NYSERDA 2023 OFFSHORE WIND SOLICITATION ORECRFP23-1

Visibility Study

Public Version

Community Offshore Wind LLC

Lease OCS-A 0539

COMMUNITY offshore wind

nationalgrid | RWE

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8.5 Visibility study

NYSERDA 2023 Offshore Wind Solicitation ORECRFP23-1

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List of acronyms and abbreviations

Abbreviation	Explanation
BOEM	Bureau of Ocean Energy Management
FAA	Federal Aviation Administration
ADLS	Aircraft Detection Lighting System
USCG	United States Coast Guard
WTG	Wind Turbine Generator
KOP	Key Observation Point
WMA	Wildlife Management Area
VSA	Visual Study Area
NJDEP	New Jersey Department of Environmental Protection
HPO	Historic Preservation Office

NYSERDA solicitation requirements

Table 8.5-1 Solicitation requirements

Solicitation requirement	Section
The Visibility Study must present visual simulations of the proposed Offshore Wind Generation Facility.	Appendix 8.5-2
Visibility studies must include a map or maps that depict the nearest coastline, the boundary of the proposed site to be developed and any other reasonable reference points (e.g., coastal cities, historic sites, other wind energy areas).	Appendix 8.5-1
The Visibility Study must identify the distance in statute miles between the nearest shoreline point and the nearest Offshore Wind Generation Facility turbines. If the nearest shoreline point is not in New York State, the Proposal should also identify the nearest New York shoreline point and include the nearest New York shoreline point in the viewshed impacts discussion.	8.5.1
Visual simulations must represent, at a minimum, clear, partly cloudy, and overcast conditions during early morning, mid-afternoon, and late day, as well as one simulation at night with the turbines lit under clear conditions.	Appendix 8.5-2
Visual simulations must be provided from a minimum of two representative vantage points which represent the closest points to shore from any turbine within the Offshore Wind Generation Facility and, if applicable, any sensitive or historic viewpoints, consistent with the Visual Impact Assessment required through the COP.	Appendix 8.5-2
Proposals must address any mitigative viewshed impacts considered for the closest points to shore and if applicable any sensitive or historic viewpoints	8.5.1
The Visibility Study must also include analysis of the percentage of time during which different visibility conditions are expected to occur based on past meteorological data.	8.5.2.3
Provide supporting GIS shape files that depict the nearest coastline, the boundary of the proposed site to be developed and any other reasonable reference points (e.g., coastal cities, historic sites, other wind energy areas).	8.5.3.3

8.5.1 Summary

At Community Offshore Wind, we recognize that the visibility of offshore wind farms can have an economic, historical, and cultural impact on local communities. We are committed to developing our project in a manner that **minimizes visibility and incorporates stakeholder feedback to the extent practicable.** Our lease area OCS-A 0539 (the Lease Area) is located approximately 64 mi (104 km, 56 nm) offshore of Jones Beach, New York and a minimum of 37 miles (59 km, 32 nm) east of New Jersey. Both locations are more than 20 statute miles from the nearest shoreline point. Therefore, **project visibility will be largely avoided in New York and limited in New Jersey given the distance from shore, curvature of the Earth, and meteorological and atmospheric conditions.**

We minimize visibility through the following measures:

- The project will be located entirely within the Lease Area, which has been sited by the Bureau of Ocean Management (BOEM) a minimum of 37 miles from the closest point to shore.
- The layout will arrange wind turbine generator (WTG) structures in a near-uniform grid pattern and maintain consistency in dimensions, color, and design.
- The wind turbine generators will be a Federal Aviation Administration (FAA)-recommended paint color, which generally blends well with the sky at the horizon, for any wind turbine generator components visible from shore. The paint color will be determined in consultation with BOEM, FAA, and the United States Coast Guard (USCG).
- We will utilize FAA warning lights with the longest off-cycle permitted by the FAA and will incorporate radar-activated aviation obstruction lights (such as Aircraft Detection Lighting System [ADLS]) to minimize the amount of time the lights are on, if permitted by the overseeing agencies.
- We will utilize USCG warning lights with appropriate visible range for mariners (2 to 5 Nautical Miles) and locate USCG lighting on lower structures that will not likely be visible from coastal vantage points.

In support of this proposal, we commissioned a visibility study (Appendix 8.5-1) to assess the potential impacts to the local viewshed resulting from the construction and operations of our project. The visibility study also includes visual simulations (Appendix 8.5-2) which represent clear, partly cloudy, and overcast conditions during early morning, mid-afternoon, and late day, as well as one simulation at night with the turbines lit under clear conditions. A summary of the findings is included in this section.

The simulations are provided in a format **suitable to be printed or viewed electronically** by the public and the OREC scoring committee. However, **the simulations are designed to be printed on an 11x17 landscape layout viewed from 18 inches away** for the most realistic representation of scale and size. The complete study, along with visual simulations, is included within this proposal as Appendix 8.5-1 and 8.5-2.

8.5.2 Visibility assessment

Our visibility assessment includes an overview of the methodology used and an evaluation of the visibility impact from selected locations in New Jersey and New York. The assessment also summarizes the impact of varying meteorological and nighttime conditions.

8.5.2.1 Methodology

To address project visibility from visually sensitive resources, a visual study area (VSA) was established. [redacted] While offshore electrical converter platforms will be included as part of the project's energy delivery system, these structures are not anticipated to be visible from shore due to the proposed structure height, which will be significantly less than that of the WTGs and therefore have not been included in the simulations and will not be discussed further.

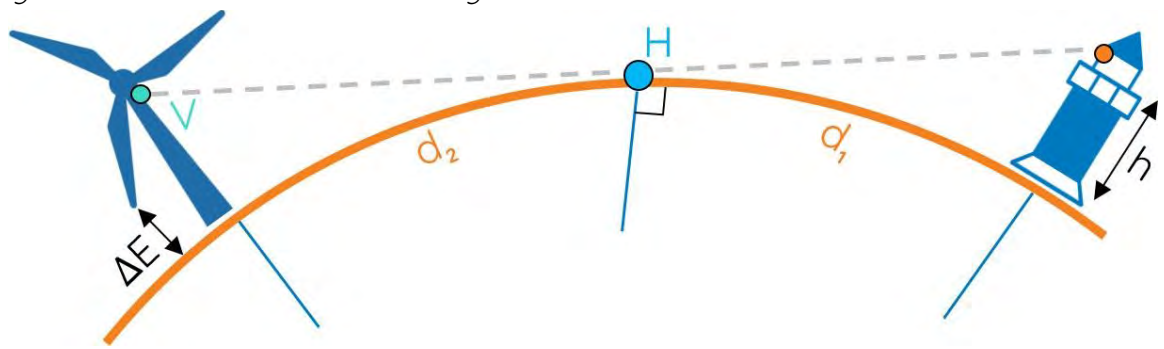
The viewshed analysis was then conducted over the entire VSA to refine the study area to include only those areas that would likely have visibility of the wind turbine generators and to provide a geographic extent of visibility. [redacted] the VSA is shoreward from the coastline, meaning potential turbine blade visibility from the coast or from points between the coast and the development is extremely limited.

It is important to note that **being within the project viewshed is not synonymous with project visibility**, as areas of actual visibility are anticipated to be more limited. This is due to the narrow profile of the individual wind turbine generators and screening from intervening vegetation and smaller structures not large enough to be accounted for in the viewshed analysis. **Actual visibility also depends on curvature of the earth and weather and lighting conditions,** all of which are particularly influential with respect to the visibility of seaward objects that are more than 16 kilometers (10 miles) from the viewer.

From an earth curvature standpoint, **the wind turbine generators will be largely obstructed by the horizon**. Figure 8.5-2 demonstrates this effect at an exaggerated scale. To determine how much of the turbines would be obstructed by the horizon (H on Figure 8.5-2), a numerical spherical model based on the Haversine formula was developed to establish the relationships between each observation point, the horizon, and each wind turbine generator. The inputs to this model include the geodesic distance between the viewer and the turbines (d1 + d2 on Figure 8.5-2), the elevation of the viewer (h on Figure 8.5-2), and various fixed inputs including the radius of Earth and the refraction index of the atmosphere. The output of this curvature model is a vertical distance value that equates to the lowest observable elevation at each WTG site (shown as ΔE in Figure 8.5-2). This is used in the visibility assessments and simulations to account for the earth curvature effect.

[redacted]

Figure 8.5-2 Earth curvature model diagram



8.5.2.2 Project Visibility

To further assess the potential impacts associated with the visibility of the project within the VSA, visual simulations were developed. The review of visual simulation images, along with photos of the existing view, allow for comparison of the aesthetic character of each view with and without the project. The two nearest points to shore from Lease OCS-A 0539 are located in New Jersey at the northern tip of Long Beach Island within the Barnegat Light Borough, followed by the southern tip of the Barnegat Peninsula, part of Island Beach State Park within Lacey Township. Based on the results of the viewshed analysis, the following locations were selected to develop simulations of the anticipated visibility of the project:

- **Barnegat Lighthouse State Park, Barnegat Light, New Jersey:** This location is the closest location to the Lease Area, located approximately 37.9 miles west of the nearest proposed wind turbine generator location. The photo location, approximately 250 feet east of the lighthouse,

provides a vantage point from which a viewer can observe the dunes, beach, jetties, and ocean beyond. The location is popular amongst tourists and recreationists, particularly for birdwatching, picnicking, trail walking, and fishing along the elevated walkway on the southern jetty.

- **Fifth Street Pavilion, Beach Haven, NJ:** Located at the Fifth Street beach entrance, this location is 40.4 miles west of the nearest WTG location and is typical of the other beach entrances with walkways leading over the dunes. This slightly elevated vantage point provides mostly unobstructed views of the ocean and horizon in the direction of the Project.

Our proposal does not include simulations from New York State as the two nearest points to shore fall in New Jersey. Due to the location of lease OCS-A 0539, the project is located 64.7 miles to the closest point in New York and will therefore **not visible from the New York coast** given the curvature of the earth and the meteorological and atmospheric conditions.

8.5.2.2.1 New Jersey

[redacted]

The proposed WTGs would be the tallest permanent visible elements on the horizon, although at a far distance. Passing ships closer to shore could appear taller than the WTGs against the horizon. From most foreground and mid-ground vantage points (from vessels on the ocean), the WTGs would be perceived as the main visual element. When viewed from far background vantage points on land, the WTGs' perceived scale and presence would be considerably reduced. [redacted]

The level of visibility also depends on the perceived contrast between the neutral white color of the turbine tower, nacelle, and blades and the background sky. When the wind turbine generators are backlit, the degree of visual contrast is heightened and thus somewhat more visible against the background sky than if viewed in a more illuminated front- or side-lit condition. Front- or side-lit conditions would cause the turbines to stand out more against a bluer sky, primarily occurring in clear conditions. For most viewpoints along the eastern shores of New Jersey, there is lower visibility in the mornings (i.e., backlit conditions), with slightly increased visibility in the evenings (i.e., front-lit conditions). The winter months have slightly increased visibility for viewers facing east (i.e., side-lit conditions) and reduced visibility for viewers facing north (i.e., backlit conditions).

Visibility anticipated from the locations depicted in the simulations in Appendix 8.5-2 is further detailed below:

Viewpoint BL1 – Barnegat Lighthouse State Park, Barnegat Light, NJ

Existing View

[redacted] The location is a popular tourist and recreationist destination, particularly for birdwatching, picnicking, trail walking, and fishing along the elevated walkway on the southern jetty. The main visual elements in the foreground are the dunes and beach vegetation; the midground consists of the riprap jetties, railed concrete walkway with benches, and inlet marker structures; and the only background elements are the ocean, horizon, and oceangoing vessels.

Proposed View

[redacted]

Compared to other vertical elements in this view (e.g., railings, jetty markers, people, vessels, wildlife), the apparent height of the visible WTG blades will be small. The motion and color of the WTG blades may draw an observer's attention, particularly in the late afternoon when the sky and ocean appear darker blue in color as compared to the white turbines. During morning and midday periods and during overcast or cloudy conditions when the sky appears lighter, the turbine blades will be much more difficult to observe. When backlit by the sun during early morning, it is unlikely that the WTG blades would obscure the sun's light enough to be visible to the naked eye.

Viewpoint FS1 – Fifth Street Pavilion, Beach Haven, NJ

Existing View

[redacted] This slightly elevated vantage point provides mostly unobstructed views of the ocean and horizon in the direction of the Project. Foreground elements include the pavilion, walkway, dunes and vegetation, and any visitors using the walkway. Midground consists of the beach and beachgoers of varying density depending on seasonality (including lifeguard stands, greatly increased density of chairs and umbrellas, and increased in-water activity during summer months). The background elements include the open ocean, horizon, sky, and occasional vessels.

Proposed View

[redacted] When observable under calm, clear conditions, the WTGs are unlikely to dominate views during periods of high beach activity given the amount and variety of foreground elements and constant change and motion of those elements. During periods of lower beach activity, the WTGs may draw a viewer's attention due to motion and contrast against the horizon.

8.5.2.3 Meteorological Conditions

Color contrast decreases as distance increases and would diminish or disappear completely during periods of haze, fog, or precipitation. The meteorological analysis shows that clear weather conditions occur for greater than 50% of daylight hours approximately 236 days per year. On an hourly basis, clear conditions occur an average of 62% of daylight hours over the course of the year. Table 8.5-2 below shows the prevalence of each weather condition in each season.

Table 8.5-2 Typical meteorological conditions

Distribution of Daylight Observations (hourly, 2012-2022)					
Condition	**Winter**	**Spring**	**Summer**	**Autumn**	**Annual**
Clear	56%	60%	70%	61%	62%
Foggy	<1%	<1%	<1%	<1%	<1%
Rainy/Snowy	18%	14%	10%	14%	14%
Hazy	<1%	<1%	<1%	<1%	<1%
Cloudy	25%	25%	19%	24%	23%
Days/Year with 50% or More Daylight Observations					
Condition	**Winter**	**Spring**	**Summer**	**Autumn**	**Annual**
Clear	57	58	69	52	236
Foggy	<1	<1	<1	1	3
Rainy/Snowy	17	17	12	20	66
Hazy	0	0	0	0	<1
Cloudy	16	17	10	16	59

8.5.2.4 Night-time Conditions

Nighttime conditions were considered to address the potential for nighttime impacts associated with the aviation safety lighting. Observations of existing offshore facilities suggest that night visibility of aviation hazard signals are visible at distances greater than 24 miles and onshore wind turbines aviation lighting seen at distances greater than 36 miles. However, due to the curvature of earth at the Key Observation Points (KOPs), all FAA lights would be entirely screened from view in nighttime simulations due to the lights' physical location on the nacelle, and therefore below the curvature of the

earth. LED L-864 and L-810 FAA beacons are not bright enough to create visible light above the horizon when the lights themselves are obstructed by earth curvature. The FAA lights would potentially be visible from elevated structures such as Barnegat Lighthouse observation deck, which is closed to the public at night.

8.5.3 Other Visibility Considerations

8.5.3.1 New York Visibility

The nearest point to the Project in New York State is at Short Beach in Jones Beach State Park, approximately 67.4 miles north of the nearest WTG location. At this distance, the WTGs proposed as part of the Project will not be visible. To view the nearest WTG from Jones Beach, an observer would need to be at an elevated viewpoint, approximately [redacted]; the closest elevated viewpoint, the Fire Island Lighthouse, is approximately 168 feet tall. In either case, the scale and atmospheric effects would likely make the WTGs imperceptible to viewers. As such, this Study considers visual impacts to New York State from structures in the Lease Area to be negligible and the visibility in New York State is not assessed further in this Study.

8.5.3.2 Offshore Viewpoints

Offshore viewers are likely to experience the greatest visual impacts due to the presence of the WTGs, as there are very limited visual elements competing for visual dominance. As proximity increases, the visual extent and scale of the WTGs increases notably, especially within 34 miles of the nearest WTG, at which point the nacelle and tower are visible in addition to the WTG blades. [redacted] These lanes are used most frequently by commercial shipping traffic. Recreational and commercial fishing vessels are more likely to operate closer to the WTGs, potentially including within the Lease Area.

8.5.3.3 Visually Sensitive Resources

An inventory of visually sensitive resources was conducted across the entire VSA to identify the potential for visibility of the Project and resulting effects on enjoyment or appreciation of these resources due to the presence of the Project.

These resources include cultural and historic heritage sites, state and national parks, recreational areas, scenic overlooks, and other protected or recognized significant landmarks, with a focus on those areas known to have visitors. KOPs were chosen from among the visually sensitive resources with a particular focus on those resources where sustained ocean views are important to the experience of visitors and other users.

8.5.3.3.1 Federally Protected Lands

The only federally protected or regulated areas located within the Project's VSA are associated with the Edwin B. Forsythe National Wildlife Refuge within Stafford Township, Ocean County, but none of these areas are located within the potential viewshed of the Project.

8.5.3.3.2 New Jersey State Lands

Thirteen different New Jersey State Parks and Wildlife Management Areas (WMAs) were identified within the VSA. two of these areas are within the potential viewshed of the Project, as listed in Table 8.5-3. These areas are generally accessible to the public and are popular destinations for tourism, hunting, fishing, and other recreational activities such as hiking, birdwatching, and boating.

Table 8.5-3 State-managed areas within the VSA

Name	Municipality	Managing Agency	Potential Project Visibility
Barnegat Lighthouse State Park	Barnegat Light	Division of Parks and Forestry	Yes
Clamming Creek Preserve	Berkeley	New Jersey Natural Lands Trust	No
Great Bay Boulevard Wildlife Management Area	Little Egg Harbor	Division of Fish and Wildlife	No
Island Beach State Park	Berkeley, Long Beach, Ocean	Division of Parks and Forestry	Yes
Manahawkin Wildlife Management Area	Stafford	Division of Fish and Wildlife	No
Sands Point Harbor Preserve	Ocean	New Jersey Natural Lands Trust	No
Sedge Island Wildlife Management Area	Ocean	Division of Fish and Wildlife	No
Upper Barnegat Bay Wildlife Management Area	Lacey, Ocean	Division of Fish and Wildlife	No

8.5.3.3.3 County and Municipal Public Areas

Of the many county- and municipality-owned public areas within the VSA, 22 unique municipality-owned public areas were identified within the potential viewshed of the Project, as listed in Table 8.5-4. These areas predominantly consist of public beaches and similar waterfront open spaces accessible to the public will carry a distance of no less than 37 miles from the closest WTG.

Table 8.5-4 Municipal public areas with potential visibility

Name	Municipality	Managing Agency
Atlantic Ocean Beachfront (2 areas)	Barnegat Light	Municipality
Beach Pavilion	Beach Haven	Municipality
Public Beach (51 areas)	Beach Haven	Municipality
White Sands Beach (6 areas)	Berkeley	Municipality
Municipal Beach (35 areas)	Harvey Cedars	Municipality
Laurel Harbor (2 areas)	Lacey	Ocean County
Oceanfront Beach	Lavallette	Municipality
Bayview Park	Long Beach	Municipality
Beach Haven Heights Park (3 areas)	Long Beach	Municipality

Name	Municipality	Managing Agency
Beach Haven Inlet (5 areas)	Long Beach	Municipality
Loveladies	Long Beach	Municipality
Municipal Beach (47 areas)	Long Beach	Municipality
Municipal Beach and Tennis Court (2 areas)	Long Beach	Municipality
Municipal Open Space (2 areas)	Long Beach	Municipality
Fishing Dock (3 areas)	Ocean	Municipality
Knots Landing	Ocean	Ocean County
Sands Point Harbor	Ocean	Ocean County
Casino Pier (2 areas)	Seaside Heights	Municipality
Municipal Open Space (2 areas)	Seaside Heights	Municipality
Seaside Park Beach and Boardwalk (18 areas)	Seaside Park	Municipality
Municipal Beach (16 areas)	Ship Bottom	Municipality
Municipal Open Space	Toms River	Municipality
Ortley Beach (19 areas)	Toms River	Municipality

8.5.3.3.4 New Jersey Historic Preservation Office (HPO) Districts and Properties

One historic district and 11 historic properties designated by New Jersey Department of Environmental Protection (NJDEP)'s HPO were identified within the potential viewshed of the Project within the VSA (Table 8.5-5).

Table 8.5-5 Historic districts and properties with potential visibility

Site Name	Municipality	Listing Status
Historic Districts		
Midway Camps Historic District	Berkeley	Eligible
Historic Properties		
207 E 28th Street	Long Beach	Identified
209 E 19th Street	Long Beach	Identified
209 E 20th Street	Long Beach	Identified
210 E 27th Street	Long Beach	Identified
7 East 5th Street	Barnegat Light	Identified
Governor's Mansion	Berkeley	Identified
Illions Carousel	Seaside Heights	Identified
Route 72 Bridge over East Thorofare	Ship Bottom, Stafford	Identified
Route 72 Bridge over Manahawkin Bay (Dorland J. Henderson Memorial Bridge)	Stafford	Identified
Route 72 Bridge over West Thorofare	Stafford	Identified
The Judge's Shack	Berkeley	Eligible (Individual)

8.5.3.4 Other Proposed Projects

The proposed construction and operations of other wind projects currently under development offshore New Jersey, due to their proximity to shore, would create much larger visual impacts within the southern portion of the VSA than would the construction of this Project. Furthermore, several projects proposed by other developers would lie between onshore viewers and the Community Offshore Wind Project and would obstruct views of the Project or attract more attention due to the increased proximity. The Community Offshore Wind WTGs are all greater than 37 miles offshore, [redacted]

8.5.4 Visibility Summary

Overall visual impact on scenic quality at selected New Jersey viewpoints is likely to be variable between sites but is generally expected to be low due to the low level of visual contrast and relatively small size of the WTGs in the context of the overall oceanfront landscape. As noted in Section 8.5.3.1, the Project will not be visible from any point in New York.

The simulations are conservative in that they include what may be visible on a clear day. Haze, rain, snow, fog, cloudy or overcast skies or sea spray that typically occurs in this location would decrease the overall visibility. The installation and decommissioning of the Project would cause additional temporary impacts to visually sensitive resources in the area, but the only visible elements during operation would be the WTGs. The dominant visual element remains the sky and ocean view.

Section 8.5 – Visibility Study Appendices

8.5-1 Visibility Study

8.5-2 Visual Simulations

Appendix 8.5-1 Visibility Study

This document contains confidential information and is therefore excluded from this public version.

Appendix 8.5-2 Visual Simulations

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/12/2022
Time	8:36 AM
Camera Latitude	39.764364°
Camera Longitude	-74.105390°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	57° F
Weather Conditions	Partly Cloudy
Humidity	87%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from E
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Morning View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/12/2022
Time	8:36 AM
Camera Latitude	39.764364°
Camera Longitude	-74.105390°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	57° F
Weather Conditions	Partly Cloudy
Humidity	87%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from E
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Morning View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/12/2022
Time	8:36 AM
Camera Latitude	39.764364°
Camera Longitude	-74.105390°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	57° F
Weather Conditions	Simulated Clear
Humidity	87%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from E
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Morning View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/12/2022
Time	8:36 AM
Camera Latitude	39.764364°
Camera Longitude	-74.105390°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	57° F
Weather Conditions	Simulated Overcast
Humidity	87%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from E
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Morning View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/12/2022
Time	12:54 PM
Camera Latitude	39.764364°
Camera Longitude	-74.10539°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50 mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Simulated Partly Cloudy
Humidity	82%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from S
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Mid-Day View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/12/2022
Time	12:54 PM
Camera Latitude	39.764364°
Camera Longitude	-74.10539°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50 mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Clear
Humidity	82%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from S
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Mid-Day View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

COMMUNITY offshore wind

TRC

[redacted]

Key Observation Point (KOP)
WTG (Blade Visible Only)
OSS Visible
Not Visible
WTG Extents
Community Offshore Wind Lease Area
Other Lease Areas

KOP & Project Data	
Date	10/12/2022
Time	12:54 PM
Camera Latitude	39.764364°
Camera Longitude	-74.10539°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50 mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Simulated Overcast
Humidity	82%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from S
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Mid-Day View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/12/2022
Time	4:26 PM
Camera Latitude	39.764364°
Camera Longitude	-74.105390°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Partly Cloudy
Humidity	81%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from SW
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Late Afternoon View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

COMMUNITY offshore wind

TRC

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/12/2022
Time	4:26 PM
Camera Latitude	39.764364°
Camera Longitude	-74.105390°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Simulated Clear
Humidity	81%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from SW
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Late Afternoon View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/12/2022
Time	4:26 PM
Camera Latitude	39.764364°
Camera Longitude	-74.105390°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Simulated Overcast
Humidity	81%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from SW
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Late Afternoon View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/12/2022
Time (Simulated)	Night
Camera Latitude	39.764364°
Camera Longitude	-74.105390°
Height to Lens	1.55 m
Ground Elevation	2.19 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	51° F
Weather Conditions	Clear
Humidity	82%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Night
[redacted]	
Direction of View	ESE (110°)

Key Observation Point: Barnegat Lighthouse State Park

Barnegat Light Borough, New Jersey

Proposed Nighttime View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Simulated nighttime conditions shown. Required FAA and USCG lighting are not visible above horizon.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/11/2022
Time	8:14 AM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	54° F
Weather Conditions	Simulated Partly Cloudy
Humidity	73%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from E
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Morning View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/11/2022
Time	8:14 AM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	54° F
Weather Conditions	Clear
Humidity	73%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from E
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Morning View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/11/2022
Time	8:14 AM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	54° F
Weather Conditions	Simulated Overcast
Humidity	73%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from E
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Morning View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/11/2022
Time	1:15 PM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50 mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Simulated Partly Cloudy
Humidity	66%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from S
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Mid-Day View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/11/2022
Time	1:15 PM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50 mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Clear
Humidity	66%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from S
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Mid-Day View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/11/2022
Time	1:15 PM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50 mm
Camera Field of View (FOV)	40° x 26°
Temperature	64° F
Weather Conditions	Simulated Overcast
Humidity	66%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from S
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Mid-Day View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/11/2022
Time	5:36 PM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	65° F
Weather Conditions	Simulated Partly Cloudy
Humidity	71%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from SW
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Late Afternoon View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/11/2022
Time	5:36 PM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	65° F
Weather Conditions	Simulated Clear
Humidity	71%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from SW
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Late Afternoon View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Weather conditions simulated to demonstrate effect of varying amounts of cloud cover.

COMMUNITY offshore wind

TRC

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data

Date	10/11/2022
Time	5:36 PM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	65° F
Weather Conditions	Overcast
Humidity	71%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from SW
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Late Afternoon View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

COMMUNITY offshore wind

TRC

[redacted]

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/11/2022
Time	5:36 PM
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	65° F
Weather Conditions	Overcast
Humidity	71%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Lit from SW
[redacted]	
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Late Afternoon View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

COMMUNITY offshore wind

TRC

- Key Observation Point (KOP)
- WTG (Blade Visible Only)
- OSS Visible
- Not Visible
- WTG Extents
- Community Offshore Wind Lease Area
- Other Lease Areas

KOP & Project Data	
Date	10/11/2022
Time (Simulated)	Night
Camera Latitude	39.564702°
Camera Longitude	-74.233652°
Height to Lens	1.55 m
Ground Elevation	6.68 m
Camera Make	Nikon
Camera Model	D850
Lens Focal Length	50mm
Camera Field of View (FOV)	40° x 26°
Temperature	51° F
Weather Conditions	Clear
Humidity	72%
Visibility	10+ mi
Wave Height	0-1 ft
Lighting Conditions	Night
Direction of View	E (80°)

Key Observation Point: Fifth Street Beach Pavilion

Beach Haven Borough, New Jersey

Proposed Nighttime View with Shore-Facing Wind Turbine Generators

This simulation represents the field of view taken by a single-exposure camera using a 50 mm lens. It does not represent the full human field of view at this KOP. It is designed to be printed and viewed as an 11" x 17" landscape layout from 18 inches away for the most realistic representation of scale and size.

Atmospheric conditions based on the National Centers for Environmental Information (NCEI) hourly summaries. NCEI records visibility to a maximum of 10 miles, actual visibility may be further. WTG color is determined in consultation with BOEM, the FAA, and USCG; simulations conservatively use RAL 9010 "Pure White".

Simulated nighttime conditions shown. Required FAA and USCG lighting are not visible above horizon.

COMMUNITY offshore wind

TRC