

SCENARIO 4 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	12.4	938	N/A
Skipjack, OCS-A 0519	16.1	853	Visible
Garden State Offshore Wind, OCS-A 0482	15.7	853	Visible
Ocean Wind 2, OCS-A 0532	42.1	906	Visible
Ocean Wind 1, OCS-A 0498	53.5	906	Developed But Beyond Visible Distance
Atlantic Shores South, OCS-A 0499	65.9	1049	Developed But Beyond Visible Distance
Atlantic Shores North, OCS-A 0549	77.8	1049	Developed But Beyond Visible Distance
Coastal Virginia Offshore Wind (C-Lease), OCS-A 0483	106.8	869	Developed But Beyond Visible Distance
Coastal Virginia Offshore Wind (Research Lease), OCS-A 0497	115.6	607	Developed But Beyond Visible Distance
Atlantic Shores Offshore Wind Bight (NY Bight), OCS-A 0541	88.8	853	Developed But Beyond Visible Distance
Invenergy Wind Offshore (NY Bight), OCS-A 0542	89.8	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

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

SITE INFORMATION

Site Name:

Bethany Beach Boardwalk & Wreck Site

Location:

Bethany Beach, DE

Date:

3/23/2023

Time:

9:30 AM

Coordinates (Lat/Lon WGS84):

38.536, -75.053

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

Scenario 4 is similar to Scenario 3 in that it depicts all projects scheduled for construction through 2030, which includes 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, 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, but with the exception of the Maryland Offshore Wind Project OCS-A 0490 which is excluded. Based on the intervisibility assessment, the simulations produced for this scenario show all projects, except for the Maryland Offshore Wind Project, that are visible from KOP 16, Bethany Beach Boardwalk and Wreck Site.

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 47.8 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

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 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 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 16 BETHANY BEACH, DELAWARE

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations

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





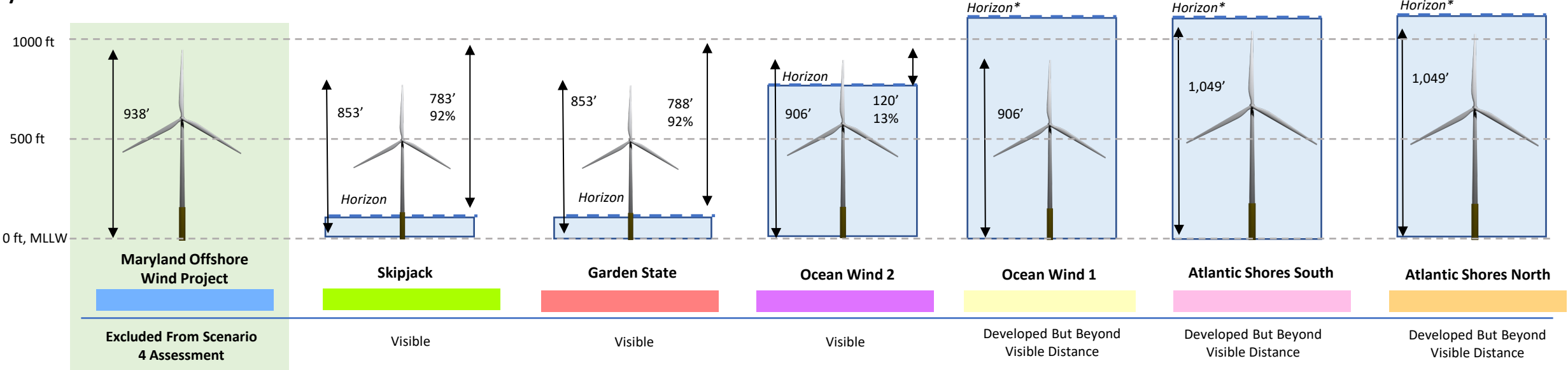
Project Extents Visible from this KOP in the Current Scenario

Scenario 4 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



	Excluded From Scenario 4 Assessment	Visible	Visible	Visible	Developed But Beyond Visible Distance	Developed But Beyond Visible Distance	Developed But Beyond Visible Distance
# Turbines	N/A	33	80	111	108	201	147
# Turbines Visible	N/A	33	80	9	0	0	0
# Nacelle FAA Lights Visible	N/A	33	80	0	0	0	0
# Mid-Tower FAA Lights Visible	N/A	33	76	0	0	0	0
# Substations	N/A	0	0	0	3	4	0
# Substations Visible	N/A	0	0	0	0	0	0
Minimum Distance from KOP to Turbines (mi)	N/A	16.1	15.7	42.1	53.5	65.9	77.8
Maximum Distance from KOP to Turbines (mi)	N/A	25.8	27.3	65.1	65.8	80.4	98.6
Nearest Turbine – Vertical Extent of Turbine Visible (ft)	N/A	783	788	120	N/A	N/A	N/A
Farthest Turbine – Vertical Extent of Turbine Visible (ft)	N/A	605	568	19	N/A	N/A	N/A
Nearest Turbine – Vertical Extent of Turbine Visible (%)	N/A	92%	92%	13%	N/A	N/A	N/A
Farthest Turbine – Vertical Extent of Turbine Visible (%)	N/A	71%	67%	2%	N/A	N/A	N/A
Mid-Tower FAA Light Height (ft)	N/A	253	253	263	263	304	304
Hub Height (ft)	N/A	492	492	512	512	590	590
Nacelle Top FAA Light Height (ft)	N/A	506	506	525	525	608	608
Blade Tip Height (ft)	N/A	853	853	906	906	1049	1049
Rotor Diameter (ft)	N/A	722	722	788	788	918.6	918.6

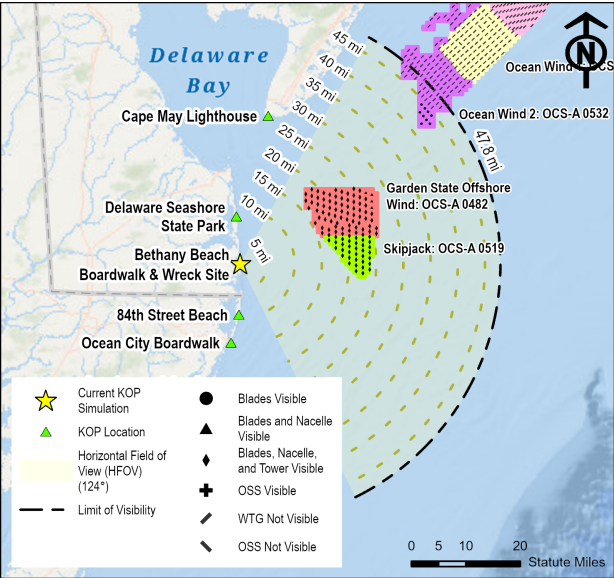
\*All turbines for this development are below the horizon.

Information on the neighboring offshore development projects is based on the most current information available.  
Shaded green defines projects excluded from current scenario.

KOP 16 BETHANY BEACH, DELAWARE  
Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations  
Scenario 4, Project Construction by 2030 Without Maryland Offshore Wind Project







ENVIRONMENT	
Weather Conditions:	Partly Sunny
Temperature:	54° F
Humidity:	79%
Lighting Conditions:	Sunny/Clear
Visibility:	10 Miles
VIEW AND CAMERA DETAILS	
Ground Elevation (ft msl):	11.5
Camera/Viewing Elevation (ft msl):	16.5
Camera Used for Simulation Photography:	Nikon D850
Camera Lens Brand, Type, Focal Length:	Nikon Fixed 50 mm
Photo Resolution:	1200 DPI
Horizontal Field of View (Panoramas):	124°
Horizontal Field of View (Single Frame 50 mm Lens):	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

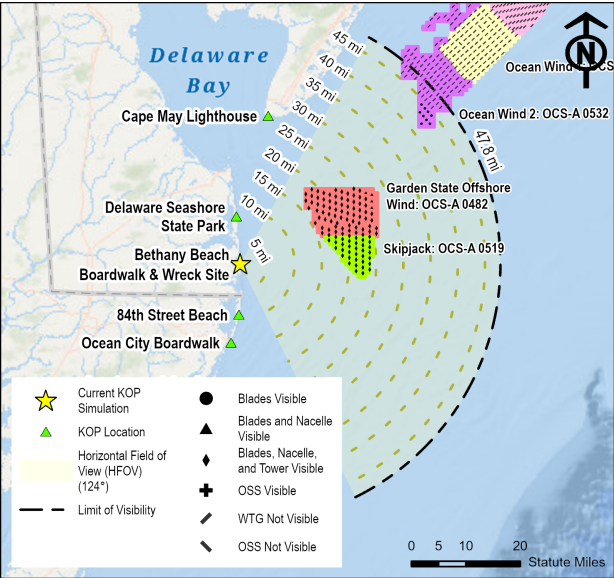
In all cases care must be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of view is assumed to be 124-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

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**Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations**  
**Scenario 4, Project Construction by 2030 Without Maryland Offshore Wind Project**

**SHEET 3 - EXISTING CONDITIONS PANORAMA VIEW (124°)**








ENVIRONMENT	
Weather Conditions:	Partly Sunny
Temperature:	54° F
Humidity:	79%
Lighting Conditions:	Sunny/Clear
Visibility:	10 Miles
VIEW AND CAMERA DETAILS	
Ground Elevation (ft msl):	11.5
Camera/Viewing Elevation (ft msl):	16.5
Camera Used for Simulation Photography:	Nikon D850
Camera Lens Brand, Type, Focal Length:	Nikon Fixed 50 mm
Photo Resolution:	1200 DPI
Horizontal Field of View (Panoramas):	124°
Horizontal Field of View (Single Frame 50 mm Lens):	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:

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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.

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Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations

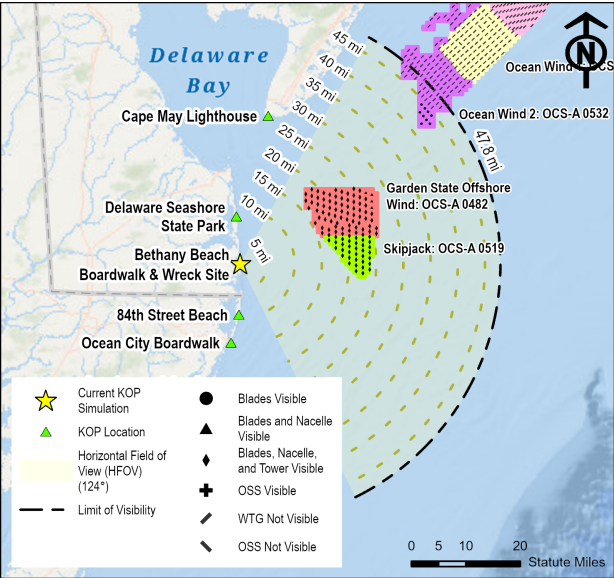
Scenario 4, Project Construction by 2030 Without Maryland Offshore Wind Project

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

PROJECT EXTENTS








ENVIRONMENT	
Weather Conditions:	Partly Sunny
Temperature:	54° F
Humidity:	79%
Lighting Conditions:	Sunny/Clear
Visibility:	10 Miles
VIEW AND CAMERA DETAILS	
Ground Elevation (ft msl):	11.5
Camera/Viewing Elevation (ft msl):	16.5
Camera Used for Simulation Photography:	Nikon D850
Camera Lens Brand, Type, Focal Length:	Nikon Fixed 50 mm
Photo Resolution:	1200 DPI
Horizontal Field of View (Panoramas):	124°
Horizontal Field of View (Single Frame 50 mm Lens):	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

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

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

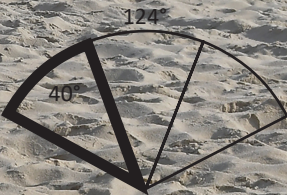






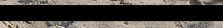
Ocean Wind 2

Garden State Offshore Wind



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.

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

**SHEET 6 - SINGLE FRAME (50-mm LENS) SIMULATION, LEFT VIEW AND PROJECT EXTENTS**





Garden State Offshore Wind

Skipjack



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.

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**SHEET 7 - SINGLE FRAME (50-mm LENS) SIMULATION, RIGHT VIEW AND PROJECT EXTENTS**

