



Quixote One Wind Farm 2022 Bat Mortality Monitoring

Natural Resource Solutions Inc. (NRSI) conducted post-construction monitoring at the operational Quixote One Wind Farm, located in Bruce County within the Municipality of Kincardine, Ontario. This wind energy project has a generating capacity of 2.35MW and consists of one turbine. The purpose of this fact sheet is to provide an executive summary of the methods, analysis, and results of the sixth year of post-construction mortality monitoring that was conducted at the Quixote One Wind Farm in 2022. This sixth year of monitoring for bat mortality was conducted as a result of exceeding the provincial threshold of 10 bats/turbine/year during previous years of post-construction monitoring.

Methods

NRSI biologists conducted bat mortality monitoring at the Quixote One Wind Farm following Ministry of Natural Resources and Forestry (MNRF) guidelines (*Bats and Bat Habitats: Guidelines for Wind Power Projects*, July 2011; and the project's Environmental Effects Monitoring Plan (EEMP) (Golder Associates Ltd. 2013). In accordance with the MNRF guidelines and the approved EEMP, the following methods were implemented for the monitoring study:

- The turbine was searched twice weekly from May through October;
- Searches were conducted in circular plots with a 50m radius, centered at the turbine tower;
- 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

During 2022 post-construction mortality monitoring at the Quixote One Wind Farm, six bat mortalities were documented within the search radius. Of these bat mortalities, 67% were of long-distance migratory species, and 33% were of resident species.

Following the MNRF guidelines, 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 bat mortality at the Quixote One Wind Farm of **13.88 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 2022 post-construction monitoring at the Quixote One Wind Farm, the annual bat mortality threshold was exceeded. This threshold, as defined by the MNRF guidelines, and the associated results of the 2022 monitoring at the Quixote One Wind Farm are briefly outlined below:

MNRF Mortality Threshold	Type of Threshold	2022 Summary Quixote One Wind Farm
10 bats/turbine/year	Annual Corrected Rate	13.88 bats/turbine/year