Review of Raptor Sections of the Bluestone Wind Avian Risk Assessment

Task 2

Prepared for:

Delaware-Otsego Audubon Society

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Introduction

The Bluestone Wind Project (BWP) has been proposed for construction on the Northern Allegheny Plateau in Broome County, New York. Because both Bald and Golden Eagles are known to be killed by wind turbines and are federally protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Pagel et al. 2013), the U.S. Fish and Wildlife Service recommends that wind energy projects conduct surveys for eagles as part of a risk assessment to determine if eagles are likely to be incidentally taken at a facility during normal operating of that facility (USFWS 2013). WEST, Inc. (hereafter, WEST) was contracted to conduct eagle use surveys for BWP.

Delaware-Otsego Audubon Society (DOAS) requested New York State Article 10 Siting Process Intervenor Funding in October 2017 to garner funds to assess telemetry data and conduct independent surveys of the project area for raptors including eagles. DOAS requested intervenor funds for a second time in February 2019 so that, among other things, materials and reports could receive an independent review by an outside scientist and eagle expert.

The purpose of this report is to review the raptor sections included in the BWP Avian Risk Assessment (ARA). This review was conducted in a manner similar to peer review of a scientific manuscript.

Review

The ARA is an assessment of both temporary and long-term risk to birds from the construction and operation of wind turbines. Risk includes habitat alteration and disturbance, displacement of birds, and direct mortality. There were some comments in the document that were not supported by the literature or for which there were questions.

Specific comments:

p 6 section 3.2.1 – Raptor Nest Aerial Surveys

> Aerial surveys were conducted in March and April 2017 “over the entire Facility Site”. The facility was expanded. Based on the dates of the surveys, it seems like this refers to the Year 2 project area. Please clarify if “entire Facility Site” refers to the Year 1 project area or the Year 2 project area.
>
> Did the aerial surveys account for the expansion of the facility and if so how?
>
> Are metrics reported for the Year 1 or Year 2 project area?

P 7 section 3.2.2 Eagle Observation Studies

> Although the protocol generally followed the Eagle Conservation Plan Guidance (ECPG) (USFWS 2013), a key assumption of the Bayesian risk model, high detection rates of eagles, may have been violated and the calculation of the area surveyed may have been

inaccurate because of visibility of the 800 x 200 m count cylinder was often obscured by topography (see Review of Survey Data, pg. 2-3).

P 14 section 3.2.6 Telemetered Golden Eagle Data

The project area is located along the edge of the migratory corridor, so lower use of this area is expected compared to the Ridge and Valley region that concentrates migratory birds along the long, linear ridges. Nonetheless, large numbers of eagles that move through the Ridge and Valley region, also migrate twice each year through the Northern Allegheny Plateau, where BWP is located. For the data provided in 2017, 36% of fall flight locations were below 200 m AGL, 31% of spring locations were below 200 m AGL, and 48% of wintering locations were below 200 m AGL. In contrast, with the addition data collected since then and restricted to the project area, 73% (n=1667 of 2298) of fall flight locations (including stopover) were below 200 m AGL and 44% (219 of 494) of spring flight locations were below 200 m AGL (See Assessment of Seasonal Status of Golden Eagles Observed in the Bluestone Wind Project Area, pg 2. Fig. 1). Additionally, Miller et al. (2014) showed that areas with similar terrain on the Northern Allegheny Plateau <10 km to the south of the project area have high suitability for low flying Golden Eagles.

p 19 section 4.3.1.4

"Indirect impacts to golden eagles are also expected to be minimal due to the limited amount of suitable habitat within the Facility."

There is no evidence to support this statement, but there is ample evidence to refute it. The project area is generally forested with some open areas and relatively high topographic relief terrain (See Table1, Fig. 3a and 3b in Appendix OO – Eagle Use Studies of the Article 10 Siting Process documents). Golden Eagle wintering habitat is characterized by relatively high topographic relief and forested areas with some openings (Duerr et al. *in press*, Katzner et al. 2012*b*, Miller et al. 2017). Golden Eagles during migration use and select similar areas as well (Duerr et al. *in press*, Katzner et al. 2012*a*, *b*). Telemetry data show that Golden Eagles used the project area for spring and fall migration and stopover and they used nearby areas with similar terrain and land cover for wintering (See pg 2. Fig. 1 Assessment of Seasonal Status of Golden Eagles Observed in the Bluestone Wind Project Area, (Miller et al. 2017). Moreover, DOAS observers noted foraging attempts, perching, and interactions between Golden Eagles in the project area. These all support the idea that the project area provides suitable habitat for Golden Eagles. Therefore, indirect effects are likely.

P 23 section 4.3.2.4 Eagles

"Therefore, the primary times that golden eagles may occur over the Facility Site are during spring and fall migration as demonstrated by the on-site survey data."

Because the highest known densities are along the West Virginia/Virginia border is not a valid reason for this statement. Detection of Golden Eagles during winter is difficult because they tend to use dense forest away from people. Camera trapping efforts across the eastern USA have shown that Golden Eagles occur in nearly every state east of the Mississippi during winter typically in habitat that occurs on BWP, forested habitat with relatively high topographic relief, but also in flatter areas of the coastal plain and unexpected areas like the pine forests of Alabama and New Jersey. Previously, few if any people realized the extent to which Golden Eagles were distributed across the region (see Millsap and Vana 1984). Millsap and Vana (1984) suggested that Golden Eagles were found in the greatest numbers in the coastal plain and along rivers and wetlands where they could feed on waterfowl; eagle surveys showed a complete absence of Golden Eagles from the West Virginia – Virginia border, the area that is now thought to hold the highest density of wintering Golden Eagles. Millsap and Vana (1984) relied on incidental observations and surveys designed to count conspicuous Bald Eagles in their habitat. Furthermore, they noted that the areas where Golden Eagles were reported likely coincided with areas that were accessible to people and, therefore, their results may be misleading.

P 24 section 4.3.2.4 Eagles

"*Data collected on-site and publicly-available information indicate that there is a low risk to golden eagles from the Facility Site.*"

Data collected on-site by DOAS showed that Golden Eagles were using the area for foraging, perching, low altitude flight, and interacted with other Golden Eagles. All of these behaviors are considered risky in a wind energy facility (Watson et al. 2018 and references therein). Additionally, it is difficult to conclude that rare species are not at risk from wind energy despite none being found as fatalities because search effort post-construction is seldom sufficient to locate all birds killed, especially those that are rare (Beston et al. 2015, Huso et al. 2015).

"*Additional data suggest that risk to golden eagle due to the Facility Site is low based on the level of golden eagle use observed during eagle use surveys at the Facility, the seasonality of golden eagle use (i.e., only observed during migration)*"

DOAS and WEST data collected in spring 2018 indicated that juvenile Golden Eagles were utilizing the project area for wintering. Juveniles do not begin migrating until April or May (Miller et al. 2016). Moreover, DOAS data collected in early Feb. 2019 show that adult Golden Eagles used the area for wintering and juveniles used the project area for wintering throughout the period of observation (See Assessment of Seasonal Status of Golden Eagles Observed in the Bluestone Wind Project Area). The landscape of the project area is the type of habitat that Golden Eagles use during spring and fall migration, and for wintering and stopover (Duerr et al. *in press*, Katzner et al. 2012*b*, Miller et al. 2017). Telemetry data show that Golden Eagles used the project area for stopover, migration, and nearby areas for wintering. Telemetry data can be used to show that a

species is present in an area, but caution should be taken when making assumptions about absence of a species from an area based on telemetry data. Absence of telemetry data for wintering birds does not always indicate that the area is not suitable for wintering. In this case, because the habitat is suitable for Golden Eagles, it simply may indicate that no Golden Eagles were trapped in the vicinity of the project area.

"*the path of telemetered golden eagles during spring and fall migration, the flight height of telemetered golden eagles during spring and fall migration*"

Telemetry data from December 2017 show that an adult Golden Eagle used the project area for stopover; these high temporal resolution telemetry data show much lower mean flight altitudes during both spring and fall (see above P 14 section 3.2.6 Telemetered Golden Eagle Data). Furthermore, Miller et al. (2014) showed that similar areas on the Northern Allegheny Plateau <10 km to the south of the project area have high suitability for low flying Golden Eagles.

"*the absence of any golden eagle fatalities recorded in New York during standardized post-construction monitoring and no golden eagle fatalities recorded in the eastern US during standardized post-construction monitoring*"

A Golden Eagle fatality was reported in Michigan as was noted on p 26 of the Avian Risk Assessment. Additionally, as noted above, it is difficult to conclude that rare species are not at risk from wind energy despite none being found as fatalities because search effort post-construction is seldom sufficient to locate all birds killed (Beston et al. 2015, Huso et al. 2015).

"*Estimated golden eagle take and mitigation are discussed in the Net Conservation Benefit Plan (Ritzert et al. 2018b) and are expected to be offset by proposed mitigation.*"

This alone suggests that there is risk to Golden Eagles in the project area.

Literature Cited

Beston, J. A., J. E. Diffendorfer, and S. Loss. 2015. Insufficient sampling to identify species affected by turbine collisions. The Journal of Wildlife Management 79:513–517.

Duerr, A. E., M. A. Braham, T. A. Miller, J. Cooper, J. T. Anderson, and T. E. Katzner. *in press*. Roost- and perch-site selection by Golden Eagles (*Aquila chrysaetos*) in eastern North America. The Wilson Journal of Ornithology.

Huso, M. M. P., D. Dalthorp, D. Dail, and L. Madsen. 2015. Estimating wind-turbine-caused bird and bat fatality when zero carcasses are observed. Ecological Applications 25:1213–1225.

Katzner, T. E., D. Brandes, T. A. Miller, M. J. Lanzone, C. Maisonneuve, J. A. Tremblay, R. Mulvihill, and G. Merovich. 2012*a*. Topography drives migratory flight altitude of golden eagles: implications for on-shore wind energy development. Journal of Applied Ecology 49:1178–1186.

Katzner, T. E., B. W. Smith, T. A. Miller, D. Brandes, J. Cooper, M. J. Lanzone, D. W. Brauning, C. Farmer, S. Harding, D. Kramar, C. Koppie, C. Maisonneuve, M. S. Martell,

E. K. Mojica, C. S. Todd, J. A. Tremblay, M. Wheeler, D. F. Brinker, T. E. Chubbs, R. Gubler, K. O'Malley, S. Mehus, B. Porter, R. P. Brooks, B. D. Watts, and K. L. Bildstein. 2012*b*. Status, biology and conservation priorities for North America's eastern Golden Eagle (*Aquila chrysaetos*) population. The Auk 129:168–176.

Miller, T. A., R. P. Brooks, M. Lanzone, D. Brandes, J. Cooper, C. Maisonneuve, J. Tremblay, J. Wilhelm, A. Duerr, and T. Katzner. 2016. Limitations and mechanisms influencing migratory performance of soaring birds. Ibis.

Miller, T. A., R. P. Brooks, M. Lanzone, D. Brandes, J. Cooper, K. O'malley, C. Maisonneuve, J. Tremblay, A. Duerr, and T. Katzner. 2014. Assessing risk to birds from industrial wind energy development via paired resource selection models. Conservation Biology 28:745–755.

Miller, T. A., R. P. Brooks, M. J. Lanzone, J. Cooper, K. O'Malley, D. Brandes, A. Duerr, and T. E. Katzner. 2017. Summer and winter space use and home range characteristics of Golden Eagles (*Aquila chrysaetos*) in eastern North America. The Condor 119:697–719.

Millsap, B. A., and S. L. Vana. 1984. Distribution of wintering golden eagles in the eastern United States. The Wilson Bulletin 692–701.

Pagel, J. E., K. J. Kritz, B. A. Millsap, R. K. Murphy, E. L. Kershner, and S. Covington. 2013. Bald Eagle and Golden Eagle Mortalities at Wind Energy Facilities in the Contiguous United States. Journal of Raptor Research 47:311–315.

U.S. Fish & Wildlife Service (USFWS). 2013. Eagle Conservation Plan Guidance: Module 1 – Land-based Wind Energy, Version 2. Division of Migratory Bird Management, Washington, D.C., USA. <http://www.fws.gov/windenergy/pdf/Eagle%20Conservation%20Plan%20Guidance-Module%201.pdf>. Accessed 12 Mar 2019.

Watson, R. T., P. S. Kolar, M. Ferrer, T. Nygård, N. Johnston, W. G. Hunt, H. A. Smit-Robinson, C. J. Farmer, M. Huso, and T. E. Katzner. 2018. Raptor interactions with wind energy: case studies from around the world. Journal of Raptor Research 52:1–18.