

# SCENARIO 3 INTERVISIBILITY ASSESSMENT FROM KEY OBSERVATION POINT

Development	Minimum Distance from KOP to Turbines (mi)	Maximum Blade Height of Nearest Turbine (Feet)	Visibility Status This Scenario	
Maryland Offshore Wind Project, OCS-A 0490	18.6	938	Visible	
Skipjack, OCS-A 0519	15.9	853	Visible	
Garden State Offshore Wind, OCS-A 0482	13	853	Visible	
Ocean Wind 2, OCS-A 0532	38	906	Visible	
Ocean Wind 1, OCS-A 0498	48.4	906	Developed But Beyond Visible Distance	
Atlantic Shores South, OCS- A 0499	60.6	1049	Developed But Beyond Visible Distance	
Atlantic Shores North, OCS- A 0549	72	1049	Developed But Beyond Visible Distance	
Coastal Virginia Offshore Wind (C-Lease), OCS-A 0483	115.5	869	Developed But Beyond Visible Distance	
Coastal Virginia Offshore Wind (Research Lease), OCS-A 0497	124.1	607	Developed But Beyond Visible Distance	
Atlantic Shores Offshore Wind Bight (NY Bight), OCS-A 0541	85.2	853	Developed But Beyond Visible Distance	
Invenergy Wind Offshore (NY Bight), OCS-A 0542	86.2	853	Developed But Beyond Visible Distance	

Information on the neighboring offshore development projects is based on the most current information available.



<sup>1</sup> "The Best Paper Format and Viewing Distance to Represent the Scope and Scale of Visual Impacts", Journal of Landscape Architecture, 4-2019, pp. 142-151, J. Palmer

The Maryland Offshore Wind Project will either use two large OSSs only at interior locations within the array or four small OSSs throughout the array. For the purpose of the simulations, the largest OSS that may be used at a particular location has been simulated.

#### SITE INFORMATION

Site Name: Delaware Seashore State Park

Location: Rehoboth Beach, DE

Date: 3/23/2023

Time: 1:30 PM (\*4:20 PM)

Coordinates (Lat/Lon WGS84): 38.664, -75.067
Landscape Zone: Barren Land (Rock/Sand/Clay) - Beach

#### **CUMULATIVE VISUAL EFFECTS SCENARIOS (CURRENT IS BOLD)**

Scenario 1, Pre-Buildout of Maryland Offshore Wind Project

Scenario 2, Maryland Offshore Wind Project and Projects Already or Considered Constructed

#### Scenario 3, Project Construction by 2030

Scenario 4, Project Construction by 2030 Without Maryland Offshore Wind Project

Scenario 5, Maryland Wind Without Other Foreseeable Future Changes

#### SCENARIO DESCRIPTION AND ASSUMPTIONS

In addition to the project conditions from Scenarios 1 and 2 for Coastal Virginia Offshore Wind (Research Lease) OCS-A 0497, Coastal Virginia Offshore Wind (C-Lease) OCS-A 0483, Ocean Wind 1 OCS-A 0498, Atlantic Shores South OCS-A 0499, and Maryland Offshore Wind Project OCS-A 0490, Scenario 3 depicts all projects scheduled for construction after the Maryland Offshore Wind Project through 2030 with the addition of Atlantic Shores North OCS-A 0549, Ocean Wind 2 OCS-A 0532, Garden State Offshore Wind OCS-A 0482, Skipjack OCS-A 0519, Atlantic Shores Offshore Wind Bight (NY Bight) OCS-A 0541, and Invenergy Wind Offshore (NY Bight) OCS-A 0542. The simulations produced for Scenario 3 visualize all such projects that are determined by the intervisibility assessment to be visible from KOP 21, Delaware Seashore State Park.

All simulated WTGs use monopile foundation structures, and all are oriented in the same direction with the centermost WTG facing directly towards the camera. The simulated WTGs use RAL 9010 Pure White paint color and the same lighting scheme that was outlined in US Wind's Visual Impact Assessment. As a point of reference, a 1049' tall structure drops completely below the horizon at a distance of 48.0 statute miles from a 5.1' tall viewer at this KOP.

### SHEET INDEX AND VIEWING INSTRUCTIONS

Sheet 1 – Simulation Context And Intervisibility Assessment

Sheet 2 – Project Development and Visibility Summary

Sheet 3 – Existing Conditions Panorama View (124°)

Sheet 4 – Panorama View (124°) with Simulations without Project Extents

Sheet 5 – Panorama View (124°) with Simulations and Project Extents

Sheet 6 – Single Frame (50-mm Lens) Simulation Left View, and Project Extents

Sheet 7 – Single Frame (50-mm Lens) Simulation Center View, and Project Extents

Sheet 8 – Single Frame (50-mm Lens) Simulation Right View, and Project Extents

Sheet 9 – Supplemental High Contrast Single Frame (40°) View (4:20 PM)\*

To approximate the field of view represented by a 16.5" panorama it should be printed on an 11" x 17" sheet of paper and viewed from 8 inches away¹. For the most realistic experience when viewing in a digital format, position your computer screen 20" away and adjust the PDF viewing software's zoom so that the calibration bar matches what's instructed on the simulation sheet.

In all cases care must be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of view is assumed to be 124-degrees horizontal and 55-degrees vertical.

## **KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE**

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 3, Project Construction by 2030

SHEET 1 - SIMULATION CONTEXT AND INTERVISIBILITY ASSESSMENT



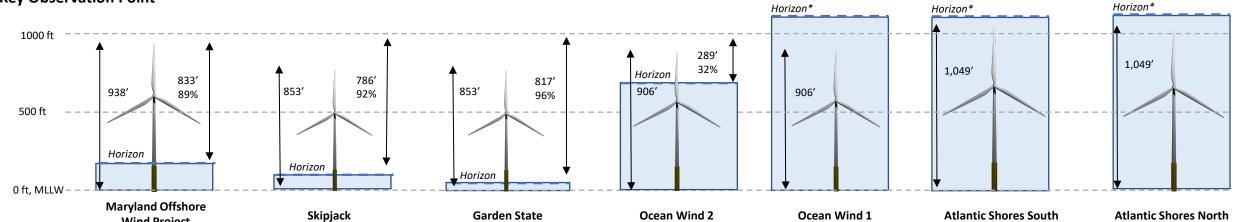
<sup>&</sup>lt;sup>2</sup> Sheppard, S. 1989. Visual Simulation: A User's Guide for Architects, Engineers, and Planners. New York: Van Nostrand Rheinhold.

Closer to Maryland Offshore Wind Project

## Scenario 3 Visibility of Nearest Turbine to Key Observation Point

Based on findings from the Intervisibility Assessment the following developments are excluded from this visibility matrix due to their distance from the key observation point:

- Coastal Virginia Offshore Wind (C-Lease) OCS-A 0483
- Coastal Virginia Offshore Wind (Research Lease) OCS-A 0497
- Atlantic Shores Offshore Wind Bight (NY Bight) OCS-A 0541
- Invenergy Wind Offshore (NY Bight) OCS-A 0542



	Visible	Visible	Visible	Visible	Developed But Beyond Visible Distance	Developed But Beyond Visible Distance	Developed But Beyond Visible Distance
# Turbines	121	33	80	111	108	201	147
# Turbines Visible	121	33	80	63	0	0	0
# Nacelle FAA Lights Visible	111	33	80	0	0	0	0
# Mid-Tower FAA Lights Visible	44	30	80	0	0	0	0
# Substations**	4	0	0	0	3	4	0
# Substations Visible	0	0	0	0	0	0	0
Minimum Distance from KOP to Turbines (mi)	18.6	15.9	13.0	38.0	48.4	60.6	72.0
Maximum Distance from KOP to Turbines (mi)	37.9	26.4	25.2	59.0	61.1	75.4	92.2
Nearest Turbine – Vertical Extent of Turbine Visible (ft)	833	786	817	289	N/A	N/A	N/A
Farthest Turbine – Vertical Extent of Turbine Visible (ft)	323	594	623	17	N/A	N/A	N/A
Nearest Turbine – Vertical Extent of Turbine Visible (%)	89%	92%	96%	32%	N/A	N/A	N/A
Farthest Turbine – Vertical Extent of Turbine Visible (%)	34%	70%	73%	2%	N/A	N/A	N/A
Mid-Tower FAA Light Height (ft)	271	253	253	263	263	304	304
Hub Height (ft)	528	492	492	512	512	590	590
Nacelle Top FAA Light Height (ft)	542	506	506	525	525	608	608
Blade Tip Height (ft)	938	853	853	906	906	1049	1049
Rotor Diameter (ft)	820	722	722	788	788	918.6	918.6

<sup>\*</sup>All turbines for this development are below the horizon.

Wind Project

Information on the neighboring offshore development projects is based on the most current information available.

## **KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE**

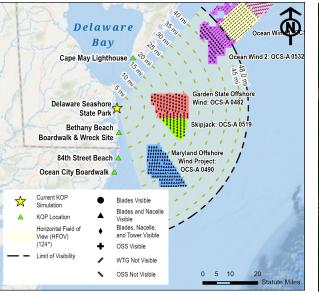
Farther from Maryland Offshore Wind Project

**Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations** Scenario 3, Project Construction by 2030



<sup>\*\*</sup>The Maryland Offshore Wind Project will either use two large OSSs only at interior locations within the array or four small OSSs throughout the array. For the purpose of the simulations, the largest OSS that may be used at a particular location has been simulated.







### **ENVIRONMENT**

Weather Conditions: Mostly cloudy 62° F Temperature: 82% Humidity: Overcast 10 Miles

**Lighting Conditions:** Visibility: **VIEW AND CAMERA DETAILS** Ground Elevation (ft msl): 12.3 17.3 Camera/Viewing Elevation (ft msl): Camera Used for Simulation Photography: Nikon D850 Camera Lens Brand, Type, Focal Length: Nikon Fixed 50 mm Photo Resolution: 1200 DPI 124° Horizontal Field of View (Panoramas): Horizontal Field of View (Single Frame 50 mm 39.6° Atmospheric Refraction Coefficient (k): 0.143

VIEWING INSTRUCTIONS: To approximate the field of view represented by a 16.5" panorama simulation, it should be printed on an 11" x 17" sheet of paper and viewed from 8 inches away<sup>1</sup>. For the most realistic experience when viewing in a digital format, position your computer screen 20" away and adjust the PDF viewing software's zoom so that the calibration bar is 1 inch long:

1" Measured On Screen – View from 20" Away

In all cases care must be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of view is assumed to be 124-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

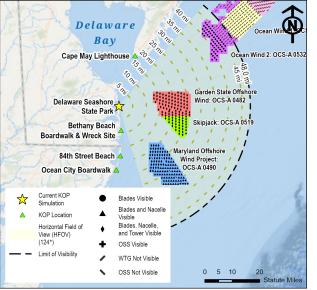
## **KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE**

**Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations** Scenario 3, Project Construction by 2030

SHEET 3 - EXISTING CONDITIONS PANORAMA VIEW (124°)









### **ENVIRONMENT**

Weather Conditions: Mostly cloudy 62° F Temperature: 82% Humidity: **Lighting Conditions:** Overcast 10 Miles

Visibility: **VIEW AND CAMERA DETAILS** Ground Elevation (ft msl): 12.3 17.3 Camera/Viewing Elevation (ft msl): Camera Used for Simulation Photography: Nikon D850 Camera Lens Brand, Type, Focal Length: Nikon Fixed 50 mm 1200 DPI Photo Resolution: 124° Horizontal Field of View (Panoramas): Horizontal Field of View (Single Frame 50 mm 39.6°

0.143

VIEWING INSTRUCTIONS: To approximate the field of view represented by a 16.5" panorama simulation, it should be printed on an 11" x 17" sheet of paper and viewed from 8 inches away1. For the most realistic experience when viewing in a digital format, position your computer screen 20" away and adjust the PDF viewing software's zoom so that the calibration bar is 1 inch long:

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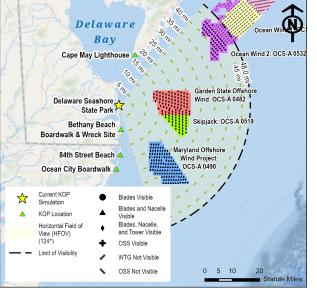
## **KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE**

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 3, Project Construction by 2030

SHEET 4 - PANORAMA VIEW (124°) WITH SIMULATIONS WITHOUT **PROJECT EXTENTS** 









### **ENVIRONMENT**

Weather Conditions:

62° F Temperature: 82% Humidity: **Lighting Conditions:** Overcast Visibility: 10 Miles **VIEW AND CAMERA DETAILS** Ground Elevation (ft msl): 12.3 17.3 Camera/Viewing Elevation (ft msl): Camera Used for Simulation Photography: Nikon D850 Camera Lens Brand, Type, Focal Length: Nikon Fixed 50 mm Photo Resolution: 1200 DPI 124° Horizontal Field of View (Panoramas):

Horizontal Field of View (Single Frame 50 mm

Atmospheric Refraction Coefficient (k):

Mostly cloudy

39.6°

0.143

VIEWING INSTRUCTIONS: To approximate the field of view represented by a 16.5" panorama simulation, it should be printed on an 11" x 17" sheet of paper and viewed from 8 inches away<sup>1</sup>. For the most realistic experience when viewing in a digital format, position your computer screen 20" away and adjust the PDF viewing software's zoom so that the calibration bar is 1 inch long:

1" Measured On Screen – View from 20" Away

In all cases care must be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of view is assumed to be 124-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

## **KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE**

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations
Scenario 3, Project Construction by 2030

SHEET 5 - PANORAMA VIEW (124°) WITH SIMULATIONS AND PROJECT EXTENTS



Garden State Offshore Wind Graphic shows which specific portion of the human field of view (124°) is VIEWING INSTRUCTIONS: To approximate the field of view represented by a 15.7" single frame simulation captured KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE with a 50-mm lens it should be printed on an 11" x 17" sheet of paper and viewed from 22 inches away1. For the most Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 3, Project Construction by 2030 realistic experience when viewing in a digital format, position your computer screen 20" away and adjust the PDF viewing software's zoom so that the calibration bar is 1 inch long: 1" Measured On Screen – View from 20" Away SHEET 6 - SINGLE FRAME (50-mm LENS) SIMULATION, LEFT VIEW AND PROJECT EXTENTS In all cases care must be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of view is assumed to be 124-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

Garden State Offshore Wind Skipjack Graphic shows which specific portion of the human field of view (124°) is VIEWING INSTRUCTIONS: To approximate the field of view represented by a 15.7" single frame simulation captured KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE with a 50-mm lens it should be printed on an 11" x 17" sheet of paper and viewed from 22 inches away<sup>1</sup>. For the most Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations realistic experience when viewing in a digital format, position your computer screen 20" away and adjust the PDF Scenario 3, Project Construction by 2030 viewing software's zoom so that the calibration bar is 1 inch long: 1" Measured On Screen – View from 20" Away SHEET 7 - SINGLE FRAME (50-mm LENS) SIMULATION, CENTER VIEW AND PROJECT EXTENTS In all cases care must be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of view is assumed to be 124-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

Maryland Offshore Wind Project



Graphic shows which specific portion of the human field of view (124°) is visible in this single frame  $(40^\circ)$  photo.

VIEWING INSTRUCTIONS: To approximate the field of view represented by a 15.7" single frame simulation captured with a 50-mm lens it should be printed on an 11" x 17" sheet of paper and viewed from 22 inches away<sup>1</sup>. For the most realistic experience when viewing in a digital format, position your computer screen 20" away and adjust the PDF viewing software's zoom so that the calibration bar is 1 inch long:

1" Measured On Screen – View from 20" Away

In all cases care must be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of view is assumed to be 124-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

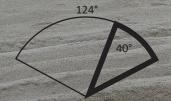
## KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 3, Project Construction by 2030

SHEET 8 - SINGLE FRAME (50-mm LENS) SIMULATION, RIGHT VIEW AND PROJECT EXTENTS



Maryland Offshore Wind Project



Graphic shows which specific portion of the human field of view (124°) is visible in this single frame (40°) photo.

VIEWING INSTRUCTIONS: To approximate the field of view represented by a 15.7" single frame simulation captured with a 50-mm lens it should be printed on an 11" x 17" sheet of paper and viewed from 22 inches away<sup>1</sup>. For the most realistic experience when viewing in a digital format, position your computer screen 20" away and adjust the PDF viewing software's zoom so that the calibration bar is 1 inch long:

1" Measured On Screen – View from 20" Away

In all cases care must be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of view is assumed to be 124-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

KOP 21 DELAWARE SEASHORE STATE PARK, DELAWARE

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 3, Project Construction by 2030

SHEET 9 - SUPPLEMENTAL HIGH CONTRAST SINGLE FRAME (40°) VIEW (4:20 PM)

