

Appendix M

WILDLIFE CONCERNS ANALYSIS

Lost City Renewables LLC

Muhlenberg County, Kentucky

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From: Stantec Consulting Services, Inc.

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Reference: Wildlife Concerns Regarding Lost City Solar Project

There have been concerns expressed from members of the public regarding the construction of Lost City Solar Project (Project), an approximately 250 MW solar facility located in Muhlenberg County, Kentucky, and its impacts on local wildlife populations. Some individuals are concerned that the Project will negatively impact the local white-tailed deer (*Odocoileus virginianus*) population through habitat fragmentation or loss and the associated economic benefits to the local economy. Additionally, other concerns expressed include displacing deer and coyote (*Canis latrans*) populations onto adjacent properties and whether that action would negatively impact neighboring properties through potential livestock depredation and crop damage. Lastly, concerns were expressed about how the project will impact local bird populations (mourning dove and northern bobwhite quail specifically). Stantec developed this memo to discuss potential responses of wildlife populations as a result of the Project.

Statewide deer populations are stable to increasing based on the 2023 harvest of 140,811 deer, Kentucky Department of Fish and Wildlife Resources (KDFWR 2024A) data. Although the 2023 harvest was less than the year before, the deer population and harvest has increased over the last 10 years.. Muhlenberg County is in deer management Zone 1, which has the highest deer populations in the state. KDFWR issues unlimited antlerless deer permits within Zone 1 and is considered a reduction zone where the goal is to decrease populations (KDFWR 2024A). There were 2,251 deer harvested in Muhlenberg County in 2023, which ranks it as the 15th highest county for harvest within the state. A harvest rate in Muhlenberg County of 2.3 male deer per square mile and an additional 2.3 antlerless deer per square mile was reported in 2023 (KDFWR 2024A). Based on the KDFWR harvest reports and permit issuance, Zone 1 is maintaining a stable deer population.

The loss/modification of 1000 acres of woodland and agriculture land (used for cattle, goat sheep and poultry as well as row crop and hay production) may temporarily impact local populations of deer due to dispersion. Deer naturally disperse and the majority are yearling or young males; however, females also disperse but at a much lower rate. Deer currently within the Project Area would disperse over time from the start of construction activities until completion of the Project due to human disturbance. Based on KDFWR deer harvest data, the total population estimate for the Project is 25-42 deer within the Project Area. This estimate is based on the Project having similar deer population, habitat similar to the majority of Muhlenberg County, and calculations using KDFWR data. Should 25-42 deer within the Project boundary

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be dispersed, it may temporarily increase the number of deer on adjacent properties or beyond. It is difficult to predict where and how far the deer may disperse. In addition, dispersion is a natural behavior, and it reduces inbreeding and increases gene flow (Long et al, 2008). As a result, any impacts to adjacent properties are expected to be temporary and for a short duration (estimated less than one year). The dispersal of deer from the Project Area will impact deer harvest on the area that the solar facility encompasses due to fencing and security which may effect deer movement. However, it should have minimal long-term impact on adjacent properties.

There may be some potential for temporary displacement that could create a local concern with deer occurring on adjacent properties, especially if harvest is not allowed. If landowners are concerned with overpopulation after construction, KDWFR offers free consultation to landowners to explore options for controlling local populations through technical assistance. In some cases, Deer Control Tags or Deer Destruction Permits may be issued to assist with population control, as deemed necessary by KDWFR (KDWFR 2024B). An effective long-term solution for deer population management is through legal, regulated deer hunting and harvest. Harvest should primarily be focused on antlerless deer if the goal is to reduce the overall deer population. If antlered deer are causing problems such as damaging sapling trees, targeted harvest, exclosures, or deterrents may be warranted during certain times of the year (September – November).

Coyote displacement was also a concern expressed, and the Project could temporarily increase coyote occurrence on neighboring properties. The Project may displace a few coyotes; however, the coyote population in Kentucky is relatively low at 20,200-40,400 individuals (Wildlife Boss 2024). This averages to approximately one coyote per square mile or 1-2 coyotes that has a home range that includes the Project; however, human-induced dispersal due to the Project construction and operation may not affect local coyotes as they may not den within the Project area. Coyote natural dispersion is measured in miles distance. Some coyotes have naturally dispersed over 100 miles (Swartz, 2016). Coyotes home ranges as adults is measured in square miles. Home ranges may be as small as 7 square miles or as large 30 miles depending on the season, food availability, and breeding status (Swartz, 2016). Based on the behavior of coyotes including distribution, foraging, breeding, and dispersal, it is unlikely that noticeable impacts will occur as the Project would already be within the home range of any coyotes that currently inhabit the area.

Another concern expressed was that the Project would impact local game bird populations (e.g., mourning doves [*Zenaidura macroura*; doves], northern bobwhite quail [*Colinus virginianus*; quail] were specifically mentioned). When completed, the Project will be revegetated to native grass and forb species, trees and shrubs will be planted in the buffer area and pollinator plots are also planned for development. This habitat mix may increase local and migratory bird numbers due to increased and diversification habitat availability for cover and foraging. Studies have indicated that solar development may increase biodiversity of birds and other pollinators (Jareuska et al., 2024) Both dove and quail are ground nesting birds, which will benefit from native grass and forb planted areas for nesting habitat. Quail will utilize native grassland habitat as nesting habitat brooding areas and cover throughout the seasons (Quail Forever 2023).

While the Project may temporarily displace some local wildlife, none of the wildlife species that were mentioned in the concerns are protected species and all would be considered common species in Kentucky. There may be temporary wildlife shifts for white-tailed deer and coyotes, but these should have

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minimal effect on adjacent landowners. Once the Project is completed and revegetated, there may be a net benefit for ground nesting birds, including dove and quail.

Respectfully,

Stantec Consulting Services Inc.

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