

## 4906-17-08      **Social and Ecological Data**

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### **(A) HEALTH AND SAFETY**

#### **(1) Demographic Characteristics**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

#### **(2) Noise**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

##### **(a) Construction Noise Levels**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

##### **(i) Blasting Activities**

Blasting will be used at specific areas of the site where shallow bedrock is present. The Applicant will amend the current blasting plan, should site-specific conditions warrant blasting. Procedures for handling blasting activities would be consistent with the current blasting plan, previously approved by OPSB.

##### **(ii) Operation of Earthmoving Equipment**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(iii) Driving of Piles**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(iv) Erection of Structures**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(v) Truck Traffic**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(vi) Equipment Installation**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(b) Operational Noise Levels**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following to be added at the end of the section [Application, 8-13]:

The amendment assessment studied the addition of eight Gamesa G90 wind turbines on 328-foot (100 meter) tall towers for a total of 160 wind turbines, and the associated electrical substations.

For a wind project, the noise level at a particular location is primarily determined by the wind speed at the turbines and the distance from the closest turbine. For

example, when the winds are calm the turbines emit very little noise as compared with stronger wind conditions when the turbines generate their highest levels of noise. As such, the projects sound emissions may vary throughout the day and night.

Standard acoustical engineering methods were used in the Applicant's noise analysis. The sound propagation factors used in this analysis have been adopted from ISO 9613-2, *Acoustics—Sound Attenuation During Propagation Outdoors, Part 2: General Method of Calculation* (ISO, 1993) and VDI 2714, *Outdoor Sound Propagation* (VDI, 1988). Hard ground conditions ( $G=0$ ) of ISO 9613-2 have been assumed. Atmospheric absorption for conditions of 10 degrees Celsius ( $^{\circ}\text{C}$ ) (50 degrees Fahrenheit [ $^{\circ}\text{F}$ ]) and 70 percent relative humidity (conditions that favor propagation) was computed in accordance with ISO 9613-1, *Acoustics—Sound Attenuation During Propagation Outdoors, Part 1: Calculation of the Absorption of Sound by the Atmosphere* (ISO, 1993).

Each Project turbine was considered to be a Gamesa G90 which has an overall sound power level of 106 dBA. This overall sound power level is expected to represent the maximum turbine sound level determined in accordance with IEC61400-11, *Wind Turbine Generator Systems—Part 11: Acoustic Noise Measurement Techniques* (IEC, 2006). Four substation transformers each with a maximum sound power level of 100 dBA were also included in the analysis.

It is useful to understand the difference between a sound pressure level (or noise level) and a sound power level. A sound power level (commonly abbreviated as PWL or  $L_w$ ) is analogous to the wattage of a light bulb; it is a measure of the acoustical energy emitted by the source and is, therefore, independent of distance. A sound pressure level (commonly abbreviated as SPL or  $L_p$ ) is analogous to the brightness or intensity of light experienced at a specific distance from a source. Sound pressure level is measured directly with a sound-level meter. Sound pressure levels always should be specified with a location or distance from the noise source. Sound power level data are used in acoustic models to predict

sound pressure levels. This is because sound power levels take into account the size of the acoustical source and account for the total acoustical energy emitted by the source.

There has been some confusion regarding the presence of significant levels of low frequency noise from modern utility scale upwind turbines. High levels of low frequency noise can be associated with simple-cycle combustion turbines or natural gas compressor stations. High levels of low frequency noise were common in earlier downwind wind turbines. However, the levels of low frequency noise emitted from modern upwind turbines is significantly less than from other sources. The swishing noise associated with the rotation of turbine blades is often mistaken for low frequency noise. The frequency content of the swish is typically within the 500 to 1,000 Hertz range, which is entirely within the audible range and appropriately characterized by the A-weighting.

For wind turbines, the measurement of low frequency noise is complicated by the presence of wind and the resulting wind-induced noise (self-noise) through microphone windscreens. Recent wind tunnel testing of various windscreens (Hessler, 2008; Hessler, 2009) concludes that: “any casual measurement of sound using a standard windscreen in a windy field will yield ostensibly high levels of low frequency or infrasonic noise—whether a wind turbine is present or not. Such measurements, taken at face value, may be one of the reasons wind turbines are widely, but mistakenly, believed to be significant sources of low frequency noise.”

Appendix T presents the predicted cumulative level from all turbines and associated substations operating at the maximum sound power level. The figures in Appendix T present the predicted operational noise levels at identified residential structures, schools, hospitals, nursing homes or assisted living and health-care facilities, religious institutions, and public libraries. A summary of predicted sound levels is provided as Table A-4 under Appendix T. This table

replaces Table 8-5 provided in earlier submittals to the OPSB. The tables in Appendix T present the model results and coordinates for receptors and sources.

**(c) Location of Noise Sensitive Areas**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except that Figure 8-2 has been updated to present the eight additional turbines and associated infrastructure in the current layout.

**(d) Mitigation of Noise Emissions**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following to be added at the end of the section [Application, 8-14]:

- The Applicant would like to clarify that the Project will consist of up to 160 Gamesa G90 wind turbines. The Applicant would like to clarify that they have expanded the Good Neighbor Program.

**(3) Water**

**(a) Impact to Public and Private Water Supplies**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(b) Construction Water Impacts [Application, 8-17, replacement]**

The Applicant's General Contractor is purchasing concrete from a local supplier. The Applicant is not planning the construction of a temporary concrete batch plant for producing concrete as was identified in the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public

Need on August 23, 2010. Water use during construction of the Facility would include dust suppression and road watering. Construction water demands for the site will be temporary. Portable restroom facilities will be used for construction workers; therefore, they will not require water.

**(c) Operation Water Impacts**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(4) Ice Throw**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(5) Blade Shear**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(6) Shadow Flicker**

**(a) Shadow Flicker Analysis**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following at the end of the section [Application, 8-23]:

- A revised shadow flicker analysis was performed in March 2011 for the eight additional turbines (assuming G-90 wind turbines on 328-foot [100 meter] tall towers) to evaluate the extent of potential shadow flicker experienced at each

residence and primary transportation corridor near these new turbines. These results are included in the revised shadow flicker analysis and report presented in Appendix K.

**(b) Shadow Flicker Results**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following to be added at the end of the section before Table A8-6 [Application, 8-23]:

- The revised shadow flicker analysis performed in March 2011 resulted in predicted shadow flicker effects over 30 hours per year at 11 residences near the eight new turbines. Table A8-6 and Appendix K provide the updated shadow flicker documentation.

TABLE A8-6 [ADDITION TO TABLE 8-6 , APPLICATION, 8-24 AND 8-25]  
Predicted Shadow Flicker

| Residence ID | Total Predicted Shadow Flicker (hours/yr) | Wind Turbine Generators Contributing to Flicker | Distance to Closest Contributing Wind Turbine Generator (m) | Longitude  | Latitude  | Proposed Mitigation*                           |
|--------------|---|---|---|------------|-----------|--|
| 213          | 41:39                                     | 113, 115, 116, 127                              | 540   | -84.592277 | 40.953887 | Good Neighbor Agreement                        |
| 224          | 39:27                                     | 113, 115, 126, 127                              | 489   | -84.591893 | 40.957494 | Curtailment during specific periods of WTG 126 |
| 340          | 38:40                                     | 79, 81  | 391   | -84.630675 | 40.983172 | Good Neighbor Agreement                        |
| 1096         | 34:06                                     | E13, E15, E16                                   | 381   | -84.513873 | 40.937288 | Good Neighbor Agreement                        |
| 327          | 33:44                                     | 99, 101, 103                                    | 402   | -84.592169 | 40.980546 | Good Neighbor Agreement                        |
| 96           | 31:47                                     | 59, 60  | 420   | -84.630040 | 40.934097 | Curtailment during specific periods of WTG 59  |
| 471          | 31:12                                     | 146, 153, 154                                   | 430   | -84.572273 | 41.009407 | Good Neighbor Agreement                        |
| 470          | 31:07                                     | 68, 69  | 421   | -84.649930 | 41.007911 | Good Neighbor Agreement                        |

TABLE A8-6 [ADDITION TO TABLE 8-6 , APPLICATION, 8-24 AND 8-25]  
 Predicted Shadow Flicker

| Residence ID | Total Predicted Shadow Flicker (hours/yr) | Wind Turbine Generators Contributing to Flicker | Distance to Closest Contributing Wind Turbine Generator (m) | Longitude  | Latitude  | Proposed Mitigation*    |
|--------------|---|---|---|------------|-----------|-------------------------|
| 445          | 31:05                                     | 70, 72  | 365   | -84.649169 | 41.002327 | Good Neighbor Agreement |
| 88           | 31:00                                     | 64  | 374   | -84.648311 | 40.931505 | Good Neighbor Agreement |
| 427          | 30:11                                     | EXP902,<br>EXP903,<br>EXP904                    | 540   | -84.533958 | 40.995106 | Good Neighbor Agreement |

\* See Appendix K for updated Shadow Flicker analysis.

### (c) Mitigation Measures

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

## (B) ECOLOGICAL IMPACT

### (1) Project Site Information

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following at the end of the section [Application, 8-27]:

- Site visits to the Project area to characterize habitats and identify wetlands and waterbodies were performed during September and October 2009, March 2010, and March to May 2011. Figure 8-3, the ecological map for the Project area, has been updated to show the eight additional turbines in a revised layout.

#### (a) Mapping

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public

Need on August 23, 2010, except that Figure 8-3 has be updated to shown the eight new turbines in the an updated layout.

**(b) Vegetative Survey**

No federal or state plant species of interest were observed within a quarter mile from the Project Area boundary. Appendix U provides a comprehensive list of plant species identified during field surveys conducted from September 2009 to December 2010. In March 2011 wetland delineations were completed for the eight additional turbines.

**(i) Upland Habitats**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(ii) Wetland Habitats**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following at the end of the section [Application, 8-34]:

- The Applicant performed additional wetland delineation for the eight additional turbines and support components during March 2011. A revised Wetland/Waterbody Delineation Report will be submitted to the OPSB upon completion of the investigation and coordination with the USACE and OEPA.

**(c) Animal Life Survey**

No text changes have occurred in this section (Sections (c)(i) through (c)(v)) of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(d) Summary of Ecological Studies**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010 except for the following:

- The Applicant retained Dr. Michael Hoggarth to perform a desktop assessment of streams to determine whether planned stream crossings associated with the eight additional turbines had the potential to affect mussels. The facilities associated with the eight additional turbines will cross wetland ditches and one small, intermittent stream ditch. The assessment concluded that none of these streams or wetlands would support mussels.

**(e) Major Species List**

No text changes have occurred in this section (sections (e)(i) through (e)(iv)) of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(2) Construction****(a) Impact of Construction**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following to be added at the end of the section [Application, 8-48]:

- The Applicant performed additional wetland delineation for eight additional turbines and support components in March 2011. A Revised Wetland Delineation Report will be submitted to the OPSB upon completion of the investigation and coordination with USACE and OEPA.

**(i) Upland Habitat**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- The total area of hedgerows and other natural vegetation that would be affected by the eight new turbines are estimated to be less than one tenth acre..

**(ii) Wetlands and Waterbodies**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- Additional wetland and waterbody delineation studies have been performed for the project area including the eight additional turbines and adjacent areas in March 2011. Updated summary tables of all of the wetlands and waterbodies delineated to date in the project area are provided in Appendix V.
- Access roads to two of the additional eight turbines will cross Category 1 wetlands. No waterbodies will be affected by the additional access roads. No impacts will occur to Category 3 wetlands, exceptional warmwater habitats, or state resource waters.
- The applicant anticipates that the additional impacts from the additional eight turbines will be permissible under Nationwide Permit 12, under which the Blue Creek Wind Farm has previously been authorized. Blue Creek Wind LLC will submit amended construction documents to the U.S. Army Corps of Engineers, Buffalo District to confirm that the project still qualifies for authorization under NWP 12.

- It is the intent of the Applicant to keep total wetland impacts per location to less than 0.1 acre so under the USACE Nationwide permit program the Facility can be authorized without a mitigation requirement.

**(b) Impact of Construction on Major Species**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(c) Mitigation of Short and Long-term Construction Impacts**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(3) Operation**

No text changes have occurred in this section (sections 3(a) through 3(d)) of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(C) ECONOMICS, LAND USE AND COMMUNITY DEVELOPMENT**

**(1) Land Uses**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(a) Land Use Map**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public

Need on August 23, 2010, except that Figures 8-4 and 8-5 have been updated to include the eight new turbines in the revised layout.

**(b) Residential Structures In Relation to the Boundary of the Proposed Facility**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- Residential structures were reviewed to determine if they will be located within either 1,000 feet or 100 feet of a Facility component, including turbine towers, underground and aboveground 34.5 kV collection lines, the 115 kV aboveground collection lines, project collector substation (which includes a substation and the O&M building), project collection substation, interconnection substation, and access roads. For this analysis, the centerline was used for all linear Facility components (electric collection system and access roads), center-points for the turbine towers, and the footprint for residences, substations, and O&M building. There are 154 residences within 1,000 feet of access roads or collection lines. A total of 22 residences within 100 feet of access roads or collection lines and include 20 in the approved Certificate and two associated with the eight new turbines. Revised Table A8-7 lists the residential structures within 100 feet of an access road or collection line. The table also provides the residence ID, tax lot ID, owner, latitude and longitude, and distance from the access road or collection line. No residences are within 1,200 feet of a proposed turbine.

TABLE 8-7 [REPLACES TABLE 8-7 ON APPLICATION, 8-57]  
Residential Structures within 100 feet of the Facility

| Residence ID# | Tax Lot ID, Owner                                | Longitude, Latitude          | Distance (feet) | Facility ID# | Facility Component       | Turbine Layout |
|---------------|--|------------------------------|-----------------|--------------|--------------------------|----------------|
| 61            | 080122120100,<br>James L & Phyllis L Rolsten JTS | -84.68302658,<br>40.92921748 | 47.89           | 202          | Project Collector System | Original       |
| 91            | 080115760000,<br>David A Shook                   | -84.68365006,<br>40.9315185  | 66.10           | 201          | Project Collector System | Original       |

TABLE 8-7 [REPLACES TABLE 8-7 ON APPLICATION, 8-57]  
Residential Structures within 100 feet of the Facility

| Residence ID# | Tax Lot ID, Owner                                  | Longitude, Latitude          | Distance (feet) | Facility ID# | Facility Component       | Turbine Layout     |
|---------------|--|------------------------------|-----------------|--------------|--------------------------|--------------------|
| 106           | 080117240200,<br>Brenda A DeLong                   | -84.62935656,<br>40.93840038 | 77.12           | 293          | Access Roads             | Original           |
| 124           | 080117520100,<br>Juanita L Hotmire (Niswander)     | -84.59178509,<br>40.94179982 | 82.26           | 187          | Project Collector System | Original           |
| 134           | 080118120100,<br>Carl E & Christi L Short          | -84.57886514,<br>40.94567108 | 84.44           | 195          | Project Collector System | Original           |
| 148           | 080118240000,<br>Erik R & Heather R Williams (JTS) | -84.58146044,<br>40.94614834 | 88.98           | 184          | Project Collector System | Original           |
| 152           | 080116880100,<br>Gene D & Vickie L Pool            | -84.64832087,<br>40.94502761 | 93.29           | 207          | Project Collector System | Original           |
| 159           | 080112400000, Kathleen Jo<br>Brotherwood Liv Tr    | -84.58161815,<br>40.94651787 | 50.09           | 184          | Project Collector System | Original           |
| 169           | 150391620100,<br>Nancy Mihm                        | -84.57181808,<br>40.94707391 | 43.52           | 195          | Project Collector System | Original           |
| 182           | 080114720100,<br>Marie A Nelson                    | -84.65223551,<br>40.94605631 | 85.68           | 211          | Project Collector System | Original           |
| 198           | 080113080100,<br>Richard L & Tonya R Jellison JTS  | -84.59187911,<br>40.9503038  | 87.57           | 187          | Project Collector System | Original           |
| 212           | 080114920200,<br>Jason J Hoersten                  | -84.66709508,<br>40.95332616 | 55.01           | 390          | Access Roads             | Original           |
| 215           | 080114200100,<br>Rex L & Nancy K Replogle          | -84.63025096,<br>40.95482816 | 90.14           | 297          | Access Roads             | Original           |
| 234           | 080111840100,<br>Robin Lynn Zinsmaster             | -84.58245461,<br>40.96108018 | 91.00           | 220          | Project Collector System | Original           |
| 258           | 010004680000,<br>William J & Lorraine Collins      | -84.69518612,<br>40.96073714 | 64.10           | 402          | Access Roads             | Original           |
| 284           | 080109720000,<br>Arthur R Flock                    | -84.6490924,<br>40.97290959  | 71.23           | 203          | Project Collector System | Original           |
| 304           | 080108360100,<br>Gary W & Janell M Dicke           | -84.64832389,<br>40.9753111  | 39.17           | 207          | Project Collector System | Original           |
| 321           | 080107040000,<br>William Joseph Roop               | -84.58259832,<br>40.98199099 | 71.87           | 220          | Project Collector System | Original           |
| 386           | 0525-00300,<br>Annexed to Village of Haviland      | -84.59984443,<br>40.99002456 | 57.94           | 171          | Project Collector System | Original           |
| 424           | 0536-00500,<br>Karen M. Keipper                    | -84.59110522,<br>40.99724164 | 29.96           | 343          | Access Roads             | Original           |
| 431           | 24-32S-009-00<br>Terry L. Boroff, Sr.              | -84.534452,<br>40.997335     | 67.20           |              | Access Road              | 8 Amended Turbines |
| 431           | 24-32S-009-00<br>Terry L. Boroff, Sr.              | -84.534452,<br>40.997335     | 97.78           |              | Project Collector System | 8 Amended Turbines |

**(c) Wind Turbine Structure Locations [Application, 8-58]**

As shown in Revised Table A8-8, no residences are within 1,000 feet of a wind turbine. In accordance with the Applicant policy, no residences will be within 1,200 feet of a wind turbine.

TABLE A8-8 [REPLACES TABLE 8-8, APPLICATION, 8-58]  
Residential Structures Near Facility Components

| <b>Facility Component</b> | <b>Number of Structures within 100 feet of Facility Component</b> | <b>Number of Structures within 1,000 feet of Facility Component</b> |
|---------------------------|---|---|
| Wind Turbine              | 0   | 0   |
| Access Roads              | 6   | 37  |
| 34.5 kV Collection Lines  | 16  | 109   |
| 115 kV Collection         | 0   | 8   |
| <b>Total</b>              | <b>22*</b>  | <b>154*</b>   |

\* The total counts some residential structures more than once.

**(i) Distance from Base to Property Line**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(ii) Distance from Blade to Residential Structure**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(iii) Waiver of Minimum Setback**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(d) Impact of Proposed Facility**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- Approximately 1,484.2 acres of land would be temporarily affected and 166.3 acres of land permanently affected by construction of turbines and associated access roads (Table A8-9). As shown in Table A8-9, agricultural land uses account for 99.2 percent of the area that would be permanently affected if all of the 160 turbines detailed in this Amendment and associated facilities were constructed. (The December 21, 2009 filing identified agricultural land uses account for 97.4 percent of the area that would be permanently affected if all of the 167 turbines were constructed.) Lower intensity developed uses, or open space, would account for approximately 0.7 percent of the permanently impacted land uses.

TABLE A8-9 [REPLACES TABLE 8-9 ON APPLICATION, 8-60]  
Land Use Within the Project Area

| Agricultural Land         | Total Land Use |                  | Original 152 Turbines |                  |             |                  | Additional 8 Turbines |                  |           |                  | Total 160 Turbines |                  |             |                  |
|---------------------------|----------------|------------------|-----------------------|------------------|-------------|------------------|-----------------------|------------------|-----------|------------------|--------------------|------------------|-------------|------------------|
|                           | Temporary      | Percent of Total | Temporary             | Percent of Total | Permanent   | Percent of Total | Temporary             | Percent of Total | Permanent | Percent of Total | Temporary          | Percent of Total | Permanent   | Percent of Total |
| Cultivated Lands          | 38,601.1 acres | 95.2             | 1,405.0 acres         | 99.11            | 158.0 acres | 98.20            | 66.5 acres            | 99.85            | 5.4 acres | 99.44            | 1,471.5 acres      | 99.14            | 163.4 acres | 98.26            |
| Deciduous Forest          | 717.6 acres    | 1.77             | 0.3 acres             | 0.02             | 0.3 acres   | 0.19             | Zero                  | 0                | Zero      | 0                | 0.3 acres          | 0.02             | 0.3 acres   | 0.18             |
| Developed, High Intensity | Zero           | 0                | 0.3 acres             | 0.02             | Zero        | 0                | Zero                  | 0                | Zero      | 0                | 0.3 acres          | 0.02             | Zero        | 0                |
| Developed, Low Intensity  | 1075.9 acres   | 2.65             | 10.3 acres            | 0.73             | 1.5 acres   | 0.93             | 0.1 acres             | 0.15             | Zero      | 0                | 10.3 acres         | 0.70             | 1.5 acres   | 0.90             |
| Pasture Land (Permanent)  | 93.6 acres     | 0.23             | 0.1 acres             | 0.01             | 0.1 acres   | 0.06             | Zero                  | 0                | Zero      | 0                | 0.1 acres          | 0.01             | 0.1 acres   | 0.06             |
| Shrub and Brush Rangeland | 28.4 acres     | 0.07             | 0.9 acres             | 0.06             | 0.5 acres   | 0.31             | Zero                  | 0                | Zero      | 0                | 0.9 acres          | 0.06             | 0.5 acres   | 0.30             |
| Lakes and Ponds           | 30.1 acres     | 0.07             | 0.8 acres             | 0.06             | 0.5 acres   | 0.31             | Zero                  | 0                | Zero      | 0                | 0.8 acres          | 0.05             | 0.5 acres   | 0.30             |
| Total                     | 40,546.7 acres | 100              | 1,417.7 acres         | 100              | 160.9 acres | 100              | 66.6 acres            | 100              | 5.4 acres | 100              | 1,484.2 acres      | 100              | 166.3 acres | 100              |

Note: Percentage values have been rounded, so totals are approximately 100 percent.

**(e) Identification of Structures to be Removed or Relocated**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(f) Plans for Future Use**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(g) Concurrent or Secondary Uses**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(2) Economics**

No text changes have occurred in this section (Sections 2(a) through 2(d)) of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(3) Public Services and Facilities**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(a) Sewerage and Sewer Treatment**

**Construction and Operations**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(b) Water**

**Construction**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following at the end of the paragraph [Application, 8-64]:

- The Applicant's General Contractor is purchasing concrete from a local supplier. The Applicant is not considering the construction of a temporary concrete batch plant for producing concrete as was previously identified in the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**Operations**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(c) Solid Waste Management**

**Construction and Operations**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(d) Police Protection**

**Construction and Operations**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(e) Fire Protection and Emergency Response**

**Construction and Operations**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(f) Health Care**

**Construction and Operations**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(g) Schools**

**Construction and Operations**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(4) Impact on Regional Development****(a) Description**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(i) Housing**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(ii) Commercial and Industrial Development**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- The Applicant's General Contractor is purchasing concrete from a local supplier. The Applicant is not planning the construction of a temporary concrete batch plant for producing concrete as was identified in the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010. Therefore, development associated with the temporary batch plant will no longer be necessary.

**(iii) Transportation System Development**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(b) Compatibility with Regional Plans**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(D) CULTURAL IMPACT****(1) Landmarks of Cultural Significance**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- Additional archaeological investigations were performed for eight additional turbines and associated infrastructure areas during March 2011. No archeological artifacts were recovered during the survey. Therefore, no historic properties, as defined in 36 CFR 800.16(l), will be impacted by the proposed project in the Amendment areas. Figure 8-5 has been revised to reflect the eight additional turbines. Appendix Z summarizes the findings of these investigations. A report for incorporating impacts for the additional eight turbines will be submitted to OPSB upon completion of the survey and consultations with the Ohio Historical Society (OHS).

**(a) Archeological Investigation**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- Additional archaeological investigations were performed during March 2011 for the eight additional turbines and associated infrastructure areas. Appendix Z summarizes the findings of these investigations. A report for incorporating impacts for the additional eight turbines will be submitted to OPSB upon completion of the survey and consultations with OHS.

**(b) Architectural Investigation**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010. The eight new turbines are situated within the previously studied project boundary and will not require any additional survey.

**(i) Built Resources**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(ii) Historic Districts**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(iii) Rural Schools**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(iv) Agricultural Properties**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(v) Individual Properties**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

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**(2) Estimated Impacts on Landmarks**

**(a) Archeological Resources**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- The Archaeological report has been updated and is included as Appendix Z.

**(b) Built Resources**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(3) Consideration of Landmarks**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(4) Mapping Landmarks**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- Figure 8-4 has been updated to include the eight new turbines and associated support infrastructure.

**(5) Recreational Areas**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(6) Visual Impacts**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010. The eight new turbines are intermingled with other turbines within the original Project Area boundary.

**(E) PUBLIC RESPONSIBILITY****(1) Public Information Program**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010. A public hearing was held on July 8, 2010 at Lincoln View Local School. With the initiation of construction on the first 152 turbines, Blue Creek has continued its efforts with community involvement by attending regular meetings with local officials, a continued local presence with the office at 126 East Main Street in Van Wert, and keeping a fulltime “landowner liaison” on contract to respond to whatever questions or concerns arise.

**(2) Liability Insurance**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(3) Evaluation of Interference with Radio and Television**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(a) Microwave**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(b) Radio**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(c) Television**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(d) Cellular and Personal Communication Systems**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(4) Evaluation of Interference with Military Radar**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(5) Evaluation of Impact to Roads and Bridges**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- Appendix CC information has been updated to include transportation routes related to the eight new turbines.

**(6) Plan for Decommissioning**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(F) AGRICULTURAL DISTRICT IMPACT****(1) Agricultural District Mapping**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(2) Impact Assessment on Agricultural Land**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- The Facility would disturb some agricultural land temporarily (1,484.2 acres) and occupy some agricultural land permanently (166.3 acres). (The Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, identified that the Facility would disturb some agricultural land temporarily (1,237.3 acres) and occupy some agricultural land permanently [213.2 acres]) [First paragraph, Application, 8-96].

- The Applicant would like to clarify the total acreage of temporary and permanent impact to agricultural land: 1,099.0 acres of temporary impact and 140.6 acres of permanent impact would occur in Van Wert County, and 385.2 acres of temporary impact and 25.7 acres of permanent impact would occur in Paulding County. Of the acres of impact to agricultural land, 55.6 acres of temporary impact and 3.0 acres of permanent impact would occur within a designated agricultural district in Van Wert County. Of the acres of impact to agricultural land, 31.3 acres of temporary impact and 2.8 acres of permanent impact would be within a designated agricultural district in Paulding County.

**(a) Field Operations**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(b) Irrigation**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(c) Field Drainage Systems**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(3) Mitigation for Agricultural Land Impacts**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010.

**(4) Agricultural Land Viability Assessment**

No text changes have occurred in this section of the Blue Creek Application approved by OPSB for a Certificate of Environmental Compatibility and Public Need on August 23, 2010, except the following:

- The temporary and permanent impact of the construction and operation of the Facility on the viability of agricultural land has been revised and is quantified in Table A8-13.

TABLE A8-13 [REVISED, APPLICATION, 8-101]-  
Temporary and Permanent Impacts on the Viability of Agricultural Land

| Agricultural Land                       | Original 152 Turbines |             | Additional 8 Turbines |           | Total 160 Turbines |             |
|---|-----------------------|-------------|-----------------------|-----------|--------------------|-------------|
|   | Temporary             | Permanent   | Temporary             | Permanent | Temporary          | Permanent   |
| Total Agricultural Land                 | 1,405.1 acres         | 158.1 acres | 66.5 acres            | 5.4 acres | 1,471.6 acres      | 163.5 acres |
| Cultivated Lands                        | 1,405.0 acres         | 158.0 acres | 66.5 acres            | 5.4 acres | 1,471.5 acres      | 163.4 acres |
| Pasture Land (Permanent)                | 0.1 acres             | 0.1 acres   | Zero*                 | Zero      | 0.1 acres          | 0.1 acres   |
| Managed Wood Lots                       | Zero                  | Zero        | Zero                  | Zero      | Zero               | Zero        |
| Orchards                                | Zero                  | Zero        | Zero                  | Zero      | Zero               | Zero        |
| Nurseries                               | Zero                  | Zero        | Zero                  | Zero      | Zero               | Zero        |
| Livestock and Poultry Confinement Areas | Zero                  | Zero        | Zero                  | Zero      | Zero               | Zero        |
| Agricultural Related Structures         | Zero                  | Zero        | Zero                  | Zero      | Zero               | Zero        |

\* Actual total is 0.02 acres. Rounded to Zero for presentation