

DRAFT

Dear Mr. Zemanek,

Thank for you for your August 25, 2006 letter requesting input from Sleeping Bear Dunes National Lakeshore on a potential ordinance to regulate wind turbine activity in Centerville Township, Michigan.

While we recognize the importance and benefits of alternative energy sources, such as wind energy, we share the Township's concerns that such development should occur in a way that does not have significant adverse environmental impacts.

Our primary concerns with potential wind farms near the Lakeshore involve visual impacts, wildlife impacts, and soundscape impacts. Generally, we would expect negative impacts on the Lakeshore to be less for wind turbines located farther away. However, without a specific proposal on the table and/or a study of potential environmental impacts in the proposed wind development area, it is difficult to define acceptable parameters for such a project. What we can say is that we have several specific concerns that we hope will be addressed either prior to a specific proposal or through the regulatory/permitting process for any proposed wind energy development.

Potential environmental impacts from wind farms can occur during all phases of the project, including construction, operation, and maintenance and decommissioning. The following list of concerns we believe should be addressed regarding wind energy development near Sleeping Bear Dunes National Lakeshore. The list is in no particular order, and may not be exhaustive.

1. **Soundscape:** Construction, operation and maintenance of turbines may produce noise above ambient background levels, potentially impacting wildlife and visitors at the Lakeshore.
2. **Vibration Impacts:** In addition to noise emitted by turbines in the air, vibrations caused by turbines may also have an effect on sensitive receptors (e.g., humans and other biological resources).
3. **Viewscape:** The visual aspects of wind farms are important due to the potential impairment to natural landscapes, cultural landscapes and night sky (i.e., lighting of individual turbines for safety purposes). In some cases viewscape impairment can greatly affect visitor experience, since visitors often have expectations of unimpaired scenic views from units of the national park system. A viewscape assessment should include effects of the individual turbines, transmission lines, poles and land-based substations. Site-specific social science surveys could be needed to assess visitor expectations.
4. **Birds:** Bird mortality and injury from wind turbines may be a major issue. Any wind farm proposal should include a list of species that utilize the proposed site during nesting and migration (spring and fall, day and night) and an analysis of which of those species are likely to be impacted by construction and operations,

and in what manner. This information is needed to site and design projects to avoid and minimize bird collision and mortality. Baseline data collection and monitoring of birds is critical in evaluation of wind farm siting and environmental impacts. Additional research needs include studies of how birds migrate over the landscape, how weather affects patterns and altitude of migration and impact of turbines on bird migration (e.g., attraction to structures, lights, possible avoidance, or platform landings due to exhaustion), feeding and breeding patterns. Risks of collision under different weather conditions, including fog and rain, should be analyzed. Of particular concern is the Lakeshore's piping plover population. It may be necessary to consult with the U.S. Fish and Wildlife Service to ensure compliance with the Endangered Species Act and the Migratory Bird Treaty Act.

5. **Insects:** Butterfly and dragonfly migration patterns and migration patterns for insect prey for birds/bats can be impacted due to lighting, habitat alteration or fragmentation or other reasons.

6. **Bats:** Bats have shown an unexplained tendency to collide with the blades of wind turbines, particularly during migration during late summer. Bats, though often ignored and falsely besmirched, are vital to the health of the environment and to many human economies. They are primary predators of night-flying insects, including many major agricultural pests, while some are important pollinators and seed dispersers. It is not at all clear why some bat species seem susceptible to collisions with the turbines. The spatial and temporal use (day and night, season to season, year to year) of the project area by bats should be part of the early planning information provided by any project.