ORDINANCE NO. 2009-3

PURPOSE: An Ordinance to amend the Arbela Township Zoning Ordinance.

THE TOWNSHIP OF ARBELA ORDAINS:

I. SHORT TITLE:

This Ordinance shall be known and may be cited at:

AMENDMENT TO THE ARBELA TOWNSHIP ZONING ORDINANCE (2002) AND ZONING DISTRICT MAP.

II. The Arbela Township Zoning Ordinance and the zoning district map attached thereto and made a part thereof, are hereby amended as follows:

1. NEW DEFINITIONS TO BE ADDED TO ARTICLE 2 SECTION 2.02 ARE TO READ:

ANEMOMETER TOWER means a freestanding tower containing instrumentation to determine the force or speed and direction of the wind. It is an accessory land use to a WIND ENERGY SYSTEM.

dB(A) means the sound pressure level is measured in decibels and is a numerical expression of the relative loudness of a sound.

COMMERCIAL WIND ENERGY SYSTEM a method for generating power by use of the wind and is designed and built to provide electricity to the electric utility grid. See also WIND ENERGY SYSTEM

ON SITE WIND ENERGY SYSTEM means a method for generating electric power from the wind and is intended to primarily serve the needs of a home, farm, or small business consumer at that site. See also WIND ENERGY SYSTEM

ROTOR means a component of a wind energy system that is often referred to as a blade. It acts as a rotating multi-bladed airfoil assembly extracting kinetic energy directly from the wind.

SHADOW FLICKER means alternating changes in light intensity caused by the moving rotor or blade of a wind energy system casting visible shadows on the ground and objects.

SOUND PRESSURE LEVEL means the sound pressure mapped to a logarithmic scale and reported in decibels (dB).

WIND ENERGY SYSTEM a method for generating power by use of the wind utilizing a wind turbine generator consisting of a turbine, blades, and tower as well as related electrical equipment. This does not include wiring to connect the wind energy system to the grid.

WIND SITE ASSESSMENT means a time based assessment to determine the available wind speeds at a specific site. See ANEMOMETER TOWER. Collected data is used to determine that sufficient wind resources are available for the operation of the proposed wind energy system.

2. PROPOSED AMENDMENT TO ARTICLE 3 TO CREATE A NEW SECTION 3.26 AND TO ADD DEVELOPMENT STANDARDS FOR ON SITE WIND ENERGY SYSTEMS AND ANEMOMETER TOWERS AS A PERMITTED USE.

NEW SECTION TO READ:

Section 3.26 On- Site Wind Energy Systems & Anemometer Towers

Purpose: This ordinance is to accommodate on site wind energy systems in appropriate locations in order to balance the need for clean and renewable energy sources while protecting the public's health, safety and welfare. In addition, the ordinance provides a permitting process for on site wind energy systems to ensure compliance with the provisions of the requirements and standards subject to the conditions described below:

Section 3.26.1 Standards:

1. On-site wind energy systems, anemometer towers, and related wind assessment devices are primarily intended to serve the needs of the on-site consumer. Unless otherwise provided, on-site wind turbine energy systems and anemometer towers shall comply with the following standards:

2. Zoning Districts: On-site wind energy systems and anemometer towers may be located in any district, provided the Wind Energy System or anemometer tower is setback from the property line a distance at least equal to the total height.

3. Maximum Height: Any proposed on-site wind energy system with a rotor tip height of 45 meters (150 feet) or less shall be considered an on site wind energy system.

4. Minimum Site Area: The minimum site area for on-site wind energy system or anemometer tower shall be three (3) acres.

5. Location: On-site wind energy systems and anemometer towers shall be located in the side or rear yard.

6. Property Setbacks: On-site wind energy systems and anemometer towers including anemometer towers used to conduct a wind site assessment for possible installation of an on-site wind energy system must conform to a height vs. setback requirement of one times the height of the tower from the property lines. No part of the on site wind energy system or anemometer, including guy wire anchors, may extend closer than (10) feet to the owner's property line.

7. Maximum Noise Levels: On site wind energy systems shall not exceed 65 dB(A) at the property line closest to the wind energy system. This sound pressure level may be exceeded during short-term events such as utility outages and/or during severe windstorms. If the ambient sound pressure level exceeds 65 dB(A), that standard shall be ambient sound level plus 5 dB(A)

8. Construction Codes, Towers & Interconnections Standards: On-site wind energy systems including towers shall comply with state construction and electrical codes and local building permit requirements. On site wind energy systems including towers shall comply with Federal Aviation Administration requirements, the Michigan Airport Zoning Act, The Michigan Tall Structures Act, and local jurisdiction airport overlay zoning regulations. An interconnected on-site wind energy system shall comply with Michigan Public Service Commission and utility interconnection requirement. Off-grid systems may be exempt from this requirement.

9. Safety:

    a. An on site wind energy system shall have a governing, or a feathering system to prevent uncontrolled rotation or over speeding.
    b. All wind energy towers shall have lightning protection
    c. If a tower is supported by guy wires, the wires shall be clearly visible to a height o at least six (6) feet above the guy wire anchors and property identified.
    d. The minimum vertical blade tip clearance from grade shall be 20 feet for a wind energy system employing a horizontal axis rotor.

Section 3.26.2 Site Permit Application: Prior to the installation of an on-site wind energy system or anemometer tower an application for a site permit must be filed and subsequently approved by the zoning administrator and shall include the following:

1. Applicant information: Name, address and contact information.

2. Project description: A general description of the proposed project including a legal description (property identification number) of the property on which the project would be located.

3. Site Plan: The site plan shall include maps or drawings showing the physical features and land uses of the project area.

The site plan shall include:

a. The project area boundaries.
b. The location, height, and dimensions of all existing and proposed structures and fencing.
c. The location, grades and dimensions of all temporary and permanent on-site and access roads from the nearest county or state maintained road.
d. Existing topography.
e. Water bodies, waterways, wetlands, and drainage ditches (county drains).
f. All new infrastructures above ground related to the project.
g. Certification that applicant has complied or will comply with all applicable state and federal laws and regulations.

3. AN AMENDMENT TO ARTICLE 7 TO ADD DEVELOPMENT STANDARDS AND RELATED DEFINITIONS FOR COMMERCIAL WIND ENERGY SYSTEMS AS A SPECIAL LAND USE.

New Section to Read:

Section 7.13.5 Commercial Wind Energy Systems & Anemometer Towers

7.13.6 Purpose: In order to balance the need for clean and renewable energy sources and the necessesity to protect the public health, safety and welfare of the community, the Township of Arbela finds that these regulations are necessary in order to establish uniform rules and policies to ensure Commercial Wind Energy Systems are properly designed, sited, and installed.

Section 7.13.7 Review Standards:

Unless otherwise provided, all commercial wind turbine energy systems and anemometer towers shall comply with all of the following standards:

1. Zoning District: A commercial wind energy system or anemometer tower shall be permitted after site plan and special land use approval in A-1 Agriculture Section 6.04.1 of the Arbela Township Ordinances.

2. Sufficient Wind Resources: The proposed site shall have documented annual wind resources sufficient for the operation of the proposed commercial wind energy system. However, this standard shall not apply to an anemometer tower. No commercial wind energy system shall be approved without submission of a wind resource study documenting wind resources on the site over a minimum of one year. Said study shall indicate the long-term commercial economic viability of the project**.** Prior to acting on the application for special use permit, the Township may retain the services of an independent recognized expert to review the results of a proprietary wind resource study conducted by the applicant.

3. Spacing and Density**:** Commercial wind towers should have adequate spacing to avoid objectionable density and not be sited so the closely as to interfere with the operation of other individual wind turbines. The minimum spacing distance between each individual wind tower shall be three rotor diameters. Documents shall be submitted by the developer/manufacturer confirming specifications for tower separation based on the characteristics (prevailing wind, topography, etc.) of the particular site**.**

4. Minimum Site Area: The minimum site area of a single parcel or combination of adjoining land areas for a commercial wind energy system or an anemometer tower shall be 40 acres. When a proposed site area is a combination or assembly of leased properties, the applicant must also submit documentation indicating the properties and individuals participating in the proposed project. The locations of any temporary off site staging areas to be used during the projects' construction phase must also be provided.

5. Setbacks: All proposed commercial wind energy systems or anemometer towers shall meet the following applicable setback requirements so that each commercial wind energy system shall be set back from any adjoining lot line a distance *equal to 1-1/2 times* the height of the tower. Setback shall be measured from the outermost point on the base of the tower. The amount of setback relief approved by the planning commission will be based on data provided by the applicant and prepared by a qualified professional. Such data shall satisfy the planning commission that any potential blade and ice throw will not cross the property line and that sound levels will not exceed 65 decibels on the dB(A) scale at the property line from the proposed setback. Data provided shall be specific to the proposed tower in the proposed location taking into consideration prevailing winds, topography, existing vegetation, and other relevant factors.

In addition, a request for reduction from the *required 1-1/2 times* the tower setback shall be granted if the planning commission finds one or more of the following:

   a. Such reduction will allow an increased setback from roadways.

   b. The property adjacent to the reduced setback is under the same ownership.

   c. The reduced setback otherwise greatly lessens impacts on a residential area or benefits the interests of the township residents as a whole.

6. Maximum Height: The maximum wind turbine rotor tip height of a commercial wind energy system or an anemometer tower shall be 300 feet. The planning commission may approve an increased height for a commercial wind energy tower or an anemometer tower, not to exceed 400 feet, if all of the following conditions are met:

   a. The increased height will result in the preservation of a substantial stand of trees, existing land forms or structures that would otherwise be removed to increase wind velocity.

   b. The increased height is the minimum necessary to achieve a reasonable rate of return on the operation of the wind turbine given the documented wind speeds and other site conditions. A reasonable rate of return is not equivalent to maximizing economic return to the operator. The planning commission shall not grant the increased height if economic return is not met due to the use of inefficient equipment that does not utilize current commercial technologies.

   c. The increased height will not result in increased intensity of lighting on the tower due to FAA requirements.

7. Minimum Rotor or Blade Clearance: The lowest point of the arc created by rotating rotors or blades on a commercial wind energy system shall be no less than twenty (20) feet. Additional clearance may be required by the planning commission if potential safety concerns are identified.

8. Maximum Noise Levels: Any proposed commercial wind energy system shall produce sound levels that are no more than 65 decibels as measured on the dB(A) scale at the property lines of the site in question. A noise report shall be submitted with any application for an anemometer tower

or wind turbine generator tower. A noise report shall be prepared by a qualified professional and shall include the following, at a minimum.

a. A description and map of the project's noise producing features, including the range of noise levels expected, and the basis of the expectation.

b. A survey and report prepared by a qualified engineer that analyzes the pre-existing ambient noise (including seasonal variation) and the affected sensitive receptors located within two (2) miles of the proposed project site. Potential sensitive receptors at relatively less windy or quieter locations than the project shall be emphasized and any problem areas identified.

9. Maximum Vibrations: Any proposed commercial wind energy system shall not produce vibrations Humanly perceptible beyond the property on which it is located.

10. Transmission Lines: The on site electrical transmission lines connecting the commercial wind energy system to the public utility electricity distribution system shall be located underground up to the property line and shall utilize industry standards and good utility practice to minimize, to the extent practical, the impact, if any, of electrical discharges and/or EMF on adjacent property/non-participation property.

11. Interference with Residential Reception: All commercial wind energy systems shall be constructed and operated so that they do not interfere with television, microwave, navigational or radio reception to neighboring areas.

12. Insurance: Proof of the applicant's public liability insurance.

13. Submittal of as-built documentation: The Planning Commission may require the applicant to notify the Township Administrator within a reasonable time frame of any change during the projects' construction phase that modifies the tangible portions of the finished work. The Administrator shall schedule a review of the applicants special land use permit and site plan by the Planning Commission when a significant design change occurs due to differing site conditions, material availability, contractor-requested changes, value engineering, and impacts from third parties. After final completion of a newly constructed commercial wind energy system, a set of drawings or documentation prepared by the general contractor or construction manager, (which includes any revisions in the working drawings and/or specifications during construction) shall be provided to the administrator as a final record to indicate how the project was actually constructed.

14. Performance Bond: The Planning Commission may require a performance guarantee to ensure completion of the proposed project.

15. State or Federal Requirements: Any proposed commercial wind energy system or anemometer tower shall meet or exceed any standards and regulations of the FAA, the Michigan Public Service Commission, and National Electric Safety Code. This may also include any other agency of the state or federal government with the authority to regulate wind turbine generators or other tall structures in effect at the time the special use permit is approved.

16. Soil Conditions: A proposal for any commercial wind energy system or anemometer tower shall be accompanied by a report of the soils present on the site based on soil boring, and a description of the proposed foundation size, materials, and depth. Such foundation shall be installed below plow depth to allow for feasible future reuse of the land unless the applicant provides a financial assurance that the foundation will be removed in the event that the tower is removed.

17. Visual Impacts: This ordinance recognizes that wind energy systems may pose some visual impacts. Any proposed commercial wind energy system shall meet the following requirements:

a. Each commercial wind energy system or anemometer tower shall be a monopole or monotube style construction (as distinguished from a lattice-style tower) and shall not utilize guy wires.

b. Each commercial wind energy system, including all accessory structures, including anemometer towers shall, to the extent possible, use materials, and colors that will blend them into the natural setting and surrounding buildings. A medium gray shade or galvanized steel finish, subject to any applicable standards of the FAA is the preferred color for any wind generator or anemometer tower. However, the Planning Commission may approve an alternate color if the facility is suspected to be located within an avian migratory route or if an alternate color would otherwise benefit the community.

c. Each wind turbine generator or anemometer tower shall be sited on the property in a location that reduces to the maximum extent possible any adverse impacts on significant view corridors from adjacent properties, while at the same time maintaining contact with economically viable wind resources

d. All proposed buildings of a commercial nature, including areas necessary for vehicle parking, outdoor storage of materials, replacement parts, equipment, and turbines awaiting repair, shall be appropriately sited on the property in locations that minimizes any adverse impacts to adjacent properties.

e. The planning commission may require design changes in order to lessen the visual clutter associated with multiple wind turbines with non-complementary, inconsistent design within sight of each other.

f. The planning commission may require landscaping.

16. Lighting: Each commercial wind energy system or anemometer tower shall not be artificially lighted unless required by the FAA or other applicable governmental authority. If lighting is required, the lighting alternatives and design chosen:

i. Shall be the lowest intensity allowable under FAA regulations.

ii. Shall not be strobe lighting or other intermittent white lighting fixtures, unless expressly required by the FAA. Such intermittent lighting shall be alternated with steady red lights at night if acceptable to the FAA

iii. May be a red top light that does not pulsate or blink.

iv. All tower lighting required by the FAA shall be shielded to the extent possible and acceptable to the FAA to reduce glare and visibility from the ground.

v. Where acceptable to the FAA, the Township will approve white lights over red lights and steady lights over a strobe or intermittent lighting.

17. Signs: A sign no more than four (4) square feet in area, non illuminated, displaying an address and telephone number for emergency calls and informational inquiries shall be posted at the wind turbine generator or anemometer tower. The emergency telephone number shall allow a caller to contact a responsible individual to address emergencies at any time during or after regular business hours, on weekends or holidays. No wind turbine generator tower or anemometer tower site shall include any advertising sign.

18. Shadow Flicker: The applicant shall provide shadow flicker modeling data for any proposed commercial wind energy system and shall include:

a. Map and describe within a one-mile radius of the proposed project site the topography, existing residences and location of their windows, locations of other structures, wind speeds and directions, existing vegetation and roadways. The model shall represent the most probable scenarios of wind constancy, sunshine constancy, and wind directions and speeds;

b. Calculate the locations of shadow flicker caused by the proposed project and the expected duration of the flickers at these locations. Calculate the total number of hours per year of flicker at all locations.

c. Identify problem areas where shadow flicker will interfere with existing or future residences and roadways and describe proposed measures to mitigate these problems, including, but not limited to, a change in the site of the facility, a change in the operation of the facility, or grading or landscaping mitigation measures.

d. The facility shall be designed such that shadow flicker will not fall on, or in, any existing dwelling. Shadow flicker expected to fall on a roadway or a portion of a residential parcel may be acceptable under the following circumstances:

1. The flicker will not exceed 30 hours per year; and
2. The flicker will fall more than 100 feet from an existing residence; or
3. The traffic volumes are less than 500 vehicles per day on the roadway.

19. Hazard Planning and Safety: An application for a special use permit for a commercial wind energy system shall be accompanied by a hazard prevention plan. Such plan shall address the following at a minimum:

a. Certification that the electrical wiring between turbines and the utility right-of-way does not pose a fire hazard.

b. Any landscape plan accompanying the application shall be designed to avoid spread of fire from any source on the turbine; such preventative measures may address the types and location of vegetation below the turbine and on the site.

c. A Hazardous Materials Waste Plan shall be provided with a listing of any hazardous fluids that may be used on site

d. Certification that the turbine has been designed to contain any hazardous fluids

e. A statement certifying that the turbine shall be routinely inspected to ensure that no fluids are released from the turbine.

20. Removal of Abandoned or Unsafe Wind Turbine Generators or Anemometer Towers: Any wind energy system or anemometer tower that is not operated for a continuous period of twelve (12) months shall be considered abandoned. Any tower found to be unsafe or not in compliance with the special land use conditions related to noise or shadow flicker placed upon it by the Planning Commission, shall be found to be in violation of the special land use permit. The owner of any wind turbine generator tower or anemometer tower that is abandoned or in violation of the special land use permit shall remove the same within ninety (90) days of receipt of notice from the Township of such abandonment or violation. In addition to removing the wind turbine generator or anemometer tower, the owner shall restore the site of the wind turbine generator or anemometer tower to its original condition, subject to reasonable wear and tear. Any foundation associated with a wind generator or anemometer tower shall be removed to minimum depth of five (5) feet below the final grade and site vegetation shall be restored. Failure to remove an abandoned wind energy system or anemometer tower within the ninety (90) day period provided in this subsection shall be grounds for the Township to remove the wind turbine generator or anemometer tower at the owner's expense. The Planning Commission may require the applicant to file a bond equal to the reasonable cost of removing the wind turbine generator or anemometer tower and attendant accessory structures as a condition of a special use permit given pursuant to this section.

21. New Technology: These regulations pertaining to commercial wind energy systems and anemometer towers are intended to respond to equipment available at the time of adoption. Arbela Township recognizes that this is an emerging technology and that new means of collecting with energy, including but not limited to vertical axis wind turbine generators, are under development. Arbela Township, therefore, reserves the right to withhold approval on any wind turbine generator or anemometer tower utilizing technology and equipment not widely in use as of this date, July 13, 2009, and not addressed in this ordinance, pending appropriate study and, if necessary, alteration of these regulations.

AMENDMENT TO SECTION 6.04.1 AS FOLLOWS:

III. A-1 Agricultural Zoning District Regulations

Intent and Purpose:

1. To preserve, enhance, and stabilize areas that are currently used for general farming.
2. To conserve lands best suited to farming due to their physical characteristics.
3. To protect agricultural lands from premature urban development.
4. To preserve the essential rural character and economic value of the Townships' agricultural lands.

Permitted Uses

1. Farms and general farming operations
2. Single family dwellings
3. Home occupations
4. Churches
5. Public parks
6. Cemeteries
7. Public & private schools
8. Family child care homes
9. State licensed residential facilities
10. Bed & breakfast establishments
11. Accessory uses & structures

Special Uses Subject to Review and Approval as Specified in Article 7

1. Agricultural storage facilities, terminals, and processing facilities
2. Veterinary clinics & kennels
3. Natural resource extraction: sand, gravel, clay, or topsoil extraction
4. Towers
5. Junkyards
6. Funeral homes
7. Correctional facilities, including juvenile detention facilities
8. Commercial wind energy systems

IV. Minimum Lot Size

Area: 10 acres
Width: 300 feet of continuous frontage

V. Minimum Setbacks

Front: 70 if frontage is on Bray, Birch Run, Belsay, or Millington roads; 50 feet if frontage is on all other roads. Front setbacks are measured from the road right-of-way.
Side: 50 feet each side
Rear: 50 feet

Maximum Building Height:

2 stories, 30 feet residences

Minimum Floor Area:

980 square feet for dwellings

Off-Street Parking Requirements:
See Article 8

Screening/Buffering Requirement:
See Article 3, Section 3.21

Sign Regulations:

See Article 9

Other District Requirements:

All new expanding livestock production facilities shall comply with the "Generally accepted agricultural and management practices for site selection and odor control" as adopted by the Michigan Commission of Agriculture, June 2000 for a Category 1 or Category 2 site.

Other District Requirements, continued:

Any new or expanding livestock production facility shall furnish its plans to the Township, regardless of whether MDA verification is required.

AMENDMENT TO SECTION 6.04.2 AS FOLLOWS:

<table>
<tr><td colspan="2">VI. RR-1 Rural Residential Zoning District Regulations

Intent and Purpose:
5. To provide for the satisfactory use of land areas not ideally suited to agricultural or intensive residential development.
6. To permit single-family residential development in a rural setting.
7. To serve as a land reserve for open space areas, idle cropland, and wetlands.
8. To serve as a buffer between agricultural areas and more intensive land uses.</td></tr>
<tr><td>Permitted Uses
12. Single family & two family dwellings
13. Home occupations
14. Accessory uses & structures
15. Churches
16. State licensed residential facilities
17. Public parks
18. Bed & breakfast establishments
19. On-site wind energy systems</td><td>Special Uses Subject to Review and Approval as Specified in Article 7
9. Public and private schools
10. Family child care homes
11. Cemeteries
12. Medical clinics</td></tr>
<tr><td>VII. Minimum Lot Size

Area: one (1) acres
Width: 200 feet of continuous frontage</td><td>VIII. Minimum Setbacks

Front: 70 if frontage is on Bray, Birch Run, Belsay, or Millington roads; 50 feet if frontage is on all other roads. Front setbacks are measured from the road right-of-way.
Side: 10 feet each side
Rear: 10 feet

Maximum Building Height:
2 stories, 30 feet residences</td></tr>
<tr><td>Minimum Floor Area:
980 square feet for dwellings</td><td>Off-Street Parking Requirements:
See Article 8</td></tr>
<tr><td>Screening/Buffering Requirement:
See Article 3, Section 3.21</td><td>Sign Regulations:
See Article 9</td></tr>
<tr><td>Other District Requirements:
Farm recreational animals, as defined by this Ordinance, may be kept in accordance with the Arbela Township Animal Control and Farm Recreational Animal Maintenance Ordinance.</td><td></td></tr>
</table>

REPEAL:

All ordinances or parts of Ordinances of the Township of Arbela inconsistent or in conflict with this Ordinance are hereby repealed.

PENALTY:

A. Any person who violates any provision of this Ordinance shall, upon conviction, be punished by a fine of not more than Five Hundred Dollars ($500.00) or by imprisonment for not more than ninety (90) days in jail, or both. Each day's failure of compliance with any provision of this Ordinance shall constitute a separate offense.

B. Legal proceedings to enjoin the violation of any of the provisions of this Ordinance may be brought in any court of competent jurisdiction in the name of the Township of Arbela. Such action shall be taken only as authorized by the Township Board

INVALIDITY:

If any section, paragraph, sentence, clause, phrase or part of this Ordinance shall be declared invalid for any reason whatsoever, such a decision shall not affect the remaining portions of this Ordinance which shall remain in full force and effect and to this end the provisions of this Ordinance are hereby declared to be severable.

EFFECTIVE DATE:

This Ordinance shall be effective seven (7) days from and after publication thereof.

This Ordinance is hereby declared to have been adopted by the Township Board of the Township of Arbela, County of Tuscola, State of Michigan at a regular meeting thereof held on the ____ day of _____, 2009 and ordered to be given publication in the manner prescribed by law.

We, Joseph B. White, Supervisor of the Township of Arbela, and Mary C. Warren, Clerk of the Township of Arbela, do hereby certify that the foregoing is a true copy of an Ordinance adopted by the Township Board at a meeting held on the _____ day of _____, 2009.

_____
Arbela Township - Supervisor

_____
Arbela Township - Clerk

	YES	NO
_____ Supervisor	____	____
_____ Clerk	____	____
_____ Treasurer	____	____
_____ Trustee	____	____
_____ Trustee	____	____

I, Mary C. Warren, Clerk of the Township of Arbela, do hereby certify that the above are the names of the members of the Township Board of the Township of Arbela voting on the above Ordinance and how said members voted.

_____
Arbela Township - Clerk

I, Mary C. Warren, Clerk of the Township of Arbela, do hereby certify that a summary of the above Ordinance was published by insertion in Caro Publishing Inc., a newspaper circulating within the Township of Arbela, on the ____ day of _____, 2009.

_____

Arbela Township - Clerk