NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

North Kent Wind 1 Project

2020 Bird & Bat Mortality Monitoring

Natural Resource Solutions Inc. (NRSI) conducted post-construction monitoring at the operational North Kent Wind 1 Project (North Kent WP), located north of the City of Chatham in the Municipality of Chatham-Kent, Ontario. This wind energy project has a generating capacity of 100MW and consists of 34 wind turbines situated in an agricultural landscape dominated by row crops. The purpose of this fact sheet is to provide an executive summary of the methods, analysis, and results of the third year of post-construction mortality monitoring that was conducted at the North Kent WP in 2020.

Methods

NRSI biologists conducted bird and bat mortality monitoring at the North Kent WP following Ministry of Natural Resources and Forestry (MNRF) guidelines *(Bats and Bat Habitats: Guidelines for Wind Power Projects*, July 2011; and *Birds and Bird Habitats: Guidelines for Wind Power Projects*, December 2011) and the Project's Environmental Effects Monitoring Plan (EEMP; NRSI 2015). In accordance with the MNRF guidelines and the approved EEMP, the following methods were implemented for the monitoring study:

- A subset of 11 turbines were searched twice weekly from May through October, and once weekly in November;
- The remaining 23 turbines were searched monthly from May to November;
- One turbine adjacent to a significant waterfowl nesting area and species of conservation concern habitat for Eastern Wood-pewee (*Contopus virens*) was included in the subset of 11 turbines described above, and was additionally searched once in April;
- Searches were conducted in circular plots with a 50m radius, centered at the turbine tower;
- Searcher efficiency trials were conducted monthly to assess the effectiveness of each searcher; and
- Scavenger removal trials were conducted in each study season to assess the level of scavenging activity at the turbines.

Results

Birds

During 2020 post-construction mortality monitoring at the North Kent WP, 27 bird mortalities were documented within the search radius of the subset of 11 turbines. The documented bird mortalities were primarily of landbird species, most of which are considered common in the province.

NRSI biologists incorporated the searcher efficiency, scavenger removal, and proportion of area searched variables into the MNRF's estimated mortality equation to determine an estimated rate of bird mortality at the North Kent WP of 3.39 birds/turbine/year. This is below the MNRF threshold of 14 birds/turbine/year. By comparison, the average bird mortality rate in Ontario is estimated at 4.9 ± 0.06 birds/turbine/year (*Bird Studies*

Canada Wind Energy Bird and Bat Monitoring Database, Summary Findings, November 2018).

Raptors

During the 2020 post-construction mortality monitoring at the North Kent WP, one (1) raptor mortality was documented within the search radius of the subset of 11 turbines. Based on the information collected by NRSI during the monitoring period, the mortality rate was determined to be 0.09 raptors/turbine/year (0.00 provincially tracked raptors/turbine/year). This is below the MNRF threshold of 0.2 raptors/turbine/year (0.1 provincially tracked raptors/turbine/year). By comparison, the average raptor mortality rate in Ontario is estimated at 0.3 ± 0.004 raptors/turbine/year (*Bird Studies Canada Wind Energy Bird and Bat Monitoring Database, Summary Findings*, November 2018). No mortalities of provincially tracked raptors were documented at any turbine.

Bats

During the 2020 post-construction mortality monitoring at the North Kent WP, 37 bat mortalities were documented within the search radius of the subset of 11 turbines. Bat mortalities consisted of both resident and long-distance migratory species.

NRSI biologists incorporated the searcher efficiency, scavenger removal, and percent area searched variables into the MNRF's estimated mortality equation to determine an estimated rate of bat mortality at the North Kent WP of 4.55 bats/turbine/year. This is below the MNRF threshold of 10 bats/turbine/year. By comparison, the average bat mortality rate in Ontario is estimated at 11.7 ± 0.1 bats/turbine/year (*Bird Studies Canada Wind Energy Bird and Bat Monitoring Database, Summary Findings,* November 2018).

Summary

Based on the results of 2020 post-construction monitoring at the North Kent WP, none of the annual mortality thresholds for bird, raptors, or bats were exceeded, nor were any of the single day bird mortality thresholds exceeded. These thresholds, as defined by MNRF guidelines, and the associated results of 2020 monitoring at the North Kent WP are briefly outlined below:

MNRF Mortality Threshold	Type of Threshold	2020 Summary North Kent WP
14 birds/turbine/year	Annual Corrected Rate	3.39 birds/turbine/year
0.2 raptors/turbine/year	Annual Rate	0.09 raptors/turbine/year
0.1 provincially tracked raptors/turbine/year	Annual Rate	0.00 provincially tracked raptors/turbine/year
10 bats/turbine/year	Annual Corrected Rate	4.55 bats/turbine/year
10 or more birds at one turbine	Single Day Event	2 birds at one turbine (maximum single day)
33 or more birds at multiple turbines	Single Day Event	3 birds at multiple turbines (maximum single day)