



## Cedar Point II Wind Energy Centre 2016 Bird & Bat Mortality Monitoring

Natural Resource Solutions Inc. (NRSI) conducted post-construction monitoring at the operational Cedar Point II Wind Energy Centre (Cedar Point II WEC or the Project) located within the Town of Plympton-Wyoming, Township of Warwick, and the Municipality of Lambton Shores, in Lambton County, Ontario. The Project has a generating capacity of 100MW and consists of 45 turbines. The purpose of this fact sheet is to provide a summary of the methods, analysis, and results of the first year of post-construction mortality monitoring that was conducted at the Cedar Point II WEC in 2016.

### Methods

NRSI biologists conducted bird and bat mortality monitoring at the Cedar Point II WEC 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) (Stantec 2013). The implemented monitoring program was approved by the MNRF. Per the MNRF guidelines and EEMP, the following methods were implemented for the monitoring study:

- A subset of 14 turbines were searched twice weekly from May through October, and once weekly in November;
- The remaining 41 turbines were searched monthly from May to November;
- Searches were conducted in circular plots with a 50m radius, centered at each turbine tower;
- Search plots were maintained to be 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;
- Scavenger removal trials were conducted in each study season to assess the level of scavenging activity at the turbines.

### Results

#### Birds

During the 2016 post-construction mortality monitoring at the Cedar Point II WEC, a total of 33 bird mortalities were found within the search radius of the subset of 14 turbines.

Following the MNRF Guidelines, NRSI biologists inputted 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 Cedar Point II WEC of 4.20 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  $6.14 \pm 0.31$  birds/turbine/year (*Bird Studies Canada Wind Energy Bird and Bat Monitoring Database, Summary Findings, July 2016*).

### Bats

During the 2016 post-construction mortality monitoring at the Cedar Point II WEC, a total of 59 bat mortalities were found within the search radius of the subset of 14 turbines. Bat mortalities consisted of both resident and 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 Cedar Point II WEC of 7.96 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  $18.52 \pm 0.79$  bats/turbine/year (*Bird Studies Canada Wind Energy Bird and Bat Monitoring Database, Summary Findings, July 2016*).

### Raptors

A total of five (5) raptor mortalities were observed within the search radius of the subset of 14 turbines at the Cedar Point II WEC during 2016 post-construction mortality monitoring. Based on the information collected by NRSI during the monitoring period, the mortality rate was estimated to be 0.38 raptors/turbine/year. This is above the MNRF threshold of 0.2 raptors/turbine/year. By comparison, the average raptor mortality rate in Ontario is estimated at  $0.20 \pm 0.01$  raptors/turbine/year (*Bird Studies Canada Wind Energy Bird and Bat Monitoring Database, Summary Findings, July 2016*). No mortalities of provincially tracked raptors were documented at any turbine. In accordance with MNRF guidelines for exceeding a raptor threshold, two years of scoped mortality and cause and effects monitoring will be conducted at the Cedar Point II WEC.

### **Summary**

Based on the results of the 2016 post-construction monitoring at the Cedar Point II WEC, none of the single day mortality thresholds were met or exceeded. The annual mortality thresholds for birds and bats were not exceeded. The annual mortality threshold for raptors was exceeded. These thresholds, as defined by MNRF guidelines, and the associated results of the 2016 monitoring at the Cedar Point II WEC are briefly outlined below:

| MNRF Mortality Threshold                      | Type of Threshold     | 2016 Summary Cedar Point II                       |
|---|-----------------------|---|
| 14 birds/turbine/year                         | Annual Corrected Rate | 4.20 birds/turbine/year                           |
| 10 bats/turbine/year                          | Annual Corrected Rate | 7.96 bats/turbine/year                            |
| 0.2 raptors/turbine/year                      | Annual Rate           | 0.38 raptors/turbine/year                         |
| 0.1 provincially tracked raptors/turbine/year | Annual Rate           | 0.00 provincially tracked raptors/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) |