

The Real Story: Wind Energy off LBI

Current Proposal, Process & A Better Approach

The LBI Coalition for Wind Without Impact

www.SaveLBI.org

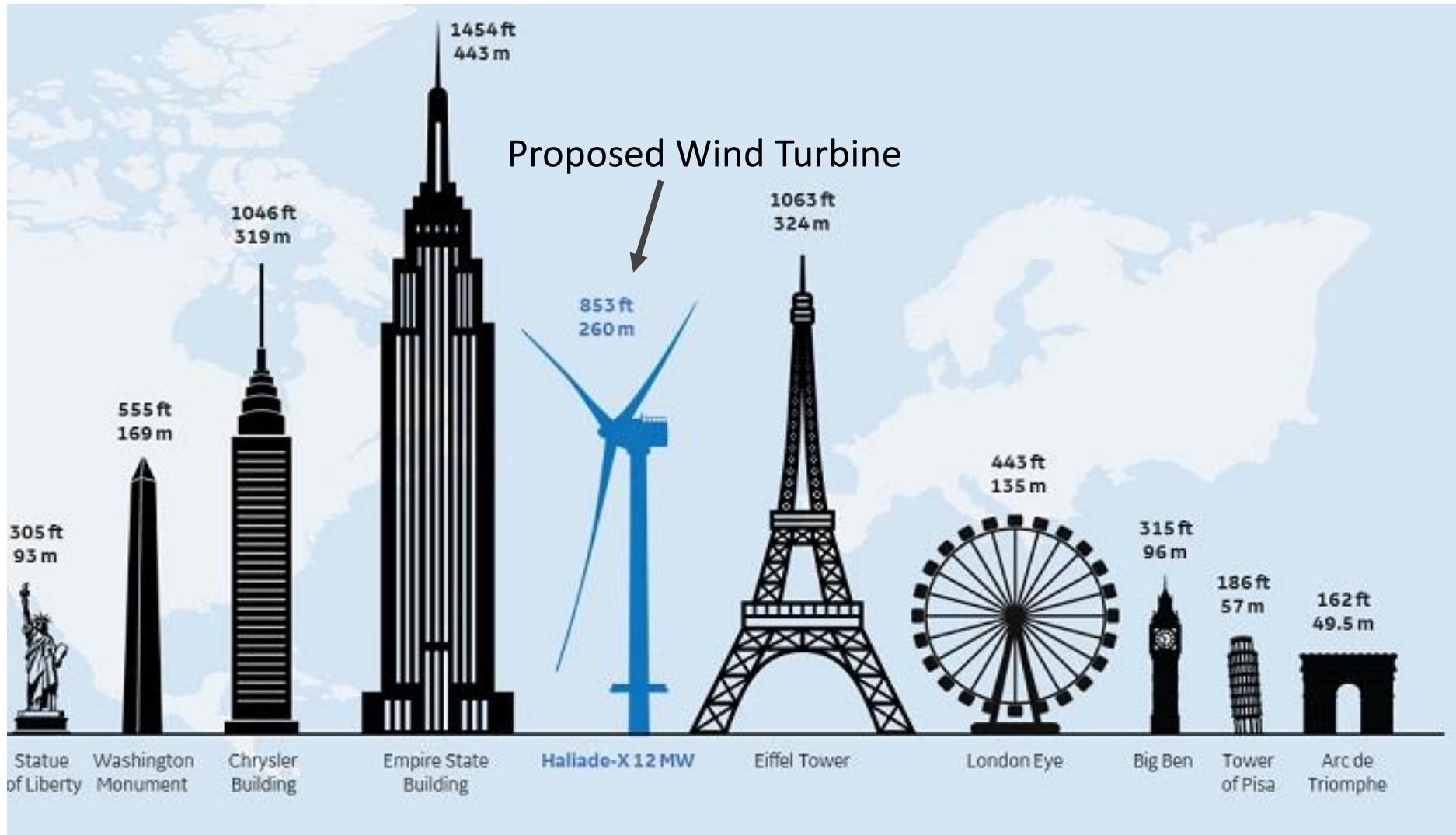
October 2021

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Introduction: The LBI Coalition for Wind Without Impact

- Grassroots, non-partisan coalition with hundreds of members and growing daily
 - Incorporated as Save Long Beach Island Inc.
 - 501c3 status pending
- Our focus: a sensible approach to wind energy off LBI
- Our goal:
 - Change this ill-conceived project by using the farther out federally recommended Hudson South call area for turbines
 - Utilize current lease area for transmitting power to shore
 - Suspend project activities to ensure full understanding of impact on our marine environment
- Our team:
 - Bob Stern, PhD, engineering and math; Beach Haven resident
 - Previously managed the U.S. Department of Energy Office that oversaw environmental impact statements and protection of the environment related to energy programs and projects across the U.S.
 - Wendy Kouba
 - Surf City resident; Communications, Brand & Corporate Affairs executive
 - Dawn Hamilton, JD, MHA, LBI business owner
 - Lindsay Ehlert, Long Beach Township resident, Finance executive



Current proposal: Atlantic Shores Wind Project off LBI

The most visible large turbine wind project in the world

- Turbine size: 13.6 megawatts(mw), gearbox type
Gearbox creates much higher underwater noise levels
- Turbine height: 853 feet tall, similar to Eiffel Tower
117 feet taller than Revel Hotel in Atlantic City
- Several hundred turbines to be installed along entire coast of LBI
Starting at 9 miles from Holgate, 10 miles from BL
Lease area goes out to 20 miles
Closer than any modern (12 mw +) turbine project in U.S. or entire world
- Turbines anywhere in the lease area will be clearly visible and “dominate” the view (BOEM study,^{v5})
BOEM turbine exclusion zone for NY is 17.3 miles ^(v6)
- Documented severe impacts on vacation rentals, property values, tourism & jobs
(V1,V2,V3)
- Significant threats to already endangered species
Requires turbine exclusion zones for Right, Fin and Humpback whales.

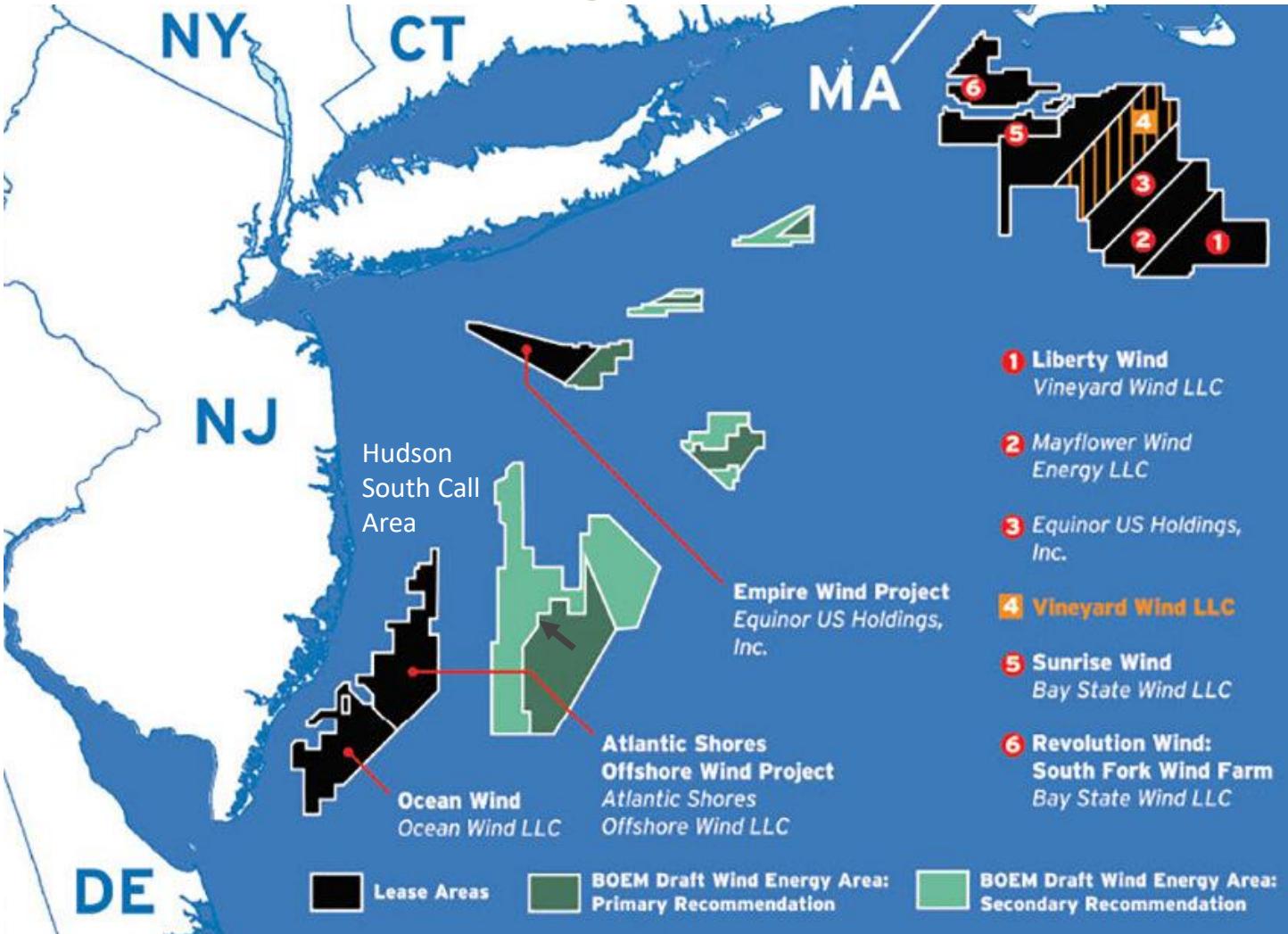
Proximity to Coastline: Other large turbine projects vs. LBI project

Project name	Location	Country	Distance from coast (miles)
Ocean Wind	Atlantic City, NJ	US	15
Vineyard 1	Nantucket, MA	US	15
Skipjack	Ocean City, MD	US	19.5
Dominion Energy	Virginia	US	27
Cape Wind	Cape Cod, MA	US	5 (cancelled, local opposition)
Humboldt	Eureka, CA	US	21
Morro Bay	San Simeon, CA	US	33
Hornsea 1		UK	75
Sinan project		S. Korea	80
Dogger Bank		UK	78
East Anglia 3		UK	43
Changua		Taiwan	23 to 58

The BOEM exclusion zone for New York turbines is 17 miles from their coast....

At 9 and 10 miles from our beaches, LBI project is extreme.

Overview: Current lease areas (in black) & original BOEM recommended lease areas (in green)



What will we be seeing from our beaches?

- BOEM has yet to provide representative visual renderings of what would be seen from LBI.
- Visuals in the Atlantic Shores Construction & Operations Plan(COP) of the turbines as seen from Beach Haven are for pre-dawn conditions and therefore misleading.
- The first visual below done by the University of Delaware for smaller turbines closer in is comparable to the LBI turbines starting at 10 miles.
- The two visuals following it from the COP for Atlantic City and the North Brigantine Natural Area are similar to what will be seen from LBI, although they still do not show the turbines under clear, sunlight conditions.
- The other two visuals done for Ocean City, MD below are also similar to what will be seen from LBI.



- Turbines pictured are 6 megawatt turbines starting 8 miles out.
- They have the same line of sight as 13.6 megawatt turbines, 12 miles out, similar to what will be seen from LBI beaches.

View from the Atlantic City Convention Center, 11.4 miles to the nearest turbine, Atlantic Shores Construction Plan-Appendix II –M.



Similar to what would be seen from LBI In overcast conditions-more visible on sunny days.

From the North Brigantine Natural Area, 9-miles to nearest turbine, Atlantic Shores Construction Plan, II-M

Simulation

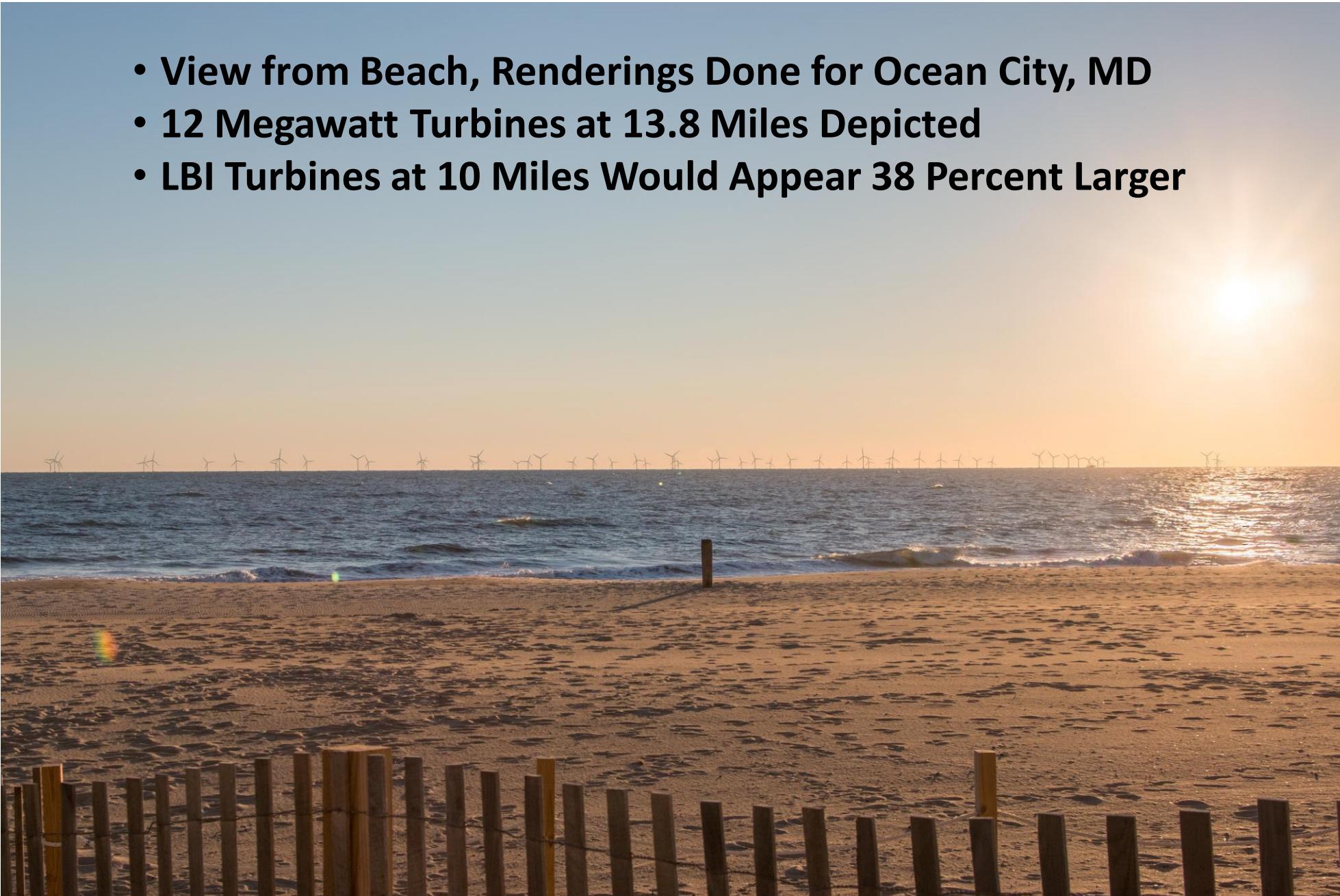


Similar to what will be seen from LBI

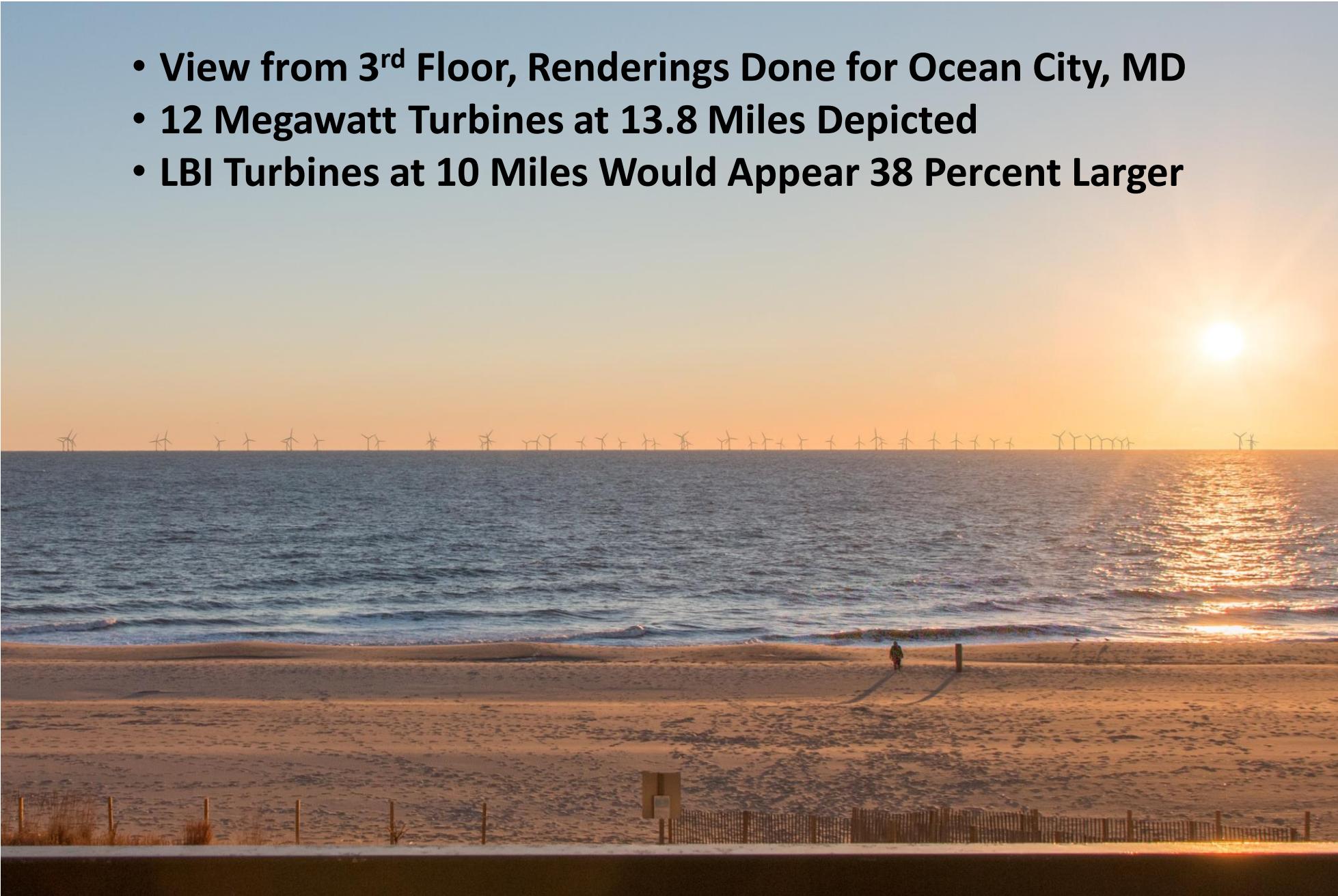
Atlantic Shores Offshore Wind Project
Outer Continental Shelf - New Jersey
Key Observation Point: BC02 - North Brigantine Natural Area
Attachment E: Visual Simulations Page 42 of 77

Printed at 100% the resulting simulation size is
15 inches wide by 10 inches high. At this size and
focal length, the simulation should be viewed
from a distance of 21 inches.
This scale is designed to insure the simulation
images are printed at the intended size.

- View from Beach, Renderings Done for Ocean City, MD
- 12 Megawatt Turbines at 13.8 Miles Depicted
- LBI Turbines at 10 Miles Would Appear 38 Percent Larger



- View from 3rd Floor, Renderings Done for Ocean City, MD
- 12 Megawatt Turbines at 13.8 Miles Depicted
- LBI Turbines at 10 Miles Would Appear 38 Percent Larger



Local Economic impact of using current project area

- LBI turbines would have the highest “dominant” BOEM visual impact ranking and therefore disturbing visual impact
 - LBI Turbines more visible than the Jones Beach “dominant” visual impact score in BOEM NY study ^(V4)
- Tourism: Expected loss of several hundred million dollars in annual revenue to LBI ^(V1)
 - University of Delaware Study ^(V2) – sponsored by BOEM
 - Using study results for smaller, closer turbines comparable to larger LBI turbines at 10 miles
 - 44% of those surveyed saying would have a worse shore experience
 - 19% would not visit that shore again
 - North Carolina State University Study ^(V3)
 - Again using turbine sizes and distances visually comparable to the LBI project
 - 54% of prior oceanfront and ocean view renters would not return even with rent discount
- Property values: Significant impact on property values ^(V1)
 - Global Insight conducted study of 584 ocean view & oceanfront homes in Ocean County, NJ
 - Estimated property loss under two economic assumptions
 - Dividing results by 584 properties surveyed (Figs 5.3 and 5.4), using smaller turbines at 4.5 miles as visual comparable.
 - \$189,000 to \$1,010,000 loss in value for ocean view and ocean front properties
 - Implications for all other homes on LBI

At only 9/10 to 20 miles from LBI beaches, the current lease area is visually incompatible with today's larger turbines.

Other fatal flaws with current project area

Endangered Whales:

- The migratory path of the critically endangered North Atlantic Right Whale intersects the outer part of current project area^(W1)
- A higher density of endangered Fin and Humpback whales exists in the inner part of current project area^(W7)
- Whale's normal migratory, foraging, mating behavior is disrupted by operational noise levels above NOAA's criteria of 120 decibels(db).
- Larger "gearbox" turbines will exceed that (W2) (w3) throughout the project area and across the Right Whale's migration corridor 20 -32 miles out, effectively blocking its migration.
- Since the project area width(10 miles) is less than the distance at which noise levels are above 120 db (at least 22 miles) there is no place in the project area for turbines that will not disrupt the Right Whale's migration.

Birds:

- The "threatened" Piping Plover will have to cross the current project area^(PP1) to get to its nesting sites in Holgate and Barnegat Light
- Potentially high fatalities^(PP2)



Want to know more about the North Atlantic Right Whale?

- Endangered North Atlantic Right Whales are struggling to survive.
- Current population: ~360
- Migratory path and feeding grounds lie within Atlantic Shores lease area, which directly impacts their survival.
- *Recent study indicates human induced stressors are stunting growth of Right Whales
 - Scientists have observed 5–10-year-old whales about the size of 2-year-old whales
 - An 11-year-old whale observed was the same size as 1.5-year-old whales
- This is reducing their ability to reproduce, which may drive the species into extinction.



- If human-induced stressors, including noise, are not lowered -- or if they increase with gearbox turbines -- the Right Whales' chances of survival will continue to decline & their extinction will likely accelerate
- Stressors include:
 - Undersea construction to install turbines
 - Once operational, wind turbines will generate substantial ongoing operational noise
 - This will impact not only Right Whales, but also many other marine mammals who are hyper-sensitive to noise and electromagnetic waves

The Fin Whale

- Second largest whale in the world after the Blue Whale.
- 19 to 25 meters (82 ft) in length.
- May live more than 75 or even 100 years.
- Their population is on the decline due to growing fishing and shipping traffic populations
- Currently ~ 80,000 world-wide today.



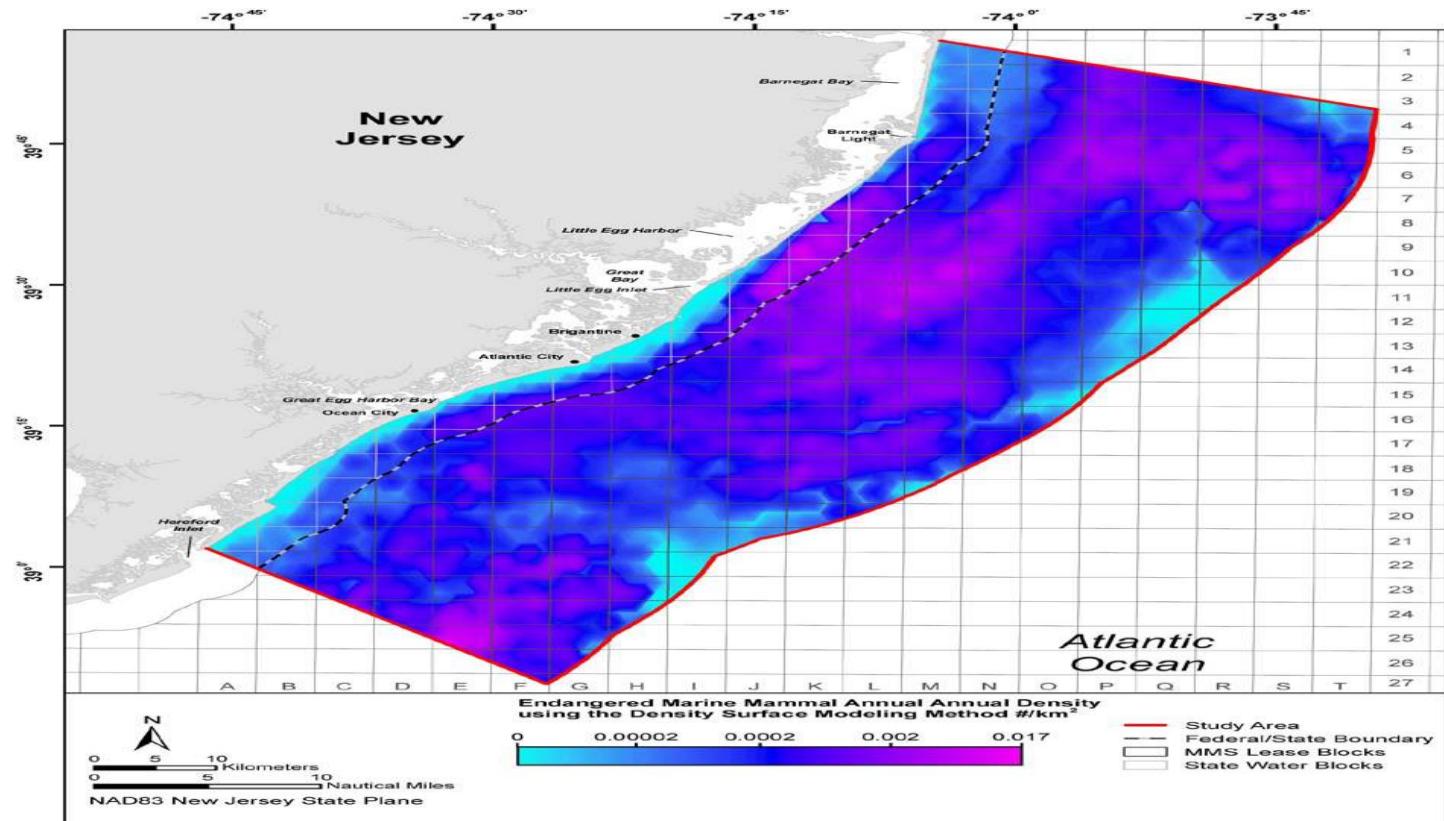
The Humpback Whale

- Gets its name from the way it arches out of the water before diving
- Grows up to 18 meters (60 ft) in length and weighs 30 to 50 tons.
- Vulnerable to entanglement
- Population just now beginning to rebound.
- Must keep it that way



Fin & Humpback whales exist in higher density 11.5 miles from LBI coast^(W7)

- Fin & Humpback whales exist 1.5 miles into current lease project area
- Turbine noise above 120 db will exist all the way to shore.
- Will force them to shore to try to escape it.



Therefore, we must also exclude turbines 5.5 miles from the *inner* lease area to avoid exceeding NOAA noise criterion for Fin and Humpback whales.

Right Whales: See them yourself...



<https://youtube/byElUwZZIWw>

Impact of turbine Noise from larger, gearbox turbines on Endangered Whales

- BOEM previously dismissed operational noise as a problem for endangered mammals
 - But they used smaller, less noisy turbines in the Vineyard Wind 1 EIS with source levels of 137 decibels (dB)
- Larger 13.6 megawatt(mw) “gearbox” Vestas-236 turbines to be installed off LBI
 - Source noise levels for 13.6 mw gearbox turbines predicted at 180 dB ^(W2) Figure 1.
 - 40 dB higher & 10,000 times* more intense than noise from the smaller turbines.
- It takes 22 miles^{(W2)(W3)} for the noise from just seven turbines to get below the 120 dB NOAA criterion for disrupting marine mammal behavior ^{(W4),(W5),(W6)}.
- Turbines to be placed ~ 1 mile apart, so 120 dB will be exceeded everywhere in the project area
- The Right Whale’s migratory corridor starts at the 20 mile project boundary and extends 12 miles^(W1)
 - Therefore the noise will exceed 120 dB throughout the corridor and block its migration
 - Similarly, fin and humpback whales frequent the inner project area, 11.5 miles out ^(W7) requiring them to go close to shore to try to avoid the elevated noise, causing more stranding.

* Decibels are a logarithmic scale; +10 db = 10 times the sound intensity

The Piping Plover



Impact on the Piping Plover

- Existence is “threatened” under the Endangered Species Act
- Migrates offshore, north-south^(PP1)
- About 86 Plovers nest in Holgate and Barnegat Light
 - They are protected there
- They must cross current lease area to fly in and out from nests
- If heading toward turbines, difficult to avoid rotating blades with 800-foot diameter
- Potential for high fatalities^(PP2)
 - Estimate: 31 percent fatality per year*



*Based on reference PP2, Figure 2.25, average of Chapin, Dead Neck, Avalon, Stone Harbor results; also consistent with percent of transit area blocked by rotating blades and 2 flights per bird in & out.

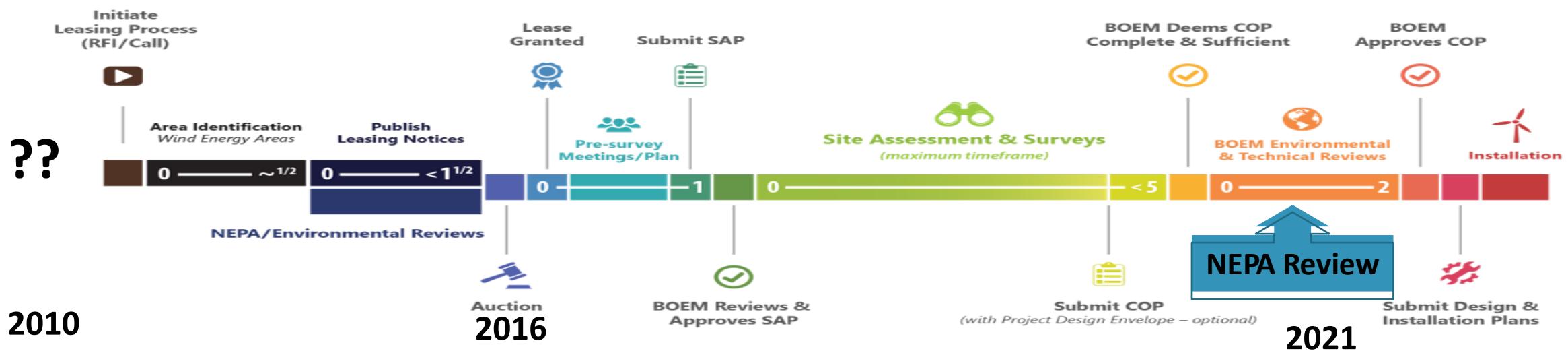
Viability of the current area and project

- The current project area runs from 9/10 to 20 miles offshore.
- The BOEM inner turbine exclusion zone of 17.3 miles from shore for New York to reduce visible impact should be adopted for NJ.
- Turbines cannot be placed in the project area without exposing fin and humpback whales to operational turbine noise levels that will exceed the 120 dB NOAA criterion for disrupting their behavior
- Turbines cannot be placed in the project area without exposing the North Atlantic Right Whale to operational noise levels that will disrupt, even block, its migration
- Under these conditions, there is no place for wind turbines in this current project area compatible with the Endangered Species Act or the Marine Mammal Protection Act.
- The NJ BPU recently approved 111 turbines which are incompatible with this project area.
 - They should have waited for the environmental impact statement (EIS)
 - The BOEM recently proposed up to 200 turbines

This project, as currently proposed by Atlantic Shores, must be changed before irreparable harm is done.

The federal leasing & development process: How did we get here?

- Use of the ocean: a public resource
- Location & lease area size:
 - Lease area was defined in 2010 by state employees without general public input
 - Study area was limited
- The federal Bureau of Ocean Energy Management (BOEM): the decision maker
- No review of impact of turbines on marine environment when area was leased
- The National Environmental Policy Act (NEPA) stresses the need for alternatives in impact statements, but here there are no alternatives left by the time the public enters the NEPA Review process.
 - Turbine location, size, spacing and number (per the NJ BPU) are already decided.
 - The public has no real role or input; the result is a flawed site and project.



How was current lease area created?

- Drawn up by a state-led task force in 2010, without formal authorization
- Comprised of state and federal agency representatives
- No input from private stakeholders or the general public.
- Public allowed to attend meetings as “observers”
- Study area was restricted
 - e.g. south of Toms River.
- No consideration of the visible impact of turbines on shore communities
- Presence of endangered species in the area acknowledged, but no adjustments made
- BOEM adopted area for leasing in 2016 without consideration of alternate locations or turbine impact on the environment.

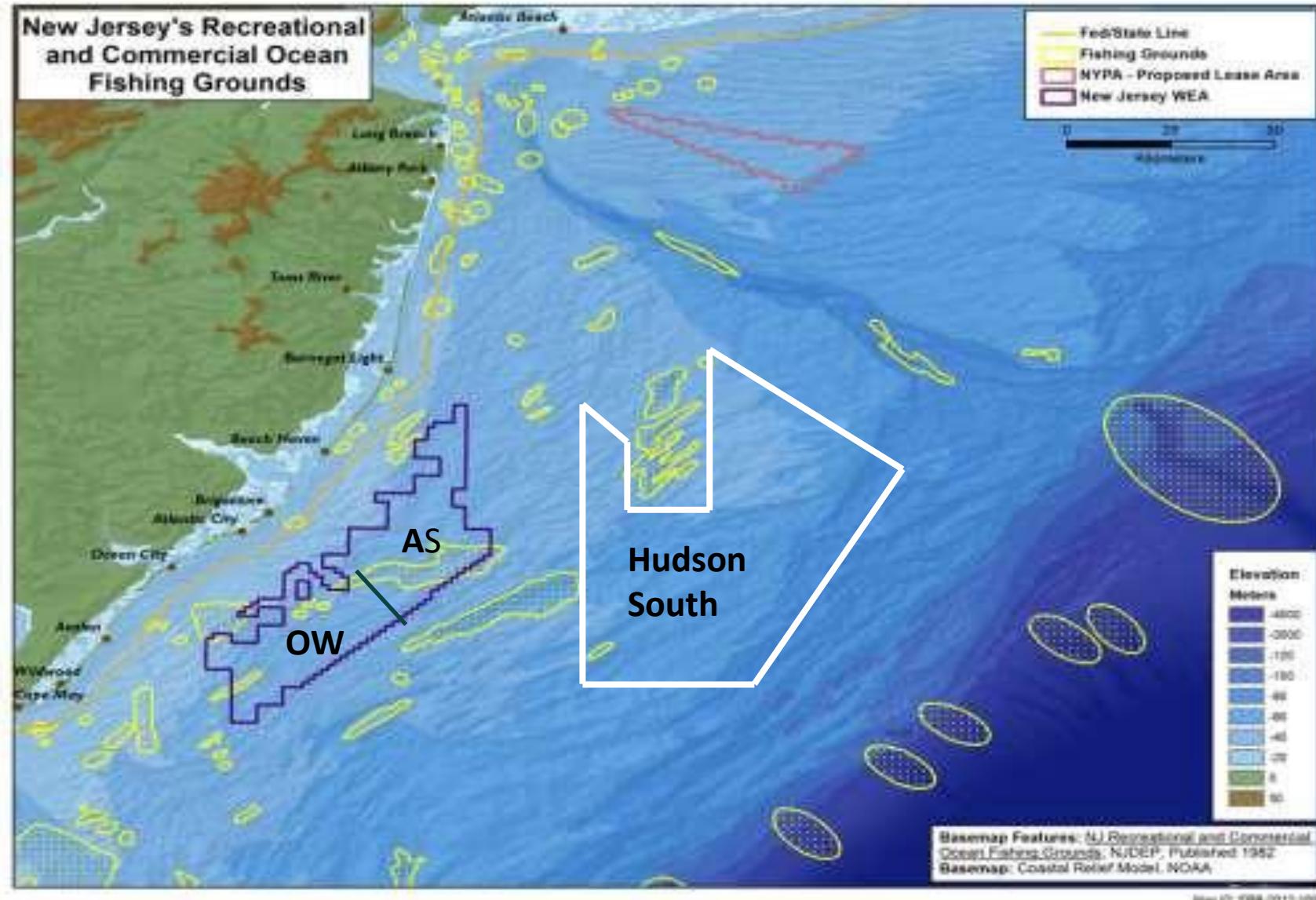
A better location: Hudson South

- Already screened by BOEM for:
 - Wind energy potential
 - Water depth
 - Cost of development
 - Visible impact
 - Navigation and fishing conflicts
 - Marine mammal protection
- Recommended by BOEM for wind energy development
- Now proceeding with lease sales
- Provides much greater wind energy potential
- Located 30 to 57 miles offshore, eliminating concerns related to visibility, tourism, rentals and property values

Comparison: Proposed location vs. Hudson South

Factors	Current Proposed location	Hudson South Call Area
Distance Offshore(miles)	10-20 miles	30 to 57
Wind Energy Potential (megawatts, mw)	<ul style="list-style-type: none"> • None with exclusion zones • 1510 mw per the NJBPU 	6890
Jobs	<p>289- 859 full time new jobs per the NJBPU Strategic Plan^(J1),</p> <ul style="list-style-type: none"> • Foundations (Paulsboro) • Staging (Lower Alloways Creek) 	Same
Revenue Potential	<ul style="list-style-type: none"> • Rental, tourism, property value losses 	None
Fishing Conflicts	Essential Fish Habitats- need to assess further	Not significant, based on BOEM screening
Endangered Species Conflicts	North Atlantic Right, Fin & Humpback Whales, Piping Plover	Possible problem for the Right Whale, inner few miles
Public Opposition	High	Low

Intersections with Fishing Grounds: in light green



- AS:
Atlantic Shores project off entire coast of LBI
- OW:
Ocean Wind project off Atlantic City & Ocean City, NJ

Summary & Next steps

- The current lease area off LBI is unsuitable and unthinkable for wind energy
 - Created in 2010 without private stakeholder & general public input, and no subsequent BOEM consideration of environmental impact alternatives
 - The location alone is extreme when compared to all other large-turbine projects
 - Have officially asked for suspension of activities there based on the “serious, irreparable harm” criteria in the law
 - Have asked BOEM to simply “consider” an alternate approach:
 - Turbines farther out in the Hudson South area
 - The current lease area used for power transmission
 - They are not listening and will not even include an alternate location in the EIS.
-
- Legal action is the only way forward
 - Have retained highly experienced & successful law firm
 - Work is already underway
 - Our legal strategy has very strong foundations
 - Actively seeking private donations to fund legal strategy
 - Multiple ways to donate detailed at www.SAVELBI.org
 - Need property owners, visitors, businesses and Townships to contribute
 - Make that request of your town leaders at your next town hall meeting
 - Finally, need active volunteers and more
 - We’re counting on your support...

We know you love LBI... Right now LBI urgently needs your help!

Impact on jobs and electric bills: Atlantic Shores 1510 megawatt project alone

	BPU Strategic Plan July 2020 ^(J1)	BPU Press Release June 2021	Beacon Hill Report June 2011 ^(CB1)
Full time equivalent jobs created	289 to 859	2025	----
Full-time jobs lost statewide from higher electric rates	----	----	(3046)
Increase in electric rate	----	2.3%	2.9%
Increase in residential electric bill- Annual	----	\$ 27	\$ 36
Cost of federal and state subsidies, tax credits-Annual	----	----	\$ 8
Total Cost-Annual	----	----	\$ 44

For the full 7500 megawatt program: Multiply numbers by $7500/1510 = 5$ times.

- For Example, Total Annual Cost = \$ 220 , per Beacon Hill Report data.
- Actual costs may be double to those shown, depending largely on the degree that fossil plants must be retained for back-up power.

Will the Atlantic Shores project mitigate rising sea levels?

- Sea level rise from greenhouse gases(GHG) is different than other air pollutants.
- GHG emissions raise the earth's surface temperature, predicted in 2100
- Subsequent heat transfer to ice caps and oceans causes the sea level rise
 - Depends on the 2100 temperature rise and the time elapsed afterward.
- Earth is currently headed to a 3.3 degree Celsius rise in 2100
- In that regime, previous chart shows the effect of a lower temperature rise from a GHG reduction is to delay, not reduce or prevent, future seal level rise.
- A 90 percent reduction (*41 billion* metric tons) of annual global GHG emissions is required to go from 3.3 degrees to a desired 2 degrees.
- The Atlantic shores project offers a GHG reduction of *2.6 million* metric tons
 - Per NJ BPU press release distributed in June 2021
- Even accounting for an early reduction, the project will result in a *0.00016* degree lower 2100 temperature rise.
- Previous chart shows a 0.65 degree reduction is needed to delay a given sea level rise by 100 years.
- So the project impact (*0.00016* degrees lower) is a delay of future sea level rise of about 9 days.

The massive & extreme wind turbine project off LBI will not prevent or reduce rising sea levels.

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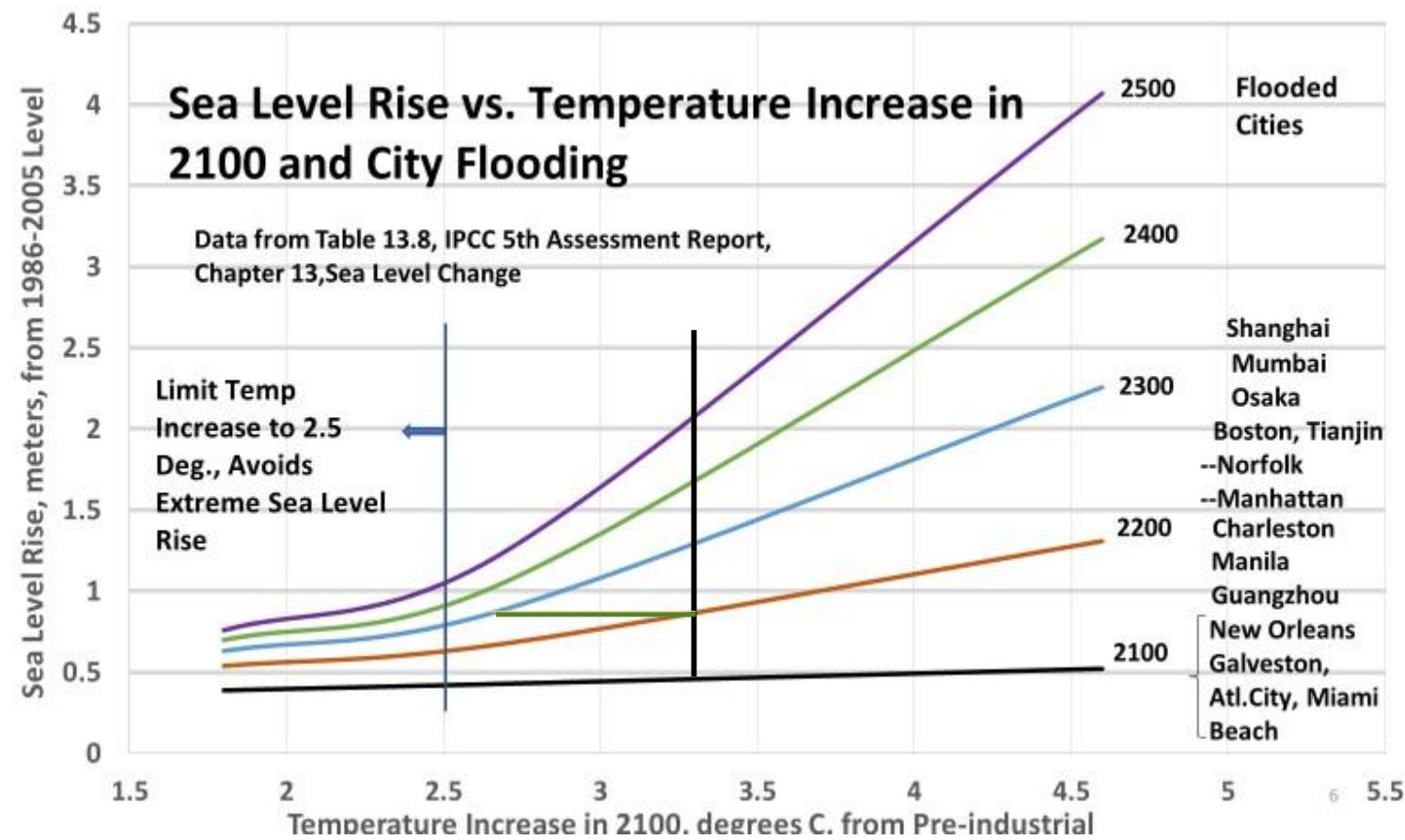
V4. The Bureau of Ocean Energy Management, BOEM, Renewable Energy Viewshed Analysis and Visual Simulation for the New York Outer Continental Shelf (OCS) Call Area: Compendium Report OCS Study, BOEM 2015- 044, 2015.

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V5. The Bureau of Ocean Energy Management, BOEM, Turbine Exclusion Zone for New York State Based on Visible Impact, Federal Register Notice, Commercial leasing for Wind Power in the Outer Continental Shelf in the New York Area, April 18, 2018.

<https://www.federalregister.gov/documents/2018/04/11/2018-07445/commercial-leasing-for-wind-power-on-the-outer-continental-shelf-in-the-new-york-bight-call-for>

Correlation between rising sea levels, temperature increase & time



Sea level rise depends on earth's temperature rise and elapsed time afterward.

References: Endangered Whales

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PP1.James D. McLaren,² Holly F. Goyert, ³ and Peter W. C. Paton , Supportive wind conditions influence offshore movements of Atlantic Coast Piping Plovers during fall migration Pamela H. Loring, American Ornithology.org, [Supportive wind conditions influence offshore movements of Atlantic Coast Piping Plovers during fall migration | Ornithological Applications | Oxford Academic \(oup.com\)](#) Volume 122, 2020, pp. 1–16 DOI: 10.1093/condor/duaa028,

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J1.New Jersey Offshore Wind Strategic Plan, Board of Public Utilities, Appendices, Chapter 6. Supply Chain and Workforce Analysis, Section 6.12, Summary.
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References: Costs & Benefits

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