

SCENARIO 5 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	33.6	938	Visible
Skipjack, OCS-A 0519	23.1	853	N/A
Garden State Offshore Wind, OCS-A 0482	15.9	853	N/A
Ocean Wind 2, OCS-A 0532	25.9	906	N/A
Ocean Wind 1, OCS-A 0498	33.8	906	N/A
Atlantic Shores South, OCS-A 0499	45	1049	N/A
Atlantic Shores North, OCS-A 0549	55.7	1049	N/A
Coastal Virginia Offshore Wind (C-Lease), OCS-A 0483	134.6	869	N/A
Coastal Virginia Offshore Wind (Research Lease), OCS-A 0497	143.4	607	Developed But Beyond Visible Distance
Atlantic Shores Offshore Wind Bight (NY Bight), OCS-A 0541	73.2	853	N/A
Invenergy Wind Offshore (NY Bight), OCS-A 0542	74.3	853	N/A

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 Rheinhold.

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 Name: cation: ate: me: ndscape Zone:

#### UMULATIVE VISUAL EFFECTS SCENARIOS (CURRENT IS BOLD)

enario 1, Pre-Buildout of Maryland Offshore Wind Project enario 2, Maryland Offshore Wind Project and Projects Already or Considered onstructed enario 3, Project Construction by 2030 enario 4, Project Construction by 2030 Without Maryland Offshore Wind Project enario 5, Maryland Wind Without Other Foreseeable Future Changes

#### **CENARIO DESCRIPTION AND ASSUMPTIONS**

enario 5 depicts conditions that are anticipated for the Maryland Offshore Wind oject OCS-A 0490 once completed, including preexisting project construction for pastal Virginia Offshore Wind (Research Lease) OCS-A 0497, but with no further anges or construction beyond that. The simulations produced for Scenario 5 visualize such projects that are determined by the intervisibility assessment to be visible from OP 24, Cape May Lighthouse.

I simulated WTGs use monopile foundation structures, and all are oriented in the me direction with the centermost WTG facing directly towards the mera. The simulated WTGs use RAL 9010 Pure White paint color and the same phting scheme that was outlined in US Wind's Visual Impact Assessment. As a point of ference, a 1049' tall structure drops completely below the horizon at a distance of 3.0 statute miles from a camera height above ground with an elevation of 153.8' at is KOP.

eet 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

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 55degrees vertical.

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 5, Maryland Wind Without Other Foreseeable Future Changes

OCS-A 0483, OCS-A 0497, OCS-A 0541, and OCS-A 0542 are located beyond the extent of this map. These lease areas are determined by the Intervisibility Assessment to be beyond visible distance from the KOP. See the Intervisibility Assessment table on this sheet for more details.

	05	10 20 Statute Mile
A CANT BUT HAR	<ul> <li>✓ Current KOP Simulation</li> <li>▲ KOP Location</li> <li>Horizontal Field of View (HFOV) (124°)</li> <li>→ Limit of Visibility</li> </ul>	<ul> <li>Blades Visible</li> <li>Blades and Nacelle Visible</li> <li>Blades, Nacelle, and Tower Visible</li> <li>OSS Visible</li> <li>WTG Not Visible</li> <li>OSS Not Visible</li> </ul>
89	The Alter Alter	

#### SITE INFORMATION

Cape May Lighthouse Cape May Point, NJ 3/25/2023 12:20 PM oordinates (Lat/Lon WGS84): 38.931, -74.958 Barren Land (Rock/Sand/Clay) - Beach

#### SHEET INDEX AND VIEWING INSTRUCTIONS

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

#### **KOP 24 CAPE MAY LIGHTHOUSE, NEW JERSEY**

## SHEET 1 - SIMULATION CONTEXT AND INTERVISIBILITY ASSESSMENT

Scenario 5 Visibility of Nearest Turbine to Key Observation Point

1000 ft

the second second

Closer to I	Maryland Offshore Wind Project	

VisibleExcluded From Scenario 5 AssessmentExcluded From Scenario 5 Assessment <t< th=""><th><ul> <li>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:</li> <li>Coastal Virginia Offshore Wind (C- Lease) OCS-A 0483</li> <li>Coastal Virginia Offshore Wind (Research Lease) OCS-A 0497</li> <li>Atlantic Shores Offshore Wind Bight (NY Bight) OCS-A 0541</li> <li>Invenergy Wind Offshore (NY Bight) OCS-A 0542</li> </ul></th><th>500 ft 0 ft, MLLW</th><th>Horizon Maryland Offshore Wind Project</th><th>853' Skipjack</th><th>B53' Garden State</th><th>906' Ocean Wind 2</th><th>906' 906' Ocean Wind 1</th></t<>	<ul> <li>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:</li> <li>Coastal Virginia Offshore Wind (C- Lease) OCS-A 0483</li> <li>Coastal Virginia Offshore Wind (Research Lease) OCS-A 0497</li> <li>Atlantic Shores Offshore Wind Bight (NY Bight) OCS-A 0541</li> <li>Invenergy Wind Offshore (NY Bight) OCS-A 0542</li> </ul>	500 ft 0 ft, MLLW	Horizon Maryland Offshore Wind Project	853' Skipjack	B53' Garden State	906' Ocean Wind 2	906' 906' Ocean Wind 1
# Turbines Visible121N/AN/AN/A# Nacelle FAA Lights Visible90N/AN/AN/A# Mid-Tower FAA Lights Visible17N/AN/AN/A# Substations*4N/AN/AN/AN/A# Substations Visible0N/AN/AN/AN/AMinimum Distance from KOP to Turbines (mi)33.6N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)745N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)745N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)79%N/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (ft)23%N/AN/AN/AN/AMid-Tower FAA Light Height (ft)528N/AN/AN/AN/AMacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A			Visible				
# Nacelle FAA Lights Visible90N/AN/AN/A# Mid-Tower FAA Lights Visible17N/AN/AN/A# Substations*4N/AN/AN/AN/A# Substations Visible0N/AN/AN/AN/AMinimum Distance from KOP to Turbines (mi)33.6N/AN/AN/AN/AMaximum Distance from KOP to Turbines (mi)50.8N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)745N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)212N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)23%N/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (ft)23%N/AN/AN/AN/ANid-Tower FAA Light Height (ft)528N/AN/AN/AN/AMacelle Top FAA Light Height (ft)528N/AN/AN/AN/ABiade Tip Height (ft)538N/AN/AN/AN/A	# Turbines		121	N/A	N/A	N/A	N/A
# Mid-Tower FAA Lights Visible17N/AN/AN/A# Substations*4N/AN/AN/AN/A# Substations*0N/AN/AN/AN/AMinimum Distance from KOP to Turbines (mi)33.6N/AN/AN/AN/AMaximum Distance from KOP to Turbines (mi)50.8N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)745N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)212N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)23%N/AN/AN/AN/ANid-Tower FAA Light Height (ft)21N/AN/AN/AN/AMid-Tower FAA Light Height (ft)21%N/AN/AN/AN/AMid-Tower FAA Light Height (ft)528N/AN/AN/AN/AMacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A	# Turbines Visible		121	N/A	N/A	N/A	N/A
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# Substations Visible0N/AN/AN/AMinimum Distance from KOP to Turbines (mi)33.6N/AN/AN/AN/AMaximum Distance from KOP to Turbines (mi)50.8N/AN/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)745N/AN/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (ft)212N/AN/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (%)79%N/AN/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (%)23%N/AN/AN/AN/AN/AMid-Tower FAA Light Height (ft)528N/AN/AN/AN/AN/AMacelle Top FAA Light Height (ft)542N/AN/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/AN/A	# Mid-Tower FAA Lights Visible		17	N/A	N/A	N/A	N/A
Minimum Distance from KOP to Turbines (mi)33.6N/AN/AN/AMaximum Distance from KOP to Turbines (mi)50.8N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)745N/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (ft)212N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)212N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)79%N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)23%N/AN/AN/AN/AMid-Tower FAA Light Height (ft)271N/AN/AN/AN/AMub Height (ft)528N/AN/AN/AN/ANacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A	# Substations*		4	N/A	N/A	N/A	N/A
Maximum Distance from KOP to Turbines (mi)50.8N/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)745N/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (ft)212N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (ft)79%N/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (%)79%N/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (%)23%N/AN/AN/AN/AMid-Tower FAA Light Height (ft)271N/AN/AN/AN/AMub Height (ft)528N/AN/AN/AN/ANacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A	# Substations Visible		0	N/A	N/A	N/A	N/A
Nearest Turbine - Vertical Extent of Turbine Visible (ft)745N/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (ft)212N/AN/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (%)79%N/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (%)23%N/AN/AN/AN/AMid-Tower FAA Light Height (ft)211N/AN/AN/AN/AHub Height (ft)528N/AN/AN/AN/ANacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A	Minimum Distance from KOP to Turbines	(mi)	33.6	N/A	N/A	N/A	N/A
Farthest Turbine - Vertical Extent of Turbine Visible (%)212N/AN/AN/ANearest Turbine - Vertical Extent of Turbine Visible (%)79%N/AN/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (%)23%N/AN/AN/AN/AMid-Tower FAA Light Height (ft)271N/AN/AN/AN/AHub Height (ft)528N/AN/AN/AN/ANacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A	Maximum Distance from KOP to Turbines	(mi)	50.8	N/A	N/A	N/A	N/A
Nearest Turbine - Vertical Extent of Turbine Visible (%)79%N/AN/AN/AFarthest Turbine - Vertical Extent of Turbine Visible (%)23%N/AN/AN/AN/AMid-Tower FAA Light Height (ft)271N/AN/AN/AN/AHub Height (ft)528N/AN/AN/AN/ANacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A	Nearest Turbine – Vertical Extent of Turbine V	isible (ft)	745	N/A	N/A	N/A	N/A
Farthest Turbine – Vertical Extent of Turbine Visible (%)23%N/AN/AN/AMid-Tower FAA Light Height (ft)271N/AN/AN/AN/AHub Height (ft)528N/AN/AN/AN/ANacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A	Farthest Turbine – Vertical Extent of Turbine V	'isible (ft)	212	N/A	N/A	N/A	N/A
Mid-Tower FAA Light Height (ft)271N/AN/AN/AHub Height (ft)528N/AN/AN/AN/ANacelle Top FAA Light Height (ft)542N/AN/AN/AN/ABlade Tip Height (ft)938N/AN/AN/AN/A	Nearest Turbine – Vertical Extent of Turbine Vi	isible (%)	79%	N/A	N/A	N/A	N/A
Hub Height (ft)528N/AN/AN/ANacelle Top FAA Light Height (ft)542N/AN/AN/ABlade Tip Height (ft)938N/AN/AN/A	Farthest Turbine – Vertical Extent of Turbine V	isible (%)	23%	N/A	N/A	N/A	N/A
Nacelle Top FAA Light Height (ft)542N/AN/AN/ABlade Tip Height (ft)938N/AN/AN/A	Mid-Tower FAA Light Height (ft)		271	N/A	N/A	N/A	N/A
Blade Tip Height (ft)     938     N/A     N/A     N/A	Hub Height (ft)		528	N/A	N/A	N/A	N/A
	Nacelle Top FAA Light Height (ft)		542	N/A	N/A	N/A	N/A
Rotor Diameter (ft)820N/AN/AN/A	Blade Tip Height (ft)		938	N/A	N/A	N/A	N/A
	Rotor Diameter (ft)		820	N/A	N/A	N/A	N/A

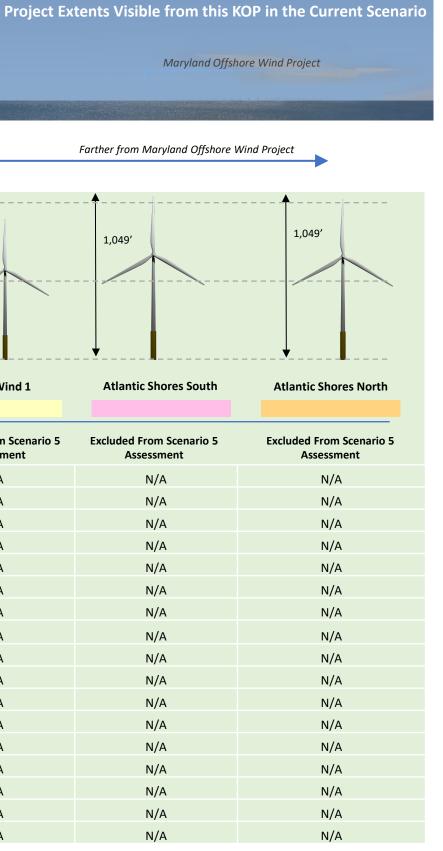
\*The Maryland Offshore Wind Project will either use two large OSSs only at interior locations within the array or four small OSSs throughout the array. For the purpose of the simulations, the largest OSS that may be used at a particular location has been simulated.

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

Shaded green defines projects excluded from current scenario.

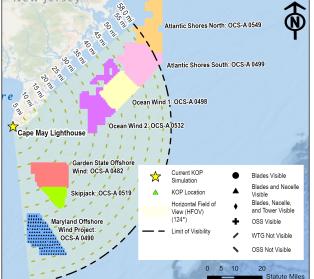
Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 5, Maryland Wind Without Other Foreseeable Future Changes

SHEET 2 - PROJECT DEVELOPMENT AND VISIBILITY SUMMARY TRC



**KOP 24 CAPE MAY LIGHTHOUSE, NEW JERSEY** 







ENVIRONMENT	VIEWING INSTRUCTIONS:	
Weather Conditions:	Clear/Calm	printed on an 11" x 17" sh viewing in a digital format
Temperature:	54° F	that the calibration bar is
Humidity:	49%	
Lighting Conditions:	Clear/Sunny	
Visibility:	10 Miles	In all cases care must be t
VIEW AND CAMERA DETAILS		view is assumed to be 124
Ground Elevation (ft msl):	148.3	
Camera/Viewing Elevation (ft msl):	153.3	
Camera Used for Simulation Photogr	aphy: Nikon D850	
Camera Lens Brand, Type, Focal Leng	gth: Nikon Fixed 50 mm	
Photo Resolution:	1200 DPI	I
Horizontal Field of View (Panoramas)	): 124°	
Horizontal Field of View (Single Fram	ie 50	
mm Lens):	39.6°	SHEET
Atmospheric Refraction Coefficient (	k): 0.143	•••==•

S: To approximate the field of view represented by a 16.5" panorama simulation, it should be sheet of paper and viewed from 8 inches away<sup>1</sup>. For the most realistic experience when at, position your computer screen 20" away and adjust the PDF viewing software's zoom so is 1 inch long:

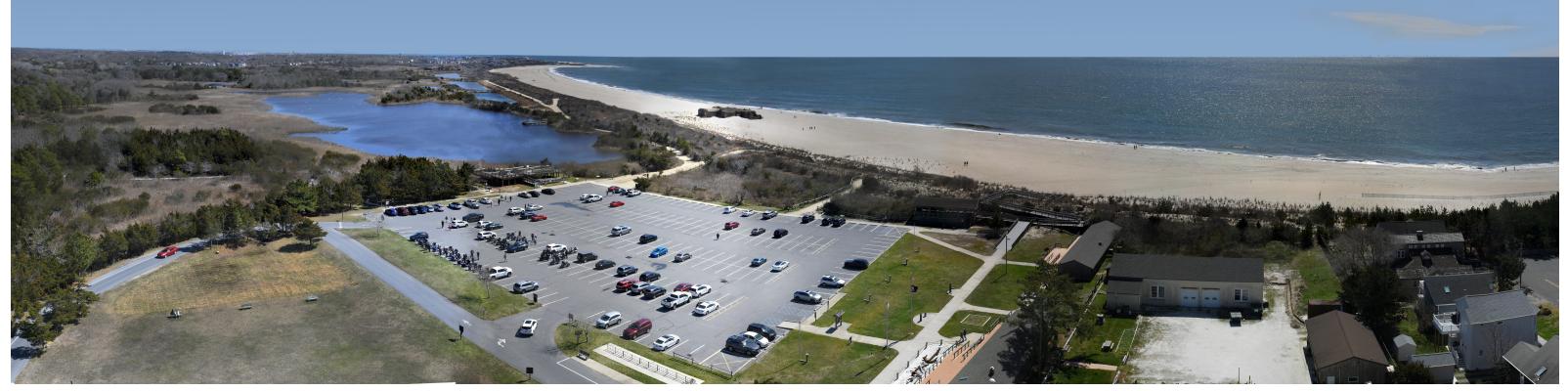
taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of 24-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

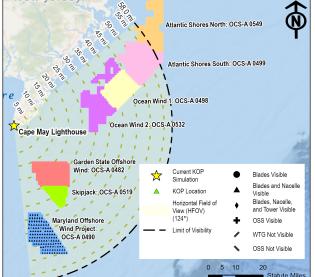
1" Measured On Screen – View from 20" Away

#### KOP 24 CAPE MAY LIGHTHOUSE, NEW JERSEY

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 5, Maryland Wind Without Other Foreseeable Future Changes

# TRC







ENVIRONMENT		VIEWING INSTRUCTION
Weather Conditions:	Clear/Calm	printed on an 11" x 1 viewing in a digital fo
Temperature:	54° F	that the calibration b
Humidity:	49%	
Lighting Conditions:	Clear/Sunny	
Visibility:	10 Miles	In all cases care must
VIEW AND CAMERA DETAILS		view is assumed to b
Ground Elevation (ft msl):	148.3	
Camera/Viewing Elevation (ft msl):	153.3	
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°	SHEET 4 - PA
Horizontal Field of View (Single Frame 50		JILLI 4 - PA
mm Lens):	39.6°	
Atmospheric Refraction Coefficient (k):	0.143	

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

# PANORAMA VIEW (124°) WITH SIMULATIONS WITHOUT PROJECT EXTENTS

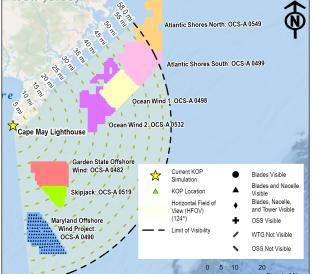
1" Measured On Screen – View from 20" Away

ust be taken to not over or underrepresent the visual contrasts<sup>2</sup>. Typical binocular human field of be 124-degrees horizontal and 55-degrees vertical. See Sheet 1 for citations.

#### **KOP 24 CAPE MAY LIGHTHOUSE, NEW JERSEY** Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations

Scenario 5, Maryland Wind Without Other Foreseeable Future Changes







ENVIRONMENT		VIEWING INSTRUCTION
Weather Conditions:	Clear/Calm	printed on an 11" x 17" viewing in a digital form
Temperature:	54° F	that the calibration bar
Humidity:	49%	
Lighting Conditions:	Clear/Sunny	
Visibility:	10 Miles	In all cases care must be
VIEW AND CAMERA DETAILS		view is assumed to be 1
Ground Elevation (ft msl):	148.3	
Camera/Viewing Elevation (ft msl):	153.3	
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°	SHEET 5
Horizontal Field of View (Single Frame 50		JILLIJ
mm Lens):	39.6°	
Atmospheric Refraction Coefficient (k):	0.143	

NS: To approximate the field of view represented by a 16.5" panorama simulation, it should be " sheet of paper and viewed from 8 inches away<sup>1</sup>. For the most realistic experience when mat, position your computer screen 20" away and adjust the PDF viewing software's zoom so r is 1 inch long:

Maryland Offshore Wind Project

1" Measured On Screen – View from 20" Away

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

## **KOP 24 CAPE MAY LIGHTHOUSE, NEW JERSEY**

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 5, Maryland Wind Without Other Foreseeable Future Changes

### 5 – PANORAMA VIEW (124°) WITH SIMULATIONS AND **PROJECT EXTENTS**



124°

view is assumed to be 124-d

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

d of view represented by a 15.7" single frame simulation captured d from 22 inches away<sup>1</sup>. For the most

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

#### Maryland Offshore Wind Project

KOP 24 CAPE MAY LIGHTHOUSE, NEW JERSEY

1

Maryland Offshore Wind Project Cumulative Visual Effects Assessment Simulations Scenario 5, Maryland Wind Without Other Foreseeable Future Changes