

**MANISTEE CITY PLANNING COMMISSION**  
Meeting of Thursday, June 2, 2011  
7:00 p.m. - Council Chambers, City Hall, 70 Maple Street,  
Manistee, Michigan

**AGENDA**

**I Call to Order**

**II Roll Call**

**III Approval of Agenda**

At this time the Planing Commission can take action to approve the June 2, 2011 Agenda.

**IV Approval of Minutes**

At this time Planning Commission can take action to approve the May 5, 2011 meeting Minutes.

**V Public Hearing**

**VI Public Comment on Agenda Related items**

**VII New Business**

**VIII Old Business**

**Residential Wind Turbines**

The Planning Commission will continue their discussion on Residential Wind Turbines.

**IX Public Comments and Communications**

At this time the Chair will ask if there are any public comments.

**X Correspondence**

At this time the Chair will ask if any correspondence has been received to be read into the record.

**XI Staff/Sub-Committee Reports**

At this time the Chair will ask Staff for their report.

At this time the Chair will ask if any of the Sub-Committees have anything to report.

**XII Members Discussion**

At this time the Chair will ask members of the Planning Commission if they have any items they want to discuss.

**XIII Adjournment**



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## MEMORANDUM

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TO: Planning Commissioners

FROM: Denise Blakeslee   
Planning & Zoning

DATE: May 25, 2011

RE: June 2, 2011 Meeting

Commissioners, attached is a copy of the June 2, 2011 Planning Commission Meeting Packet for your review. The only item that we have on the agenda is **Residential Wind Turbines**.

Staff was unable to schedule a meeting with the subcommittee to review the draft ordinance language. I drafted a comparison of the City of Alpena ordinance and Section 515 Accessory Windmills. At the meeting we will use the comparison to discuss ordinance language.

If you are unable to attend the meeting please call me at 398-2805.

JRR:djb

**Comparison of Alpena Wind Energy System Ordinance –vs- City of Manistee Accessory Windmills (Section 515/Definitions Section 224 W)**

City of Alpena standards [Where there are City of Manistee Standards they in brackets and highlighted for comparison]	Comments
<p><u>Purpose and Goals</u> The purpose of this section is to establish guidelines for siting wind energy systems and wind energy facilities. This section's goals are as follows: To promote the safe, effective, and efficient use of wind turbines and wind energy systems installed to reduce on-site consumption of electricity supplied by utility companies and/or to produce power that will be directly supplied to the electric power grid system. To lessen potential adverse impacts that wind turbines and wind energy facilities may have on residential areas and land uses through careful design, siting, noise limitations, and innovative camouflaging techniques. To avoid potential damage to adjacent properties from turbine failure through proper siting of turbine structures.</p>	<p>Should we include purpose and goals in our ordinance language?</p> <p>Yes</p> <p>No</p>
<p><u>Technological advances and design standards flexibility</u> The City recognizes the accelerated pace at which the technology of wind energy generation is constantly evolving, and the impact these technological changes may have on the use and placement of wind energy systems within the <b>City of Alpena</b>. Consequently, in order to effectively incorporate new technology that may outpace the regulations established herein, the Planning Commission may approve wind energy systems that do not fully comply with the strict development standards of these regulations, if in the opinion of the Commission they comply with the intent of the regulations and do not create significant adverse impacts on the petitioned property, abutting properties or the immediate neighborhood.</p>	<p>Should we include technological advances and design standards flexibility in our ordinance language? We will need to verify with the City Attorney.</p> <p>Yes No</p>
<p><u>Historic District/Site Requirements</u> Prior to the issuance of any permits the <b>City of Alpena Historic District Commission</b> shall review and approve any proposal to locate a wind turbine or wind energy facility within a certified historic district or certified historic site.</p>	<p>Should these standards be required?</p> <p>Yes No</p>
<p><b>Small on-site Wind Energy Systems:</b> A wind energy conversion system which is intended to primarily serve the needs of the property upon which it is located shall be considered an accessory structure and shall be permitted by right. The following site development standards shall apply: [WINDMILL, ACCESSORY: A wind energy system used to produce electricity for onsite consumption and not for resale.]</p>	<p>Which of the two definitions should we consider or should we combine them?</p>
<p><u>Design and Installation</u> All wind turbines (ground and roof mounted) shall comply with the building code currently adopted by the City of Manistee. Building permits for all wind turbines must be issued to a licensed contractor and applications shall be accompanied by engineering drawings of the wind turbine structure including the owner, base, and footings. An engineering analysis of the tower showing compliance with the currently adopted building code and certified by a licensed professional engineer shall also be submitted. The installation of the wind turbine shall meet manufacturer's specifications.</p>	<p>Should these standards be required?</p> <p>Yes</p> <p>No</p>
<p><u>Plan Submittal</u> An application for the installation of a Small On-Site Wind Energy System shall include the following information: The location of the proposed wind turbine. The location of all structures on the property and adjacent properties and the distance from the wind turbine. The location and approximate height of trees within fifty (50) feet of the wind turbine. The distance from other wind turbines on adjacent lots, if applicable. [A detailed site plan shall be required and reviewed by the Site Plan Review Committee per Section 2201.B.]</p>	<p>Should they require a Medium Site Plan vs Detailed Site Plan?</p> <p>Or should we use the Alpena requirements?</p>

<p><b>Minimum Lot Size</b>  Ground Mounted Horizontal Axis Wind Turbine:  Not permitted in the CBD, CCD, P-1 or CR Districts  WF District requires a Special Use Permit  PUD District: only if permitted in the approved PUD  <b>R-1, R-2 and RT Districts:</b>  Rotor Diameter of eight (8) feet or less: Average lot width of one hundred (100) feet.  Rotor Diameter in excess of eight (8) feet: Average lot width of one hundred fifty (150) feet and at least one (1) acre in area.  <b>All other districts:</b> Average lot width of one hundred fifty (150) feet and at least three-fourths (3/4) acre in area.</p>	<p>Should we have a minimum lot size requirement for residential Districts  Yes / No If yes what size _____  Should we have a minimum lot size requirement for Other Zoning Districts  Yes / No If yes what size _____</p>
<p><b>Height</b>  The maximum height above ground for both the horizontal and vertical axis Wind Turbines is fifty (50) feet.  Accessory Windmills shall not be constructed to a <b>height higher</b> than fifty (50) feet, as measured from the finished median grade elevation of the site. (only allowed in L-I &amp; G-I)]  <i>District Limitations are as follows: G-C, R-1, R-2, R-3, R-4, C-2, WF (35 ft)</i>  C-1 (40 ft)  C-3, LI, GI (50 ft)</p>	<p>Should we have a maximum height requirement for residential Districts  Yes / No If yes what size _____  Should we have a maximum height requirement for Other Zoning Districts  Yes / No If yes what size _____</p>
<p><b>Multiple Wind Energy Turbines</b>  <u>Horizontal Axis Wind Turbine:</u>  Ground Mounted: No more than one on any lot of less than one (1) acre in size. For lots one (1) acre and over in area, the number of turbines shall be determined by the spacing requirement of the manufacturer and the site plan must be approved by the Planning Commission without a public hearing.  Roof Mounted: A maximum of two (2) may be installed on a building following review and approval by the Zoning Administrator or Building Inspector. For more than two units a site plan and elevation drawings must be approved by the Planning Commission without a public hearing. Multiple roof top units shall be incorporated into the Architectural design of the building. Turbine must comply with the size and design requirements as specified for ground mount units on lots less than one (1) acre in paragraph 4.a.1) above.  <u>Vertical Axis Wind Turbine:</u>  For both ground and roof mounted turbines a maximum of two (2) may be placed on a lot following review and approval by the Zoning Administrator. For more than two units a site plan and elevation drawings must be approved by the Planning Commission without a public hearing. Multiple roof top units shall be incorporated into the architectural design of the building. Multiple ground mounted units shall be incorporated as much as possible into the site design of the property.</p>	<p>Should multiple Wind Energy Turbines be permitted?  Free Standing (Horizontal &amp; Vertical Axis)  Yes  No  Roof Mounted (Horizontal)  Yes  No</p>
<p><b>Rotor Clearance</b>  A minimum fifteen (15) foot clearance from the ground shall be maintained for the vertical blade tip of a Horizontal Axis Wind Turbine and for the bottom of the rotating spire or helix of a Vertical Axis Wind Turbine.</p>	<p>Should these standards be required?  Yes / No</p>
<p><b>Guy Wires</b>  The use of Guy wires shall be prohibited.</p>	<p>Should these standards be required?  Yes / No</p>

<p><b>Placement on Lot</b> Each small wind energy system shall be placed within the rear yard only. Roof mounted units shall comply with Paragraph D.16 below. The wind energy system shall be located as close as possible to the center of the rear yard. No part of the wind turbine generator may extend closer to the property line or waterfront than the required setback for the district in which the unit is located. [Accessory Windmills shall be located in compliance with the front yard setback requirements of the district in which it is located or the height of the accessory structure, whichever is greater.] [Accessory Windmills shall not be located closer to an adjoining parcel than the height of the accessory structure or setback requirements, whichever is greater.]</p>	<p>Should these standards be required? Yes / No</p> <p>Which one (s)?</p>
<p><b>Noise</b> Small wind energy systems shall not cause a sound pressure level in excess of fifty-five (55) dB(A) or in excess of five (5) dbA above the background noise, whichever is greater, as measured at the nearest property line. This level may be exceeded during short-term events such as utility outages and severe wind storms. [The application shall provide for measures acceptable to the Planning Commission to prevent any noise in excess of 60 decibels at any property line.]</p>	<p>Should these standards be required? Yes / No</p> <p>Which one?</p>
<p><b>Vibration</b> Small wind energy systems shall not cause vibrations through the ground which are perceptible beyond the property line of the parcel in which it is located.</p>	<p>Should these standards be required? Yes / No</p>
<p><b>Spacing</b> Minimum spacing between wind energy systems (on and off site) shall be per the manufacturers specifications. [Accessory Windmills shall not be located closer than ten (10) feet to the principal structure on the property which it is located.]</p>	<p>Should these standards be required? Yes / No</p> <p>Which one? Both?</p>
<p><b>Accessory Equipment</b> All electrical equipment and battery storage shall be located within a locked panel or building (principal or accessory structure) so as not to be readily accessible. A small sign shall be placed on the panel or building with emergency contact information. A Manufacturers Materials Safety Data Sheet (s) for all coolants, lubricants, batteries (acid), etc. shall be provided to the City prior to installation, and updated or amended sheets provide as may be required.</p>	<p>Should these standards be required? Yes / No</p>
<p><b>Reception Interference</b> Small wind energy systems shall not cause interference with television, microwave, navigational or radio reception to neighboring areas.</p>	<p>Should these standards be required? Yes / No</p>
<p><b>Shadow Flicker</b> The property owner of a wind turbine shall make reasonable efforts to minimize shadow flicker to any occupied building nearby properties.</p>	<p>Should these standards be required? Yes / No</p>
<p><b>Potential Ice Throw</b> Any potential ice throw or ice shedding from the wind turbine generator shall not cross the property lines of the site or impinge on ay right-of-way or overhead utility line.</p>	<p>Should these standards be required? Yes / No</p>
<p><b>Visual Impact</b> All visible components of a small onsite wind energy system shall be painted a non-reflective, non-obtrusive neutral color and maintained in good repair in accordance with industry standards.</p>	<p>Should these standards be required? Yes / No</p>
<p><b>Safety</b> A small on-site wind energy system shall have an automatic braking system to prevent uncontrolled rotation.</p>	<p>Should these standards be required? Yes / No</p>

<p><b>Other Regulations</b>  On-site use of wind energy systems shall comply with all applicable State Construction and Electrical Codes, Federal Aviation Administration requirements, Michigan Aeronautics Commission requirements, the Michigan Tall Structures Act (P.A. of 1959, as amended), and the Michigan Public Service Commission and Federal Energy Regulatory Commission standards.</p>	Should these standards be required? Yes / No
<p><b>Roof-Mounted Wind Energy Systems</b>  Small roof-mounted wind energy systems are exempt only for the subsection I above (placement on lot). All other subsections shall apply as well as the following:</p> <p>Roof-mounted Vertical Axis Wind Turbines must be located on the rear half of the structure unless incorporated as an architectural design feature of the building.</p> <p>Horizontal Axis Wind Turbines shall not be roof-mounted, <b>except for those specifically designed for such installation.</b></p> <p>The maximum height of a roof-mounted wind energy system shall be measured from the ground.</p>	Should these standards be required? Yes / No

# Questions You Should Ask

*Interested in buying a wind turbine? Make sure to ask these questions first:*

the sale of those kilowatts won't make you rich. Paying back the cost of installing a wind turbine, which runs from several thousand dollars to \$50,000, can take several years to several decades.

You also need to consider your location. In more densely settled areas, local zoning laws may prohibit construction of a wind turbine. But in any location, you must know just how much wind you have, day after day. In these calculations, average wind speed becomes critical.

While the federal government has mapped out average wind speeds across the country ([nrel.gov/wind](http://nrel.gov/wind)), each specific site is unique, affected by factors such as elevation and obstruction from buildings and trees. Better wind speeds are found higher off the ground, and there can be a huge difference between speeds at the 300-foot height of a large-scale wind turbine and the 80- to 100-foot of a small one.

Before installing a small wind turbine, do your homework. This includes checking with your electric co-op well in advance of making a purchase. Being aware of your co-op's policies and procedures on interconnecting a wind system to the grid will avoid headaches, disappointments and unexpected costs.

The grid is a complex, interrelated machine and some costs may need to be incurred for studies or upgrades to preserve safety, reliability, or quality of power. Your co-op may be able to help you estimate what those costs might be in advance and help you find additional opportunities for energy efficiency that could further reduce your electric bills.

To find out what incentives may be available in your state, go to the Database of State Incentives for Renewables and Efficiency at [dsireusa.org](http://dsireusa.org).

More and more people are attracted to the idea of generating their own electric power through the use of "backyard" renewable energy systems. Small wind turbines are one of the most popular choices, but careful study and assistance from your co-op can make sure you know the facts before buying one.

*Bob Gibson manages research in renewable energy and energy efficiency for the Cooperative Research Network, an arm of the National Electric Cooperative Association.*

## **1. How reliable is the rated energy output? How do you calculate the output? What wind speeds do you use?**

Experts advise ignoring the "peak output" and "power curves" provided by vendors. Rather, look for the monthly or annual energy output (in kilowatt-hours) for the turbine, estimated for the average wind speed you expect or measured at your site.

## **2. Is the inverter UL<sup>®</sup> listed?**

If the inverter (required to convert direct current power from the turbine to alternating current power of the grid) is not Underwriters Laboratories, Inc. (UL), listed, find another vendor. Most electric co-ops require an inverter to carry a UL 1741 certification for interconnection with the grid.

## **3. What is the estimated total installed cost? What do the turbine and tower cost each? How much will installation and interconnection cost? How much maintenance will be required, and cost?**

Budget for labor expenses as well as the cost of equipment rental, concrete and rebar, electrical components, shipping, and sales tax. It adds up fast.

Avoid giving a large deposit, if you can. This may help protect you if the vendor doesn't honor what's promised or service/equipment isn't up to par.

Work with the turbine manufacturer to find reputable installers and pay close attention to the process. If something doesn't seem right, don't accept it just because the vendor says so.

Visit [teammidwest.com](http://teammidwest.com) to see the economic analysis used for Midwest Energy's renewable energy park (shows all costs and compares them against the generation).

## **4. How long is the warranty and what does it cover—parts? Labor? Can it be extended? If so, what will it cost?**

Warranties (longer = better) range from one to five years. Make sure it covers labor and parts. Ask the owners of wind systems bought from the same vendor about performance and reliability before deciding on an extended warranty, if available. If you live in a lightning-prone area, strongly consider

the lightning protection option.

## **5. How long has the vendor been in business? How many turbines have they sold? Are their turbines certified? Can they perform maintenance, or is there another licensed repair technician in the area?**

Look for vendors that have been in business for at least five years or have acquired the product line of another vendor. Also research the number and types of wind turbines the vendor has installed (don't just take their word for it) and ask for the names of at least two people who have installed a similar model. Check with the references and ask them if there was anything they wish they had known before investing in a turbine.

The Small Wind Certification Council has been conducting a certification process in the U.S. ([smallwindcertification.org](http://smallwindcertification.org)). Small turbines can be certified using the International Electrotechnical Commission (IEC) standard, IEC 61400-2, for testing wind turbine power performance. This standard is increasingly used by U.S. manufacturers.

## **6. What are your electric co-op's interconnection policies? What will the co-op pay for any excess energy you may produce?**

Electric co-ops must provide all of their members with safe, reliable, affordable electric service. Most co-ops have interconnection policies designed to permit interested members to own their own generation without impacting the quality or cost-of-service received by other members. Knowing what these policies are before buying a wind turbine will help you better evaluate the full costs and benefits of the investment.

## **7. What local zoning laws, electrical codes, homeowners' association requirements or other local laws and standards apply to wind turbines?**

Some local zoning ordinances and homeowners' association policies restrict the height of wind turbines or require that they be set back a specified distance from the property line. These restrictions may keep you from taking advantage of the best wind resources or require extra time to get a waiver or exception. Local electrical or building codes may also impose additional time or expense.