

APPENDIX B

Memorandum: Revolution Wind Farm Cumulative Visual Simulations by Environmental Design and Research



Memorandum

To: Bureau of Ocean Energy Management
From: Environmental Design and Research
Date: December 20, 2021
Reference: Revolution Wind Farm Potential Adverse Effect Above-Ground Historic Resource Supplemental Visibility Analysis
EDR Project No: 19138

The Revolution Wind Farm (RWF) Historic Resource Visual Effects Analysis (HRVEA; EDR, 2021) finds that visibility of the proposed RWF wind turbine generators (WTGs) and offshore substations (OSS) will have a potential adverse effect on 95 above-ground historic properties subject to potential adverse visual effects (identified in Attachment A, Figure 1). On behalf of Revolution Wind, LLC, Environmental Design & Research (EDR) performed a supplemental analysis to further characterize anticipated visibility of the RWF from each of these 95 above-ground historic properties. The focus of this analysis was to determine the distance from each resource to visible WTGs so that visibility could be quantified in terms of the following impact classes identified by the Bureau of Ocean Energy Management (BOEM): less than 12 miles, 12 to 24 miles, 24 to 30 miles, and greater than 30 miles.

This supplemental analysis was based on the following information:

- the digital surface model (DSM) described in the HRVEA (generated from USGS lidar data collected between 2010 and 2014 for Long Island, Rhode Island, Massachusetts, and Connecticut),
- 95 above-ground historic properties identified in the HRVEA as subject to potential adverse visual effects;
- 100 WTG and 2 OSS foundation locations for Revolution Wind provided by Revolution Wind;
- 955 WTG and 3 OSS foundation locations for Bay State Wind (185 WTG), Beacon Wind (157 WTG), Liberty Wind (139 WTG), Mayflower Wind (149 WTG), South Fork Wind (15 WTG and 1 OSS), Sunrise Wind (122 WTG and 1 OSS), Vineyard Wind North (68 WTG and 1 OSS), and Vineyard Wind South (120 WTG) (see Attachment A, Figure 2) provided by BOEM;
- 18 layout combinations of those 102 locations (see Attachment A, Figures 3, and 4);
- WTG maximum blade tip heights of 266 meters (Revolution Wind) 260 meters (Bay State Wind), 260 meters (Beacon Wind), 260 meters (Liberty Wind), 325 meters (Mayflower

Wind), 260 meters (South Fork Wind), 295 meters (Sunrise Wind), 255 meters (Vineyard Wind North), and 357 meters Vineyard Wind South;

- OSS heights of 80 meters (Revolution Wind), 61 meters (South Fork Wind), 110 meters (Sunrise Wind), 66.5 meters (Vineyard Wind North; and
- a viewer height of 1.83 meters.

The analysis was conducted using ESRI ArcGIS Pro® software with the Spatial Analyst extension.

Viewsheds were generated for individual WTG locations and distances were calculated between WTGs and visible portions of the 95 above-ground historic resources (please note that distances were measured to the nearest area of visibility regardless of which specific WTGs were visible from that location). These datasets were then synthesized accordingly for each of the 16 alternate layouts to determine the distance to the nearest visible WTG, distance to the furthest visible WTG, and counts of visible WTGs by BOEM impact classes for each of the 95 above-ground historic resources.

References

Environmental Design and Research (EDR). 2021. *Historic Resources Visual Effects Analysis; Revolution Wind Farm*. Prepared for Ørsted US Offshore Wind. Syracuse, N.Y.