BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Environmental Data

Date Taken: 03/02/2022
Time: 7:35 AM
Temperature: 37°F
Humidity: 82%
Visibility*: 10+ miles
Wind Direction: Northwest
Wind Speed: 3 mph
Conditions Observed: Fair

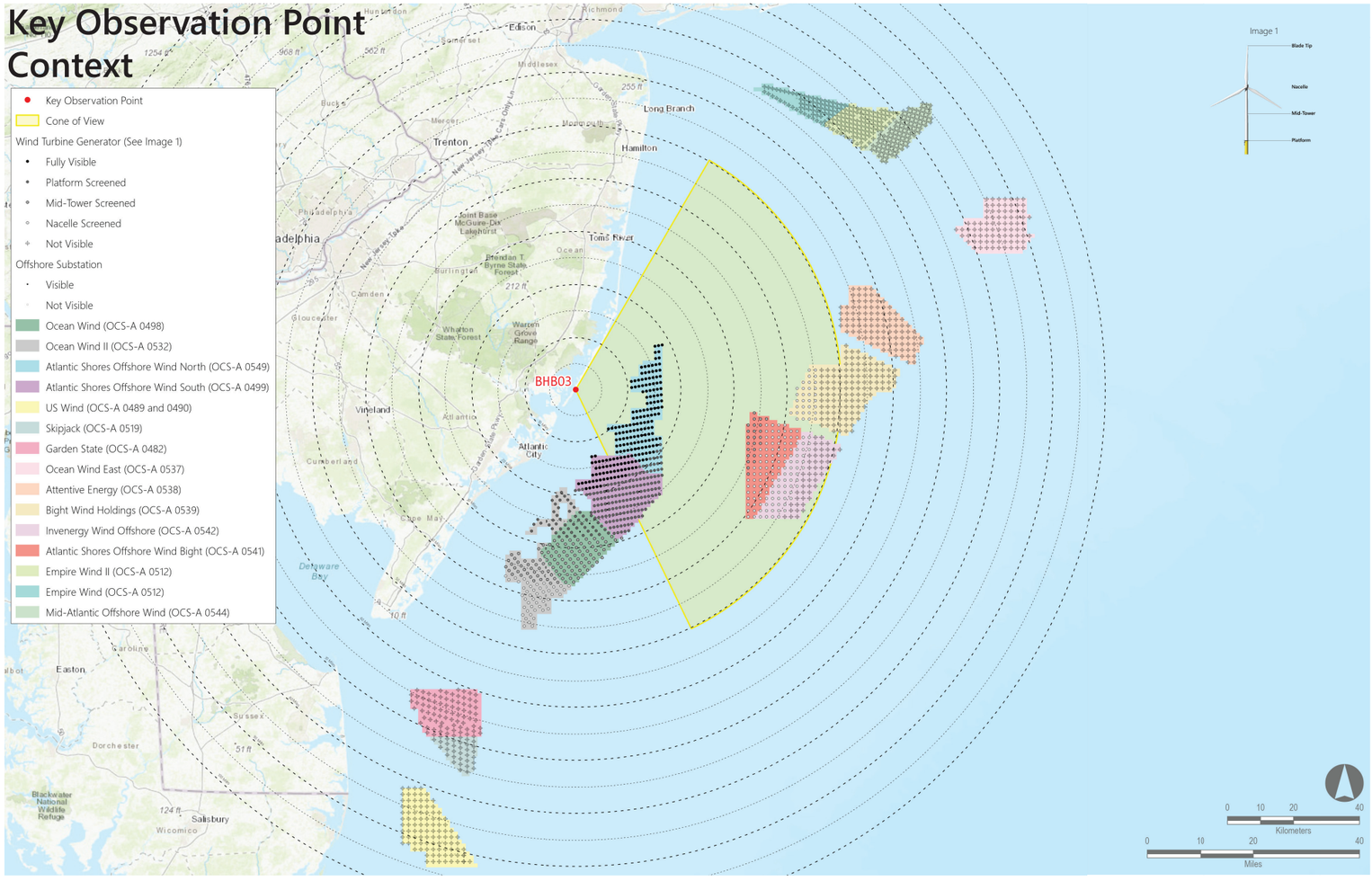
Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 26.85 feet AMSL

Key Observation Point Information

County: Ocean
Town: Beach Haven Borough
State: New Jersey
Location: Holyoke Avenue, Beach Haven
Latitude, Longitude: 39.55262°N, 74.24422°W
Direction of View (Center): East (92.7°)
Field of View: 124° x 55°

Visual Resources
Character Area: Oceanfront Residential, Seascape (SCA)
User Group: Residents/Tourists
Visually Sensitive Resource: Beach Haven Borough Public Beach

Key Observation Point Context



Reasonably Foreseeable Projects Represented in Photosimulation

		Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP**	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Scenario 5	Scenario 2	Atlantic Shores Offshore Wind South (OCS-A 0499)	2025-2027	1,047	205	205	13.0	29.3
	Scenario 1	Ocean Wind (OCS-A 0498)	2023-2025	906	111	111	23.1	36.3
		Empire Wind (OCS-A 0512)	2024-2025	951	0	72	Not Visible	Not Visible
		Empire Wind II (OCS-A 0512)	2023-2027	951	0	104	Not Visible	Not Visible
Scenario 4	Scenario 3	Skipjack (OCS-A 0519)	2024-2030	853	0	33	Not Visible	Not Visible
		Garden State (OCS-A 0482)	2023-2030	853	0	80	Not Visible	Not Visible
		US Wind (OCS-A 0489 and 0490)	2024	938	0	101	Not Visible	Not Visible
		Atlantic Shores Offshore Wind North (OCS-A 0549)	2025-2030	1,047	164	164	9.6	22.1
		Ocean Wind II (OCS-A 0532)	2026-2030	906	111	111	19.5	45.6
		Mid-Atlantic Offshore Wind (OCS-A 0544)	by 2030	853	0	104	Not Visible	Not Visible
		Ocean Wind East (OCS-A 0537)	by 2030	853	0	82	Not Visible	Not Visible
		Attentive Energy (OCS-A 0538)	by 2030	853	0	101	Not Visible	Not Visible
		Bight Wind Holdings (OCS-A 0539)	by 2030	853	32	148	40.8	45.5
		Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	95	95	33.2	42.6
		Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	51	99	41.3	45.5

Notes:

- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- *Historical meteorological data predicts visibility within a limit of 10 statute miles. However, visibility may extend beyond this distance. The photosimulations assume visibility extends to the limit of physical visibility (including a standard refraction index).
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- **The number of WTGs visible from the KOP was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

ATLANTIC SHORES offshore wind

MATCH LINE BHB03 PANO #2



MATCH LINE BHB03 PANO #2

ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Existing Conditions (Panorama 1)

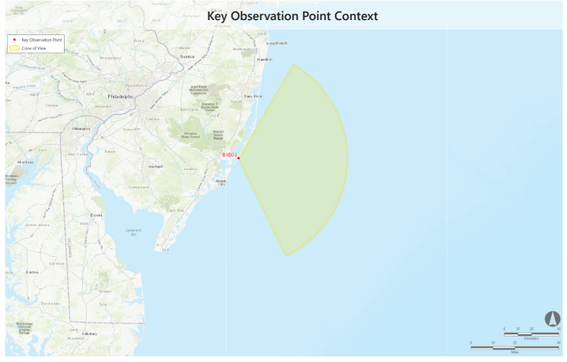
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should be exactly 7" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.

Key Observation Point Context



Key Observation Point Location





ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 1): Scenario 1: 2023-2025 Project Construction (Ocean Wind, Empire Wind, Empire Wind II)

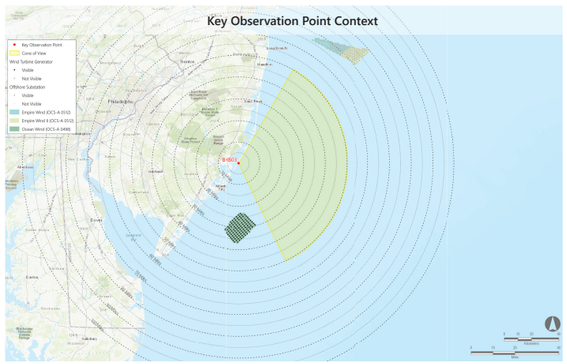
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should measure 7" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Ocean Wind (OCS-A 0498)	2024-2025	906	111	111	23.1	36.3
Empire Wind (OCS-A 0512)	2023-2027	951	0	72	Not Visible	Not Visible
Empire Wind II (OCS-A 0512)	2025-2027	951	0	104	Not Visible	Not Visible





MATCH LINE BHB03 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 1): Scenario 2: Atlantic Shores Construction (2025-2027) added to Scenario 1 (Ocean Wind, Empire Wind, Empire Wind II, Atlantic Shores South)

Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

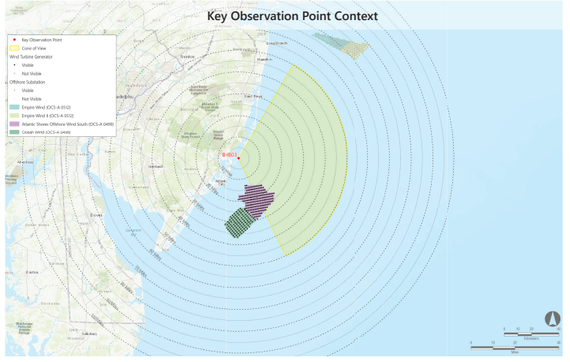
The box should measure 1" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP* was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Atlantic Shores Offshore Wind South (OCS-A 0499)	2023-2025	1,047	205	205	13.0	29.3
Ocean Wind (OCS-A 0498)	2024-2025	906	111	111	23.1	36.3
Empire Wind (OCS-A 0512)	2023-2027	951	0	72	Not Visible	Not Visible
Empire Wind II (OCS-A 0512)	2025-2027	951	0	104	Not Visible	Not Visible

Key Observation Point Context



Key Observation Point Location



MATCH LINE BHB03 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 1): Scenario 3: 2024-2030 Project construction added after the construction of Atlantic Shores South (Full Lease Build-out Including Atlantic Shores South)

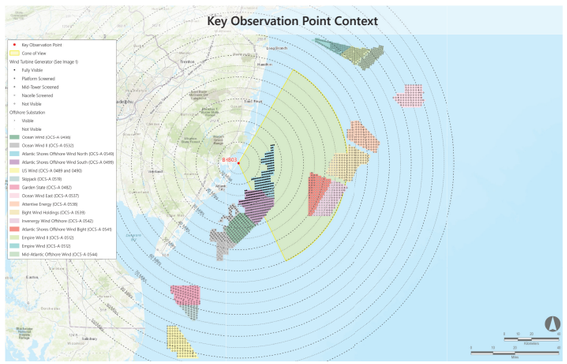
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should measure 7" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- "The number of WTGs visible from the KOP" was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Atlantic Shores Offshore Wind South (OCS-A 0499)	2023-2025	1,047	205	205	13.0	29.3
Ocean Wind (OCS-A 0498)	2024-2025	906	111	111	23.1	36.3
Empire Wind (OCS-A 0512)	2023-2027	951	0	72	Not Visible	Not Visible
Empire Wind II (OCS-A 0512)	2025-2027	951	0	104	Not Visible	Not Visible
Skipjack (OCS-A 0519)	2024-2030	853	0	33	Not Visible	Not Visible
Garden State (OCS-A 0482)	2023-2030	853	0	80	Not Visible	Not Visible
US Wind (OCS-A 0489 and 0490)	2024	938	0	101	Not Visible	Not Visible
Atlantic Shores Offshore Wind North (OCS-A 0549)	2025-2030	1,047	164	164	9.6	22.1
Ocean Wind II (OCS-A 0532)	2026-2030	906	111	111	19.5	45.6
Mid-Atlantic Offshore Wind (OCS-A 0544)	by 2030	853	0	104	Not Visible	Not Visible
Ocean Wind East (OCS-A 0527)	by 2030	853	0	82	Not Visible	Not Visible
Attentive Energy (OCS-A 0538)	by 2030	853	0	101	Not Visible	Not Visible
Bight Wind Holdings (OCS-A 0539)	by 2030	853	32	148	40.8	45.5
Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	95	95	33.2	42.6
Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	51	99	41.3	45.5





MATCH LINE BHB03 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 1): Scenario 4: Full buildout of all lease areas without Atlantic Shores South

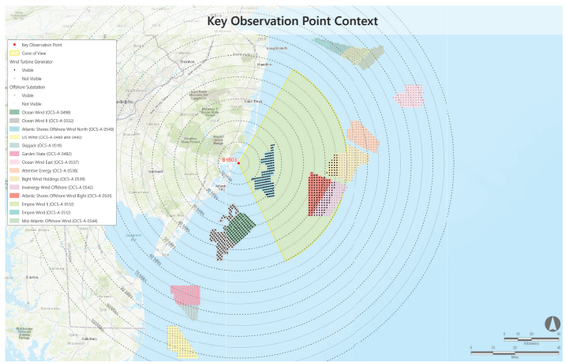
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

The box should measure 7" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP* was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Ocean Wind (OCS-A 0498)	2024-2025	906	111	111	23.1	36.3
Empire Wind (OCS-A 0512)	2023-2027	951	0	72	Not Visible	Not Visible
Empire Wind II (OCS-A 0512)	2025-2027	951	0	104	Not Visible	Not Visible
Skipjack (OCS-A 0519)	2024-2030	853	0	33	Not Visible	Not Visible
Garden State (OCS-A 0482)	2023-2030	853	0	80	Not Visible	Not Visible
US Wind (OCS-A 0489 and 0490)	2024	938	0	101	Not Visible	Not Visible
Atlantic Shores Offshore Wind North (OCS-A 0549)	2025-2030	1,047	164	164	9.6	22.1
Ocean Wind II (OCS-A 0532)	2026-2030	906	111	111	19.5	45.6
Mid-Atlantic Offshore Wind (OCS-A 0544)	by 2030	853	0	104	Not Visible	Not Visible
Ocean Wind East (OCS-A 0537)	by 2030	853	0	82	Not Visible	Not Visible
Attentive Energy (OCS-A 0538)	by 2030	853	0	101	Not Visible	Not Visible
Bight Wind Holdings (OCS-A 0539)	by 2030	853	32	148	40.8	45.5
Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	95	95	33.2	42.6
Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	51	99	41.3	45.5





MATCH LINE BHB03 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 1): Scenario 5: Atlantic Shores South without the construction of other foreseeable planned activities

Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

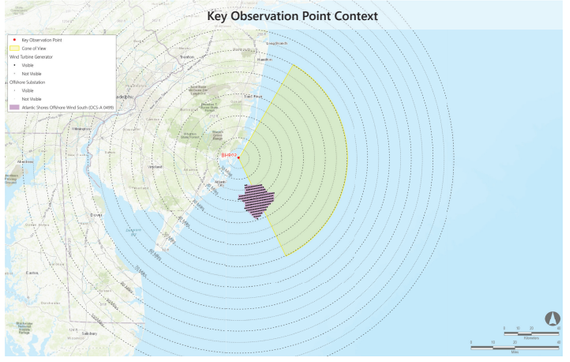
The box should measure 7" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP* was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Atlantic Shores Offshore Wind South (OCS-A 0499)	2023-2025	1,047	205	205	13.0	29.3

Key Observation Point Context



Key Observation Point Location



BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Environmental Data

Date Taken: 03/02/2022
Time: 7:35 AM
Temperature: 37°F
Humidity: 82%
Visibility*: 10+ miles
Wind Direction: Northwest
Wind Speed: 3 mph
Conditions Observed: Fair

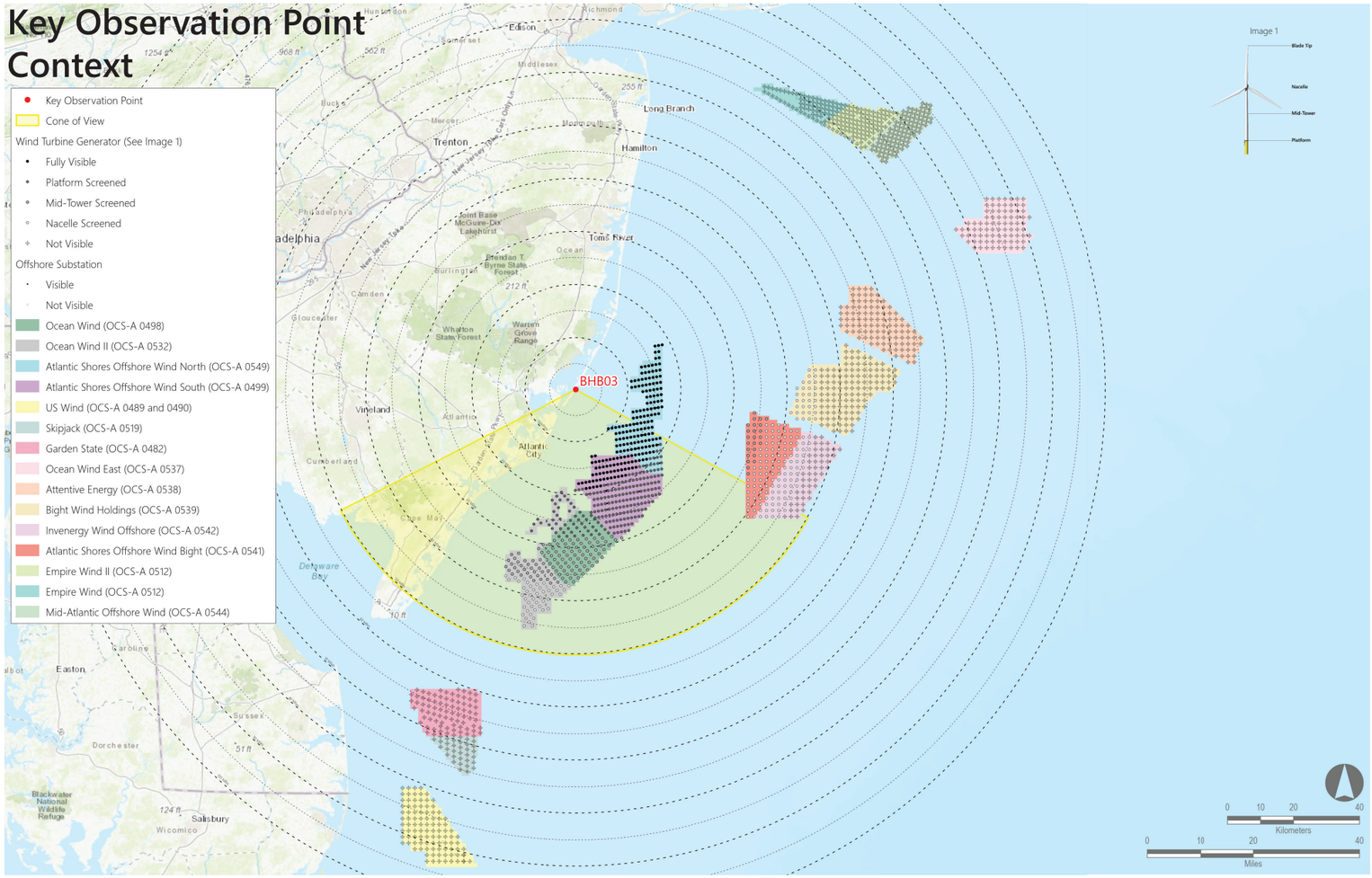
Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 26.85 feet AMSL

Key Observation Point Information

County: Ocean
Town: Beach Haven Borough
State: New Jersey
Location: Holyoke Avenue, Beach Haven
Latitude, Longitude: 39.55262°N, 74.24422°W
Direction of View (Center): South (181.4°)
Field of View: 124° x 55°

Visual Resources
Character Area: Oceanfront Residential, Seascape (SCA)
User Group: Residents/Tourists
Visually Sensitive Resource: Beach Haven Borough Public Beach

Key Observation Point Context



Reasonably Foreseeable Projects Represented in Photosimulation

		Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP**	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Scenario 5	Scenario 2	Atlantic Shores Offshore Wind South (OCS-A 0499)	2025-2027	1,047	205	205	13.0	29.3
	Scenario 1	Ocean Wind (OCS-A 0498)	2023-2025	906	111	111	23.1	36.3
		Empire Wind (OCS-A 0512)	2024-2025	951	0	72	Not Visible	Not Visible
		Empire Wind II (OCS-A 0512)	2023-2027	951	0	104	Not Visible	Not Visible
Scenario 4	Scenario 3	Skipjack (OCS-A 0519)	2024-2030	853	0	33	Not Visible	Not Visible
		Garden State (OCS-A 0482)	2023-2030	853	0	80	Not Visible	Not Visible
		US Wind (OCS-A 0489 and 0490)	2024	938	0	101	Not Visible	Not Visible
		Atlantic Shores Offshore Wind North (OCS-A 0549)	2025-2030	1,047	164	164	9.6	22.1
		Ocean Wind II (OCS-A 0532)	2026-2030	906	111	111	19.5	45.6
		Mid-Atlantic Offshore Wind (OCS-A 0544)	by 2030	853	0	104	Not Visible	Not Visible
		Ocean Wind East (OCS-A 0537)	by 2030	853	0	82	Not Visible	Not Visible
		Attentive Energy (OCS-A 0538)	by 2030	853	0	101	Not Visible	Not Visible
		Bight Wind Holdings (OCS-A 0539)	by 2030	853	32	148	40.8	45.5
		Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	95	95	33.2	42.6
		Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	51	99	41.3	45.5

Notes:

- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- *Historical meteorological data predicts visibility within a limit of 10 statute miles. However, visibility may extend beyond this distance. The photosimulations assume visibility extends to the limit of physical visibility (including a standard refraction index).
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- **The number of WTGs visible from the KOP was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

ATLANTIC SHORES offshore wind

MATCH LINE BHB03 PANO #1



MATCH LINE BHB03 PANO #1

ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Existing Conditions (Panorama 2)

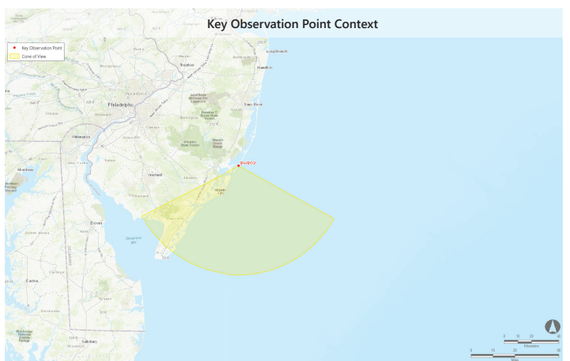
Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.

Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should be exactly 1" long on the printed panorama

Key Observation Point Context



Key Observation Point Location



MATCH LINE BHB03 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 2): Scenario 1: 2023-2025 Project Construction (Ocean Wind, Empire Wind, Empire Wind II)

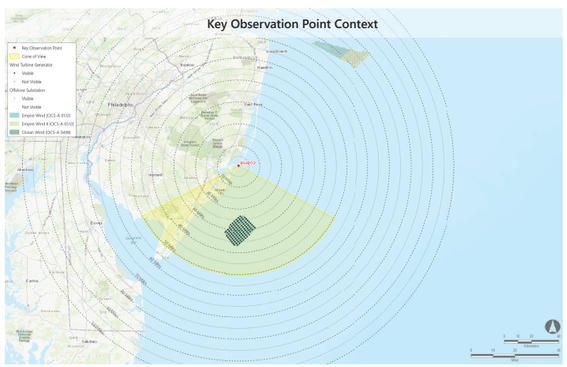
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should be exactly 1" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Ocean Wind (OCS-A 0498)	2024-2025	906	111	111	23.1	36.3
Empire Wind (OCS-A 0512)	2023-2027	951	0	72	Not Visible	Not Visible
Empire Wind II (OCS-A 0512)	2025-2027	951	0	104	Not Visible	Not Visible





MATCH LINE BHB03 PANO #1



MATCH LINE BHB03 PANO #2

ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 2): Scenario 2: Atlantic Shores Construction (2025-2027) added to Scenario 1 (Ocean Wind, Empire Wind, Empire Wind II, Atlantic Shores South)

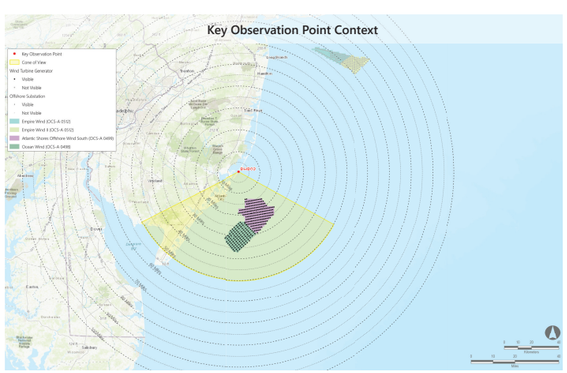
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should be exactly 1" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Atlantic Shores Offshore Wind South (OCS-A 0499)	2023-2025	1,047	205	205	13.0	29.3
Ocean Wind (OCS-A 0498)	2024-2025	906	111	111	23.1	36.3
Empire Wind (OCS-A 0512)	2023-2027	951	0	72	Not Visible	Not Visible
Empire Wind II (OCS-A 0512)	2025-2027	951	0	104	Not Visible	Not Visible


Key Observation Point Context
Key Observation Point
Cone of View
Wind Turbine Generator
Visible
Not Visible
Offshore Substation
Visible
Not Visible
Empire Wind (OCS-A 0512)
Empire Wind II (OCS-A 0512)
Atlantic Shores Offshore Wind South (OCS-A 0499)
Ocean Wind (OCS-A 0498)
Project 1
Project 2
Project 3
Project 4
Project 5
Project 6
Project 7
Project 8
Project 9
Project 10
Project 11
Project 12
Project 13
Project 14
Project 15
Project 16
Project 17
Project 18
Project 19
Project 20
Project 21
Project 22
Project 23
Project 24
Project 25
Project 26
Project 27
Project 28
Project 29
Project 30
Project 31
Project 32
Project 33
Project 34
Project 35
Project 36
Project 37
Project 38
Project 39
Project 40
Project 41
Project 42
Project 43
Project 44
Project 45
Project 46
Project 47
Project 48
Project 49
Project 50
Project 51
Project 52
Project 53
Project 54
Project 55
Project 56
Project 57
Project 58
Project 59
Project 60
Project 61
Project 62
Project 63
Project 64
Project 65
Project 66
Project 67
Project 68
Project 69
Project 70
Project 71
Project 72
Project 73
Project 74
Project 75
Project 76
Project 77
Project 78
Project 79
Project 80
Project 81
Project 82
Project 83
Project 84
Project 85
Project 86
Project 87
Project 88
Project 89
Project 90
Project 91
Project 92
Project 93
Project 94
Project 95
Project 96
Project 97
Project 98
Project 99
Project 100
Project 101
Project 102
Project 103
Project 104
Project 105
Project 106
Project 107
Project 108
Project 109
Project 110
Project 111
Project 112
Project 113
Project 114
Project 115
Project 116
Project 117
Project 118
Project 119
Project 120
Project 121
Project 122
Project 123
Project 124
Project 125
Project 126
Project 127
Project 128
Project 129
Project 130
Project 131
Project 132
Project 133
Project 134
Project 135
Project 136
Project 137
Project 138
Project 139
Project 140
Project 141
Project 142
Project 143
Project 144
Project 145
Project 146
Project 147
Project 148
Project 149
Project 150
Project 151
Project 152
Project 153
Project 154
Project 155
Project 156
Project 157
Project 158
Project 159
Project 160
Project 161
Project 162
Project 163
Project 164
Project 165
Project 166
Project 167
Project 168
Project 169
Project 170
Project 171
Project 172
Project 173
Project 174
Project 175
Project 176
Project 177
Project 178
Project 179
Project 180
Project 181
Project 182
Project 183
Project 184
Project 185
Project 186
Project 187
Project 188
Project 189
Project 190
Project 191
Project 192
Project 193
Project 194
Project 195
Project 196
Project 197
Project 198
Project 199
Project 200
Project 201
Project 202
Project 203
Project 204
Project 205
Project 206
Project 207
Project 208
Project 209
Project 210
Project 211
Project 212
Project 213
Project 214
Project 215
Project 216
Project 217
Project 218
Project 219
Project 220
Project 221
Project 222
Project 223
Project 224
Project 225
Project 226
Project 227
Project 228
Project 229
Project 230
Project 231
Project 232
Project 233
Project 234
Project 235
Project 236
Project 237
Project 238
Project 239
Project 240
Project 241
Project 242
Project 243
Project 244
Project 245
Project 246
Project 247
Project 248
Project 249
Project 250
Project 251
Project 252
Project 253
Project 254
Project 255
Project 256
Project 257
Project 258
Project 259
Project 260
Project 261
Project 262
Project 263
Project 264
Project 265
Project 266
Project 267
Project 268
Project 269
Project 270
Project 271
Project 272
Project 273
Project 274
Project 275
Project 276
Project 277
Project 278
Project 279
Project 280
Project 281
Project 282
Project 283
Project 284
Project 285
Project 286
Project 287
Project 288
Project 289
Project 290
Project 291
Project 292
Project 293
Project 294
Project 295
Project 296
Project 297
Project 298
Project 299
Project 300
Project 301
Project 302
Project 303
Project 304
Project 305
Project 306
Project 307
Project 308
Project 309
Project 310
Project 311
Project 312
Project 313
Project 314
Project 315
Project 316
Project 317
Project 318
Project 319
Project 320
Project 321
Project 322
Project 323
Project 324
Project 325
Project 326
Project 327
Project 328
Project 329
Project 330
Project 331
Project 332
Project 333
Project 334
Project 335
Project 336
Project 337
Project 338
Project 339
Project 340
Project 341
Project 342
Project 343
Project 344
Project 345
Project 346
Project 347
Project 348
Project 349
Project 350
Project 351
Project 352
Project 353
Project 354
Project 355
Project 356
Project 357
Project 358
Project 359
Project 360
Project 361
Project 362
Project 363
Project 364
Project 365
Project 366
Project 367
Project 368
Project 369
Project 370
Project 371
Project 372
Project 373
Project 374
Project 375
Project 376
Project 377
Project 378
Project 379
Project 380
Project 381
Project 382
Project 383
Project 384
Project 385
Project 386
Project 387
Project 388
Project 389
Project 390
Project 391
Project 392
Project 393
Project 394
Project 395
Project 396
Project 397
Project 398
Project 399
Project 400
Project 401
Project 402
Project 403
Project 404
Project 405
Project 406
Project 407
Project 408
Project 409
Project 410
Project 411
Project 412
Project 413
Project 414
Project 415
Project 416
Project 417
Project 418
Project 419
Project 420
Project 421
Project 422
Project 423
Project 424
Project 425
Project 426
Project 427
Project 428
Project 429
Project 430
Project 431
Project 432
Project 433
Project 434
Project 435
Project 436
Project 437
Project 438
Project 439
Project 440
Project 441
Project 442
Project 443
Project 444
Project 445
Project 446
Project 447
Project 448
Project 449
Project 450
Project 451
Project 452
Project 453
Project 454
Project 455
Project 456
Project 457
Project 458
Project 459
Project 460
Project 461
Project 462
Project 463
Project 464
Project 465
Project 466
Project 467
Project 468
Project 469
Project 470
Project 471
Project 472
Project 473
Project 474
Project 475
Project 476
Project 477
Project 478
Project 479
Project 480
Project 481
Project 482
Project 483
Project 484
Project 485
Project 486
Project 487
Project 488
Project 489
Project 490
Project 491
Project 492
Project 493
Project 494
Project 495
Project 496
Project 497
Project 498
Project 499
Project 500
Project 501
Project 502
Project 503
Project 504
Project 505
Project 506
Project 507
Project 508
Project 509
Project 510
Project 511
Project 512
Project 513
Project 514
Project 515
Project 516
Project 517
Project 518
Project 519
Project 520
Project 521
Project 522
Project 523
Project 524
Project 525
Project 526
Project 527
Project 528
Project 529
Project 530
Project 531
Project 532
Project 533
Project 534
Project 535
Project 536
Project 537
Project 538
Project 539
Project 540
Project 541
Project 542
Project 543
Project 544
Project 545
Project 546
Project 547
Project 548
Project 549
Project 550
Project 551
Project 552
Project 553
Project 554
Project 555
Project 556
Project 557
Project 558
Project 559
Project 560
Project 561
Project 562
Project 563
Project 564
Project 565
Project 566
Project 567
Project 568
Project 569
Project 570
Project 571
Project 572
Project 573
Project 574
Project 575
Project 576
Project 577
Project 578
Project 579
Project 580
Project 581
Project 582
Project 583
Project 584
Project 585
Project 586
Project 587
Project 588
Project 589
Project 590
Project 591
Project 592
Project 593
Project 594
Project 595
Project 596
Project 597
Project 598
Project 599
Project 600
Project 601
Project 602
Project 603
Project 604
Project 605
Project 606
Project 607
Project 608
Project 609
Project 610
Project 611
Project 612
Project 613
Project 614
Project 615
Project 616
Project 617
Project 618
Project 619
Project 620
Project 621
Project 622
Project 623
Project 624
Project 625
Project 626
Project 627
Project 628
Project 629
Project 630
Project 631
Project 632
Project 633
Project 634
Project 635
Project 636
Project 637
Project 638
Project 639
Project 640
Project 641
Project 642
Project 643
Project 644
Project 645
Project 646
Project 647
Project 648
Project 649
Project 650
Project 651
Project 652
Project 653
Project 654
Project 655
Project 656
Project 657
Project 658
Project 659
Project 660
Project 661
Project 662
Project 663
Project 664
Project 665
Project 666
Project 667
Project 668
Project 669
Project 670
Project 671
Project 672
Project 673
Project 674
Project 675
Project 676
Project 677
Project 678
Project 679
Project 680
Project 681
Project 682
Project 683
Project 684
Project 685
Project 686
Project 687
Project 688
Project 689
Project 690
Project 691
Project 692
Project 693
Project 694
Project 695
Project 696
Project 697
Project 698
Project 699
Project 700
Project 701
Project 702
Project 703
Project 704
Project 705
Project 706
Project 707
Project 708
Project 709
Project 710
Project 711
Project 712
Project 713
Project 714
Project 715
Project 716
Project 717
Project 718
Project 719
Project 720
Project 721
Project 722
Project 723
Project 724
Project 725
Project 726
Project 727
Project 728
Project 729
Project 730
Project 731
Project 732
Project 733
Project 734
Project 735
Project 736
Project 737
Project 738
Project 739
Project 740
Project 741
Project 742
Project 743
Project 744
Project 745
Project 746
Project 747
Project 748
Project 749
Project 750
Project 751
Project 752
Project 753
Project 754
Project 755
Project 756
Project 757
Project 758
Project 759
Project 760
Project 761
Project 762
Project 763
Project 764
Project 765
Project 766
Project 767
Project 768
Project 769
Project 770
Project 771
Project 772
Project 773
Project 774
Project 775
Project 776
Project 777
Project 778
Project 779
Project 780
Project 781
Project 782
Project 783
Project 784
Project 785
Project 786
Project 787
Project 788
Project 789
Project 790
Project 791
Project 792
Project 793
Project 794
Project 795
Project 796
Project 797
Project 798
Project 799
Project 800
Project 801
Project 802
Project 803
Project 804
Project 805
Project 806
Project 807
Project 808
Project 809
Project 810
Project 811
Project 812
Project 813
Project 814
Project 815
Project 816
Project 817
Project 818
Project 819
Project 820
Project 821
Project 822
Project 823
Project 824
Project 825
Project 826
Project 827
Project 828
Project 829
Project 830
Project 831
Project 832
Project 833
Project 834
Project 835
Project 836
Project 837
Project 838
Project 839
Project 840
Project 841
Project 842
Project 843
Project 844
Project 845
Project 846
Project 847
Project 848
Project 849
Project 850
Project 851
Project 852
Project 853
Project 854
Project 855
Project 856
Project 857
Project 858
Project 859
Project 860
Project 861
Project 862
Project 863
Project 864
Project 865
Project 866
Project 867
Project 868
Project 869
Project 870
Project 871
Project 872
Project 873
Project 874
Project 875
Project 876
Project 877
Project 878
Project 879
Project 880
Project 881
Project 882
Project 883
Project 884
Project 885
Project 886
Project 887
Project 888
Project 889
Project 890
Project 891
Project 892
Project 893
Project 894
Project 895
Project 896
Project 897
Project 898
Project 899
Project 900
Project 901
Project 902
Project 903
Project 904
Project 905
Project 906
Project 907
Project 908
Project 909
Project 910
Project 911
Project 912
Project 913
Project 914
Project 915
Project 916
Project 917
Project 918
Project 919
Project 920
Project 921
Project 922
Project 923
Project 924
Project 925
Project 926
Project 927
Project 928
Project 929
Project 930
Project 931
Project 932
Project 933
Project 934
Project 935
Project 936
Project 937
Project 938
Project 939
Project 940
Project 941
Project 942
Project 943
Project 944
Project 945
Project 946
Project 947
Project 948
Project 949
Project 950
Project 951
Project 952
Project 953
Project 954
Project 955
Project 956
Project 957
Project 958
Project 959
Project 960
Project 961
Project 962
Project 963
Project 964
Project 965
Project 966
Project 967
Project 968
Project 969
Project 970
Project 971
Project 972
Project 973
Project 974
Project 975
Project 976
Project 977
Project 978
Project 979
Project 980
Project 981
Project 982
Project 983
Project 984
Project 985
Project 986
Project 987
Project 988
Project 989
Project 990
Project 991
Project 992
Project 993
Project 994
Project 995
Project 996
Project 997
Project 998
Project 999
Project 1000
Project 1001
Project 1002
Project 1003
Project 1004
Project 1005
Project 1006
Project 1007
Project 1008
Project 1009
Project 1010
Project 1011
Project 1012
Project 1013
Project 1014
Project 1015
Project 1016
Project 1017
Project 1018
Project 1019
Project 1020
Project 1021
Project 1022
Project 1023
Project 1024
Project 1025
Project 1026
Project 1027
Project 1028
Project 1029
Project 1030
Project 1031
Project 1032
Project 1033
Project 1034
Project 1035
Project 1036
Project 1037
Project 1038
Project 1039
Project 1040
Project 1041
Project 1042
Project 1043
Project 1044
Project 1045
Project 1046
Project 1047
Project 1048
Project 1049
Project 1050
Project 1051
Project 1052
Project 1053
Project 1054
Project 1055
Project 1056
Project 1057
Project 1058
Project 1059
Project 1060
Project 1061
Project 1062
Project 1063
Project 1064
Project 1065
Project 1066
Project 1067
Project 1068
Project 1069
Project 1070
Project 1071
Project 1072
Project 1073
Project 1074
Project 1075
Project 1076
Project 1077
Project 1078
Project 1079
Project 1080
Project 1081
Project 1082
Project 1083
Project 1084
Project 1085
Project 1086
Project 1087
Project 1088
Project 1089
Project 1090
Project 1091
Project 1092
Project 1093
Project 1094
Project 1095
Project 1096
Project 1097
Project 1098
Project 1099
Project 1100
Project 1101
Project 1102
Project 1103
Project 1104
Project 1105
Project 1106
Project 1107
Project 1108
Project 1109
Project 1110
Project 1111
Project 1112
Project 1113
Project 1114
Project 1115
Project 1116
Project 1117
Project 1118
Project 1119
Project 1120
Project 1121
Project 1122
Project 1123
Project 1124
Project 1125
Project 1126
Project 1127
Project 1128
Project 1129
Project 1130
Project 1131
Project 1132
Project 1133
Project 1134
Project 1135
Project 1136
Project 1137
Project 1138
Project 1139
Project 1140
Project 1141
Project 1142
Project 1143
Project 1144
Project 1145
Project 1146
Project 1147
Project 1148
Project 1149
Project 1150
Project 1151
Project 1152
Project 1153
Project 1154
Project 1155
Project 1156
Project 1157
Project 1158
Project 1159
Project 1160
Project 1161
Project 1162
Project 1163
Project 1164
Project 1165
Project 1166
Project 1167
Project 1168
Project 1169
Project 1170
Project 1171
Project 1172
Project 1173
Project 1174
Project 1175
Project 1176
Project 1177
Project 1178
Project 1179
Project 1180
Project 1181
Project 1182
Project 1183
Project 1184
Project 1185
Project 1186
Project 1187
Project 1188
Project 1189
Project 1190
Project 1191
Project 1192
Project 1193
Project 1194
Project 1195
Project 1196
Project 1197
Project 1198
Project 1199
Project 1200
Project 1201
Project 1202
Project 1203
Project 1204
Project 1205
Project 1206
Project 1207
Project 1208
Project 1209
Project 1210
Project 1211
Project 1212
Project 1213
Project 1214
Project 1215
Project 1216
Project 1217
Project 1218
Project 1219
Project 1220
Project 1221
Project 1222
Project 1223
Project 1224
Project 1225
Project 1226
Project 1227
Project 1228
Project 1229
Project 1230
Project 1231
Project 1232
Project 1233
Project 1234
Project 1235
Project 1236
Project 1237
Project 1238
Project 1239
Project 1240
Project 1241
Project 1242
Project 1243
Project 1244
Project 1245
Project 1246
Project 1247
Project 1248
Project 1249
Project 1250
Project 1251
Project 1252
Project 1253
Project 1254
Project 1255
Project 1256
Project 1257
Project 1258
Project 1259
Project 1260
Project 1261
Project 1262
Project 1263
Project 1264
Project 1265
Project 1266
Project 1267
Project 1268
Project 1269
Project 1270
Project 1271
Project 1272
Project 1273
Project 1274
Project 1275
Project 1276
Project 1277
Project 1278
Project 1279
Project 1280
Project 1281
Project 1282
Project 1283
Project 1284
Project 1285
Project 1286
Project 1287
Project 1288
Project 1289
Project 1290
Project 1291
Project 1292
Project 1293
Project 1294
Project 1295
Project 1296
Project 1297
Project 1298
Project 1299
Project 1300
Project 1301
Project 1302
Project 1303
Project 1304
Project 1305
Project 1306
Project 1307
Project 1308
Project 1309
Project 1310
Project 1311
Project 1312
Project 1313
Project 1314
Project 1315
Project 1316
Project 1317
Project 1318
Project 1319
Project 1320
Project 1321
Project 1322
Project 1323
Project 1324
Project 1325
Project 1326
Project 1327
Project 1328
Project 1329
Project 1330
Project 1331
Project 1332
Project 1333
Project 1334
Project 1335
Project 1336
Project 1337
Project 1338
Project 1339
Project 1340
Project 1341
Project 1342
Project 1343
Project 1344
Project 1345
Project 1346
Project 1347
Project 1348
Project 1349
Project 1350
Project 1351
Project 1352
Project 1353
Project 1354
Project 1355
Project 1356
Project 1357
Project 1358
Project 1359
Project 1360
Project 1361
Project 1362
Project 1363
Project 1364
Project 1365
Project 1366
Project 1367
Project 1368
Project 1369
Project 1370
Project 1371
Project 1372
Project 1373
Project 1374
Project 1375
Project 1376
Project 1377
Project 1378
Project 1379
Project 1380
Project 1381
Project 1382
Project 1383
Project 1384
Project 1385
Project 1386
Project 1387
Project 1388
Project 1389
Project 1390
Project 1391
Project 1392
Project 1393
Project 1394
Project 1395
Project 1396
Project 1397
Project 1398
Project 1399
Project 1400
Project 1401
Project 1402
Project 1403
Project 1404
Project 1405
Project 1406
Project 1407
Project 1408
Project 1409
Project 1410
Project 1411
Project 1412
Project 1413
Project 1414
Project 1415
Project 1416
Project 1417
Project 1418
Project 1419
Project 1420
Project 1421
Project 1422
Project 1423
Project 1424
Project 1425
Project 1426
Project 1427
Project 1428
Project 1429
Project 1430
Project 1431
Project 1432
Project 1433
Project 1434
Project 1435
Project 1436
Project 1437
Project 1438
Project 1439
Project 1440
Project 1441
Project 1442
Project 1443
Project 1444
Project 1445
Project 1446
Project 1447
Project 1448
Project 1449
Project 1450
Project 1451
Project 1452
Project 1453
Project 1454
Project 1455
Project 1456
Project 1457
Project 1458
Project 1459
Project 1460
Project 1461
Project 1462
Project 1463
Project 1464
Project 1465
Project 1466
Project 1467
Project 1468
Project 1469
Project 1470
Project 1471
Project 1472
Project 1473
Project 1474
Project 1475
Project 1476
Project 1477
Project 1478
Project 1479
Project 1480
Project 1481
Project 1482
Project 1483
Project 1484
Project 1485
Project 1486
Project 1487
Project 1488
Project 1489
Project 1490
Project 1491
Project 1492
Project 1493
Project 1494
Project 1495
Project 1496
Project 1497
Project 1498
Project 1499
Project 1500
Project 1501
Project 1502
Project 1503
Project 1504
Project 1505
Project 1506
Project 1507
Project 1508
Project 1509
Project 1510
Project 1511
Project 1512
Project 1513
Project 1514
Project 1515
Project 1516
Project 1517
Project 1518
Project 1519
Project 1520
Project 1521
Project 1522
Project 1523
Project 1524
Project 1525
Project 1526
Project 1527
Project 1528
Project 1529
Project 1530
Project 1531
Project 1532
Project 1533
Project 1534
Project 1535
Project 1536
Project 1537
Project 1538
Project 1539
Project 1540
Project 1541
Project 1542
Project 1543
Project 1544
Project 1545
Project 1546
Project 1547
Project 1548
Project 1549
Project 1550
Project 1551
Project 1552
Project 1553
Project 1554
Project 1555
Project 1556
Project 1557
Project 1558
Project 1559
Project 1560
Project 1561
Project 1562
Project 1563
Project 1564
Project 1565
Project 1566
Project 1567
Project 1568
Project 1569
Project 1570
Project 1571
Project 1572
Project 1573
Project 1574
Project 1575
Project 1576
Project 1577
Project 1578
Project 1579
Project 1580
Project 1581
Project 1582
Project 1583
Project 1584
Project 1585
Project 1586
Project 1587
Project 1588
Project 1589
Project 1590
Project 1591
Project 1592
Project 1593
Project 1594
Project 1595
Project 1596
Project 1597
Project 1598
Project 1599
Project 1600
Project 1601
Project 1602
Project 1603
Project 1604
Project 1605
Project 1606
Project 1607
Project 1608
Project 1609
Project 1610
Project 1611
Project 1612
Project 1613
Project 1614
Project 1615
Project 1616
Project 1617
Project 1618
Project 1619
Project 1620
Project 1621
Project 1622
Project 1623
Project 1624
Project 1625
Project 1626
Project 1627
Project 1628
Project 1629
Project 1630
Project 1631
Project 1632
Project 1633
Project 1634
Project 1635
Project 1636
Project 1637
Project 1638
Project 1639
Project 1640
Project 1641
Project 1642
Project 1643
Project 1644
Project 1645
Project 1646
Project 1647
Project 1648
Project 1649
Project 1650
Project 1651
Project 1652
Project 1653
Project 1654
Project 1655
Project 1656
Project 1657
Project 1658
Project 1659
Project 1660
Project 1661
Project 1662
Project 1663
Project 1664
Project 1665
Project 1666
Project 1667
Project 1668
Project 1669
Project 1670
Project 1671
Project 1672
Project 1673
Project 1674
Project 1675
Project 1676
Project 1677
Project 1678
Project 1679
Project 1680
Project 1681
Project 1682
Project 1683
Project 1684
Project 1685
Project 1686
Project 1687
Project 1688
Project 1689
Project 1690
Project 1691
Project 1692
Project 1693
Project 1694
Project 1695
Project 1696
Project 1697
Project 1698
Project 1699
Project 1700
Project 1701
Project 1702
Project 1703
Project 1704
Project 1705
Project 1706
Project 1707
Project 1708
Project 1709
Project 1710
Project 1711
Project 1712
Project 1713
Project 1714
Project 1715
Project 1716
Project 1717
Project 1718
Project 1719
Project 1720
Project 1721
Project 1722
Project 1723
Project 1724
Project 1725
Project 1726
Project 1727
Project 1728
Project 1729
Project 1730
Project 1731
Project 1732
Project 1733
Project 1734
Project 1735
Project 1736
Project 1737
Project 1738
Project 1739
Project 1740
Project 1741
Project 1742
Project 1743
Project 1744
Project 1745
Project 1746
Project 1747
Project 1748
Project 1749
Project 1750
Project 1751
Project 1752
Project 1753
Project 1754
Project 1755
Project 1756
Project 1757
Project 1758
Project 1759
Project 1760
Project 1761
Project 1762
Project 1763
Project 1764
Project 1765
Project 1766
Project 1767
Project 1768
Project 1769
Project 1770
Project 1771
Project 1772
Project 1773
Project 1774
Project 1775
Project 1776
Project 1777
Project 1778
Project 1779
Project 1780
Project 1781
Project 1782
Project 1783
Project 1784
Project 1785
Project 1786
Project 1787
Project 1788
Project 1789
Project 1790
Project 1791
Project 1792
Project 1793
Project 1794
Project 1795
Project 1796
Project 1797
Project 1798
Project 1799
Project 1800
Project 1801
Project 1802
Project 1803
Project 1804
Project 1805
Project 1806
Project 1807
Project 1808
Project 1809
Project 1810
Project 1811
Project 1812
Project 1813
Project 1814
Project 1815
Project 1816
Project 1817
Project 1818
Project 1819
Project 1820
Project 1821
Project 1822
Project 1823
Project 1824
Project 1825
Project 1826
Project 1827
Project 1828
Project 1829
Project 1830
Project 1831
Project 1832
Project 1833
Project 1834
Project 1835
Project 1836
Project 1837
Project 1838
Project 1839
Project 1840
Project 1841
Project 1842
Project 1843
Project 1844
Project 1845
Project 1846
Project 1847
Project 1848
Project 1849
Project 1850
Project 1851
Project 1852
Project 1853
Project 1854
Project 1855
Project 1856
Project 1857
Project 1858
Project 1859
Project 1860
Project 1861
Project 1862
Project 1863
Project 1864
Project 1865
Project 1866
Project 1867
Project 1868
Project 1869
Project 1870
Project 1871
Project 1872
Project 1873
Project 1874
Project 1875
Project 1876
Project 1877
Project 1878
Project 1879
Project 1880
Project 1881
Project 1882
Project 1883
Project 1884
Project 1885
Project 1886
Project 1887
Project 1888
Project 1889
Project 1890
Project 1891
Project 1892
Project 1893
Project 1894
Project 1895
Project 1896
Project 1897
Project 1898
Project 1899
Project 1900
Project 1901
Project 1902
Project 1903
Project 1904
Project 1905
Project 1906
Project 1907
Project 1908
Project 1909
Project 1910
Project 1911
Project 1912
Project 1913
Project 1914
Project 1915
Project 1916
Project 1917
Project 1918
Project 1919
Project 1920
Project 1921
Project 1922
Project 1923
Project 1924
Project 1925
Project 1926
Project 1927
Project 1928
Project 1929
Project 1930
Project 1931
Project 1932
Project 1933
Project 1934
Project 1935
Project 1936
Project 1937
Project 1938
Project 1939
Project 1940
Project 1941
Project 1942
Project 1943
Project 1944
Project 1945
Project 1946
Project 1947
Project 1948
Project 1949
Project 1950
Project 1951
Project 1952
Project 1953
Project 1954
Project 1955
Project 1956
Project 1957
Project 1958
Project 1959
Project 1960
Project 1961
Project 1962
Project 1963
Project 1964
Project 1965
Project 1966
Project 1967
Project 1968
Project 1969
Project 1970
Project 1971
Project 1972
Project 1973
Project 1974
Project 1975
Project 1976
Project 1977
Project 1978
Project 1979
Project 1980
Project 1981
Project 1982
Project 1983
Project 1984
Project 1985
Project 1986
Project 1987
Project 1988
Project 1989
Project 1990
Project 1991
Project 1992
Project 1993
Project 1994
Project 1995
Project 1996
Project 1997
Project 1998
Project 1999
Project 2000
Project 2001
Project 2002
Project 2003
Project 2004
Project 2005
Project 2006
Project 2007
Project 2008
Project 2009
Project 2010
Project 2011
Project 2012
Project 2013
Project 2014
Project 2015
Project 2016
Project 2017
Project 2018
Project 2019
Project 2020
Project 2021
Project 2022
Project 2023
Project 2024
Project 2025
Project 2026
Project 2027
Project 2028
Project 2029
Project 2030
Project 2031
Project 2032
Project 2033
Project 2034
Project 2035
Project 2036
Project 2037
Project 2038
Project 2039
Project 2040
Project 2041
Project 2042
Project 2043
Project 2044
Project 2045
Project 2046
Project 2047
Project 2048
Project 2049
Project 2050
Project 2051
Project 2052
Project 2053
Project 2054
Project 2055
Project 2056
Project 2057
Project 2058
Project 2059
Project 2060
Project 2061
Project 2062
Project 2063
Project 2064
Project 2065
Project 2066
Project 2067
Project 2068
Project 2069
Project 2070
Project 2071
Project 2072
Project 2073
Project 2074
Project 2075
Project 2076
Project 2077
Project 2078
Project 2079
Project 2080
Project 2081
Project 2082
Project 2083
Project 2084
Project 2085
Project 2086
Project 2087
Project 2088
Project 2089
Project 2090
Project 2091
Project 2092
Project 2093
Project 2094
Project 2095
Project 2096
Project 2097
Project 2098
Project 2099
Project 2100
Project 2101
Project 2102
Project 2103
Project 2104
Project 2105
Project 2106
Project 2107
Project 2108
Project 2109
Project 2110
Project 2111
Project 2112
Project 2113
Project 2114
Project 2115
Project 2116
Project 2117
Project 2118
Project 2119
Project 2120
Project 2121
Project 2122
Project 2123
Project 2124
Project 2125
Project 2126
Project 2127
Project 2128
Project 2129
Project 2130
Project 2131
Project 2132
Project 2133
Project 2134
Project 2135
Project 2136
Project 2137
Project 2138
Project 2139
Project 2140
Project 2141
Project 2142
Project 2143
Project 2144
Project 2145
Project 2146
Project 2147
Project 2148
Project 2149
Project 2150
Project 2151
Project 2152
Project 2153
Project 2154
Project 2155
Project 2156
Project 2157
Project 2158
Project 2159
Project 2160
Project 2161
Project 2162
Project 2163
Project 2164
Project 2165
Project 2166
Project 2167
Project 2168
Project 2169
Project 2170
Project 2171
Project 2172
Project 2173
Project 2174
Project 2175
Project 2176
Project 2177
Project 2178
Project 2179
Project 2180
Project 2181
Project 2182
Project 2183
Project 2184
Project 2185
Project 2186
Project 2187
Project 2188
Project 2189
Project 2190
Project 2191
Project 2192
Project 2193
Project 2194
Project 2195
Project 2196
Project 2197
Project 2198
Project 2199
Project 2200
Project 2201
Project 2202
Project 2203
Project 2204
Project 2205
Project 2206
Project 2207
Project 2208
Project 2209
Project 2210
Project 2211
Project 2212
Project 2213
Project 2214
Project 2215
Project 2216
Project 2217
Project 2218
Project 2219
Project 2220
Project 2221
Project 2222
Project 2223
Project 2224
Project 2225
Project 2226
Project 2227
Project 2228
Project 2229
Project 2230
Project 2231
Project 2232
Project 2233
Project 2234
Project 2235
Project 2236
Project 2237
Project 2238
Project 2239
Project 2240
Project 2241
Project 2242
Project 2243
Project 2244
Project 2245
Project 2246
Project 2247
Project 2248
Project 2249
Project 2250
Project 2251
Project 2252
Project 2253
Project 2254
Project 2255
Project 2256
Project 2257
Project 2258
Project 2259
Project 2260
Project 2261
Project 2262
Project 2263
Project 2264
Project 2265
Project 2266
Project 2267
Project 2268
Project 2269
Project 2270
Project 2271
Project 2272
Project 2273
Project 2274
Project 2275
Project 2276
Project 2277
Project 2278
Project 2279
Project 2280
Project 2281
Project 2282
Project 2283
Project 2284
Project 2285
Project 2286
Project 2287
Project 2288
Project 2289
Project 2290
Project 2291
Project 2292
Project 2293
Project 2294
Project 2295
Project 2296
Project 2297
Project 2298
Project 2299
Project 2300
Project 2301
Project 2302
Project 2303
Project 2304
Project 2305
Project 2306
Project 2307
Project 2308
Project 2309
Project 2310
Project 2311
Project 2312
Project 2313
Project 2314
Project 2315
Project 2316
Project 2317
Project 2318
Project 2319
Project 2320
Project 2321
Project 2322
Project 2323
Project 2324
Project 2325
Project 2326
Project 2327
Project 2328
Project 2329
Project 2330
Project 2331
Project 2332
Project 2333
Project 2334
Project 2335
Project 2336
Project 2337
Project 2338
Project 2339
Project 2340
Project 2341
Project 2342
Project 2343
Project 2344
Project 2345
Project 2346
Project 2347
Project 2348
Project 2349
Project 2350
Project 2351
Project 2352
Project 2353
Project 2354
Project 2355
Project 2356
Project 2357
Project 2358
Project 2359
Project 2360
Project 2361
Project 2362
Project 2363
Project 2364
Project 2365
Project 2366
Project 2367
Project 2368
Project 2369
Project 2370
Project 2371
Project 2372
Project 2373
Project 2374
Project 2375
Project 2376
Project 2377
Project 2378
Project 2379
Project 2380
Project 2381
Project 2382
Project 2383
Project 2384
Project 2385
Project 2386
Project 2387
Project 2388
Project 2389
Project 2390
Project 2391
Project 2392
Project 2393
Project 2394
Project 2395
Project 2396
Project 2397
Project 2398
Project 2399
Project 2400
Project 2401
Project 2402
Project 2403
Project 2404
Project 2405
Project 2406
Project 2407
Project 2408
Project 2409
Project 2410
Project 2411
Project 2412
Project 2413
Project 2414
Project 2415
Project 2416
Project 2417
Project 2418
Project 2419
Project 2420
Project 2421
Project 2422
Project 2423
Project 2424
Project 2425
Project 2426
Project 2427
Project 2428
Project 2429
Project 2430
Project 2431
Project 2432
Project 2433
Project 2434
Project 2435
Project 2436
Project 2437
Project 2438
Project 2439
Project 2440
Project 2441
Project 2442
Project 2443
Project 2444
Project 2445
Project 2446
Project 2447
Project 2448
Project 2449
Project 2450
Project 2451
Project 2452
Project 2453
Project 2454
Project 2455
Project 2456
Project 2457
Project 2458
Project 2459
Project 2460
Project 2461
Project 2462
Project 2463
Project 2464
Project 2465
Project 2466
Project 2467
Project 2468
Project 2469
Project 2470
Project 2471
Project 2472
Project 2473
Project 2474
Project 2475
Project 2476
Project 2477
Project 2478
Project 2479
Project 2480
Project 2481
Project 2482
Project 2483
Project 2484
Project 2485
Project 2486
Project 2487
Project 2488
Project 2489
Project 2490
Project 2491
Project 2492
Project 2493
Project 2494
Project 2495
Project 2496
Project 2497
Project 2498
Project 2499
Project 2500
Project 2501
Project 2502
Project 2503
Project 2504
Project 2505
Project 2506
Project 2507
Project 2508
Project 2509
Project 2510
Project 2511
Project 2512
Project 2513
Project 2514
Project 2515
Project 2516
Project 2517
Project 2518
Project 2519
Project 2520
Project 2521
Project 2522
Project 2523
Project 2524
Project 2525
Project 2526
Project 2527
Project 2528
Project 2529
Project 2530
Project 2531
Project 2532
Project 2533
Project 2534
Project 2535
Project 2536
Project 2537
Project 2538
Project 2539
Project 2540
Project 2541
Project 2542
Project 2543
Project 2544
Project 2545
Project 2546
Project 2547
Project 2548
Project 2549
Project 2550
Project 2551
Project 2552
Project 2553
Project

MATCH LINE BHB03 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 2): Scenario 3: 2024-2030 Project construction added after the construction of Atlantic Shores South (Full Lease Build-out Including Atlantic Shores South)

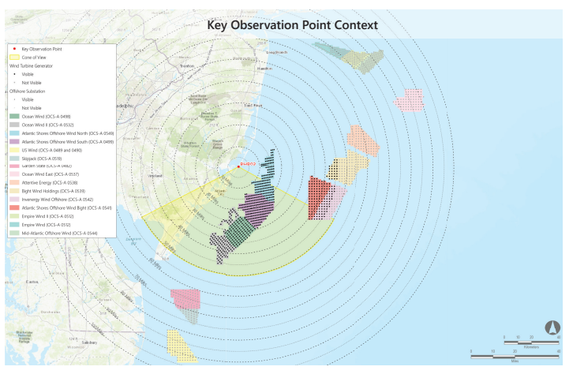
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should be exactly 1" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Atlantic Shores Offshore Wind South (OCS-A 0499)	2023-2025	1,047	205	205	13.0	29.3
Ocean Wind (OCS-A 0498)	2024-2025	906	111	111	23.1	36.3
Empire Wind (OCS-A 0512)	2023-2027	951	0	72	Not Visible	Not Visible
Empire Wind II (OCS-A 0512)	2025-2027	951	0	104	Not Visible	Not Visible
Skipjack (OCS-A 0519)	2024-2030	853	0	33	Not Visible	Not Visible
Garden State (OCS-A 0482)	2023-2030	853	0	80	Not Visible	Not Visible
US Wind (OCS-A 0489 and 0490)	2024	938	0	101	Not Visible	Not Visible
Atlantic Shores Offshore Wind North (OCS-A 0549)	2025-2030	1,047	164	164	9.6	22.1
Ocean Wind II (OCS-A 0532)	2026-2030	906	111	111	19.5	45.6
Mid-Atlantic Offshore Wind (OCS-A 0544)	by 2030	853	0	104	Not Visible	Not Visible
Ocean Wind East (OCS-A 0537)	by 2030	853	0	82	Not Visible	Not Visible
Attentive Energy (OCS-A 0538)	by 2030	853	0	101	Not Visible	Not Visible
Bight Wind Holdings (OCS-A 0539)	by 2030	853	32	148	40.8	45.5
Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	95	95	33.2	42.6
Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	51	99	41.3	45.5





MATCH LINE BHB03 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 2): Scenario 4: Full buildout of all lease areas without Atlantic Shores South

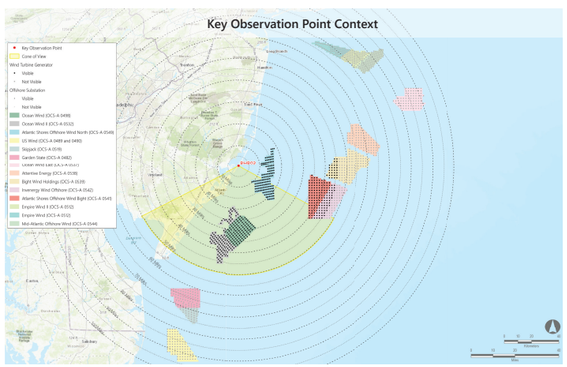
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should be exactly 1" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Ocean Wind (OCS-A 0498)	2024-2025	906	111	111	23.1	36.3
Empire Wind (OCS-A 0512)	2023-2027	951	0	72	Not Visible	Not Visible
Empire Wind II (OCS-A 0512)	2025-2027	951	0	104	Not Visible	Not Visible
Skipjack (OCS-A 0519)	2024-2030	853	0	33	Not Visible	Not Visible
Garden State (OCS-A 0482)	2023-2030	853	0	80	Not Visible	Not Visible
US Wind (OCS-A 0489 and 0490)	2024	938	0	101	Not Visible	Not Visible
Atlantic Shores Offshore Wind North (OCS-A 0549)	2025-2030	1,047	164	164	9.6	22.1
Ocean Wind II (OCS-A 0532)	2026-2030	906	111	111	19.5	45.6
Mid-Atlantic Offshore Wind (OCS-A 0544)	by 2030	853	0	104	Not Visible	Not Visible
Ocean Wind East (OCS-A 0537)	by 2030	853	0	82	Not Visible	Not Visible
Attentive Energy (OCS-A 0538)	by 2030	853	0	101	Not Visible	Not Visible
Bight Wind Holdings (OCS-A 0539)	by 2030	853	32	148	40.8	45.5
Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	95	95	33.2	42.6
Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	51	99	41.3	45.5





MATCH LINE BHB03 PANO #1



MATCH LINE BHB03 PANO #1

ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

BHB03: Holyoke Avenue, Beach Haven Borough, Ocean County, New Jersey

Photosimulation (Panorama 2): Scenario 5: Atlantic Shores South without the construction of other foreseeable planned activities

Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should be exactly 1" long on the printed panorama

Notes:

- Photosimulation Size: 66" in width by 29.3" in height. Images should be viewed from 18 inches in order to obtain the proper perspective. For on-screen viewing, user should zoom in until the 1-inch scale equals exactly one inch when measured on the screen.
- Offshore Substation location and dimensions are based on preliminary publicly available project data. Projects for which this data is not currently available, WTGs are used for all foundation positions. OSS positions and dimensions considered in this photosimulation are subject to potential modification.
- WTG positions in the photosimulations are based on a refraction value of 7/6 or an approximate 0.14 coefficient derived from observations of the constructed Block Island Wind Farm. This refraction coefficient may yield more conservative visibility results (i.e. greater turbine visibility) that the viewshed analysis results which use a refraction coefficient of 0.13.
- WTG tower, blades, and nacelle use the BOEM and FAA required color RAL 9010. The base and platform use RAL 1023 in accordance with USCG regulations.
- *The number of WTGs visible from the KOP was determined by human verified computer generated counts performed in the 3D camera views considering screening resulting from vegetation, structures, curvature of the earth and refraction. This count may vary from the actual number of WTGs visible in the respective views due to masking completed during post processing which may include people, waves, boats, or other minor obstructions that appear in the photograph. Additionally, the WTG counts assumed the WTG blades are in the upright position whereas the photosimulations assume a random rotation pattern. Considering the largest WTG in the cumulative array, this could account for up to 236 ft. (72 m) in lost maximum height depending on the rotation position.
- The cone of view indicated on the Key Observation Point Context map indicates the horizontal extent of view only and does not indicate the extent of WTG visibility.
- The resolution of the cumulative photosimulations balances the size and usability of the documents with the need for high resolution to see distant project components. Similarly to human vision, very distant turbines may appear blurry or difficult to decipher due to resolution limitations.
- The Key Observation Point Context map considers screening by curvature of the earth, viewer height, and turbine height. Landscape screening features are not considered. Therefore, in this view, the number of visible turbines depicted on the map may not match the table due to the presence of landscape screening features.

Project	Year of Development	Max Blade Tip Height (feet)	Potential Number of WTGs & OSSs Visible from KOP*	Total Number of WTGs & OSSs in Project	Theoretical Distance to Nearest Visible WTG (miles)	Theoretical Distance to Furthest Visible WTG (miles)
Atlantic Shores Offshore Wind South (OCS-A 0499)	2023-2025	1,047	205	205	13.0	29.3

