1).pdf

According to a National Oceanic Atmospheric Administration Survey, 57% of participants ranked SCENIC BEAUTY or VIEW as a very important characteristic of a beach.

Offshore Turbine Visibility and Visual Impact Threshold Distances

March 2013, Environmental Practice Journal: Irish Sea Study Area

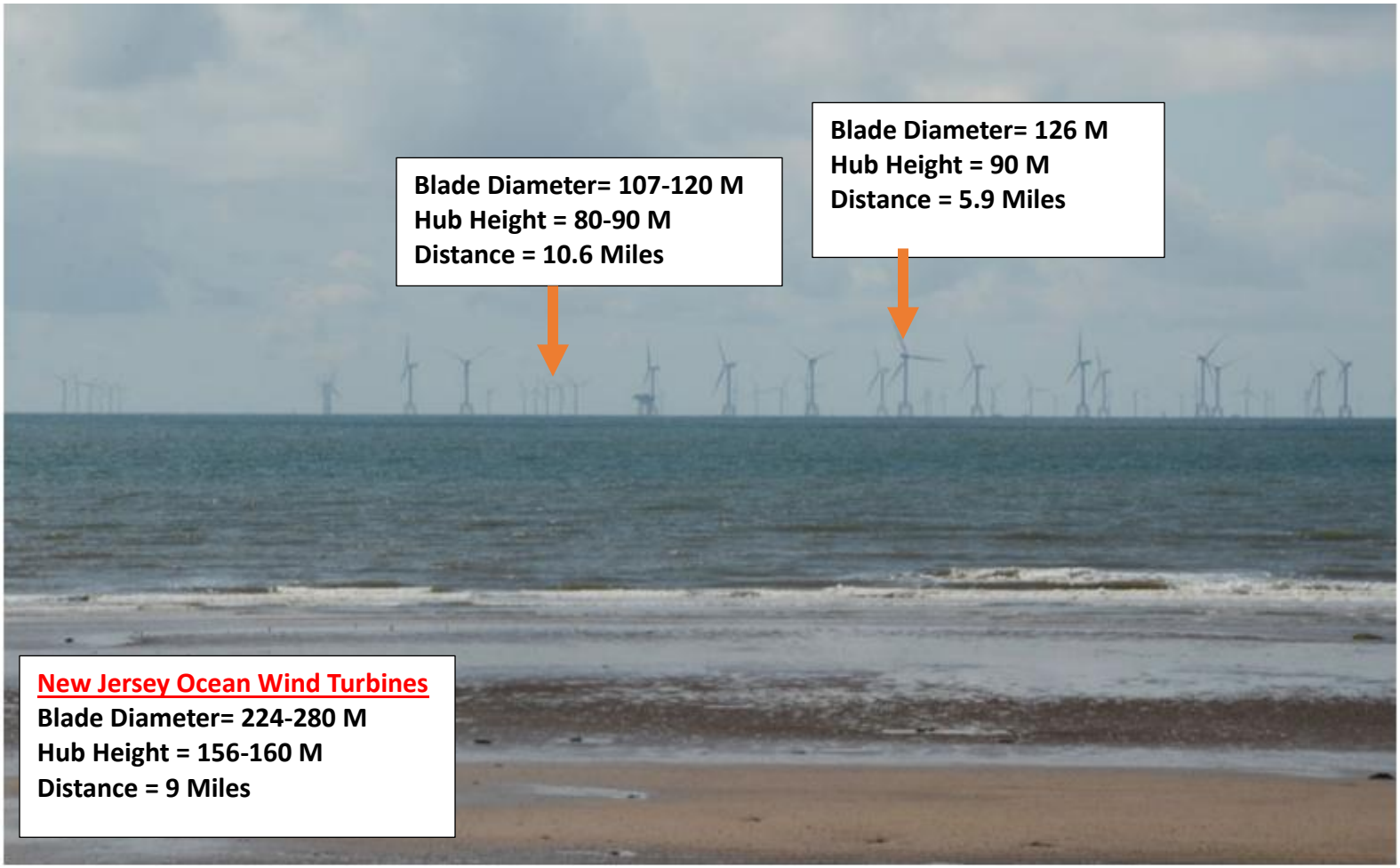
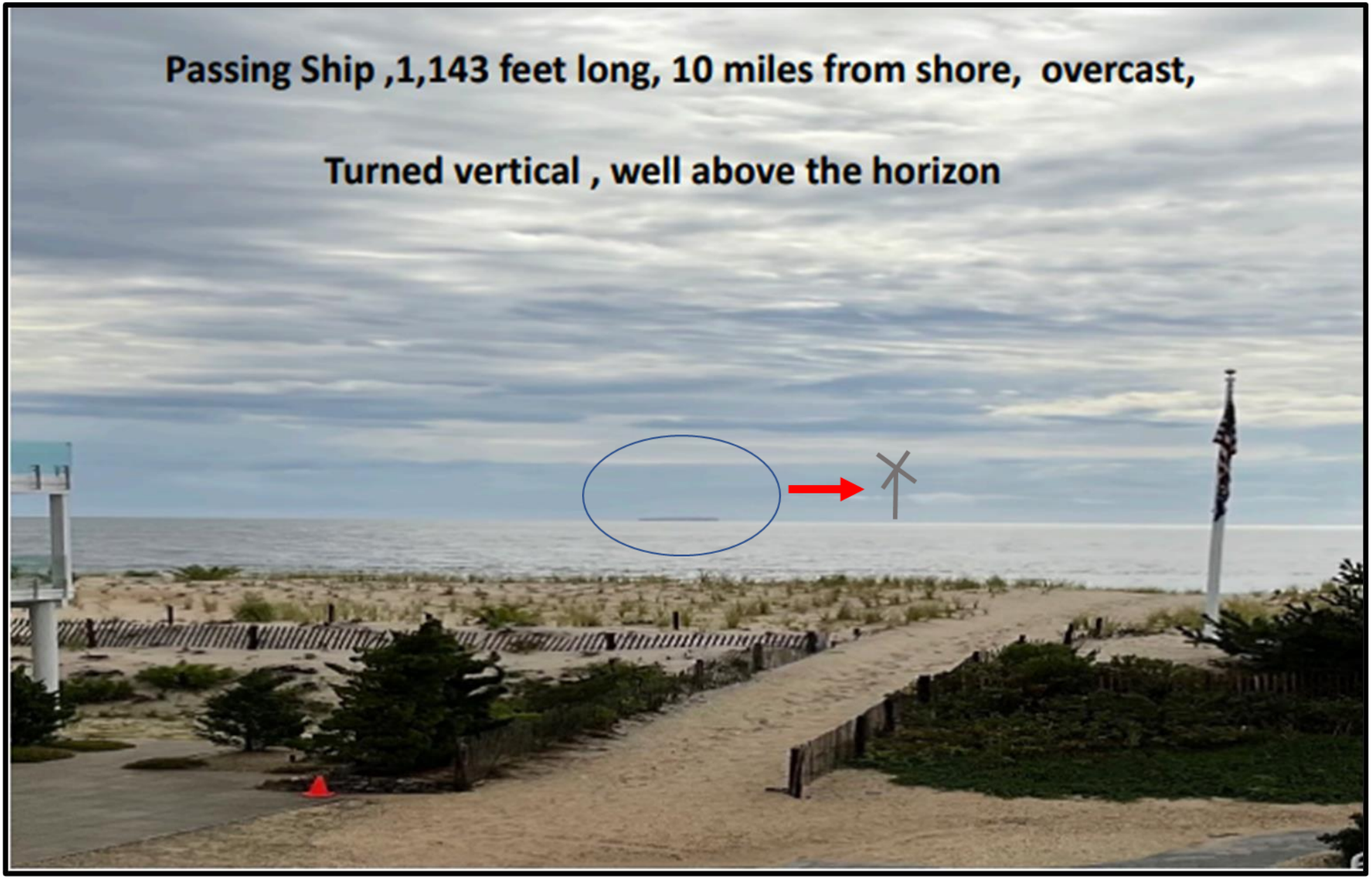


Figure 10. Ormonde (foreground) and Walney (background) wind facilities photographed from Walney Island (Viewpoint V1 in Figure 1), approximately 9.5 km (5.9 mi) from the closest turbine in the Ormonde facility and 17.0 km (10.6 mi) from the closest turbine in the Walney facility. Ormonde turbines are mounted on quadruped structures. An offshore substation is at center left. Equivalent 35-mm focal length = 157 mm.

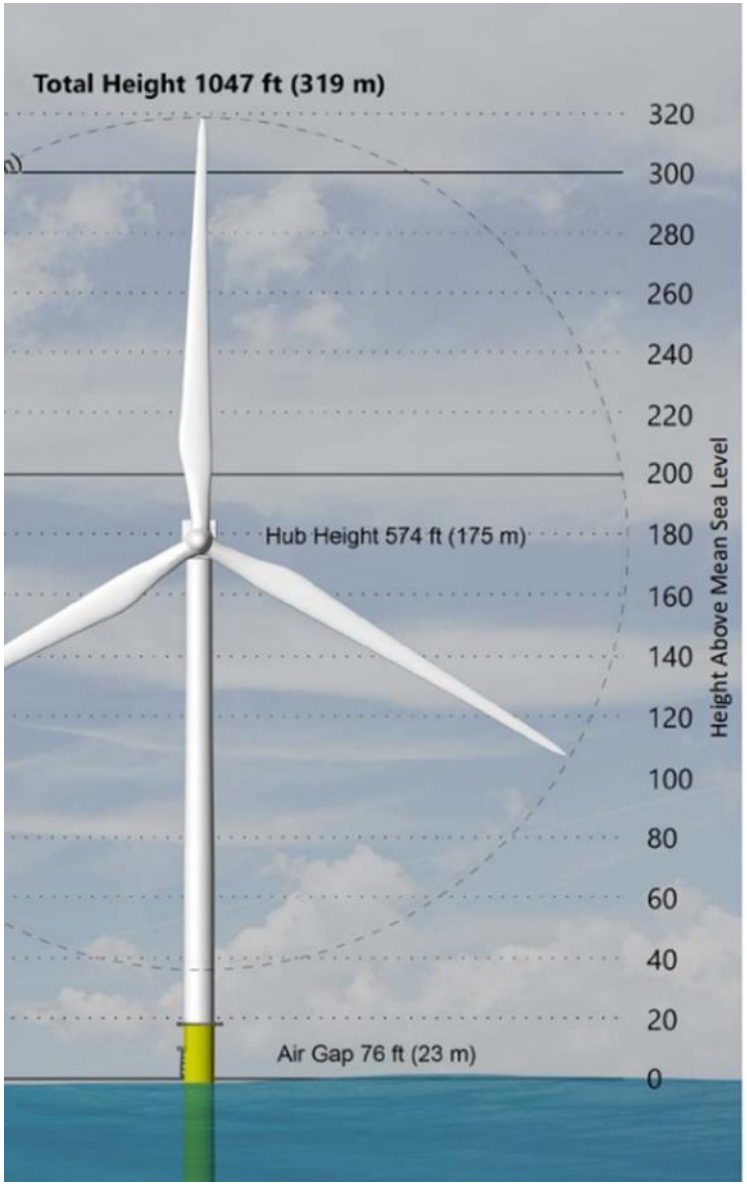
Atlantic Shores hub and blade diameter height are approximately double the height shown in picture for wind turbines 5.9 miles offshore. Extrapolating the 5.9 mile distance results in equivalent distance of 11.8 miles. Atlantic Shore wind turbines are 9 miles off the coast of Brigantine and Atlantic City.


Passing Ship ,1,143 feet long, 10 miles from shore, overcast,
Turned vertical , well above the horizon

Visual Impact Based on Views in Real Life!

Looking at a real life example gives a perspective you can see with your own eyes. This picture is from a real estate listing showing the great view of the Verrazano Bridge from a home in Port Monmouth.

Port Monmouth NJ to the Verrazano Bridge is 10 miles over the water. The towers on the bridge are 690 feet tall. The nacelle or hub will be at 575 with the blades reaching over 1000'.



Rotating Blade Effect

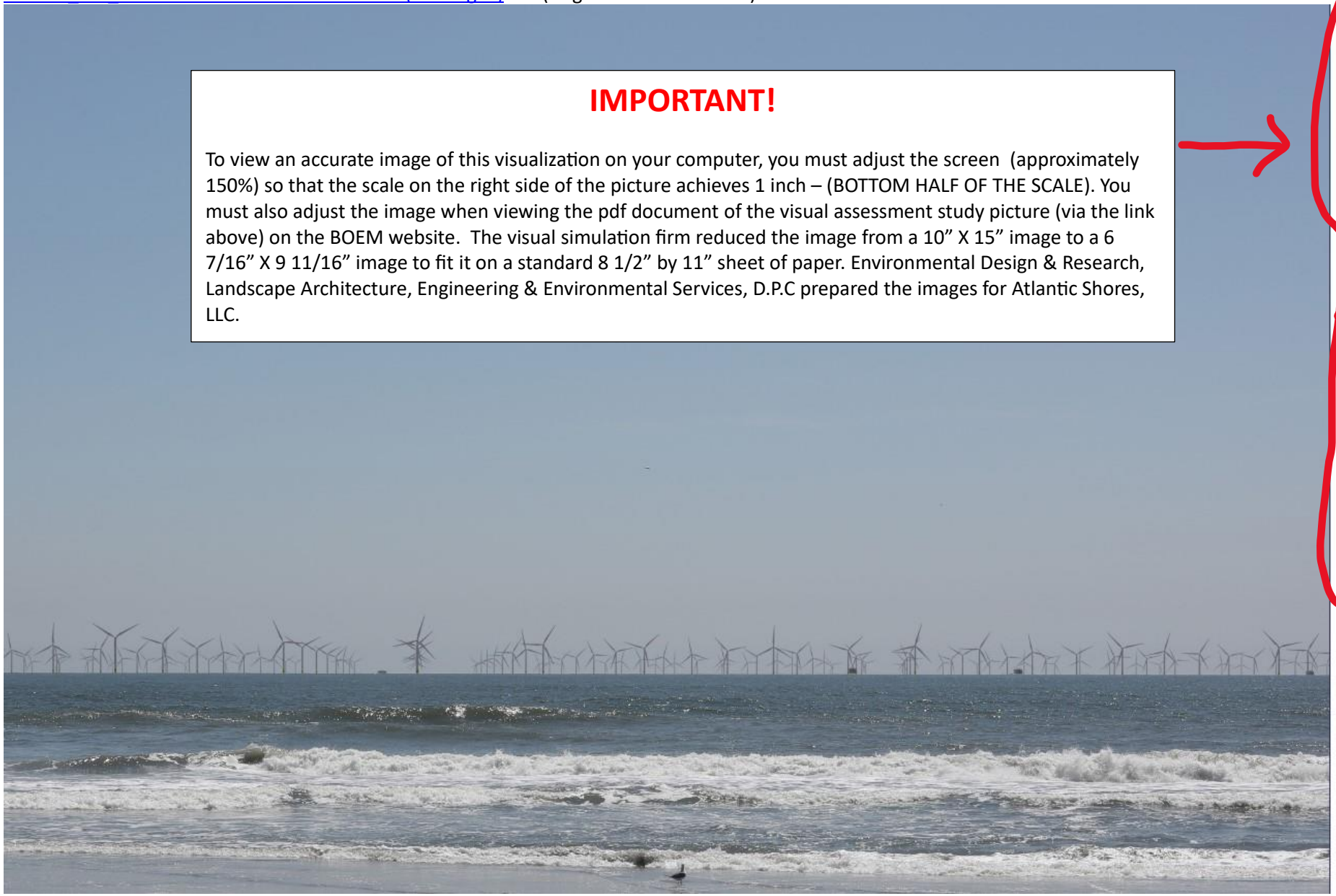
- **The visual impact of the stationary turbines is just part of the impact to the shore.**

- **The physiological impact of any prolonged view of the rotation is unclear, but because of the disparity between what the brain expects to see at the seashore and the actual view, it could cause visible induced vertigo or other effects.** Offshore Wind Turbine Visibility and Visual impact Threshold Distances, Robert Sullivan, Argonne Labs

- **Nothing has been said about this by the BOEM or Wind Turbine Developers, but it is a serious problem and should be considered before proceeding with any project so close with such a MAJOR visible impact.**

Photo Simulation from Atlantic Shores Wind

*20043_VIA_Attachment E - Photosimulations (boem.gov) (Brigantine Natural Area)



Visual Impact Disaster

Visual Impact Summary from Atlantic Shores Wind Developer Visual Impact Assessment 2022

Description of View from BC02 North Brigantine Natural Area (The view of the turbines will be the same from the entire island)

"Panel members indicated that the **WTG's (Wind Turbine Generators) become dominant elements in the view. They reduce the view's sense of openness and add a large number of built features to what was previously an open, undeveloped ocean view. The presence of the WTGs (Wind Turbine Generators) tends to enclose the view, and adds substantial visual clutter**. This effect is enhanced by the transition of the WTGs an orderly arrangement to stacked alignment when the viewer is looking down a row of aligned WTGs, making them appear disorderly. **The movement of the rotor blades will also attract viewer attention and make the WTGs the focus of this view**. Although the visibility and visual dominance of the WTGs is likely to be reduced under more hazy sky conditions, and when lighting conditions reduce WTG contrast with the sky, proximity of the WTGs will allow them to be **visible under most clear sky conditions. With the Project in place, this KOP has low to moderate scenic quality. Considering the scale, compatibility, and spatial dominance factors that influenced the visual impact rating at this KOP, panel ratings indicated that the WTGs present severe scale contrast with the ocean (water resources), land use, and user activity**. The panel scores also indicate **that the WTGs are not compatible with water resource, landform, land use, and user activity. The WTGs would become the dominant feature in the seascape when compared to the existing water resources, landform, and user activity**. Consistent with the anticipated compatibility, scale contrast, and spatial dominance impacts associated with the Project, panel members assigned the Project visibility an average VTL of 6 from this KOP."

BC02 North Brigantine Natural Area (boem.gov)

CUMULATIVE HISTORIC RESOURCES VISUAL EFFECTS ANALYSIS – ATLANTIC SHORES OFFSHORE WIND SOUTH PROJECT

Prepared for

U.S. Department of the Interior, Bureau of Ocean Energy Management,
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Reston, VA 20190

ICF Project No. 104195.0.001.01.008

May 2023

https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Atlantic-Shores-South-CHRVEA.pdf

Table 4 Summary of theoretically visible WTGs by project from historic properties

Historic Property	Maximum Number of Theoretically Visible WTGs and Hubs per Project Presented as: WTGs (up to blade tip); Hubs									
	Atlantic Shores South (the Project)	Atlantic Shores North	Ocean Wind 1	Ocean Wind 2	Garden State	Skipjack	Bight Wind Holdings	Atlantic Shores Offshore Wind Bight	Invenergy Wind Offshore	Total
Atlantic City Boardwalk Historic District	200; 200	148; 148	98; 98	111; 111	60; 30	41; 0	32; 0	95; 80	91; 13	876; 680
Atlantic City Convention Hall NHL	200; 200	148; 148	98; 98	111; 111	59; 0	5; 0	0; 0	93; 3	35; 0	749; 560
Brigantine Hotel	200; 200	148; 148	98; 98	111; 111	11; 0	0; 0	7; 0	95; 26	52; 0	722; 583
Brighton Park	200; 200	148; 145	98; 98	111; 111	0; 0	0; 0	0; 0	0; 0	0; 0	557; 554
Central Pier	200; 200	148; 148	98; 98	111; 111	4; 0	0; 0	0; 0	0; 0	31; 0	592; 557
Colonial Revival Residence at 120 Atlantic Avenue	200; 200	148; 148	98; 98	111; 111	0; 0	0; 0	0; 0	0; 0	40; 0	597; 557
Folk Victorian Residence at 5231–5229 Central Avenue	200; 195	143; 25	98; 98	111; 111	60; 2	16; 0	0; 0	0; 0	0; 0	628; 431
Gillian's Wonderland Pier	200; 200	148; 102	98; 98	111; 111	59; 0	0; 0	0; 0	0; 0	0; 0	616; 511
John Stafford Historic District	200; 200	148; 147	98; 98	111; 111	11; 0	0; 0	0; 0	7; 0	0; 0	575; 556
Little Egg Harbor U.S. Life Saving Station #23	200; 200	148; 148	98; 98	111; 94	0; 0	0; 0	1; 0	91; 0	10; 0	659; 540
Lucy, The Margate Elephant	200; 200	148; 120	98; 98	111; 111	11; 0	0; 0	0; 0	0; 0	0; 0	568; 529
Margate Fishing Pier	200; 200	148; 132	98; 98	111; 111	7; 0	0; 0	0; 0	0; 0	0; 0	564; 541
Missouri Avenue Beach (Chicken Bone Beach)	200; 200	148; 136	98; 98	111; 111	0; 0	0; 0	0; 0	0; 0	0; 0	557; 545
Music Pier	200; 200	148; 101	98; 98	111; 111	59; 0	0; 0	0; 0	0; 0	0; 0	616; 510

Historic Property	Maximum Number of Theoretically Visible WTGs and Hubs per Project Presented as: WTGs (up to blade tip); Hubs									
	Atlantic Shores South (the Project)	Atlantic Shores North	Ocean Wind 1	Ocean Wind 2	Garden State	Skipjack	Bight Wind Holdings	Atlantic Shores Offshore Wind Bight	Invenergy Wind Offshore	Total
Ocean City Boardwalk	200; 200	148; 51	98; 98	111; 111	32;	0;	0; 0	0; 0	0; 0	589; 460
Residence at 114 South Harvard Avenue	200; 200	148; 143	98; 98	111; 111	11; 0	0; 0	0; 0	0; 0	0; 0	568; 552
Residence at 125 S Montgomery Avenue	200; 200	148; 143	98; 98	111; 111	4; 0	0; 0	0; 0	0; 0	0; 0	561; 552
Ritz Carlton Hotel	200; 200	148; 148	98; 98	111; 111	60; 11	27; 0	6; 0	95; 33	62; 0	807; 601
Riviera Apartments	200; 200	148; 129	98; 98	111; 111	0; 0	0; 0	0; 0	0; 0	0; 0	557; 538
Saint Leonard's Tract Historic District	200; 200	148; 148	98; 98	111; 111	60; 4	14; 0	0; 0	82; 0	18; 0	731; 561
Seaview Golf Club, Clarence Geist Pavilion	200; 200	148; 148	98; 98	111; 111	11; 0	0; 0	0; 0	80; 0	7; 0	655; 557
Two-and-a-Half-Story Residence at 124 Atlantic Avenue	200; 200	148; 148	98; 98	111; 111	0; 0	0; 0	0; 0	37; 0	0; 0	594; 557
Two-Story Residence at 108 South Gladstone Avenue	200; 200	148; 139	98; 98	111; 111	20; 0	0; 0	0; 0	0; 0	0; 0	577; 548
Two-Story Residence at 114 South Osborne Avenue	200; 200	148; 136	98; 98	111; 111	20; 0	0; 0	0; 0	0; 0	0; 0	577; 545
U.S. Coast Guard (USCG) Station Atlantic City	200; 200	148; 148	98; 98	111; 111	0; 0	0; 0	0; 0	46; 0	1; 0	604; 557
Vassar Square Condominiums	200; 200	148; 148	98; 98	111; 111	60; 22	35; 0	2; 0	95; 25	51; 0	800; 604
Ventnor City Fishing Pier	200; 200	148; 143	98; 98	111; 111	21; 0	0; 0	0; 0	0; 0	0; 0	568; 552

Notes: Percentages are rounded to the nearest tenth place decimal.

Table 1 Historic properties adversely affected by the Project

Property Name	Address/Location	NRHP Status	Distance To Nearest Project WTG
Atlantic City Boardwalk Historic District	Atlantic City, NJ	Eligible (Determined by NJ HPO)	10.47 miles
Atlantic City Convention Hall NHL	2301 Boardwalk, Atlantic City, NJ	National Historic Landmark	11.4 miles
Brigantine Hotel	1400 Ocean Avenue, Brigantine City, NJ	Potentially eligible	9.91 miles
Brighton Park	1801 Boardwalk, Atlantic City, NJ	Potentially eligible as a contributing element to the Atlantic City Boardwalk Historic District	11.16 miles
Central Pier	1400 Boardwalk, Atlantic City, NJ	Eligible (Determined by NJ HPO)	10.85 miles
Two-Story Residence at 114 South Osborne Avenue	114 South Osborne Avenue, Margate City, NJ	Eligible (Determined by BOEM)	14.11 miles
U.S. Coast Guard (USCG) Station Atlantic City	900 Beach Thorofare, Atlantic City, NJ	Eligible (Determined by NJ HPO)	11.46 miles
Vassar Square Condominiums	4800 Boardwalk, Ventnor City, NJ	Eligible (Determined by BOEM)	12.45 miles
Ventnor City Fishing Pier	Cambridge Avenue at the Ventnor City Boardwalk, Ventnor City, NJ	Potentially eligible	12.83 miles

Source: Atlantic Shores 2023.
Notes: BOEM = Bureau of Ocean Energy Management; NJ = New Jersey; NJ HPO = New Jersey Historic Preservation Office.

https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Atlantic-Shores-South-CHRVEA.pdf

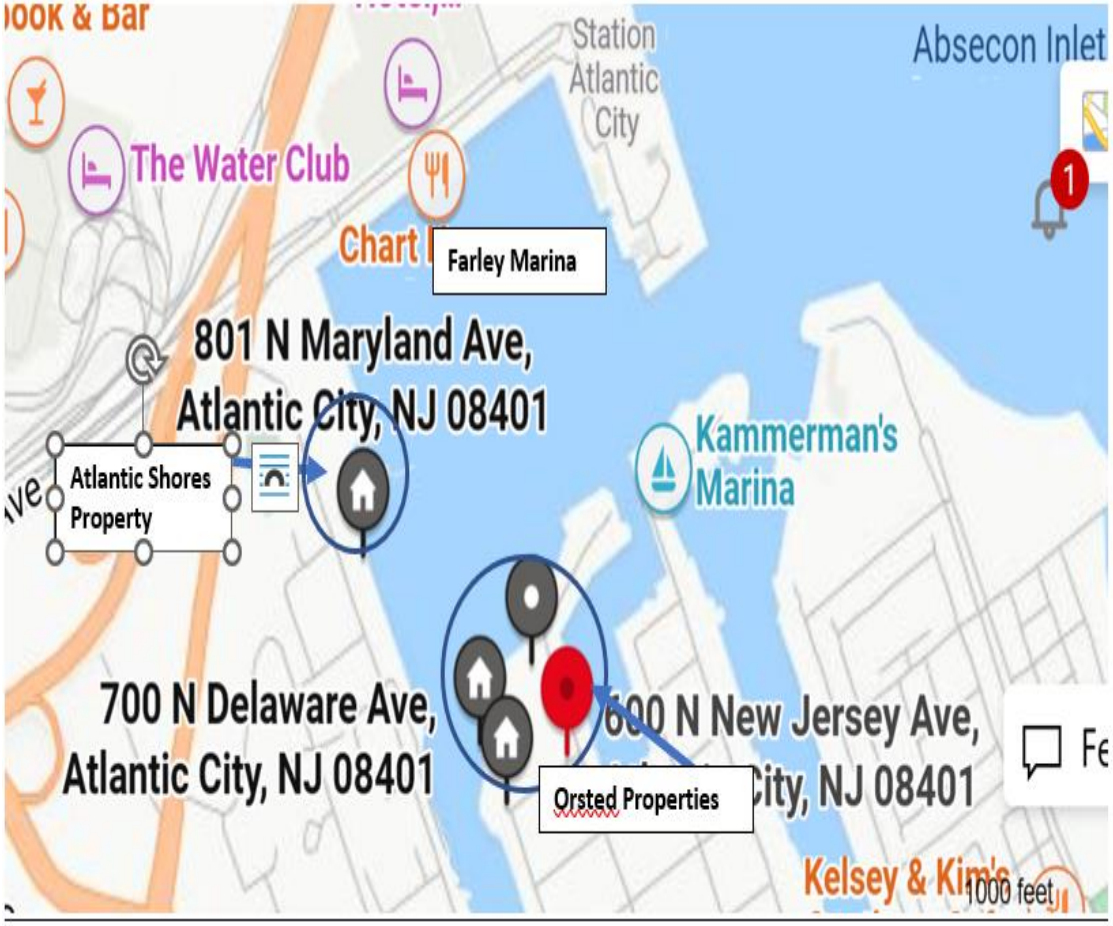
Property Name	Address/Location	NRHP Status	Distance To Nearest Project WTG
Colonial Revival Residence at 120 Atlantic Avenue	120 Atlantic Avenue, Atlantic City, NJ	Potentially eligible	10.65 miles
Folk Victorian Residence at 5231–5229 Central Avenue	5231–5229 Central Avenue, Ocean City, NJ	Potentially eligible	20.82 miles
Gillian's Wonderland Pier	600 Boardwalk, Ocean City, NJ	Eligible (Determined by NJ HPO)	17.01 miles
John Stafford Historic District	Ventnor City, NJ	NRHP Listed	12.47 miles
Little Egg Harbor U.S. Life Saving Station #23	800 Great Bay Boulevard, Little Egg Harbor Township, NJ	Eligible (Determined by NJ HPO)	11.95 miles
Lucy, The Margate Elephant	Decatur and Atlantic Avenues, Margate City, NJ	National Historic Landmark	14.4 miles
Margate Fishing Pier	121 S. Exeter Avenue, Margate City, NJ	Potentially eligible	13.6 miles
Missouri Avenue Beach (Chicken Bone Beach)	Atlantic City, NJ	Eligible (Determined by NJ HPO)	11.2 miles
Music Pier	825 Boardwalk, Ocean City, NJ	Eligible (Determined by NJ HPO)	17.2 miles
Ocean City Boardwalk	Ocean City, NJ	Eligible (Determined by NJ HPO)	16.9 miles
Residence at 114 South Harvard Avenue	114 South Harvard Avenue, Ventnor City, NJ	Eligible (Determined by NJ HPO)	13.01 miles
Residence at 125 South Montgomery Avenue	125 S. Montgomery Avenue, Atlantic City, NJ	Potentially eligible	12.4 miles
Ritz Carlton Hotel	2715 Boardwalk, Atlantic City, NJ	Eligible (Determined by NJ HPO)	11.66 miles
Riviera Apartments	116 S. Raleigh Avenue, Atlantic City, NJ	Eligible (Determined by NJ HPO)	12.3 miles
Saint Leonard's Tract Historic District	Ventnor City, NJ	Eligible (Determined by NJ HPO)	12.69 miles
Seaview Golf Club, Clarence Geist Pavilion	401 South New York Road, Galloway Township, NJ	Potentially eligible	15.6 miles
Two-and-a-Half-Story Residence At 124 Atlantic Avenue	124 Atlantic Avenue, Atlantic City, NJ	Potentially eligible	10.65 miles
Two-Story Residence at 108 South Gladstone Avenue	108 South Gladstone Avenue, Margate City, NJ	Eligible (Determined by NJ HPO)	13.82 miles

The Industrialization of the Ocean off of Historic Atlantic City Boardwalk

The famous AC Boardwalk is a national historic treasure built in 1870 with decades of international recognition. The visual aesthetic of the view from the Boardwalk will be destroyed by the wind energy power plant consisting of 876, 1,000 foot high wind turbine generators constructed in the ocean starting 10.47 miles off the Boardwalk.

Industrialization of Other Tourist Areas

Example: View from Chart House Restaurant onto Wind Development Maintenance Areas, Added Pollution and Vessel Traffic Interfering with Farley Marina.



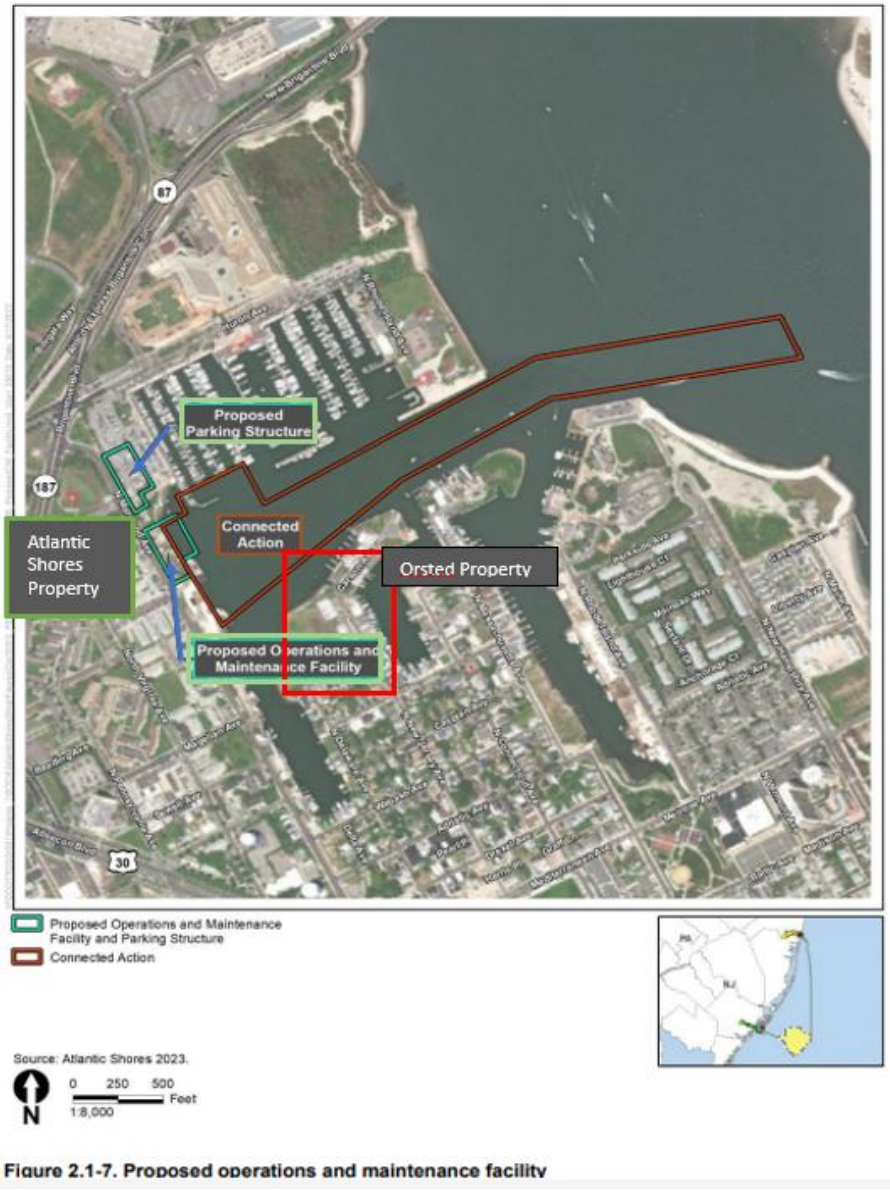


Figure 2.1-7. Proposed operations and maintenance facility

Landfall in Atlantic City

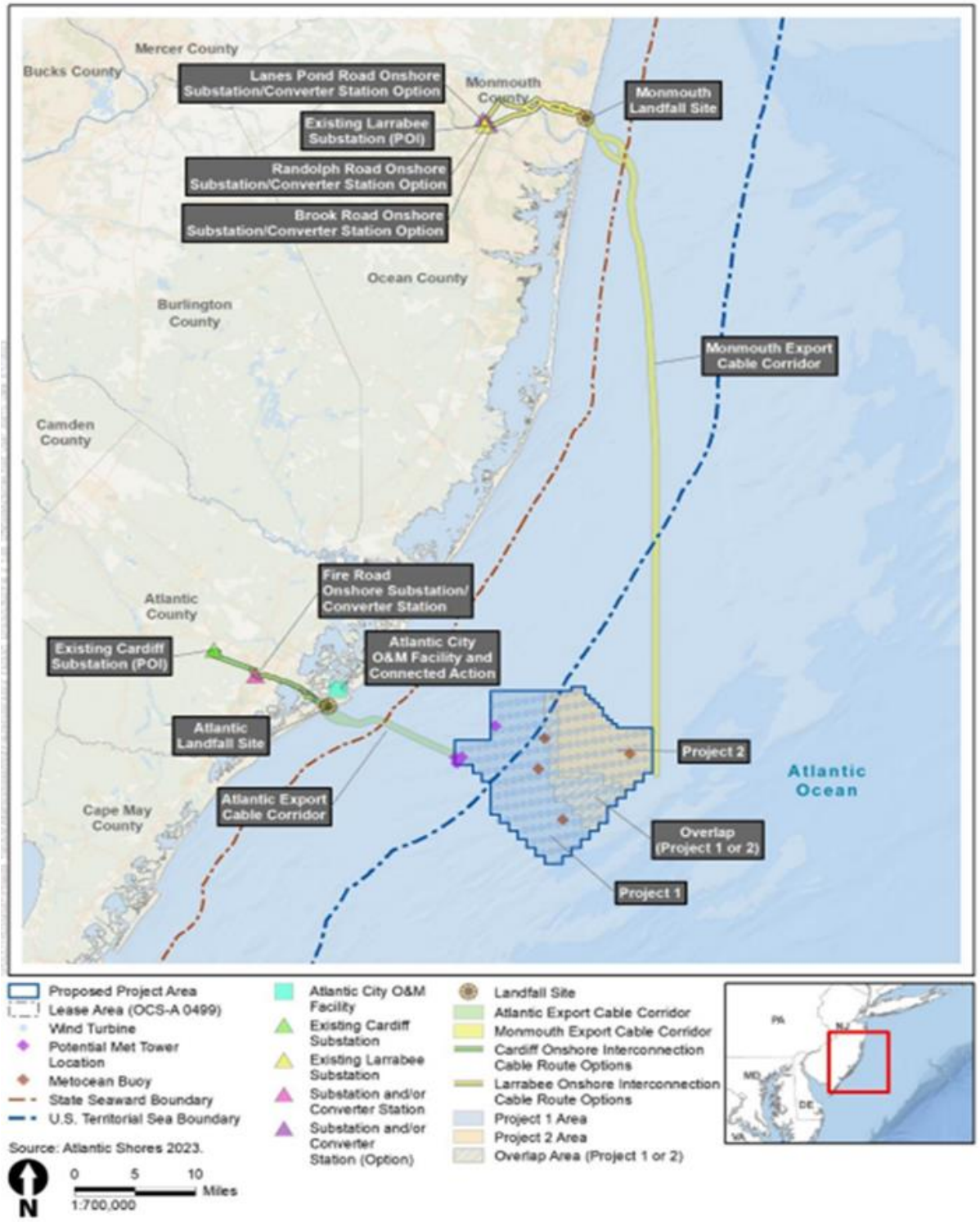


Figure 2.1-4. Offshore activities and facilities and state and U.S. territorial sea boundaries

Onshore EMF Cabling Route to Cardiff Substation

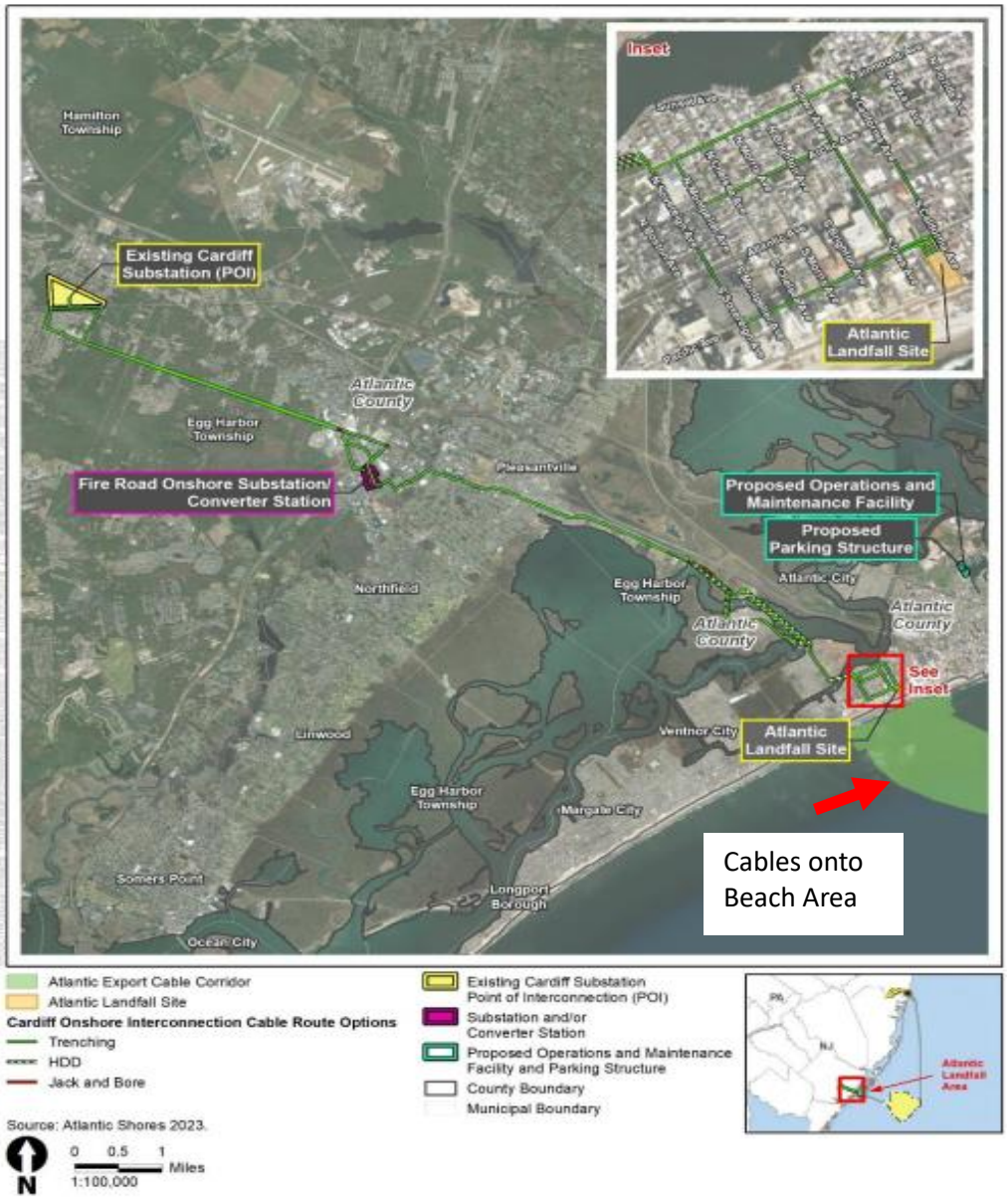


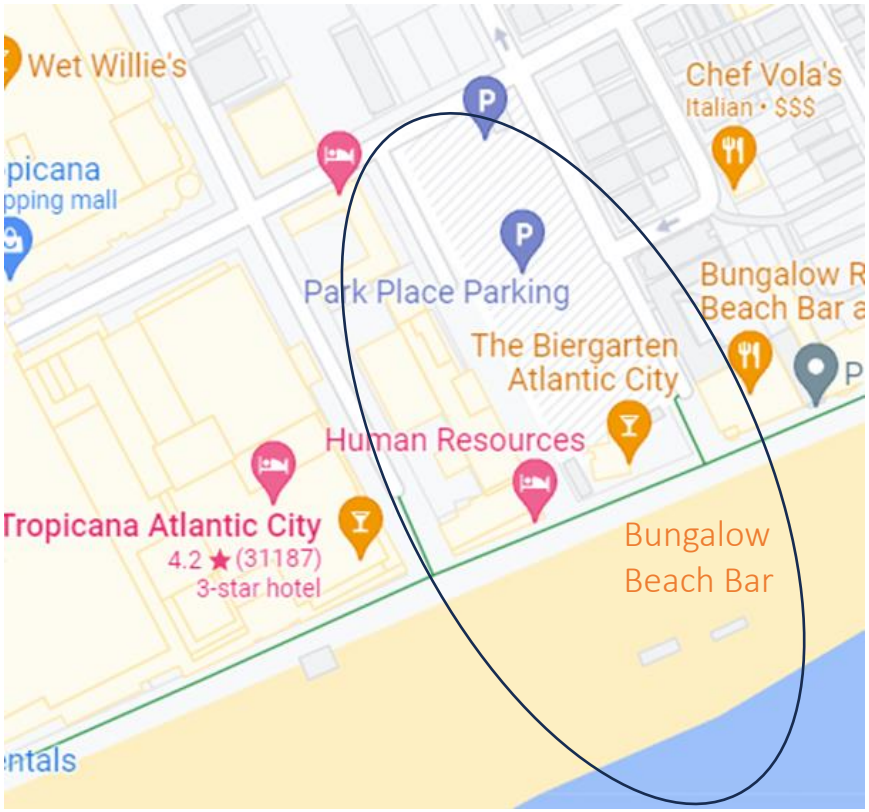
Figure 2.1-2. Onshore Project elements: Atlantic Landfall Site to Cardiff Substation POI

- 8 Export Cables to Landfall
- 230-525kV5
- Max 9 Ft Onshore Cable Depth
- 99.4 Miles of Cable to On Shore SS
- 5900 Ft. Corridor Width
- 941,724 Cubic Yards of Sand Removal
- Trenching, Horizontal Direct Drilling, Jack and Bore

https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/AtlanticShoresSouth_AppC_PDE%20and%20Max-Case%20Scenario_DEIS.pdf

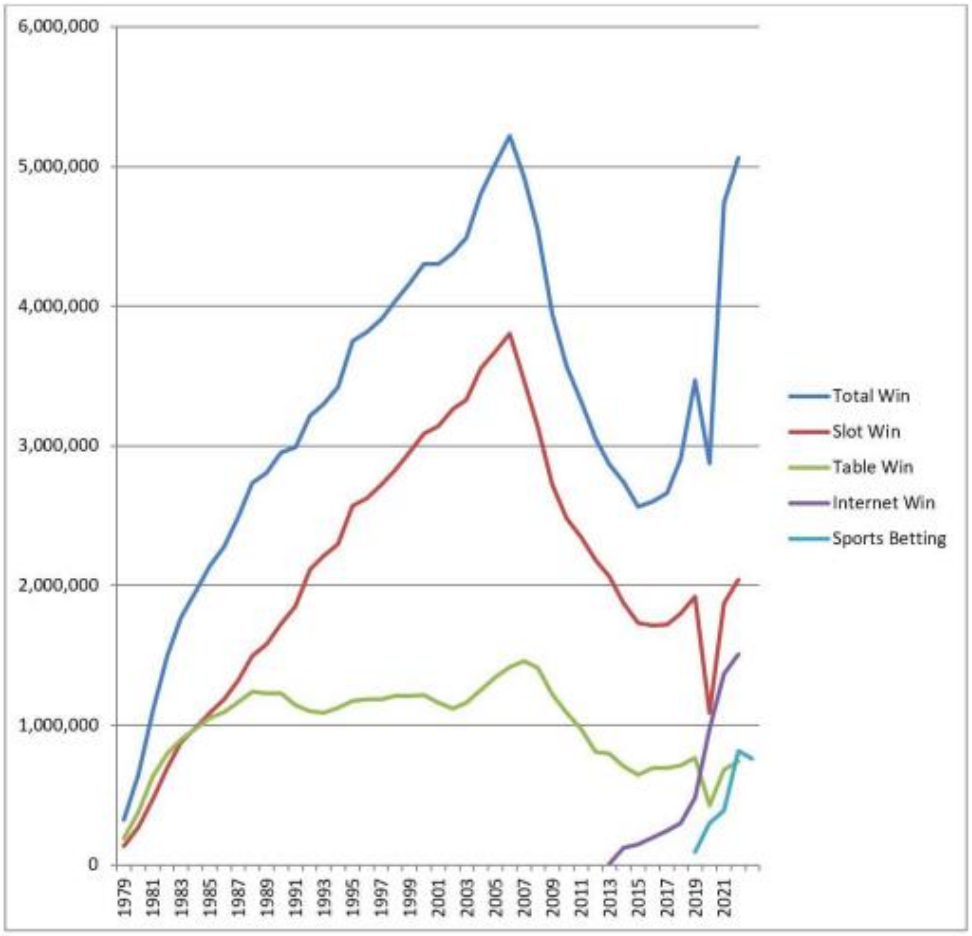
Atlantic Shores Offshore Wind South Draft Environmental Impact Statement: Chapters 1-4 (boem.gov)

Details of On Shore Cabling Route Through Chelsea Neighborhood, AC



High Voltage EMF Cables from Wind Turbine Power Plant entering onto beach.

Visual Impact: External Threat to AC Casinos



AC History (unlv.edu)

Will AC continue to be a destination city?

The view from casino ocean front rooms and restaurants will be "dominated by a large and highly visible array of wind turbine generators."

State of Casinos in Atlantic City

- **2006 Peak Revenue at $5.2 B**
- **Interstate Competition and AC Casino Consolidation 2014-16: Reduction to 7 from 12 Casinos = Revenue of $2.6B**
- **2021 Bricks and Mortar = $2.6B**
- **2021 Internet and Gaming = $2.1B (45%), Cannibalizing Brick and Mortar Revenue**
- **2023: NY State Casino Market Expansion and Proposed Solution to Invest in AC Ocean Front Experience** Atlantic City investments a must as New York casinos loom, gaming panel says (pressofatlanticcity.com)

Effects on Shore Wind Speed, Wave Height, and Local Air Temperature

Reduced Wind Speed at the Shore

- **Small turbines, 7% reduction 6 miles downwind of wind complex**
- **Large turbines, 26% reduction 9 miles downwind (same distance from shore to turbines here and fewer wind turbines**

Wave Height Decreases with Wind Speed

Local Air Temperature Increase: 1.1 degrees 28 miles downwind of moderate size turbines

Further Degradation of the Shore Experience

Airborne Wind Turbine Noise to Persons

- **NOISE PROPAGATES MORE EFFECTIVELY OVER WATER THAN LAND, ANNOYING AT BEACH & CAUSING SLEEP DISRUPTION**
- **Continual Turbine Operation Measurement Study:**
  - **1 operating turbine = 118 dBs/Vesta-236 15-megawatt turbine Specifications AND 7 turbines = 126.3 dB**
  - **Noise loss over 9 miles = 73 dB**
  - **Net noise = 53.3 dB**
  - **Night time noise level is 50 dB**
  - **3 dB difference doubles the noise intensity to the receiver**
- **Construction Pile Driving**
  - **137 dB, 10.7 dB higher than the 7-turbine array used above for operational noise example.**
  - **Noise loss over 9 miles = 73 dB which results in a noise level at the shore of 64 dB, close to the daytime standard of 65 dB, or equal to the noise of a vacuum cleaner**

Impact on Atlantic County Tourism Economy

Several Surveys (including BOEM's) of public reaction to visible turbines.

- ***Rental Demand Loss*: 50% of prior renters would not rent again with turbines visible regardless of rent discount. Including Atlantic City, Atlantic County annual rental income loss could be $17.2 M (10%) to $68.9 M (30%). Excluding Atlantic City, Atlantic County annual revenue loss could be $4.5M (10%) - $17.9M (40%). Lost rental income NPV over 20 years could be $65M - $250M.** [V1, V2]
- ***Tourism Revenue, Job Losses, and Tax Losses:*** [V3, V4, V5, V6]
  16.5% - 24% would not visit Atlantic County beach town, which could be a loss of:
  - **8,700-12,700 jobs or 175,000 -255,000 job years over the assumed 20 year project life**
  - **$1.3 – $1.9B in annual revenue or NPV of $17.4 B - $25.5 B over the project life**
  - **$142 - $206 million government tax loss revenue over the project life**
- **Wind Turbines will not be a Significant Tourist Attraction based on survey participants not willing to pay more for rental property with a view of wind turbines.** [V1]
- ***Casino Consolidation:* Bricks and mortar operating losses for casinos may cause further consolidation in AC, and tourism losses and tax impacts will be escalated further.**
- **Large Energy Cost Increase for Fragile Seasonal Tourism Businesses** [V8]
- ***Recreational Fishing Revenue*= $19M/ YR to the NJ economy. How will this be impacted during years of construction and operation?** [V7]
- ***Impact to Annual Farley Marina Jimmy Johnson Fishing Tournament, Annual Atlantic City Air Show, Beach Concerts, and other Beach Centric Entertainment Events, Bars and Restaurants is unknown.*** [V9]

References: Visible and Shore Community Impact of Stationary Turbines and Calculation of Economic Impact Using Available Studies

ACTUAL STUDIES AVAILABLE FOR CALCULATIONS OF TOURISM LOSS ARE BASED ON A COMBINATION OF WIND TURBINE SIZE, DISTANCE AND NUMBER THAT IS MUCH SMALLER AND MUCH LESS OF A NEGATIVE IMPACT ON VISUAL RESOURCES AND SCENIC VIEWS THAN THE ATLANTIC SHORES AND OCEAN WIND 1 PROJECTS WILL HAVE ON THE JERSEY SHORE COMMUNITIES.

BOEM MADE NO ATTEMPT TO REPEAT ANY SURVEYS OR STUDIES USING VISUAL SIMULATIONS BASED ON ACTUAL WIND TURBINE SIZE, DISTANCE AND NUMBERS FOR OCEAN WIND 1 OR ATLANTIC SHORES SOUTH PROJECTS WHICH WERE AVAILABLE ON BOEM WEBSITE IN 2021 (OCEAN WIND 1) AND 2022 (ATLANTIC SHORES SOUTH). IN ADDITION, NO VISUALIZATIONS WERE PREPARED FOR THE CUMULATIVE IMPACT OF THE 550-850 WIND TURBINES THAT WILL BE VISIBLE FROM VARIOUS COMMUNITIES ALONG THE JERSEY SHORE AS LISTED ON TABLE 4. THE CUMULATIVE IMPACT ON SCENIC VIEWS MAY HAVE AN EVEN GREATER IMPACT ON TOURISM.
*Atlantic Shores Offshore Wind South DEISt_ Cumulative Historic Resources Visual Effects Analysis.pdf

DUE TO THE LACK OF ANY STUDIES THAT INCLUDE SURVEYS USING VISUALIZATIONS OF THE ATLANTIC SHORES AND THE OCEAN WIND 1 PROJECTS, ANALYSES WERE PREPARED USING THE EXISTING STUDIES BY EXTRAPOLATING THE DATA FROM EACH STUDY BASED ON THE SIZE, NUMBER AND DISTANCE OF THE WIND TURBINE PROJECT COMPARED TO THE ATLANTIC SHORES WIND TURBINE PROJECT.

V1. North Carolina State University, the Amenity Costs of Offshore Wind Farms- Evidence from a Choice Experiment, Lutzeyer et. al., August 2017. https://cenrep.ncsu.edu/cenrep/wp-content/uploads/2016/03/WP-2017-017.pdf

This study included visualization of 64, 100 and 144 total wind turbines, 5 Mw (around 500 ft tall compared to 1040 ft tall for 15 Mw Atlantic Shores turbines) sized wind turbines with daytime and nighttime views. Wind turbine visualizations were located at various distances from shore including 5, 8, 12 and 18 miles. Based on an extrapolation of the size difference, the comparable distance used in the study would be 5 miles.
The nighttime views increased the visual disamenties and avoidance of rental properties with views of the wind turbines.
Participants were divided into categories: 55% never wanted a view from a rental property no matter how much rent was discounted, 23% would tolerate some view along with various discounts, and 21% would rent with a view all the time.
No participants would pay more rent to see the wind turbines. This may impact Jersey Shore significantly if increased electric costs based on offshore wind rates will increase rental rates. Lastly, the study notes that choices will depend on whether vacationers have an alternative location for their vacation, and this factor will impact the results. Along the eastern seaboard, vacationers have a significantly large number of options for vacation locations within driving distance that will not have 1040 ft high wind turbines starting 9 miles off the beach along with 722 turbines in ocean viewshed from the beach.

V2. Based on Atlantic County Rental Income

The model lists a wide range of income losses because of unknown rental market supply and demand elasticity factors. For example, other tourists may be willing to rent properties at discounted rental rates. The mix of renters who would not return in combination with

new renters who may rent properties at various discounts are examined by Lutzeyer et. al., in North Carolina State University Study (V1). The table below has two calculations: one with Atlantic City and one excluding Atlantic City. The percentage of vacation versus full time resident renters is known for Brigantine. Based on Brigantine City Records, in 2023, 2000 properties were listed as "summer" (vacation) rentals. It is not known what portion of the monthly rental income is attributed to the properties in the table for Brigantine. The data in the table is from 2020.

Vacation Rental Income Losses in Atlantic County

Coastal City	Rental Properties (1)	Monthly Rental $ (1)	Annual Rental $Millions	NPV 20 YR Loss	Coastal City	Rental Properties (1)	Monthly Rental $ (1)	Annual Rental $Millions	NPV 20 YR Loss
Atlantic City	11,793	$900	$127.4						
Brigantine	1,096	$1,208	$15.9		Brigantine	1,096	$1,208	$15.9	
Long Port	40	$1,677	$0.8		Long Port	40	$1,677	$0.8	
Margate	579	$1,310	$9.1		Margate	579	$1,310	$9.1	
Ventnor	1,579	$1,006	$19.1		Ventnor	1,579	$1,006	$19.1	
Total Atlantic County	15,087		$172.2		Total Atlantic County	3,294		$44.9	
Economic Loss 10%			($17.2)	($250.8)	Economic Loss 10%			($4.5)	($65.3)
Economic Loss 20%			($34.4)	($501.6)	Economic Loss 20%			($9.0)	($130.1)
Economic Loss 30%			($51.7)	($752.3)	Economic Loss 30%			($13.5)	($195.9)
Economic Loss 40%			($68.9)	($1,003.1)	Economic Loss 40%			($17.9)	($261.2)

Assumed Vacation Rental Inflation Rate is 3% and NPV Discount Rate is 6%

(1) City Data.com

V3. Global Insight, Inc. an Assessment of the Potential Costs and Benefits of Offshore Wind Turbines, prepared for the State of New Jersey, September. 2008

https://www.state.nj.us/bpu/pdf/announcements/njoswt.pdf

The study used a survey with a visualization based on 3.6MW (model first used in Ireland in 2004) wind turbines, hub height of 73.5M vs. 175M (ASOWNJ) and rotor diameter of 104M vs. 280M (ASOWNJ). For Atlantic County participants were shown turbines 3 and 6 miles off the coast of Atlantic City on clear and hazy days. The number of wind turbines in the study was 80, compared to 200 turbines for ASOWNJ project with a total cumulative impact of 730 visible turbines. Assumption in the study was that the turbines will not be seen from other shore towns outside of Atlantic County. For wind turbines located 3 miles Offshore, 16.5 % of Atlantic County Visitors were more likely not to visit.

Actual ASOWNJ wind turbines dimensions are 2.7 times (rotor diameter) and 2.4 (hub height), An extrapolation of the hub and rotor heights translates the 3.0 miles to 8.1 miles. This is very close to the 8.7-mile distance from Brigantine, NJ. Factoring in the distance equivalency and more than double the visible wind turbine size for the ASOWNJ project and 9 times more visible wind turbines for future planned offshore wind projects, the number of participants' negative responses are conservative and should be even higher.

V4. University of Delaware, Atlantic Offshore Wind Energy Development: Values and Implications for Recreation and Tourism, sponsored by the Bureau of Ocean Energy Management (BOEM), Parsons & Firestone, March, 2018
(using the data for smaller, closer turbines with the same line of sight as those proposed for Brigantine)
https://espis.boem.gov/final%20reports/5662.pdf

Survey used visualizations of 100 , 6Mw turbines each with a height of 547 ft. The Atlantic Shores turbine height is 1040 ft. or 1.9 times the height of turbines used in the study. Adjusting the distance through simple extrapolation, equivalent distance of 5 miles would be 9.5 miles, given the difference in turbine size. Atlantic Shores turbine distance is 8.7 miles. In addition, there will be 750-850 turbines in the view of the Atlantic County beaches (cumulative impact), thus, results in this study are conservative estimates. According to the survey results, there is a 24% trip loss at 5 mile (equivilant 9.5 miles for 1040 height turbine) distance. At a distance of 5 miles, any offsetting positive response is negligible.

*V5. T*ourism Economics, An Oxford Economics Company, The New Jersey Visitor Economy 2022, March 2023
Visit New Jersey.com, Economic Impact (visitnj.org)

V6.

Atlantic County: Reduction in Tourism						
Atlantic County	2022 Annual Tourism $	Tourism Jobs	Fiscal Tax Impacts	NPV of Tourism $ over 20 Yrs	FTE Job Years over 20 Years	NPV of Fiscal Tax Impacts over 20 Yrs
Current	$ 7.8 billion	53,021	$860 million	$104.7 billion	1 1 million	$11.5 billion
$ Impact (16.5%)	($1.3) billion	(8,748)	$142 million	$17.4 billion	(175,000)	($1.9) million
$ Impact (24%)	($1.9) billion	(12,725)	$206 million	$25.5 billion	(255,000)	($2.7) billion

Assume 2% Growth Rate and 6% Discount Factor

16.5% reduction based on Global Insight Study and 24% reduction based on Parsons & Firestone Study

V7 Atlantic Shores Offshore Wind South Draft Environmental Impact Statement: Chapters 1-4 (boem.gov)

Table 3.6.1-31. For-hire recreational fishing revenue in New Jersey in comparison to the combined Project 1 and Project 2 WTAs, 2010–2018[1]

Year	Revenue in New Jersey (thousands of dollars)[1]	Revenue from WTAs (thousands of dollars)[2]	Percentage of Revenue from WTAs
2010	$55,509	$13	0.02
2011	$62,526	$34	0.05
2012	$61,825	$23	0.04
2013	$102,472	$15	0.01
2014	$97,175	$16	0.02
2015	$88,203	$28	0.03
2016	$33,359	$10	0.03
2017	$36,089	$9	0.02
2018	$49,439	--	--
Average	**$65,177**	**$19**	**0.03**

Sources: (1) NMFS 2022d, (2) NMFS 2022b.
Notes:
Available for-hire recreational revenue data for New Jersey were limited to the period of 2010–2018.
Years with no revenue from the WTAs are indicated by "—"

V8
For Release: Revised Cost Estimates Show Energy Master Plan Will Cost $1.4 Trillion, Sending the State Back to the Drawing Board | Affordable Energy For NJ (njaffordableenergy.com)

AENJ Email 2/20/23: Governing By Press Release | Affordable Energy For NJ (njaffordableenergy.com)

AENJ Email 6/5/23: Back Door Gas Stove Ban | Affordable Energy For NJ (njaffordableenergy.com)

V9 Atlantic City Airshow to return Aug. 24 (pressofatlanticcity.com)

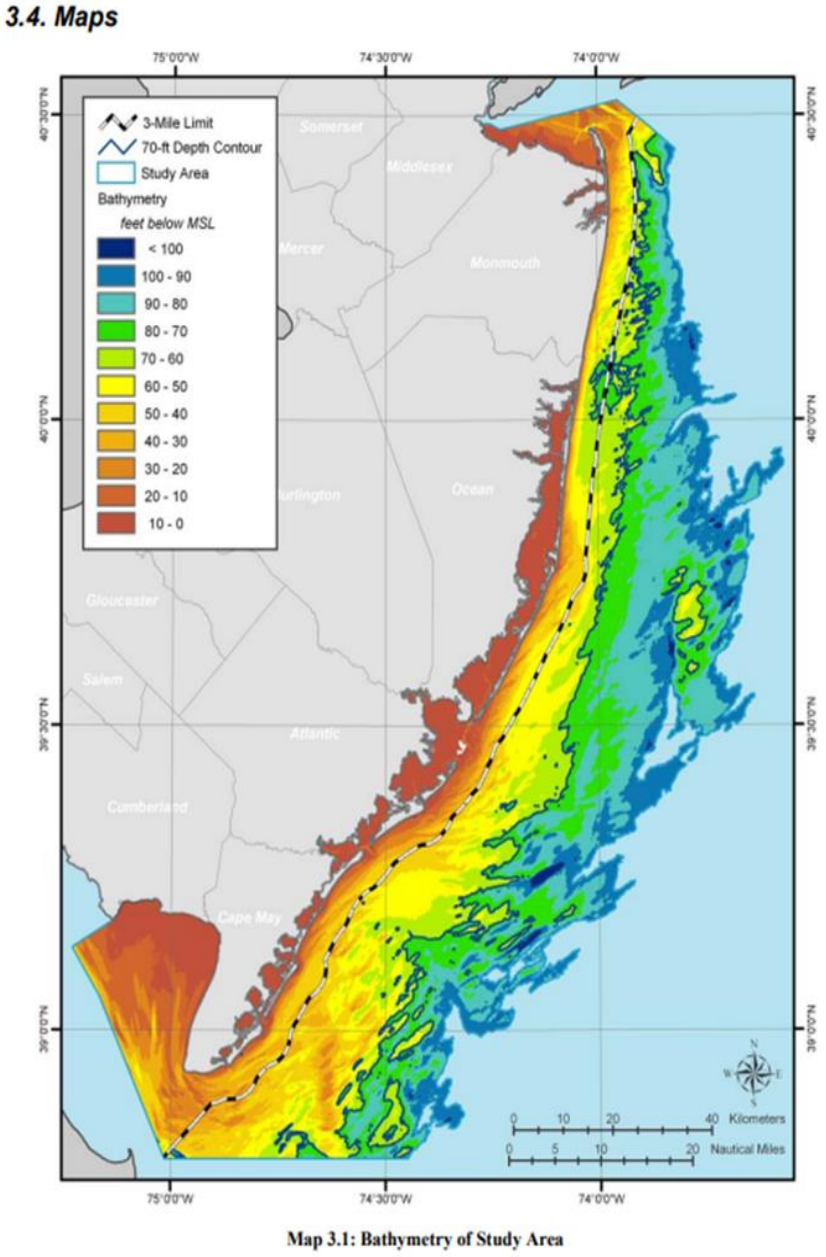
History Lesson

What Considerations were Made Regarding the Impact to the Visual Aesthetic and Tourism before Wind Energy Lease Area Locations Where Determined?

2004 New Jersey Offshore Wind Energy: Feasibility Study

- **Report prepared by Atlantic Renewable Energy Corporation, a developer of wind powered generation projects and AWS Scientific Inc, a renewable energy engineering and advisory services firm for NJ Bureau of Public Utilities.**
- **The wind energy area deemed viable for offshore wind development was 1223 nm^2 in water up to depths of 100 ft which extended 20 miles from the shore.**
- **Minimal changes were made to the wind energy area recommended in this report up to and including the time the wind energy areas were finalized and leased in 2015.**

New Jersey Offshore Wind Energy: Feasibility Study, Final Version (With NJ DEP Comments) (rutgers.edu)



Map 3.1: Bathymetry of Study Area

New Jersey's 2006 Blue Ribbon Panel Report

- Included Guiding Principles for Tourism/Economic Impact/Aesthetics and Recommendation
- By Executive Order, in 2004, the Governor of New Jersey authorized a ***State of New Jersey Blue Ribbon Panel on Development of Offshore Wind Turbine Facilities***
- Per the Executive Order, "The State of New Jersey has Federal Consistency review authority pursuant to **Section 307 of the Coastal Zone Management Act, 16 U.S.C. 1451 et seq**., for activities occurring in its coastal zone and in Federal waters where there is a reasonably foreseeable effect on the uses and resources of New Jersey's coastal zone."

Guiding Principles for Development of Renewable Technologies in New Jersey

Tourism/Commercial Ocean Uses	Development of renewable technologies, including offshore wind turbine facilities, must not cause unacceptable economic impact, including unacceptable impact to tourism and related industries, or to the commercial and recreational fisheries.
	Development of renewable technologies, including offshore wind turbine facilities, must not create unacceptable aesthetic impact, particularly in the viewsheds of state or federal parks and natural areas.

Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters Final Report.pdf (nj.gov)

2012 Environmental Assessment (EA)

Discussion of NJ Economy and Tourism Impacts

***BOEM's Final* Environment *Assessment (EA) was completed before most studies on Economy and Tourism were completed. BOEM ignored the study, Global Insight, Inc. an Assessment of the Potential Costs and Benefits of Offshore Wind Turbines,* prepared for the State of New Jersey, September. 2008, which identified a negative impact on the local economy, even with much smaller turbines. Surveys were never repeated using updated visualizations for the larger height (1040 ft) and greater number of turbines.**

https://www.state.nj.us/bpu/pdf/announcements/njoswt.pdf

Statements in EA included:

"Wind Turbines will be virtually invisible."

"Most of the meteorological towers would not be visible from the shore."

"Detrimental impact to tourism and recreation is unlikely."

"Recreational fishing activities will not be measurably impacted over any substantial period of time."

"Impact would be of short duration, limited area, and temporary, and result in negligible, if detectible, impact to fishing."

OCS EIS/EA BOEM 2012-003 **Actual Information included in Final EA regarding tourism and recreation: (PG 132 and tables on PG 134, 135)**

4.1.3.2.2 Impact Analysis of Alternative A

Routine Activities

"Impacts on recreational resources are not anticipated in connection with Alternative A. As discussed in Section 4.1.3.5, existing ports or industrial areas are expected to be used by vessels associated with Alternative A. Expansion of these existing facilities is not anticipated. **Due to the distance to shore of the WEAs, it is estimated that most of the anticipated meteorological towers would not be visible from shore (see Section 3.1.3, Visual Aesthetics – note, this is missing from the EA Report). The few meteorological towers located nearer to shore would be virtually invisible from shore due to the anticipated widths of these structures, and to the nominal atmospheric conditions offshore of the Atlantic coast.** It is most likely that vessel traffic associated with Alternative A would use established nearshore traffic lanes. Chapter 5.2.22 of the Programmatic EIS concluded that, as tourism and recreation exists in its current state in the context of existing military, commercial, and recreational water and air vessels that currently traverse these coastal areas, **it is unlikely that there would be any detrimental impact on tourism and recreation** from the additional vessels associated with Alternative A. No information has been presented that would tend to invalidate the analysis in the Programmatic EIS."

4.1.3.6 Commercial and Recreational Fishing Activities (see report for description of activities)

Conclusion

"The increase in vessel traffic, and activities related to the installation/operation of the meteorological towers and buoys **would not measurably impact commercial or recreational fishing activities, total catch of fish and shellfish, or navigation over any substantial period of time**. Any impacts, such as localized fishing displacement and/or target species availability within the immediate area of activities associated with Alternative A, would be of **short duration, limited area, and temporary, and result in negligible, if detectible, impact to fishing**."

CRITIQUE OF IRRELEVANT AND OUTDATED STUDIES

USED IN WIND DEVELOPERS'
CONSTRUCTION AND OPERATIONS PLAN (COP)

AND USED IN BOEM'S
DRAFT ENVIRONMENTAL IMPACT STUDY (DEIS)

TO CONCLUDE THAT
THERE WILL BE NO IMPACT TO TOURISM (MINOR NEGATIVE AND MINOR POSITIVE)

Government Agency Studies on Tourism

Atlantic Region Wind Energy Development Recreation and Tourism Economic Baseline Development Impacts of Offshore Wind on Tourism and Recreation Economics, *BOEM, 2012*

Study drew its conclusion of "no negative impact" from referencing (25 times) the Horns Rev 2 Project in the North Sea off the coast of Denmark with of a scope of 91 Siemens SWT 2.3-93 wind turbines that were much smaller than the size of NJ wind energy turbines and project location was greater distance from coastline.

atlantic-region-wind-energy.pdf (noaa.gov)

Project	Distance from Coast	Size (Blade Diameter)
Horns Rev 2	18 Miles	93 Meters
Ocean Wind 1,2	9 Miles	220 Meters
Atlantic Shores N, S	9 Miles	280 Meters

Government Agency Studies on Tourism

Atlantic Offshore Wind Energy Development: Values and Implications for Recreation and Tourism, *Parsons & Firestone, University of Delaware for BOEM, March 2018*

5662.pdf (boem.gov)

Survey Weaknesses and Criticisms

- **The 100 wind turbines shown in the survey were only 579 feet tall compared to the actual size that will be used in NJ projects which is 906 - 1049 feet tall. Jersey Shore wind turbines visible from beaches will total 550 – 850 depending on beach community location.**
- **35% of survey respondents were not beachgoers.**
- **The study showed nighttime views to respondents but did not report the results. Other studies (https://cenrep.ncsu.edu/cenrep/wp-content/uploads/2016/03/WP-2017-017.pdf) have shown nighttime visualizations and the opposition increased dramatically compared to daytime views.**

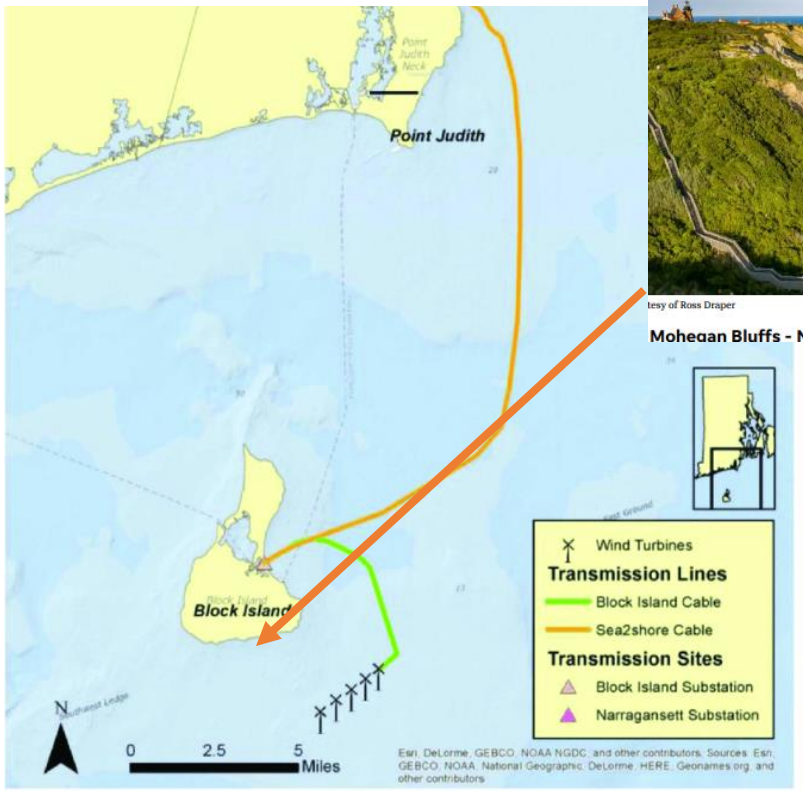
In March 2021, one of the two study's authors, George R. Parsons, stated publicly the Study was no longer useful because of the increased height of the planned turbines. (https://delawaretoday.com/life-style/skipjack-windfarm/)

Energy Updates | Caesar Rodney

Analysis of the Effects of the Block Island Wind Farm on Rhode Island Recreation and Tourism Activities

(BOEM, Smythe Et. Al., University of Rhode Island, Dec 2018)

- **5 Wind Turbines, Total Height 659 Ft. Vs. 1049 Height of NJ Wind Turbines 3.8 Miles from Shore**
- **Located at Southern End of Island off Rocky Coasts and Cliffs & Homes on 3-4 Acre Lots**
- **Located much Further and Less Visibility from Popular Beaches and Large Harbor on the Other Side of the Island**



tesy of Ross Draper

Moheqan Bluffs - New Shoreham, Rhode Island

Why don't tourism photos on social media contain any pictures of wind turbines?

Government Agency Studies on Tourism

The University of New Hampshire Department of Recreation Management and Policy, 2020 Study

Ferguson Ph.D., Michael D., Lauren A. Ferguson, Ph.D., Clayton R. Mitchell, Ph.D., and Tasha L. Dooley, M.S. 2020. Assessing Recreationists' Perceptions of Offshore Wind Energy Development in New Hampshire: Final Report. Department of Recreation Management and Policy, The University of New Hampshire. February 5, 2020

- **BOEM DEIS for Atlantic Shores includes this 2019 survey to argue that 77% of recreational activity participants in the New Hampshire study (N= 553) support offshore wind and 43% said it would not impact their outdoor activities.**
- **According to the report, the survey methods did not include any visual simulations of the wind turbines off the shore for the participants to view.**
- **Other studies conclude that visual simulations have a significant impact on participants' support for offshore wind turbines and to participants' beach activity experience. Therefore, the New Hampshire study excludes an essential part of measuring support for offshore wind.**
- **The same survey was also used for a study in Energy Research Social Science but in the study, a statement was made that 50% of participants were shown the visual impact (100 turbines, height of 579 ft. and 10 miles off shore) which was the visualization used in the Parsons & Ferguson Study, 2018. The inconsistent reporting of the use of a visualization between the two studies is highly suspect and therefore th study loses all credibility.** Michael D. Ferguson, Darrick Evensen, Lauren A. Ferguson, David Bidwell, Jeremy Firestone, Tasha L. Dooley, Clayton R. Mitchell. Uncharted waters: Exploring coastal recreation impacts, coping behaviors, and attitudes towards offshore wind energy development in the United States, Energy Research & Social Science, 75 (2021)

Atlantic Shores
Draft Environmental Impact Statement

ADVERSE IMPACTS

IRREVERSABLE AND IRRETRIEVABLE IMPACTS

BOEM'S CONCLUSION ON IMPACTS TO TOURISM:
MINOR ADVERSE & MINOR BENEFICIAL

Table 4.1-1. Potential unavoidable adverse impacts of the Proposed Action

Resource Area	Potential Unavoidable Adverse Impacts of the Proposed Action
Socioeconomic Conditions and Cultural Resources	
Commercial Fisheries and For-Hire Recreational Fishing	• Restriction in harvesting activities during construction of Offshore Project elements and during operations of offshore wind facility • Changes in vessel transit and fishing operation patterns • Changes in risk of gear entanglement, navigational hazards, and space-use conflicts associated with the presence of structures • Changes in the availability of target species because of habitat loss and conversion associated with the presence of structures
Cultural Resources	• Destruction of or damage to ancient submerged landforms • Although unlikely, unanticipated removal or disturbance of previously unidentified marine or terrestrial archaeological resources • Changes to the integrity of aboveground historic resources or visual disruptions to the historic or aesthetic settings from which these resources derive their significance
Demographics, Employment, and Economics	• Disruption of onshore and marine recreational businesses during onshore and offshore construction and cable installation • Potential changes to Ocean Economy sectors due to the long-term presence of the offshore wind facility, including commercial fishing, tourism, and recreation.

Table 4.1-1. Potential unavoidable adverse impacts of the Proposed Action

Resource Area	Potential Unavoidable Adverse Impacts of the Proposed Action
Land Use and Coastal Infrastructure	• Conversion of undeveloped areas for cable maintenance or replacement • Land use disturbance due to construction as well as effects due to noise and travel delays • Potential for accidental releases during construction
Navigation and Vessel Traffic	• Congestion in port channels • Increased navigational complexity, vessel congestion, and allision risk within the WTA • Potential for disruption to marine radar on smaller vessels operating within or in the vicinity of the Project, increasing navigational complexity • Hindrances to SAR missions within the WTA
Other Uses	• Disruption to offshore scientific research and surveys and species monitoring and assessment • Increased navigational complexity for military or national security vessels operating within the WTA through decreased effectiveness of individual radar systems • Changes to aviation and air traffic navigational patterns
Recreation and Tourism	• Disruption of coastal recreation activities during onshore construction, such as beach access • Viewshed effects from the WTGs altering enjoyment of marine and coastal recreation and tourism activities • Disruption to access or temporary restriction of in-water recreational activities from construction of Offshore Project elements • Temporary disruption to the marine environment and marine species important to fishing and sightseeing due to turbidity and noise • Hindrances to some types of recreational fishing, sailing, and boating within the area occupied by WTGs during operation
Scenic and Visual Resources	• Alterations to the ocean, seascape, landscape character units' character, and effects on viewer experience by the wind farm, vessel traffic, onshore landing sites, onshore export cable routes, onshore substations, converter stations or both, and electrical connections with the power grid

Table 4.2-1. Irreversible and irretrievable commitment of resources by resource area for the Proposed Action

Resource Area	Irreversible Impacts	Irretrievable Impacts	Explanation
Socioeconomic Conditions and Cultural Resources			
Commercial Fisheries and For-Hire Recreational Fishing	No	Yes	Based on the anticipated duration of construction and installation and O&M activities, BOEM does not anticipate irreversible impacts on commercial fisheries. The Project could alter habitat during construction and installation and O&M, limit access to fishing areas during construction and installation, or reduce vessel maneuverability during O&M. However, the conceptual decommissioning of the Project would reverse those impacts. Irretrievable impacts (lost revenue) could occur due to the loss of use of fishing areas at an individual level.
Cultural Resources	Yes	Yes	Impacts on ancient submerged landforms could result in irreversible and irretrievable impacts. Although unlikely, unanticipated removal or disturbance of previously unidentified marine or terrestrial archaeological resources could result in irreversible and irretrievable impacts.
Demographics, Employment, and Economics	No	Yes	Construction activities could temporarily increase contractor needs, housing needs, supply requirements, and demand for local businesses, leading to an irretrievable loss of workers for other projects. These factors could lead to increased housing and supply costs.
Environmental Justice	No	Yes	Impacts on environmental justice communities could occur due to loss of income or employment for low-income workers in marine industries; this could be reversed by Project decommissioning or by other employment, but income lost during Project O&M would be irretrievable.

Table 4.2-1. Irreversible and irretrievable commitment of resources by resource area for the Proposed Action

Resource Area	Irreversible Impacts	Irretrievable Impacts	Explanation
Land Use and Coastal Infrastructure	Yes	Yes	Land use required for construction and installation and O&M activities could result in a minor irreversible impact. Construction and installation activities could result in a minor irretrievable impact due to the temporary loss of use of the land for otherwise typical activities. Onshore facilities may or may not be decommissioned. Depending largely on future consultations with state and municipal agencies, onshore facilities (e.g., onshore substations and converter stations and buried duct banks) will either be retired in place or reused for other purposes.
Navigation and Vessel Traffic	No	Yes	Based on the anticipated duration of construction and installation and O&M activities, BOEM does not anticipate impacts on vessel traffic to result in irreversible impacts. Irretrievable impacts could occur due to changes in transit routes, which could be less efficient during the life of the Project.
Other Uses	No	Yes	Disruption of offshore scientific research and surveys would occur during proposed Project construction and installation, O&M, and decommissioning activities, constituting irretrievable impacts.
Recreation and Tourism	No	No	Construction and installation activities near the shore could result in a minor, temporary loss of use of the land for recreation and tourism purposes.
Scenic and Visual Resources	No YES!	No YES!	Long-term (until post-decommissioning) seascape unit, open ocean unit, and landscape units' character alterations, and effects on viewer experience, by the wind farm, vessel traffic, onshore landing sites, onshore export cable routes, onshore substations, converter stations or both, and electrical connections with the power grid would occur.

The explanation describes irreversible impact

DRAFT EIS: STATEMENTS ON TOURISM WITHOUT AND WITH THE PROJECT

Resource	Alternative A No Action	Alternative B Proposed Action
	WITHOUT ATLANTIC SHORES PROJECT	**WITH ATLANTIC SHORES PROJECT**
3.6.8 Recreation and Tourism	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor** impacts on recreation and tourism. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in minor adverse impacts, primarily driven by land disturbance, cable emplacement and maintenance, noise, traffic, anchoring, lighting, and the presence of structures. **Minor beneficial** impacts would result from the anticipated artificial reef effect resulting from installation of offshore structures.	*Proposed Action:* The Proposed Action would result in minor adverse and **minor beneficial** impacts on recreation and tourism. Adverse impacts are primarily due to anchoring, land disturbance, lighting, cable emplacement and maintenance, noise, traffic, and the presence of structures. Beneficial impacts are primarily due to the presence of structures and the potential for the artificial reef effect. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **minor** adverse and **minor beneficial**.

IMPACT: INVALID LOGIC!

- The logic is nonsense since it uses other planned wind turbine projects as the reason for impact. Their suggestion is that tourism will change because of other planned projects – the issues of visual clutter, noise, traffic, night lights from turbines, ETC.. will be present anyway. BUT Atlantic Shores states, overall, there will be **MINOR BENEFITS** because of the artificial reef effect which, according to their opinion, will outweigh all other negative impacts.

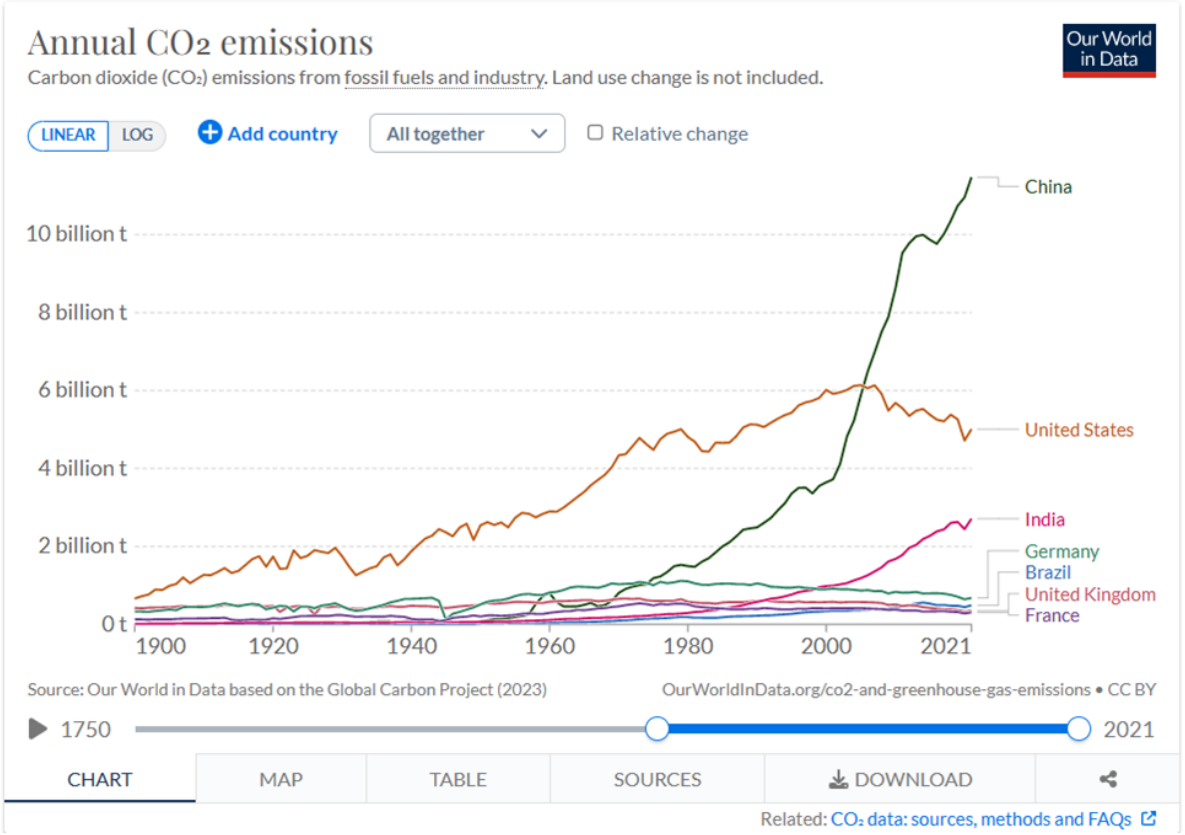
- Going ahead with their project concludes <u>cumulative impacts for all projects</u> as only **MINOR ADVERSE AND MINOR BENEFICIAL.**

What's Coming if We Don't Succeed


HEAVENSCAPE
WHICH DO YOU CHOOSE?
HELLSCAPE
imgflip.com

Will the Offshore Wind Project Solve Our Problems at the Jersey Coastal Towns?

- Do You Believe C02 Omissions Cause Climate Change?
- The Impact of CO2 Emissions in China and the Rest of the World is Global.



- Our Ocean will continue to rise, flooding will continue, and our severe weather events will persist on the NJ Coast.

Other References Not listed on Presentation Pages:

Temperature and Wind

OS1 Stoelinga et. al., "Estimating Long-Range External Wake Losses in Energy Yield and Operational Performance Assessments Using the WRF Wind Farm Parameterization", ArcVera Renewables, 2022

References

OS2. Wake studies around a large offshore wind farm using satellite and airborne SAR M.B. Christiansena,*, C.B. Hasager a Risø National Laboratory, Wind Energy Department, Frederiksborgvej 399, P.O. Box 49, DK-4000 Roskilde, Denmark – merete.bruun.christiansen@risoe.dk

OS3. LETTERS, Micrometeorological impacts of offshore wind farms as seen in observations and simulations S K Siedersleben1, J K Lundquist2,3, A Platis4, J Bange4, K Bärfuss5, A Lampert5, B Cañadillas6, T Neumann6 and S Emeis1 1 Karlsruhe Institute of Technology, Institute of Meteorology and Climate Research, Atmospheric Environmental Research (IMK-IFU)

Noise

N1. Johansson, Sound propagation Around Off-Shore Wind Turbines, 2003.

N2. Offshore Airborne Sound Assessment Revolution Wind Offshore Wind Farm prepared for Revolution Wind, LLC 56 Exchange Terrace, Suite 300 Providence, RI 02903.