



Port Ryerse Wind Farm 2019 Bird & Bat Mortality Monitoring

Natural Resource Solutions Inc. conducted post-construction monitoring at the operational Port Ryerse Wind Farm near the Town of Port Ryerse, in Norfolk County, Ontario. This wind energy project is 10MW in size and consists of 4 operational turbines. 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 Port Ryerse Wind Farm in 2019.

Methods

NRSI biologists conducted bird and bat mortality monitoring following 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; Stantec 2013). The implemented monitoring program was approved by the MNRF. Per the MNRF guidelines, the following methods were implemented for the monitoring study:

- All 4 turbines were searched twice weekly from May through October, and once weekly in November;
- All 4 turbines were also searched weekly from mid-February through April based on the proximity of the turbines to a nearby raptor nest;
- Searches were conducted in circular areas with a 50m radius, centered at each turbine tower;
- Search plots were maintained to be generally free of crops, weeds, and debris for high visibility of potential mortalities;
- Searcher efficiency trials were conducted in each study season 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 the 2019 post-construction mortality monitoring at the Port Ryerse Wind Farm, 10 bird mortalities were found within the search radii of operational turbines.

Following the MNRF guidelines, NRSI biologists inputted the searcher efficiency, scavenger removal, and percent area searched variables into the MNRF's estimated mortality equation to determine an estimated rate of bird mortality at the Port Ryerse Wind Farm of 11.97 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

There were no raptor mortalities observed at the Port Ryerse Wind Farm in 2019.

Bats

During 2019 post-construction mortality monitoring at the Port Ryerse Wind Farm, 24 bat mortalities were found within the search radii of the turbines. Bat mortalities consisted of both resident and long-distant migratory species.

Following the MNRF guidelines, NRSI biologists inputted 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 Port Ryerse Wind Farm of 27.84 bats/turbine/year. This is above 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 the 2019 post-construction monitoring at the Port Ryerse Wind Farm, the annual bat mortality threshold was exceeded. No other annual or single day mortality thresholds were met or exceeded. These thresholds, as defined by the MNRF guidelines, and the associated results of the 2019 monitoring at the Port Ryerse Wind Farm are briefly outlined below. The results of the 2017 and 2018 post-construction mortality monitoring years at the Port Ryerse Wind Farm are also provided for comparison.

MNRF Mortality Threshold	Type of Threshold	2017 Summary Port Ryerse Wind Farm	2018 Summary Port Ryerse Wind Farm	2019 Summary Port Ryerse Wind Farm
14 birds/turbine/year	Annual Corrected Rate	9.14 birds/turbine/year	5.19 birds/turbine/year	11.97 birds/turbine/year
10 bats/turbine/year	Annual Corrected Rate	29.37 bats/turbine/year	14.56 bats/turbine/year	27.84 bats/turbine/year
2 raptors/wind power project/year	Annual Rate	0 raptors/wind power project/year	0 raptors/wind power project/year	0 raptors/wind power project/year
10 or more birds at one turbine	Single Day Event	No occurrence	No occurrence	No occurrence
33 or more birds at multiple turbines	Single Day Event	No occurrence	No occurrence	No occurrence