SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

Environmental Data

Date Taken: 08/25/2022
Time: 7:05 AM
Temperature: 67°F
Humidity: 84%
Visibility*: 10+ miles
Wind Direction: West-northwest
Wind Speed: 3 mph
Conditions Observed: Fair

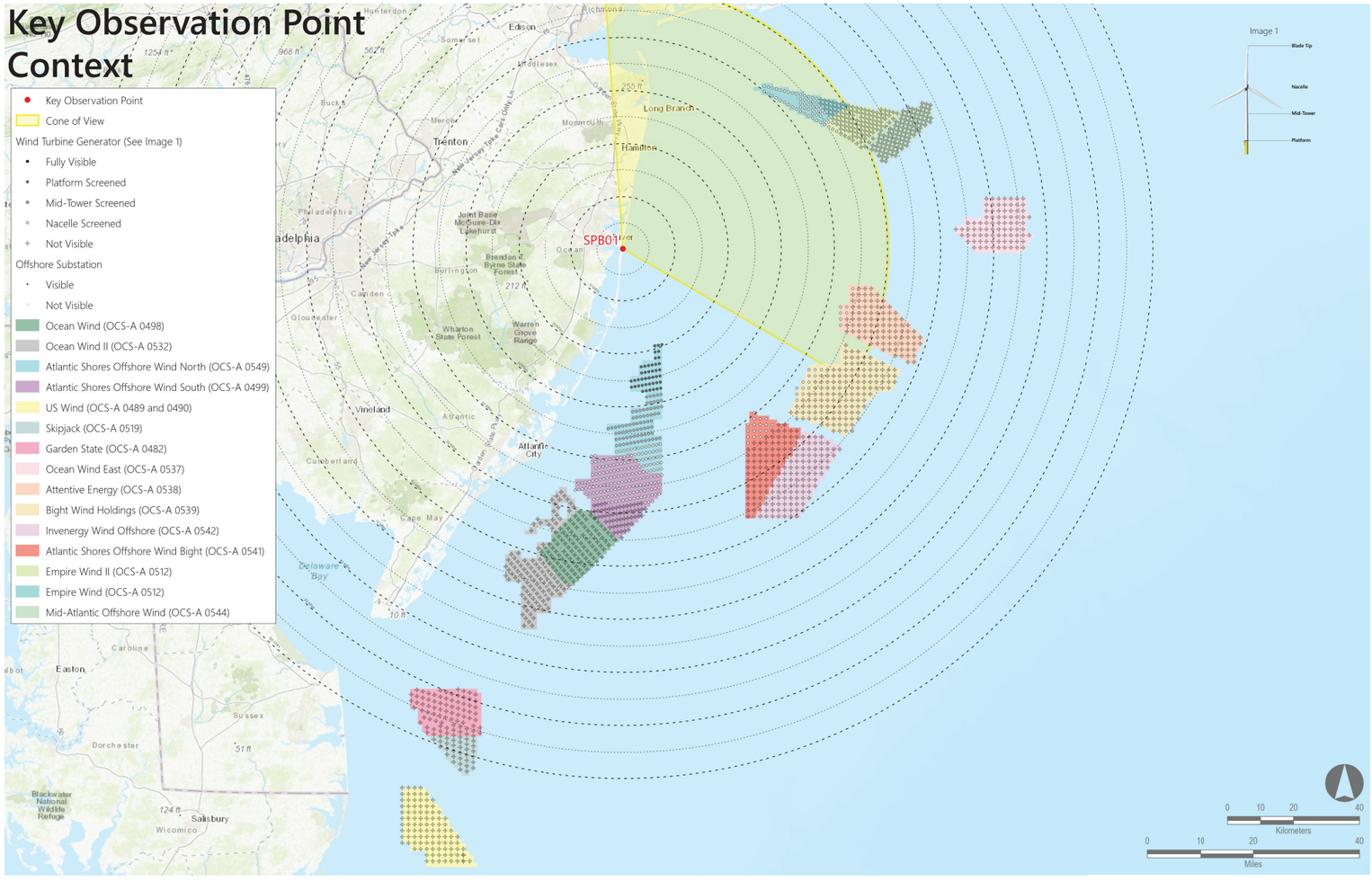
Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 16.23 feet AMSL

Key Observation Point Information

County: Ocean
Town: Seaside Park Borough
State: New Jersey
Location: Seaside Park Beach
Latitude, Longitude: 39.93530°N, 74.07163°W
Direction of View (Center): East-northeast (58.6°)
Field of View: 124° x 55°

Visual Resources
Character Area: Commercial Beachfront, Seascape (SCA)
User Group: Residents/Tourists, Fishermen
Visually Sensitive Resource: Seaside Park Beach and Boardwalk, U.S.
Life Saving Station No. 13

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	118	205	39.0	48.0
	Scenario 1	Ocean Wind (OCS-A 0498)	2023-2025	906	0	111	Not Visible	Not Visible
		Empire Wind (OCS-A 0512)	2024-2025	951	52	72	39.8	46.1
		Empire Wind II (OCS-A 0512)	2023-2027	951	6	104	44.6	46.0
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	157	164	19.3	42.2
		Ocean Wind II (OCS-A 0532)	2026-2030	906	0	111	Not Visible	Not Visible
		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	7	101	42.4	43.9
		Bight Wind Holdings (OCS-A 0539)	by 2030	853	13	148	41.8	43.8
		Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	17	95	39.5	43.9
		Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	0	99	Not Visible	Not Visible

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 SPB01 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

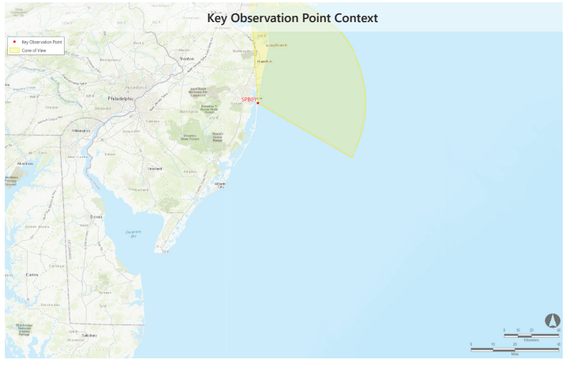
Existing Conditions (Panorama 1)

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 line 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.





MATCH LINE SPB01 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

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

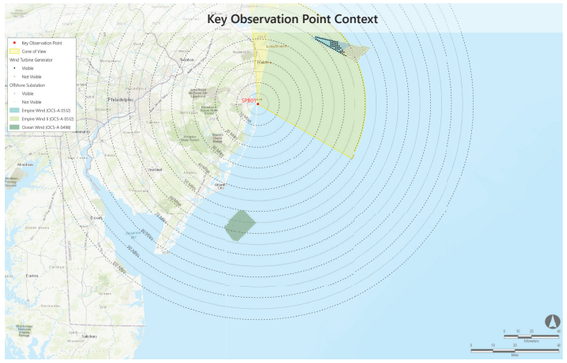
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This line 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	0	111	Not Visible	Not Visible
Empire Wind (OCS-A 0512)	2023-2027	951	52	72	39.8	46.1
Empire Wind II (OCS-A 0512)	2025-2027	951	6	104	44.6	46.0





MATCH LINE SPB01 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park 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)

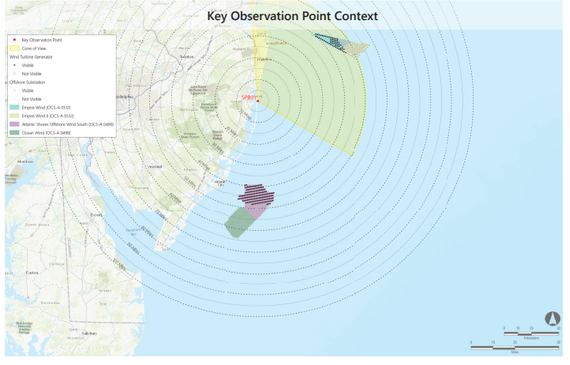
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This line 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	118	205	39.0	48.0
Ocean Wind (OCS-A 0498)	2024-2025	906	0	111	Not Visible	Not Visible
Empire Wind (OCS-A 0512)	2023-2027	951	52	72	39.8	46.1
Empire Wind II (OCS-A 0512)	2025-2027	951	6	104	44.6	46.0





MATCH LINE SPB01 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park 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)

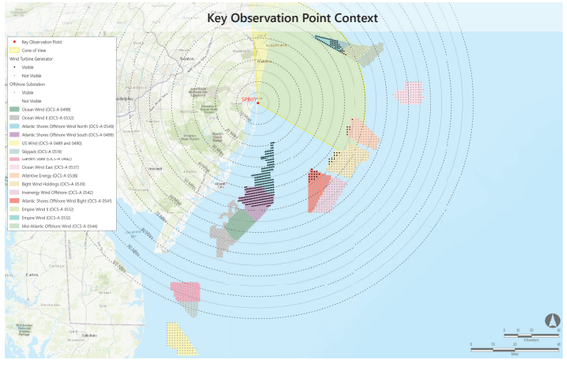
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This line 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	118	205	39.0	48.0
Ocean Wind (OCS-A 0498)	2024-2025	906	0	111	Not Visible	Not Visible
Empire Wind (OCS-A 0512)	2023-2027	951	52	72	39.8	46.1
Empire Wind II (OCS-A 0512)	2025-2027	951	6	104	44.6	46.0
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	157	164	19.3	42.2
Ocean Wind II (OCS-A 0532)	2026-2030	906	0	111	Not Visible	Not Visible
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	7	101	42.4	43.9
Bight Wind Holdings (OCS-A 0539)	by 2030	853	13	148	41.8	43.8
Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	17	95	39.5	43.9
Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	0	99	Not Visible	Not Visible





MATCH LINE SPB01 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

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

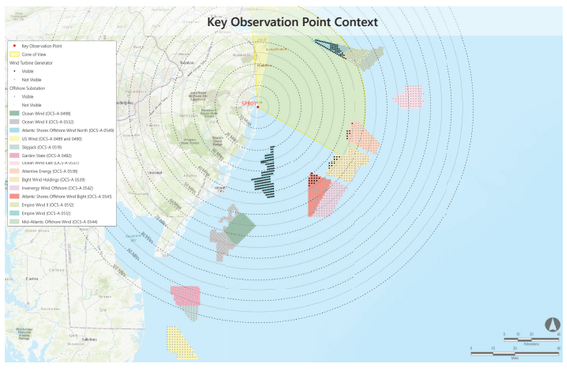
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This line 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	0	111	Not Visible	Not Visible
Empire Wind (OCS-A 0512)	2023-2027	951	52	72	39.8	46.1
Empire Wind II (OCS-A 0512)	2025-2027	951	6	104	44.6	46.0
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	157	164	19.3	42.2
Ocean Wind II (OCS-A 0532)	2026-2030	906	0	111	Not Visible	Not Visible
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	7	101	42.4	43.9
Bight Wind Holdings (OCS-A 0539)	by 2030	853	13	148	41.8	43.8
Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	17	95	39.5	43.9
Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	0	99	Not Visible	Not Visible





MATCH LINE SPB01 PANO #2



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

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

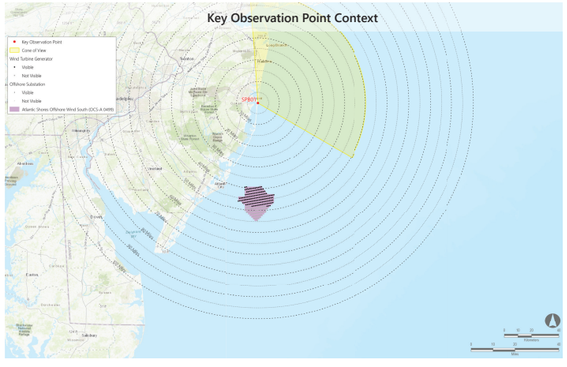
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This line 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	118	205	39.0	48.0





SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

Environmental Data

Date Taken: 08/25/2022
Time: 7:05 AM
Temperature: 67°F
Humidity: 84%
Visibility*: 10+ miles
Wind Direction: West-northwest
Wind Speed: 3 mph
Conditions Observed: Fair

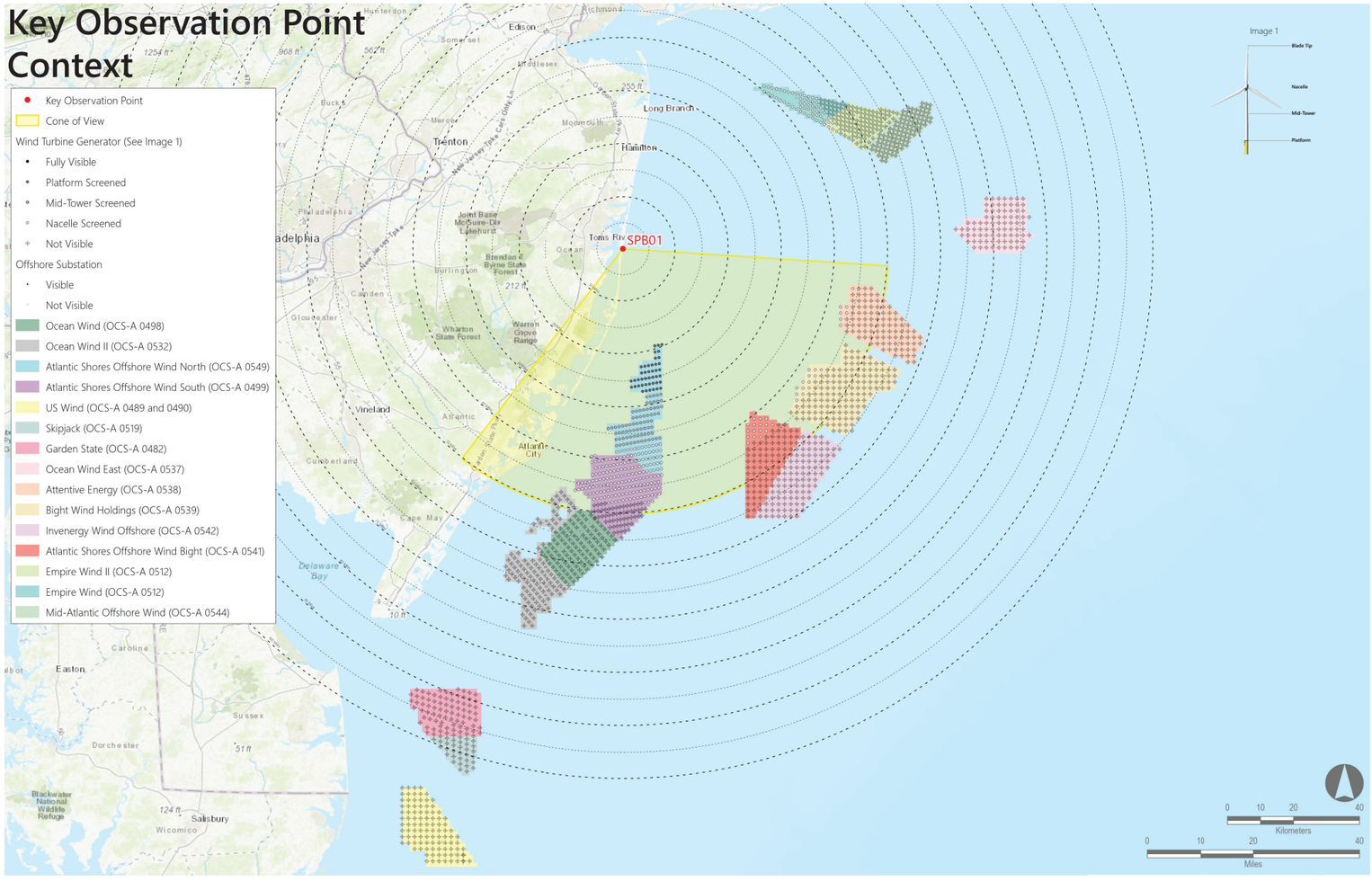
Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 16.23 feet AMSL

Key Observation Point Information

County: Ocean
Town: Seaside Park Borough
State: New Jersey
Location: Seaside Park Beach
Latitude, Longitude: 39.93530°N, 74.07163°W
Direction of View (Center): East-northeast (58.6°)
Field of View: 124° x 55°

Visual Resources
Character Area: Commercial Beachfront, Seascape (SCA)
User Group: Residents/Tourists, Fishermen
Visually Sensitive Resource: Seaside Park Beach and Boardwalk, U.S.
Life Saving Station No. 13

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	118	205	39.0	48.0
	Scenario 1	Ocean Wind (OCS-A 0498)	2023-2025	906	0	111	Not Visible	Not Visible
		Empire Wind (OCS-A 0512)	2024-2025	951	52	72	39.8	46.1
		Empire Wind II (OCS-A 0512)	2023-2027	951	6	104	44.6	46.0
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	157	164	19.3	42.2
		Ocean Wind II (OCS-A 0532)	2026-2030	906	0	111	Not Visible	Not Visible
		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	7	101	42.4	43.9
		Bight Wind Holdings (OCS-A 0539)	by 2030	853	13	148	41.8	43.8
		Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	17	95	39.5	43.9
		Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	0	99	Not Visible	Not Visible

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 SPB01 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

Existing Conditions (Panorama 2)

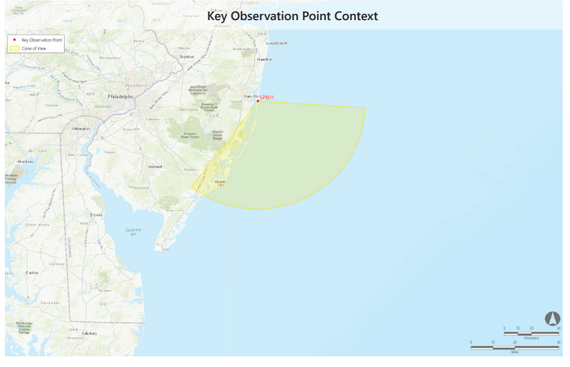
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

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.

Key Observation Point Context



Key Observation Point Location



MATCH LINE SPB01 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

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

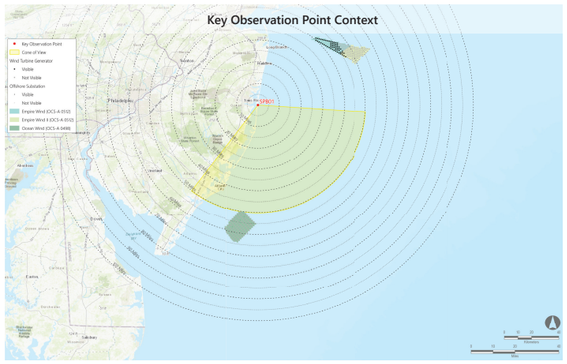
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

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	0	111	Not Visible	Not Visible
Empire Wind (OCS-A 0512)	2023-2027	951	52	72	39.8	46.1
Empire Wind II (OCS-A 0512)	2025-2027	951	6	104	44.6	46.0





MATCH LINE SPB01 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park 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)

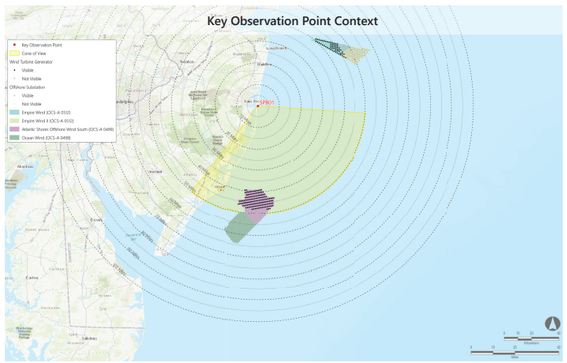
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

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	118	205	39.0	48.0
Ocean Wind (OCS-A 0498)	2024-2025	906	0	111	Not Visible	Not Visible
Empire Wind (OCS-A 0512)	2023-2027	951	52	72	39.8	46.1
Empire Wind II (OCS-A 0512)	2025-2027	951	6	104	44.6	46.0





MATCH LINE SPB01 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park 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)

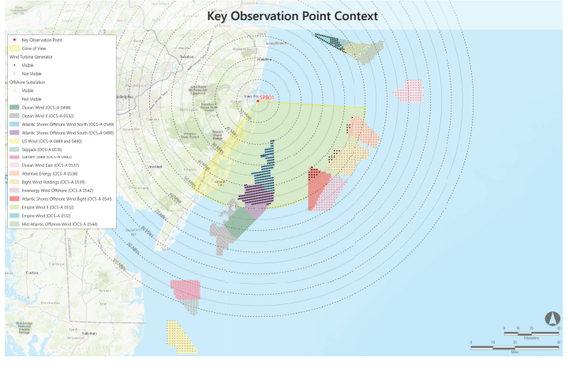
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

This box should be exactly 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	118	205	39.0	48.0
Ocean Wind (OCS-A 0498)	2024–2025	906	0	111	Not Visible	Not Visible
Empire Wind (OCS-A 0512)	2023–2027	951	52	72	39.8	46.1
Empire Wind II (OCS-A 0512)	2025–2027	951	6	104	44.6	46.0
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	157	164	19.3	42.2
Ocean Wind II (OCS-A 0532)	2026–2030	906	0	111	Not Visible	Not Visible
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	7	101	42.4	43.9
Bight Wind Holdings (OCS-A 0539)	by 2030	853	13	148	41.8	43.8
Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	17	95	39.5	43.9
Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	0	99	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
Ocean Wind (OCS-A 0498)
Ocean Wind II (OCS-A 0532)
Atlantic Shores Offshore Wind North (OCS-A 0549)
Atlantic Shores Offshore Wind South (OCS-A 0499)
US Wind (OCS-A 0489 and 0490)
Skipjack (OCS-A 0519)
Garden State (OCS-A 0482)
Ocean Wind East (OCS-A 0537)
Attentive Energy (OCS-A 0538)
Bight Wind Holdings (OCS-A 0539)
Invenergy Wind Offshore (OCS-A 0542)
Atlantic Shores Offshore Wind Bight (OCS-A 0541)
Empire Wind II (OCS-A 0512)
Empire Wind (OCS-A 0512)
Mid-Atlantic Offshore Wind (OCS-A 0544)
SPB01
Lake Ave
Island
Gardens
Toms River
Barnegat
Barnegat Bay
Waretown
Forked River
Lacey
Lacey Township
Lakehurst
Manchester
Manchester Township
Lakewood
Jackson
Jackson Township
Tuckerton
Little Egg Harbor
Little Egg Harbor Township
Pine Barrens
Eagleswood
Eagleswood Township
Tom's River
Galloway
Galloway Township
Absecon
Absecon Island
Atlantic City
Pleasantville
Egg Harbor City
Egg Harbor Township
Hammonton
Mullica Hill
Mullica Hill Township
Elmer
Elmer Township
Salem
Salem County
Penns Grove
Carneys Point
Carneys Point Township
Pennsville
Pennsville Township
Oldmans
Oldmans Township
Swedesboro
Woolwich
Woolwich Township
Gibbstown
Logan
Logan Township
Bridgeton
Bridgeton Township
Millville
Millville Township
Vineland
Vineland Township
Cumberland County
Cumberland
Cumberland Township
Fairfield
Fairfield

MATCH LINE SPB01 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park Borough, Ocean County, New Jersey

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

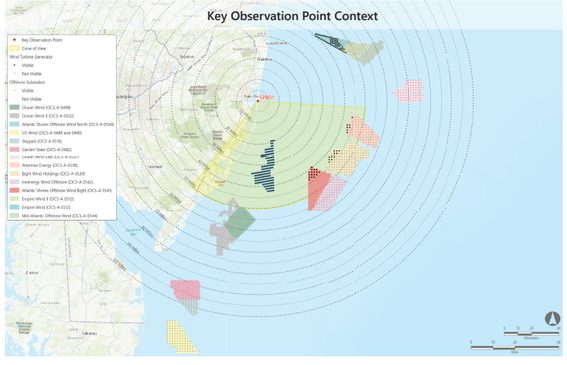
Simulation Size: 66" in width by 29.3" in height. Images should be viewed from a distance of 18 inches in order to obtain the proper perspective.

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	0	111	Not Visible	Not Visible
Empire Wind (OCS-A 0512)	2023-2027	951	52	72	39.8	46.1
Empire Wind II (OCS-A 0512)	2025-2027	951	6	104	44.6	46.0
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	157	164	19.3	42.2
Ocean Wind II (OCS-A 0532)	2026-2030	906	0	111	Not Visible	Not Visible
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	7	101	42.4	43.9
Bight Wind Holdings (OCS-A 0539)	by 2030	853	13	148	41.8	43.8
Atlantic Shores Offshore Wind Bight (OCS-A 0541)	by 2030	853	17	95	39.5	43.9
Invenergy Wind Offshore (OCS-A 0542)	by 2030	853	0	99	Not Visible	Not Visible





MATCH LINE SPB01 PANO #1



ATLANTIC SHORES offshore wind

Appendix A: Atlantic Shores Offshore Wind Cumulative Photosimulations

SPB01: Seaside Park Beach, Seaside Park 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	118	205	39.0	48.0

