Appendix I: TrueView™ Photomontages

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In response to stakeholder interest regarding visual impacts from potential future renewable energy development within the New York Call Area, BOEM has undertaken a project to develop visual simulations of a hypothetical wind energy facility on the Outer Continental Shelf offshore Long Island, New York. The purpose of this study is to characterize the potential onshore visibility of offshore wind turbines from locations along the coasts of New York and New Jersey under different seasons, times of day and weather conditions.

BOEM is not currently considering the approval of a specific project within the Call Area; therefore, the visual simulations illustrate a *hypothetical project*. The *hypothetical project* was designed to represent a commercially-scaled and technically feasible scenario that is consistent with industry trends regarding operating capacity, wind turbine size, spacing and configuration. Per BOEM's guidelines, project-specific visual simulations would be prepared by a lessee and submitted with its construction and operations plan. See *Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan* at http://www.boem.gov/National-and-Regional-Guidelines-for-Renewable-Energy-Activities/.

A series of accurate and realistic visual simulations of a hypothetical, commercial-scale wind energy facility within the New York Call Area were created from photographs and video taken at sixteen Key Observation Points located in New York and New Jersey. The simulations were further informed by a meteorological conditions assessment and a GIS-based viewshed analysis. A detailed description of the methods and supporting information used to create the visual simulations is provided in the Compendium Report accompanying the simulations.

Visual Simulation Overview

This appendix includes visual simulations of the *hypothetical project* prepared using photographs taken at Key Observation Points. An information pane is provided on each simulation and includes:

- Base Photographic Documentation
- Camera Information
- Sun and Weather Information
- Turbine Information
- Context Map
- Viewing Instructions

Viewing Instructions

Viewing instructions are provided on each simulation. The visibility of the turbines on images projected on a computer screen will depend on the scale at which the image is being viewed. Simply put, zooming in on the image may overstate visibility. Conversely, zooming out or observing the image at full-screen will minimize the visibility of turbines. To view the simulations properly, adjust the zoom until the scale bar on the simulation measures four inches. Scaling the simulation in this manner will ensure that turbines – and other natural features in the view frame – are portrayed at an accurate scale and will ensure the field of view is similar to that experienced by an observer standing at the KOP. Once property scaled the images should be viewed from a distance of 19.7 inches.

This simulation illustrates a hypothetical project and does not represent an actual or proposed project. Adherence to the viewing instructions provided on this page is necessary to ensure that the images are accurately portrayed.



Otis Pike Fire Island High Dune Wilderness - Visitor Center - Spring / Afternoon **-** ***Existing Conditions***

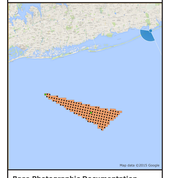
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Otis Pike Fire Island High Dune Wilderness - Visitor Center
Spring / Afternoon

Existing Conditions

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/16/2014
Time (24hr):	14:24
GPS Longitude:	-72.866508
GPS Latitude:	40.732304
Viewpoint Elevation (ft):	16.26
Camera Height (ft):	5.41
Camera Heading (°):	277

Sun And Weather Information

Sun Azimuth:	234.9437666
Sun Elevation:	64.06887348
Lighting Angle (On Turbines):	Right/Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.6
Average Predicted Visibility (NM):	16
Wave Height (ft):	0.9
Period (Seconds):	10
Temperature (°F):	68
Temperature (°C):	20
Humidity (%):	38

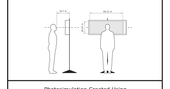
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	28.4
Make & Model:	Siemsn 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

Truescape®

www.truescape.com

6/16/2014 | 14:24 Date, Time, Visit, KOP, Spring, Afternoon

This simulation illustrates a hypothetical project and does not represent an actual or proposed project. Adherence to the viewing instructions provided on this page is necessary to ensure that the images are accurately portrayed.



Otis Pike Fire Island High Dune Wilderness - Visitor Center - Spring / Afternoon **-** ***Simulation of Project Under Maximum Visibility***

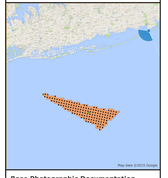
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Otis Pike Fire Island High Dune Wilderness - Visitor Center
Spring / Afternoon

Simulation of Project Under Maximum Visibility

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/16/2014
Time (24hr):	14:24
GPS Longitude:	-72.866508
GPS Latitude:	40.732304
Viewpoint Elevation (ft):	16.26
Camera Height (ft):	5.41
Camera Heading (°):	277

Sun And Weather Information

Sun Azimuth:	234.9437966
Sun Elevation:	64.06887348
Lighting Angle (On Turbines):	Right/Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.6
Average Predicted Visibility (NM):	16
Wave Height (ft):	0.9
Period (Seconds):	10
Temperature (°F):	68
Temperature (°C):	20
Humidity (%):	38

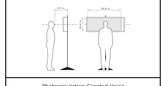
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	28.4
Make & Model:	Senvion 6.2M 152
Number of Turbines:	194
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

Truescape®

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Sunken Forest - Summer / Morning **-** ***Existing Conditions***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

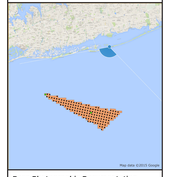
9/20/2014, 1245:54pm, 50mm, 46mm, KOP7, Summer, Morning

BOEM
Bureau of Ocean Energy Management

Sunken Forest
Summer / Morning

Existing Conditions

◆ Key Observation Point (KOP)
● Turbine
■ Site Boundary
■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	9/20/2014
Time (24hr):	918
GPS Longitude:	-73.152272
GPS Latitude:	40.6546935
Viewpoint Elevation (ft):	35.31
Camera Height (ft):	5.41
Camera Heading (°):	198

Sun And Weather Information

Sun Azimuth:	116.2427902
Sun Elevation:	28.59638778
Lighting Angle (On Turbines):	Back-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	19.4
Average Predicted Visibility (NM):	14.7
Wave Height (ft):	2.5
Period (Seconds):	8
Temperature (°F)	69
Temperature (°C)	19
Humidity (%):	65

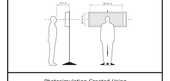
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	21
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

Provided by

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Sunken Forest - Summer / Morning **-** ***Simulation of Project Under Average Predicted Visibility***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

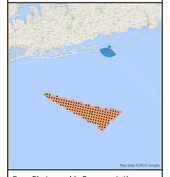
9/20/2014, 1245:54pm, 16mm, 40FT, Summer_Morning

BOEM
Bureau of Ocean Energy Management

Sunken Forest
Summer / Morning

Simulation of Project Under Average Predicted Visibility

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	9/20/2014
Time (24hr):	918
GPS Longitude:	-73.15272
GPS Latitude:	40.6546935
Viewpoint Elevation (ft):	35.31
Camera Height (ft):	5.41
Camera Heading (°):	198

Sun And Weather Information

Sun Azimuth:	116.2427902
Sun Elevation:	28.59638778
Lighting Angle (On Turbines):	Back-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	19.4
Average Predicted Visibility (NM):	14.7
Wave Height (ft):	2.5
Period (Seconds):	8
Temperature (°F)	66
Temperature (°C)	19
Humidity (%):	65

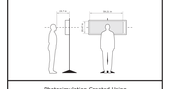
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	21
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577‡
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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Sunken Forest - Fall / Night **-** ***Existing Conditions***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

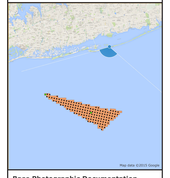
12/24/2014 | 08:07:44 PM | Sunken Forest_KOP3_Fall_Night

BOEM
Bureau of Ocean Energy Management

Sunken Forest
Fall / Night

Existing Conditions

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/24/2014
Time (24hr):	20:45
GPS Longitude:	-73.913272
GPS Latitude:	40.654935
Viewpoint Elevation (ft):	31.8
Camera Height (ft):	5.41
Camera Heading (°):	353

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Partly-Cloudy
Maximum Visibility (NM):	14.6
Average Predicted Visibility (NM):	14.5
Wave Height (ft):	1.9
Period (Seconds):	9
Temperature (°F)	59
Temperature (°C):	15
Humidity (%):	77

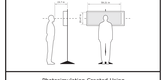
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	21
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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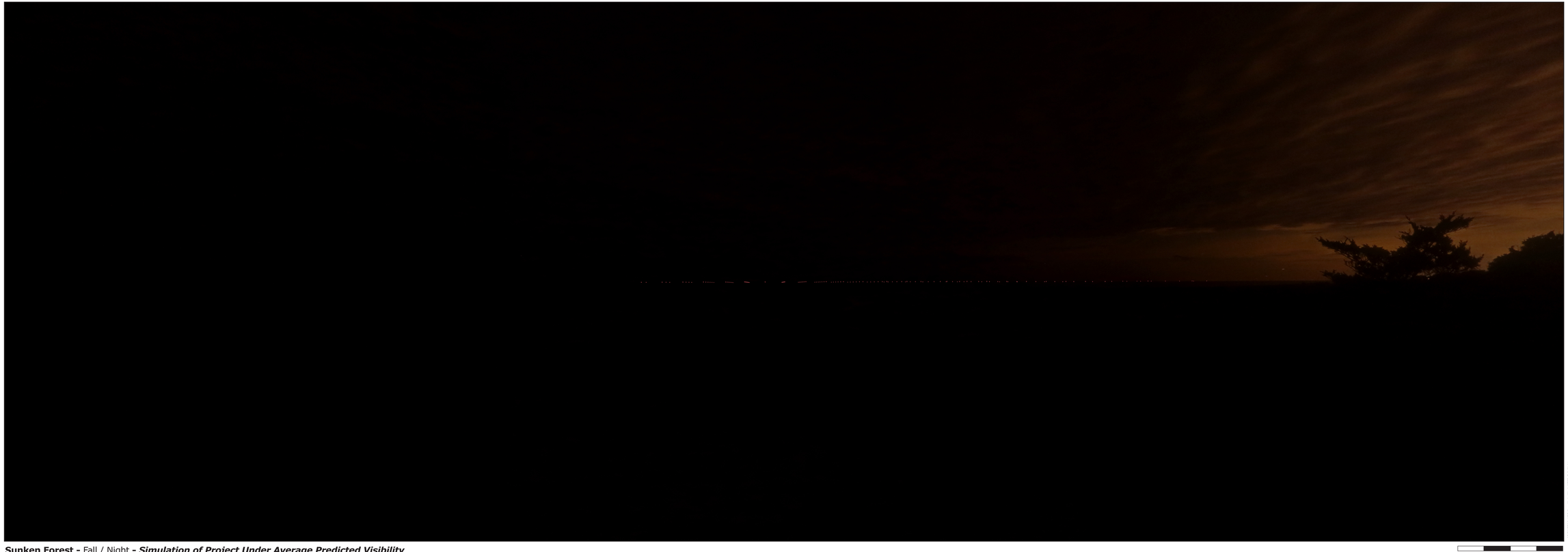


Sunken Forest - Fall / Night **-** ***Simulation of Project Under Average Predicted Visibility***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

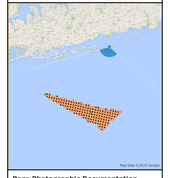
12x24in|304.8x609.6mm, Sunken Forest, ALP24, Fall, Night

BOEM
Bureau of Ocean Energy Management

Sunken Forest
Fall / Night

Simulation of Project Under Average Predicted Visibility

- Key Observation Point (KOP)
- Turbine
- Site Boundary
- Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/24/2014
Time (24hr):	20:45
GPS Longitude:	-73.13233
GPS Latitude:	40.6548335
Viewpoint Elevation (ft):	35.81
Camera Height (ft):	5.41
Camera Heading (°):	353

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Partly-Cloudy
Maximum Visibility (NM):	14.6
Average Predicted Visibility (NM):	10.5
Wave Height (ft):	1.9
Period (Seconds):	9
Temperature (°F)	59
Temperature (°C):	15
Humidity (%):	77

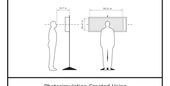
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	21
Make & Model:	Servion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

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This simulation illustrates a hypothetical project and does not represent an actual or proposed project. Adherence to the viewing instructions provided on this page is necessary to ensure that the images are accurately portrayed.



6/21/2014, 1245:59pm, 16mm, 46.397° (V), Spring, Morning

Fire Island Light House - Spring / Morning **- *Existing Conditions***

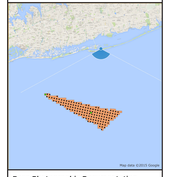
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Fire Island Light House
Spring / Morning

Existing Conditions

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/21/2014
Time (24hr):	10:32
GPS Longitude:	-73.218559
GPS Latitude:	40.632499
Viewpoint Elevation (ft):	16.68
Camera Height (ft):	5.41
Camera Heading (°):	180

Sun And Weather Information

Sun Azimuth:	108.9423609
Sun Elevation:	55.9374704
Lighting Angle (On Turbines):	Back-Lit
Weather Conditions:	Partly-Cloudy
Maximum Visibility (NM):	27.2
Average Predicted Visibility (NM):	15.9
Wave Height (ft):	0.9
Period (Seconds):	12
Temperature (°F)	66
Temperature (°C)	19
Humidity (%)	34

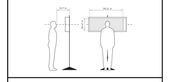
Camera Information

Camera Make & Model:	Canon EOS 6D
Camera Sensor Size:	35.8mm x 23.9mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47 (H) / 46.397 (V)

Turbine Information

Distance to Nearest Turbine (NM):	10.7
Make & Model:	Servion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577‡
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

Provided by

Truescape®

www.truescape.com

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Fire Island Light House - Spring / Morning **- *Simulation of Project Under Maximum Visibility***

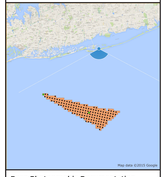
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Fire Island Light House
Spring / Morning

Simulation of Project Under Maximum Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/29/2014
Time (24hr):	10:32
GPS Longitude:	-73.218559
GPS Latitude:	40.632499
Viewpoint Elevation (ft):	16.68
Camera Height (ft):	5.41
Camera Heading (°):	180

Sun And Weather Information

Sun Azimuth:	108.9423605
Sun Elevation:	55.55774704
Lighting Angle (On Turbines):	Back-Lit
Weather Conditions:	Partly-Cloudy
Maximum Visibility (NM):	27.2
Average Predicted Visibility (NM):	15.9
Wave Height (ft):	0.9
Period (Seconds):	12
Temperature (°F)	66
Temperature (°C)	19
Humidity (%)	34

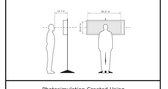
Camera Information

Camera Make & Model:	Canon EOS 6D
Camera Sensor Size:	35.8mm x 23.9mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47 (H) / 46.397 (V)

Turbine Information

Distance to Nearest Turbine (NM):	10.7
Make & Model:	Siemens 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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6/21/2014 1245:54pm, Wide, KOP7, Spring, Morning

This simulation illustrates a hypothetical project and does not represent an actual or proposed project. Adherence to the viewing instructions provided on this page is necessary to ensure that the images are accurately portrayed.



Fire Island Light House - Fall / Night **- *Existing Conditions***

11/20/2014 USA-New York, Wind_NOP3 Fall Night

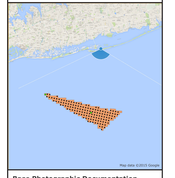
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Fire Island Light House
Fall / Night

Existing Conditions

Key Observation Point (KOP) | Site Boundary
Turbine | Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	11/20/2014
Time (24hr):	21:48
GPS Longitude:	-73.218569
GPS Latitude:	40.632419
Viewpoint Elevation (ft):	154.68
Camera Height (ft):	5.41
Camera Heading (°):	183

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Overcast
Maximum Visibility (NM):	27.2
Average Predicted Visibility (NM):	16.5
Wave Height (ft):	3.5
Period (Seconds):	7
Temperature (°F):	36
Temperature (°C):	2
Humidity (%):	34

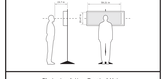
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	18.7
Make & Model:	Senvion 6.2M 152
Number of Turbines:	134
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

Provided by

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Fire Island Light House - Fall / Night **- *Simulation of Project Under Maximum Visibility***

11/20/2014_USA-New_York_Wind_ADP2_Fall_Night

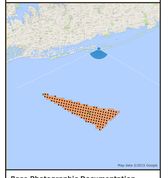
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Fire Island Light House
Fall / Night

Simulation of Project Under Maximum Visibility

Key Observation Point (KOP) | Site Boundary
Turbine | Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	11/20/2014
Time (24hr):	21:48
GPS Longitude:	-73.218569
GPS Latitude:	40.632419
Viewpoint Elevation (ft):	16.68
Camera Height (ft):	5.41
Camera Heading (°):	183

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Overcast
Maximum Visibility (NM):	27.2
Average Predicted Visibility (NM):	16.5
Wave Height (ft):	3.5
Period (Seconds):	7
Temperature (°F):	36
Temperature (°C):	2
Humidity (%):	34

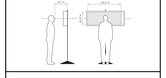
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	18.7
Make & Model:	Senvion 6.2M 152
Number of Turbines:	134
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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8/07/2014, 1245:54pm, 40.59°N, 73.50°W, 5.4m/17.7ft, Summer_Afternoon

Jones Beach - Summer / Afternoon **-** ***Existing Conditions***

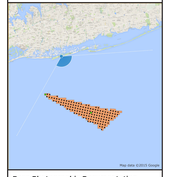
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Jones Beach
Summer / Afternoon

Existing Conditions

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	8/07/2014
Time (24hr):	1412
GPS Longitude:	-73.507239
GPS Latitude:	40.59421
Viewpoint Elevation (ft):	16.28
Camera Height (ft):	5.41
Camera Heading (°):	168

Sun And Weather Information

Sun Azimuth:	277.9965494
Sun Elevation:	61.09625088
Lighting Angle (On Turbines):	Right/Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	27.2
Average Predicted Visibility (NM):	16.3
Wave Height (ft):	2.5
Period (Seconds):	8
Temperature (°F)	79
Temperature (°C):	26
Humidity (%):	34

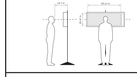
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	12.9
Make & Model:	Siemens 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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8/07/2014 1245:54pm, 90mm, ALP14, Summer_Afternoon

Jones Beach - Summer / Afternoon **-** ***Simulation of Project Under Maximum Visibility***

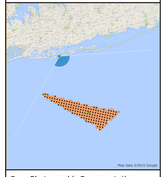
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Jones Beach
Summer / Afternoon

Simulation of Project Under Maximum Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	8/07/2014
Time (24hr):	1412
GPS Longitude:	-73.507239
GPS Latitude:	40.59421
Viewpoint Elevation (ft):	16.28
Camera Height (ft):	5.41
Camera Heading (°):	NW

Sun And Weather Information

Sun Azimuth:	277.9965494
Sun Elevation:	81.09625088
Lighting Angle (On Turbines):	Right/Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	27.2
Average Predicted Visibility (NM):	16.3
Wave Height (ft):	2.5
Period (Seconds):	8
Temperature (°F)	79
Temperature (°C):	26
Humidity (%):	34

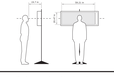
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	12.9
Make & Model:	Senvion 6.2M 152
Number of Turbines:	134
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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Jones Beach - Fall / Night **-** ***Existing Conditions***

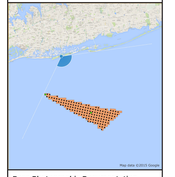
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Jones Beach
Fall / Night

Existing Conditions

◆ Key Observation Point (KOP)
● Turbine
■ Site Boundary
■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	2147
GPS Longitude:	-73.507239
GPS Latitude:	40.59421
Viewpoint Elevation (ft):	16.28
Camera Height (ft):	5.41
Camera Heading (°):	NW

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Partly-Cloudy
Maximum Visibility (NM):	20.6
Average Predicted Visibility (NM):	18.6
Wave Height (ft):	1.6
Period (Seconds):	9
Temperature (°F)	63
Temperature (°C):	17
Humidity (%):	52

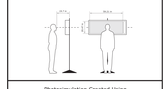
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	12.9
Make & Model:	Senvion 6.2M 152
Number of Turbines:	134
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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12/20/2014 c:\BOEM\new_York_Wind_ADP\4_Final_Report

This simulation illustrates a hypothetical project and does not represent an actual or proposed project. Adherence to the viewing instructions provided on this page is necessary to ensure that the images are accurately portrayed.



Jones Beach - Fall / Night **-** ***Simulation of Project Under Average Predicted Visibility***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

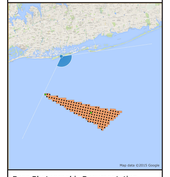
10/20/2014 c:\BOEM\new_York_Wind_Alpha_Ext_Night

BOEM
Bureau of Ocean Energy Management

Jones Beach
Fall / Night

Simulation of Project Under Average Predicted Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	2147
GPS Longitude:	-73.507239
GPS Latitude:	40.59421
Viewpoint Elevation (ft):	16.28
Camera Height (ft):	5.41
Camera Heading (°):	NW

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Partly-Cloudy
Maximum Visibility (NM):	20.6
Average Predicted Visibility (NM):	18.6
Wave Height (ft):	1.6
Period (Seconds):	9
Temperature (°F)	63
Temperature (°C):	17
Humidity (%):	52

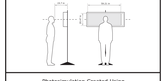
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	12.9
Make & Model:	Senvion 6.2M 152
Number of Turbines:	134
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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Jacob Riis Park – Spring / Midday **–** ***Existing Conditions***

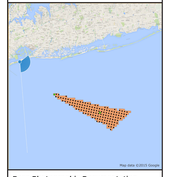
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Jacob Riis Park
Spring / Midday

Existing Conditions

◆ Key Observation Point (KOP) ■ Site Boundary
◆ Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/25/2014
Time (24hr):	12:47
GPS Longitude:	-73.869745
GPS Latitude:	40.565889
Viewpoint Elevation (ft):	15.57
Camera Height (ft):	5.41
Camera Heading (°):	114

Sun And Weather Information

Sun Azimuth:	172.027898
Sun Elevation:	72.7329767
Lighting Angle (On Turbines):	Back-Lit
Weather Conditions:	Partly-Cloudy
Maximum Visibility (NM):	27
Average Predicted Visibility (NM):	17
Wave Height (ft):	0.8
Period (Seconds):	9
Temperature (°F)	68
Temperature (°C)	20
Humidity (%):	35

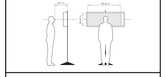
Camera Information

Camera Make & Model:	Canon EOS 6D
Camera Sensor Size:	35.8mm x 23.9mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47 (H) / 46.397 (V)

Turbine Information

Distance to Nearest Turbine (NM):	15.9
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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Jacob Riis Park – Spring / Midday **–** ***Simulation of Project Under Maximum Visibility***

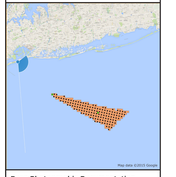
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Jacob Riis Park
Spring / Midday

Simulation of Project Under Maximum Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
◆ Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/21/2014
Time (24hr):	12:47
GPS Longitude:	-73.869745
GPS Latitude:	40.565889
Viewpoint Elevation (ft):	15.57
Camera Height (ft):	5.41
Camera Heading (°):	114

Sun And Weather Information

Sun Azimuth:	172.027898
Sun Elevation:	72.7329767
Lighting Angle (On Turbines):	Back-Lit
Weather Conditions:	Partly-Cloudy
Maximum Visibility (NM):	27.1
Average Predicted Visibility (NM):	17.7
Wave Height (ft):	0.8
Period (Seconds):	9
Temperature (°F)	68
Temperature (°C)	20
Humidity (%):	35

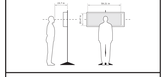
Camera Information

Camera Make & Model:	Canon EOS 6D
Camera Sensor Size:	35.8mm x 23.9mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	15.9
Make & Model:	Siemens 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

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Breezy Point - Spring / Afternoon **-** ***Existing Conditions***

6/16/2014, 1845 Hours, Wind, ASPH, Spring, Afternoon

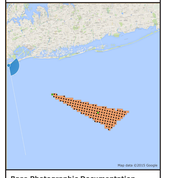
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Breezy Point
Spring / Afternoon

Existing Conditions

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/16/2014
Time (24hr):	16:41
GPS Longitude:	-73.37057
GPS Latitude:	40.547233
Viewpoint Elevation (ft):	7.95
Camera Height (ft):	5.41
Camera Heading (°):	108

Sun And Weather Information

Sun Azimuth:	267.6502486
Sun Elevation:	40.28202575
Lighting Angle (On Turbines):	Front-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.6
Average Predicted Visibility (NM):	17.7
Wave Height (ft):	0.7
Period (Seconds):	7
Temperature (°F):	73
Temperature (°C):	23
Humidity (%):	38

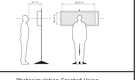
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47 (H) / 46.397 (V)

Turbine Information

Distance to Nearest Turbine (NM):	7.5
Make & Model:	Senvion 6.2M 152
Number of Turbines:	194
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

Provided by

Truescape®

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This simulation illustrates a hypothetical project and does not represent an actual or proposed project. Adherence to the viewing instructions provided on this page is necessary to ensure that the images are accurately portrayed.



Breezy Point - Spring / Afternoon **- *Simulation of Project Under Maximum Visibility***

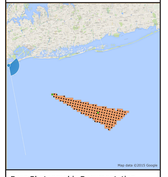
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Breezy Point
Spring / Afternoon

Simulation of Project Under Maximum Visibility

Key Observation Point (KOP) | Site Boundary
Turbine | Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/16/2014
Time (24hr):	16:41
GPS Longitude:	-73.93107
GPS Latitude:	40.547231
Viewpoint Elevation (ft):	7.95
Camera Height (ft):	5.41
Camera Heading (°):	108

Sun And Weather Information

Sun Azimuth:	267.65104486
Sun Elevation:	40.28202575
Lighting Angle (On Turbines):	Front Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.6
Average Predicted Visibility (NM):	17.7
Wave Height (ft):	0.7
Period (Seconds):	7
Temperature (°F):	73
Temperature (°C):	23
Humidity (%):	38

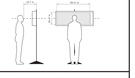
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm 11.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	17.5
Make & Model:	Senvion 6.2M 152
Number of Turbines:	134
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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Great Kills - Spring / Afternoon **- *Existing Conditions***

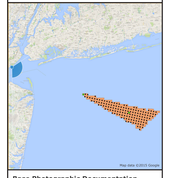
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Great Kills
Spring / Afternoon

Existing Conditions

Key Observation Point (KOP) Site Boundary
Turbine Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	5/30/2014
Time (24hr):	17:05
GPS Longitude:	-74.129602
GPS Latitude:	40.537593
Viewpoint Elevation (ft):	16.62
Camera Height (ft):	5.41
Camera Heading (°):	118

Sun And Weather Information

Sun Azimuth:	270.4480647
Sun Elevation:	34.4124028
Lighting Angle (On Turbines):	Front-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	20.8
Average Predicted Visibility (NM):	20.2
Wave Height (ft):	2
Period (Seconds):	7
Temperature (°F):	66
Temperature (°C):	19
Humidity (%):	61

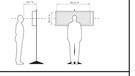
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	25.5
Make & Model:	Senvion 6.2M 152
Number of Turbines:	134
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MHW

Correct Viewing of TruView™ Photosimulations



Photosimulation Created Using TruView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

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©2015/2014, LDR-New York, WMS, BOEM, Spring_Afternoon

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5/30/2014, 1245:54pm, 50mm, 46.397° (V), Spring_Afternoon

Great Kills - Spring / Afternoon **-** ***Simulation of Project Under Average Predicted Visibility***

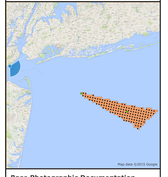
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Great Kills
Spring / Afternoon

Simulation of Project Under Average Predicted Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	5/30/2014
Time (24hr):	17:05
GPS Longitude:	-74.129602
GPS Latitude:	40.537553
Viewpoint Elevation (ft):	16.62
Camera Height (ft):	5.41
Camera Heading (°):	118

Sun And Weather Information

Sun Azimuth:	270.4480647
Sun Elevation:	34.4124528
Lighting Angle (On Turbines):	Front-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	20.8
Average Predicted Visibility (NM):	20.2
Wave Height (ft):	2
Period (Seconds):	7
Temperature (°F)	66
Temperature (°C)	19
Humidity (%):	81

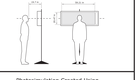
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	25.5
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

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Great Kills - Fall / Night **-** ***Existing Conditions***

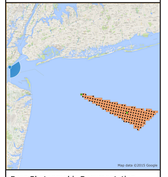
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Great Kills
Fall / Night

Existing Conditions

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/23/2014
Time (24hr):	22:55
GPS Longitude:	-74.109602
GPS Latitude:	40.537553
Viewpoint Elevation (ft):	16.62
Camera Height (ft):	5.41
Camera Heading (°):	118

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Overcast
Maximum Visibility (NM):	13.3
Average Predicted Visibility (NM):	10.7
Wave Height (ft):	2
Period (Seconds):	8
Temperature (°F)	52
Temperature (°C):	11
Humidity (%):	80

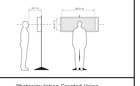
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	25.5
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

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10/23/2014 1:45:57 PM, Tues, 6DPR, Fall, Night

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Great Kills - Fall / Night **-** ***Simulation of Project Under Average Predicted Visibility***

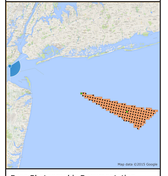
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Great Kills
Fall / Night

Simulation of Project Under Average Predicted Visibility

- Key Observation Point (KOP)
- Turbine
- Site Boundary
- Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/23/2014
Time (24hr):	22:55
GPS Longitude:	-74.129602
GPS Latitude:	40.537553
Viewpoint Elevation (ft):	16.62
Camera Height (ft):	5.41
Camera Heading (°):	118

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Overcast
Maximum Visibility (NM):	13.3
Average Predicted Visibility (NM):	10.7
Wave Height (ft):	2
Period (Seconds):	8
Temperature (°F)	52
Temperature (°C):	11
Humidity (%):	80

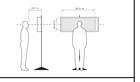
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	25.5
Make & Model:	Siemvin 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

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10/23/2014 LMD New York, NY/FIA_Fall_Night

This simulation illustrates a hypothetical project and does not represent an actual or proposed project. Adherence to the viewing instructions provided on this page is necessary to ensure that the images are accurately portrayed.



Sandy Hook Light House - Spring / Morning **-** ***Existing Conditions***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

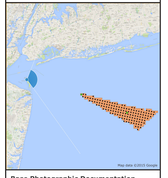
6/06/2014, 10:17:00am, 75mm, Manual, ISO100, Spring, Morning

BOEM
Bureau of Ocean Energy Management

Sandy Hook Light House
Spring / Morning

Existing Conditions

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/06/2014
Time (24hr):	10:17
GPS Longitude:	-74.002705
GPS Latitude:	40.467707
Viewpoint Elevation (ft):	90.76
Camera Height (ft):	5.41
Camera Heading (°):	83

Sun And Weather Information

Sun Azimuth:	106.1066563
Sun Elevation:	52.4249504
Lighting Angle (On Turbines):	Right-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	22.3
Average Predicted Visibility (NM):	18.2
Wave Height (ft):	1.6
Period (Seconds):	9
Temperature (°F)	64
Temperature (°C)	18
Humidity (%):	56

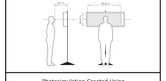
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	19.6
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

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Sandy Hook Light House - Spring / Morning **-** ***Simulation of Project Under Average Predicted Visibility***

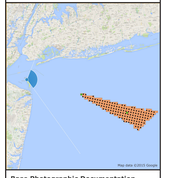
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Sandy Hook Light House
Spring / Morning

Simulation of Project Under Average Predicted Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	6/06/2014
Time (24hr):	1017
GPS Longitude:	-74.002205
GPS Latitude:	40.467707
Viewpoint Elevation (ft):	9076
Camera Height (ft):	5.41
Camera Heading (°):	83

Sun And Weather Information

Sun Azimuth:	106.1066563
Sun Elevation:	52.4249504
Lighting Angle (On Turbines):	Right-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	22.3
Average Predicted Visibility (NM):	18.2
Wave Height (ft):	1-6
Period (Seconds):	9
Temperature (°F)	64
Temperature (°C)	18
Humidity (%):	56

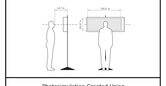
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	19.6
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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8/28/2014, 1245:54pm, NAD83, WGS84, ADP3, Summer, Middle

Sandy Hook North Beach - Summer / Midday **-** ***Existing Conditions***

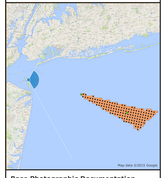
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Sandy Hook North Beach
Summer / Midday

Existing Conditions

◆ Key Observation Point (KOP)
● Turbine
■ Site Boundary
■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	8/28/2014
Time (24hr):	1144
GPS Longitude:	-73.99404
GPS Latitude:	40.468987
Viewpoint Elevation (ft):	9.04
Camera Height (ft):	5.41
Camera Heading (°):	90

Sun And Weather Information

Sun Azimuth:	147.2465503
Sun Elevation:	55.7046529
Lighting Angle (On Turbines):	Right/Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	24
Average Predicted Visibility (NM):	16.3
Wave Height (ft):	4.5
Period (Seconds):	13
Temperature (°F):	77
Temperature (°C):	25
Humidity (%):	50

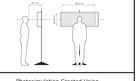
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	18.4
Make & Model:	Siemens 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,194,906 B2)

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8/28/2014, 184.5mm, 90mm, 46.39°, Summer, Middle

Sandy Hook North Beach - Summer / Midday **-** ***Simulation of Project Under Average Predicted Visibility***

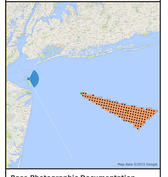
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Sandy Hook North Beach
Summer / Midday

Simulation of Project Under Average Predicted Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	8/28/2014
Time (24hr):	11:44
GPS Longitude:	-73.99434
GPS Latitude:	40.468987
Viewpoint Elevation (ft):	10.34
Camera Height (ft):	5.41
Camera Heading (°):	90

Sun And Weather Information

Sun Azimuth:	147.2465503
Sun Elevation:	55.7046529
Lighting Angle (On Turbines):	Right/Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	24
Average Predicted Visibility (NM):	16.3
Wave Height (ft):	4.5
Period (Seconds):	13
Temperature (°F):	77
Temperature (°C):	25
Humidity (%):	50

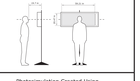
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	18.4
Make & Model:	Siemens 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

Provided by

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Sandy Hook North Beach - Fall / Night **-** ***Existing Conditions***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

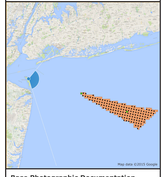
12/20/2014, 140 View, Sandy Hook, NJSPS, Fall, Night

BOEM
Bureau of Ocean Energy Management

Sandy Hook North Beach
Fall / Night

Existing Conditions

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	18:58
GPS Longitude:	-73.99404
GPS Latitude:	40.468987
Viewpoint Elevation (ft):	9.04
Camera Height (ft):	5.41
Camera Heading (°):	321

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Partly Cloudy
Maximum Visibility (NM):	23.8
Average Predicted Visibility (NM):	18.6
Wave Height (ft):	1.6
Period (Seconds):	9
Temperature (°F)	59
Temperature (°C):	15
Humidity (%):	51

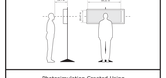
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	10.4
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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Sandy Hook North Beach - Fall / Night **-** ***Simulation of Project Under Average Predicted Visibility***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

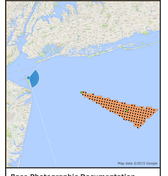
12/20/2014 14:50:17 New York, NYWA_ASPA_Fall_Night

BOEM
Bureau of Ocean Energy Management

Sandy Hook North Beach
Fall / Night

Simulation of Project Under Average Predicted Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	18:58
GPS Longitude:	-73.99404
GPS Latitude:	40.468987
Viewpoint Elevation (ft):	9.04
Camera Height (ft):	5.41
Camera Heading (°):	321

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Partly Cloudy
Maximum Visibility (NM):	23.8
Average Predicted Visibility (NM):	18.6
Wave Height (ft):	1.6
Period (Seconds):	9
Temperature (°F)	59
Temperature (°C):	15
Humidity (%):	51

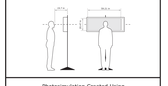
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	18.4
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577†
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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Twin Light NHL, aka Navesink Light Station - Winter / Afternoon **-** ***Existing Conditions***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

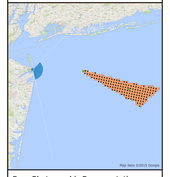
LWA/2015, GPS Data, Twin_Night_KOP1, Winter_Afternoon

BOEM
Bureau of Ocean Energy Management

Twin Light NHL, aka Navesink Light Station
Winter / Afternoon

Existing Conditions

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	1/08/2015
Time (24hr):	14:27
GPS Longitude:	-73.98536
GPS Latitude:	40.396035
Viewpoint Elevation (ft):	254.78
Camera Height (ft):	5.41
Camera Heading (°):	106

Sun And Weather Information

Sun Azimuth:	215.2180597
Sun Elevation:	18.96313597
Lighting Angle (On Turbines):	Right/Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.4
Average Predicted Visibility (NM):	19.5
Wave Height (ft):	0.4
Period (Seconds):	11
Temperature (°F)	19
Temperature (°C):	-8
Humidity (%):	39

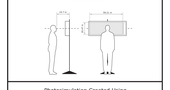
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	11.2
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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Twin Light NHL, aka Navesink Light Station - Winter / Afternoon **-** ***Simulation of Project Under Maximum Visibility***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

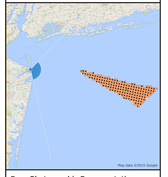
LAT: 40.396035, LON: -73.985636, HOP: 5.41m, Winter, Afternoon

BOEM
Bureau of Ocean Energy Management

Twin Light NHL, aka Navesink Light Station
Winter / Afternoon

Simulation of Project Under Maximum Visibility

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	1/08/2015
Time (24hr):	14:27
GPS Longitude:	-73.98536
GPS Latitude:	40.396035
Viewpoint Elevation (ft):	254.78
Camera Height (ft):	5.41
Camera Heading (°):	106

Sun And Weather Information

Sun Azimuth:	215.2180597
Sun Elevation:	18.96313597
Lighting Angle (On Turbines):	Right/Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.4
Average Predicted Visibility (NM):	19.5
Wave Height (ft):	0.4
Period (Seconds):	11
Temperature (°F)	19
Temperature (°C):	-8
Humidity (%):	39

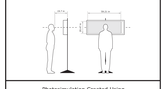
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	11.2
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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Twin Light NHL, aka Navesink Light Station - Fall / Night - ***Existing Conditions***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

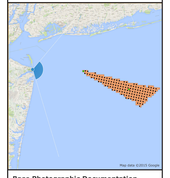
12/20/2014 LMD Pow, Tom, ADPS | For Appr

BOEM
Bureau of Ocean Energy Management

Twin Light NHL, aka Navesink Light Station
Fall / Night

Existing Conditions

◆ Key Observation Point (KOP) ■ Site Boundary
◆ Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	20:24
GPS Longitude:	-73.98546
GPS Latitude:	40.396035
Viewpoint Elevation (ft):	254.78
Camera Height (ft):	5.41
Camera Heading (°):	302

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Cloud
Maximum Visibility (NM):	22.9
Average Predicted Visibility (NM):	18.6
Wave Height (ft):	1.3
Period (Seconds):	9
Temperature (°F)	63
Temperature (°C):	17
Humidity (%):	54

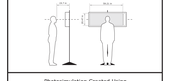
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	11.2
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

Provided by

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This simulation illustrates a hypothetical project and does not represent an actual or proposed project. Adherence to the viewing instructions provided on this page is necessary to ensure that the images are accurately portrayed.



Twin Light NHL, aka Navesink Light Station - Fall / Night **-** ***Simulation of Project Under Average Predicted Visibility***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

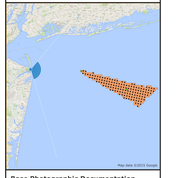
12/20/2014, c:\BOEM\Twin_Light_NHL\4_Fall_Night

BOEM
Bureau of Ocean Energy Management

Twin Light NHL, aka Navesink Light Station
Fall / Night

Simulation of Project Under Average Predicted Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
◆ Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	20:24
GPS Longitude:	-73.98536
GPS Latitude:	40.396035
Viewpoint Elevation (ft):	254.78
Camera Height (ft):	5.41
Camera Heading (°):	102

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Cloud
Maximum Visibility (NM):	22.9
Average Predicted Visibility (NM):	18.6
Wave Height (ft):	1.3
Period (Seconds):	9
Temperature (°F)	63
Temperature (°C):	17
Humidity (%):	54

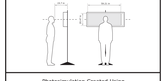
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	11.2
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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Rumson - Summer / Afternoon **-** ***Existing Conditions***

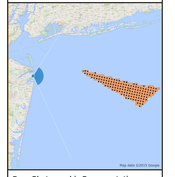
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Rumson
Summer / Afternoon

Existing Conditions

◆ Key Observation Point (KOP)
● Turbine
■ Site Boundary
■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	8/28/2014
Time (24hr):	14:40
GPS Longitude:	-73.973704
GPS Latitude:	40.366995
Viewpoint Elevation (ft):	16.4
Camera Height (ft):	5.41
Camera Heading (°):	94

Sun And Weather Information

Sun Azimuth:	223.6377722
Sun Elevation:	57.64052205
Lighting Angle (On Turbines):	Front-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.4
Average Predicted Visibility (NM):	16.3
Wave Height (ft):	5
Period (Seconds):	10
Temperature (°F)	77
Temperature (°C)	25
Humidity (%)	39

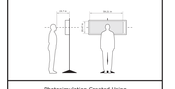
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	10.7
Make & Model:	Siemens 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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8/28/2014, 1245:54pm, 16mm, ASP14, Summer_Afternoon

Rumson - Summer / Afternoon **-** ***Simulation of Project Under Maximum Visibility***

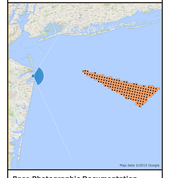
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Rumson
Summer / Afternoon

Simulation of Project Under Maximum Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	8/28/2014
Time (24hr):	1640
GPS Longitude:	-73.915704
GPS Latitude:	40.366595
Viewpoint Elevation (ft):	16.6
Camera Height (ft):	5.41
Camera Heading (°):	94

Sun And Weather Information

Sun Azimuth:	223.6377722
Sun Elevation:	51.64052205
Lighting Angle (On Turbines):	Front-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.4
Average Predicted Visibility (NM):	16.3
Wave Height (ft):	5
Period (Seconds):	11
Temperature (°F)	77
Temperature (°C):	25
Humidity (%):	39

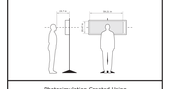
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	10.7
Make & Model:	Siemens 6.2M 152
Number of Turbines:	194
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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Rumson - Fall / Night **-** ***Existing Conditions***

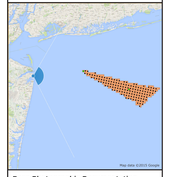
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Rumson
Fall / Night

Existing Conditions

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	21:00
GPS Longitude:	-73.973704
GPS Latitude:	40.366895
Viewpoint Elevation (ft):	16.4
Camera Height (ft):	5.41
Camera Heading (°):	92

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Overcast
Maximum Visibility (NM):	207
Average Predicted Visibility (NM):	9.6
Wave Height (ft):	1.3
Period (Seconds):	9
Temperature (°F)	63
Temperature (°C)	17
Humidity (%)	53

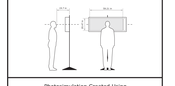
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	10.7
Make & Model:	Siemens 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

Provided by

Truescape®

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10/20/2014 1400 Rose, Rum, Alpha 1 Ext, Night

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Rumson - Fall / Night **-** ***Simulation of Project Under Average Predicted Visibility***

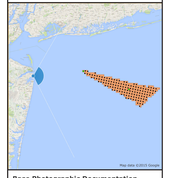
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Rumson
Fall / Night

Simulation of Project Under Average Predicted Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	21:00
GPS Longitude:	-73.973704
GPS Latitude:	40.366895
Viewpoint Elevation (ft):	16.4
Camera Height (ft):	5.41
Camera Heading (°):	92

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Overcast
Maximum Visibility (NM):	20†
Average Predicted Visibility (NM):	9‡§
Wave Height (ft):	1.3
Period (Seconds):	9
Temperature (°F)	63
Temperature (°C)	17
Humidity (%)	53

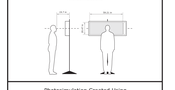
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	10.7
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577‡
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

Provided by

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12/20/2014 c:\BOEMre_Files_Work_Alpha_1\Rum_Night

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Asbury Park - Summer / Afternoon **-** ***Existing Conditions***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

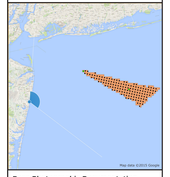
8/28/2014, 1245:59pm, NYC, AOP13, Summer_Afternoon

BOEM
Bureau of Ocean Energy Management

Asbury Park
Summer / Afternoon

Existing Conditions

Key Observation Point (KOP)
Turbine
Site Boundary
Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	8/28/2014
Time (24hr):	15:29
GPS Longitude:	-73.998534
GPS Latitude:	40.224404
Viewpoint Elevation (ft):	0
Camera Height (ft):	5.41
Camera Heading (°):	66

Sun And Weather Information

Sun Azimuth:	238.2287833
Sun Elevation:	44.49624823
Lighting Angle (On Turbines):	Front-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.4
Average Predicted Visibility (NM):	16.3
Wave Height (ft):	4.5
Period (Seconds):	13
Temperature (°F)	77
Temperature (°C)	25
Humidity (%)	39

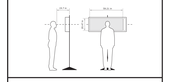
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	20
Make & Model:	Senvion 6.2M 152
Number of Turbines:	194
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577‡
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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Asbury Park - Summer / Afternoon **-** ***Simulation of Project Under Maximum Visibility***

For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

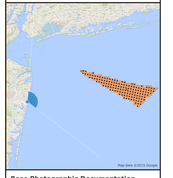
8/28/2014, 1245:59pm, NAD83, AGP13, Summer_Afternoon

BOEM
Bureau of Ocean Energy Management

Asbury Park
Summer / Afternoon

Simulation of Project Under Maximum Visibility

- Key Observation Point (KOP)
- Turbine
- Site Boundary
- Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	8/28/2014
Time (24hr):	15:29
GPS Longitude:	-73.998534
GPS Latitude:	40.224404
Viewpoint Elevation (ft):	0
Camera Height (ft):	5.41
Camera Heading (°):	66

Sun And Weather Information

Sun Azimuth:	238.2287833
Sun Elevation:	44.49624823
Lighting Angle (On Turbines):	Front-Lit
Weather Conditions:	Clear
Maximum Visibility (NM):	26.4
Average Predicted Visibility (NM):	16.3
Wave Height (ft):	4.5
Period (Seconds):	13
Temperature (°F)	77
Temperature (°C)	25
Humidity (%)	39

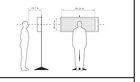
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	20
Make & Model:	Senvion 6.2M 152
Number of Turbines:	104
Hub Height (ft):	328†
Support Structure Height (ft):	25
Rotor Diameter (ft):	498†
Total Height to Tip of Blade (ft):	577‡
Service Platform:	100ft × 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology (Patent No.: US 8,184,906 B2)

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Ocean Grove - Fall / Night **- *Existing Conditions***

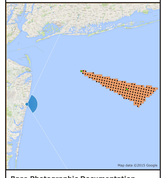
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Ocean Grove
Fall / Night

Existing Conditions

Key Observation Point (KOP) | Site Boundary
Turbine | Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	23:10
GPS Longitude:	-74.002402
GPS Latitude:	40.213252
Viewpoint Elevation (ft):	15.7
Camera Height (ft):	5.41
Camera Heading (°):	87

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Cloud
Maximum Visibility (NM):	20.1
Average Predicted Visibility (NM):	18.6
Wave Height (ft):	1.1
Period (Seconds):	9
Temperature (°F):	63
Temperature (°C):	17
Humidity (%):	63

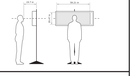
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	20.5
Make & Model:	Senvion 6.2M 152
Number of Turbines:	134
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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Ocean Grove - Fall / Night **-** ***Simulation of Project Under Average Predicted Visibility***

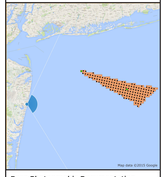
For on-screen display:
Scale bar to be 4 inches (101.6 mm) wide
Viewing distance 19.7 inches (50 cm)

BOEM
Bureau of Ocean Energy Management

Ocean Grove
Fall / Night

Simulation of Project Under Average Predicted Visibility

◆ Key Observation Point (KOP) ■ Site Boundary
● Turbine ■ Electrical Service Platform



Base Photographic Documentation

Date (MM/DD/YYYY):	10/20/2014
Time (24hr):	23:10
GPS Longitude:	-74.020402
GPS Latitude:	40.215252
Viewpoint Elevation (ft):	31.7
Camera Height (ft):	5.41
Camera Heading (°):	87

Sun And Weather Information

Sun Azimuth:	N/A
Sun Elevation:	N/A
Lighting Angle (On Turbines):	N/A
Weather Conditions:	Cloud
Maximum Visibility (NM):	207
Average Predicted Visibility (NM):	9.6
Wave Height (ft):	11
Period (Seconds):	9
Temperature (°F):	63
Temperature (°C):	17
Humidity (%):	53

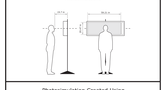
Camera Information

Camera Make & Model:	Canon EOS 5D Mark III
Camera Sensor Size:	36mm x 24mm
Lens Make & Model:	EF28mm f/1.8 USM
Lens Focal Length:	28mm
Field of View:	65.47° (H) / 46.397° (V)

Turbine Information

Distance to Nearest Turbine (NM):	20.5
Make & Model:	Siemvin 6.2M 152
Number of Turbines:	194
Hub Height (ft):	328.1
Support Structure Height (ft):	25
Rotor Diameter (ft):	498.7
Total Height to Tip of Blade (ft):	577.4
Service Platform:	100ft x 200ft Steel Platform, 40ft above MWS

Correct Viewing of TrueView™ Photosimulations



Photosimulation Created Using TrueView™ Technology
(Patent No.: US 8,184,906 B2)

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12/20/2014 c:\BOEMre_Ocean Grove_Fall_Night\