



Naperville

CITY COUNCIL AGENDA ITEM

SUBJECT: PC Case #10-1-113 – Small Wind and Solar Renewable Energy Text Amendment

TYPE OF VOTE: Simple Majority

ACTION REQUESTED:

Conduct the first reading to consider the ordinance amending Title 6 (Zoning Regulations) of the Municipal Code pertaining to Small Wind and Solar Renewable Energy.

BOARD/COMMISSION REVIEW:

The Plan Commission considered this case on September 15, October 6 and October 20, 2010. At their October 20, 2010 meeting, the Plan Commission voted to recommend approval of the amendment subject to additional revisions (4-3, Approved). Staff recommends approval of the zoning amendment but does not concur with the final revisions recommended by Plan Commission at their October 20, 2010 meeting.

COUNCIL ACTION PREVIOUSLY TAKEN:

Date of Action	Item No.	Action

DEPARTMENT: TED Business Group – Planning Services Team

SUBMITTED BY: Katie Forystek, AICP, Community Planner

FISCAL IMPACT:

None.

BACKGROUND:

The FY 10/11 Planning Team work plan includes a zoning text amendment related to wind energy, and in June of 2010, the City Council considered and approved the city’s first Environmental Sustainability Plan (ESP), which includes an implementation strategy to identify existing Municipal Code impediments to best practices for building, energy or site improvements. Following acceptance of the ESP, the City Council considered and tabled indefinitely a request from Brighton Car Wash to install a ground mounted wind turbine.

Pursuant this decision, staff was directed to draft a text amendment and address zoning regulations for green technology.

The proposed amendment would create a new chapter within Title 6 (Zoning Ordinance) of the Municipal Code to establish zoning regulations for small wind and solar renewable energy. The ordinance has been drafted to provide guidance that will appropriately direct the installation of small wind and solar technology in the city. Currently, wind and solar renewable energy installations are governed by the Accessory Structures regulations contained in Section 6-2-10 of the Municipal Code. The Accessory Structures ordinance does not adequately address the physical requirements and related considerations associated with renewable energy uses.

DISCUSSION:

The proposed Small Wind and Solar Renewable Energy ordinance establishes a framework by which small wind and solar installations may be considered. Although there are many additional technologies that fall under the broad heading of “renewable energy”, wind and solar energy are most commonly addressed within the context of zoning as they involve installation of structures that present location, bulk and related considerations. The ordinance does not authorize large wind installations (commercial, large-scale utility power systems typically associated with “wind farms”) in any area of the city.

The proposed amendment is intended to allow for the installation of renewable energy systems, which provide a benefit to the community and individual property owner, in balance with rational limitations on bulk, height and placement. In preparing the ordinance, staff has sought and incorporated feedback from residents and a variety of stakeholder groups, including the Illinois Solar Energy Association, Illinois Wind Energy Association, Naperville for Clean Energy and Conservation, and Naperville Area Homeowners Confederation. Staff also reviewed ordinances from other communities in the region including Batavia, Buffalo Grove, Lake in the Hills, Lincolnshire, New Lenox and Schaumburg.

Wind Energy

Under the proposed ordinance, wind energy systems would be permitted as follows:

	Residential Use	Institutional, Non-Residential, Utilities	Commercial Districts	Industrial Districts and BP District
Roof-Mounted Wind				
Authorization	Not Permitted	Conditional Use	Permitted Use	
Height		10’ above the peak roof height or max permitted height of the zoning district, <i>whichever is less</i>		
Placement		Setback 5’ from edge of roof, affixed only to the roof deck of a flat roof or the ridge or slope of a pitched roof		
Ground-Mounted Wind				
Authorization	Conditional Use			Permitted Use
Height	60’*			150’*
Setback	Minimum setback equal to 1.1 times the tower height from <i>all</i> property lines, third party transmission lines, Ground-Mounted Small Wind Energy Systems, overhead electric distribution systems and communication towers.			

**height of a ground-mounted turbine is first limited by the setback requirement of 1.1 times the tower height.*

The recommended height limitations for ground-mounted wind energy systems in the Industrial Districts and Business Park (“BP”) District are consistent with the standards established for telecommunications facilities (up to 150’ tower permitted by right in Industrial and BP Districts; up to 60’ tower permitted in residential districts). Further, they reflect the need for wind facilities to have a height which exceeds obstructions that impede wind flow in order to be functional.

Solar

Under the proposed ordinance, solar energy systems would be permitted as follows:

	Residential Use	Institutional, Non-Residential, Utilities	Commercial Districts	Industrial Districts and BP District
Building-Mounted Solar				
Authorization	Permitted Use			
Height	Maximum height of 10’, but not to exceed 5’ above the roofline or 5’ above the maximum permitted height of the zoning district, <i>whichever is less</i>			
Ground-Mounted Solar				
Authorization	Conditional Use		Permitted Use	
Height	Maximum height of 6’			
Setback	Minimum setback of 5’ from all property lines			

Conditional Use

The proposed Small Wind and Solar Renewable Energy Ordinance establishes standards for a conditional use that are specific to renewable energy systems, as they are a unique use category that embody zoning, utility and environmental considerations.

Public Input

In August, 2010 an initial draft of the proposed ordinance was put forth for public comment. Initial feedback was incorporated into the ordinance that was presented to the Plan Commission for review. In the following months, staff has received input from interested residents and members of the public, and has reached out to the Naperville Area Homeowners Confederation, Naperville for Clean Energy and Conservation, Illinois Solar Energy Association and Illinois Wind Energy Association for their expertise and additional feedback. These organizations have each expressed general support for the proposed ordinance subject to some additional recommendations. Although it was not possible to incorporate all comments from each organization, the ordinance presented to Council for consideration has been fine tuned to balance public input with the functional requirements of these systems, as well as the precedents established within the Municipal Code and values of the community as expressed through the Environmental Sustainability Plan. Attached to this memorandum, staff has included the public correspondence received prior to and during Plan Commission consideration and input received post Plan Commission recommendation in response to the ordinance that the City Council will consider.

Plan Commission Review

The Plan Commission opened the public hearing for this matter on September 15, 2010. Three people provided testimony in support of the amendment during the public hearing. Following public testimony the Plan Commission commented on additional items for staff consideration and continued the public hearing to October 6, 2010. At the October 6 public hearing, five

people provided testimony in support of the zoning amendment. The Plan Commission discussed turbine height, aesthetic considerations, lot coverage and lot area restrictions, the proposed conditional use standards, and wildlife considerations. The commission requested a voting matrix and continued the hearing to October 20, 2010.

Staff presented the Plan Commission with a final draft of the ordinance and voting matrix at their October 20, 2010 meeting. Three people provided testimony in support of the zoning amendment. Following the public testimony and some discussion, the Plan Commission considered their voting matrix and made a recommendation to approve the Small Wind and Solar Renewable Energy Ordinance subject to incorporation of standards for shading and shadows, incorporation of the requirement that building mounted solar panels be processed as a conditional use when installed on residential facades that abut a public right-of-way, and incorporation of regulations for the Health Services District consistent with other business districts (4-3, Approved).

Commissioners Bruno, Herzog and Messer were the three dissenting votes. Commissioner Bruno expressed support for the solar aspects of the ordinance with restrictions on streetside installations of rooftop solar panels. Additionally, Commissioner Bruno expressed concern regarding the possibility of wind turbine installation in residential areas and recommended a lower height limitation for ground-mounted turbines in industrial areas. Commissioner Herzog expressed support for renewable energy in general and the solar aspects of the ordinance specifically, but disapproves of wind turbines as they are not a proven technology in a suburban environment. Additionally, Commissioner Herzog expressed concern about wind turbines on residential properties and the proposed height allowances in the Industrial districts. Commissioner Messer expressed support for the ordinance generally but recommended denial due to the proposed restrictions that would require roof-mounted solar panels facing a right-of-way to obtain approval of a conditional use as he believed the requirement is too restrictive.

With respect to the conditions recommended by Plan Commission staff notes the following:

1. Standards for shading and shadows – Staff does not support this change. Staff finds no empirical data to support correlation of this impact with small wind systems (the type that would be permitted in Naperville), although shadow “flicker” is sometimes associated with large, industrial-scale turbines which move at a lower rate of speed (rpm). “Impacts” of a renewable energy system are covered generally under the proposed Conditional Use standards.
2. Building mounted solar panels as a conditional use when installed on residential facades that abut a public right-of-way – Staff does not support this change. HOA’s can address location of solar panels as they choose. Furthermore, this condition would create a disparity in zoning entitlements between like properties within the same zoning district based solely upon their orientation.
3. Incorporation of Health Services District (HSD) consistent with other business districts – Staff concurs. The HSD is incorporated within the ordinance under the category of “Business Districts”.

RECOMMENDATION:

Conduct the first reading to consider the ordinance amending Title 6 (Zoning Regulations) of the Municipal Code pertaining to Small Wind and Solar Renewable Energy.

Renewable Energy Ordinance – PC Case #10-1-113

November 16, 2010

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ATTACHMENTS:

1. Renewable Energy – Attachment 1: Zoning Height Comparison – PC 10-1-113
2. Renewable Energy - Small Wind and Solar Renewable Energy Ordinance – PC 10-1-113
3. Renewable Energy - Public Correspondence Post Plan Commission – PC 10-1-113
4. Renewable Energy - Plan Commission Minutes of September 15, 2010 – PC 10-1-113
5. Renewable Energy - Plan Commission Minutes of October 6, 2010 – PC 10-1-113
6. Renewable Energy - Plan Commission Minutes of October 20, 2010 – PC 10-1-113
7. Renewable Energy - Public Correspondence – PC 10-1-113

**PREPARED BY:
CITY OF NAPERVILLE
LEGAL DEPARTMENT
630/420-4170**

**RETURN TO:
CITY OF NAPERVILLE
CITY CLERK'S OFFICE
P.O. BOX 3020
400 SOUTH EAGLE STREET
NAPERVILLE, IL 60566-7020**

ORDINANCE NO. 10-1-___

**AN ORDINANCE AMENDING
TITLE 6 (ZONING REGULATIONS) OF THE
NAPERVILLE MUNICIPAL CODE TO ADD
CHAPTER 15: SMALL WIND AND SOLAR RENEWABLE ENERGY SYSTEMS**

WHEREAS, the City of Naperville is a home rule municipality pursuant to Article 7, section 6 of the Illinois Constitution, and

WHEREAS, the City of Naperville has an Environmental Sustainability Plan, and

WHEREAS, the City of Naperville has identified the need to provide zoning regulations to guide the installation and operation of Small Wind and Solar Renewable Energy Systems in the City of Naperville, and

WHEREAS, the City of Naperville intends to accommodate sustainable energy production from renewable energy sources.

NOW, THEREFORE BE IT ORDAINEC BY THE CITY COUNCIL OF THE CITY OF NAPERVILLE, DUPAGE AND WILL COUNTIES, ILLINOIS, acting in its home rule authority, as follows:

SECTION 1: Title 6 (Zoning Regulations) of the Naperville Municipal Code, is hereby amended by adding Chapter 15: Small Wind and Solar Renewable Energy Systems as follows:

Chapter 15

SMALL WIND AND SOLAR RENEWABLE ENERGY SYSTEMS

SECTION:

- 6-15-1: Purposes
- 6-15-2: Definitions
- 6-15-3: General Requirements
- 6-15-4: Small Wind Energy Systems
- 6-15-5: Solar Energy Systems
- 6-15-6: Conditional Uses
- 6-15-7: Maintenance
- 6-15-8: Severability
- 6-15-9: Conflicts Resolved

6-15-1: **PURPOSES:** The purposes of this chapter are to:

1. Provide zoning regulations to guide the installation and operation of Small Wind and Solar Renewable Energy Systems in City of Naperville.
2. Accommodate sustainable energy production from renewable energy sources.
3. Preserve the aesthetics of the zoning districts in the interest of property values, public health, and welfare.

6-15-2: **DEFINITIONS:** As used in this chapter, the following terms shall have the meanings indicated:

LARGE WIND ENERGY SYSTEM: A wind energy conversion system consisting of a wind turbine, a tower or mounting, and associated control or conversion electronics, which is intended primarily to generate utility power at a commercial scale.

NET METERING: An arrangement by which excess energy generated by a Renewable Energy System is distributed back to the electrical utility grid.

RENEWABLE ENERGY SYSTEM: A system that generates energy from natural resources such as sunlight, wind, and geothermal heat. As used herein, the term "Renewable Energy System" refers to Small Wind Energy Systems and Solar Energy Systems only.

SMALL WIND ENERGY SYSTEM: A wind energy conversion system consisting of a wind turbine, a tower or mounting, and associated control or conversion electronics, which is intended primarily to reduce on-site consumption of utility power.

SMALL WIND ENERGY SYSTEM, GROUND-MOUNTED: A Small Wind Energy System that is not attached to another structure and is affixed to the ground, or that is attached to an antenna, light pole or other utility facility.

SMALL WIND ENERGY SYSTEM, ROOF-MOUNTED: A Small Wind Energy System affixed to the roof of a principal structure.

SOLAR ENERGY SYSTEM: A system that uses the power of the sun to capture, distribute and/or store energy for on-site consumption of utility power.

SOLAR ENERGY SYSTEM, BUILDING-MOUNTED: A Solar Energy System affixed to either the principal or accessory structure.

SOLAR ENERGY SYSTEM, GROUND-MOUNTED: A Solar Energy System that is not attached to another structure and is affixed to the ground, or that is attached to an antenna, light pole or other utility facility.

TOTAL SYSTEM HEIGHT: The total height of the tower and the wind turbine of a Small Wind Energy System, as measured from the average grade at the base of the system to the top of the blade or rotor.

6-15-3: **GENERAL REQUIREMENTS:** The requirements set forth in this Section shall govern the construction and/or installation of all Renewable Energy Systems governed by this Chapter.

1. Applicability: The provisions of this ordinance are intended to establish zoning parameters by which Solar and Small Wind Energy Systems may be installed in the City of Naperville. Large Wind Energy Systems are not permitted. Additional renewable energy installations not addressed explicitly herein may be authorized subject to compliance with the applicable codes and standards of the City of Naperville.
2. Use: Except as authorized by the City Council for public utility purposes, a Renewable Energy System shall be accessory to the principal permitted use of a site.
3. Approvals: Approval granted to an individual property owner for a Renewable Energy System under the provisions of this ordinance shall not be construed to bar owners or tenants of any adjacent property from ordinary or permitted building, landscaping or other accessory improvements, even if such improvements may diminish the function of said Renewable Energy System.
4. Permitting and Installation:
 - 4.1 Unless otherwise exempted by the Director of Transportation, Engineering and Development, a City of Naperville building permit is required prior to the installation of any Renewable Energy System.

- 4.2 Renewable Energy Systems that do not require a building permit in accordance with Section 6-15-3:4.1 shall not be subject to the requirements of this Chapter.
- 4.3 The owner of a Renewable Energy System shall ensure that it is installed and maintained in compliance with applicable building and safety codes adopted by the City and any other state or Federal agency of competent jurisdiction.
- 4.4 All Small Wind Energy Systems shall be equipped with manual and/or automatic controls to limit rotation of blades to a speed within the manufacturers designed limits.
- 4.5 All wiring associated with a Renewable Energy System shall be underground or contained within a raceway that complements the building materials of the principal structure.
5. Interconnection with Department of Public Utilities – Electric:
 - 5.1. Energy produced by a Renewable Energy System shall be utilized on-site, except for Net Metering as authorized by the Department of Public Utilities and other appropriate regulatory agencies required by law.
 - 5.2. The interconnection of any Renewable Energy System to the City of Naperville Department of Public Utilities – Electric distribution grid shall be in accordance with the Department’s Service Rules and Policies, including standard practices as may be amended from time to time.
6. Illumination of a Renewable Energy System shall be prohibited, except to accommodate co-installation of parking lot lighting luminaries in accordance with the provisions of Section 6-14 (Performance Standards) of this Title or as required by the Federal Aviation Administration (FAA) or other state or Federal agency of competent jurisdiction.
7. Signage: No commercial signage or attention-getting device is permitted on any Renewable Energy System
 - 7.1. A sign of a plain white background with black lettering not exceeding four (4) square feet in size shall be provided on each Small Wind Energy System which indicates the emergency contact information of the property owner or operator.
8. Screening: There shall be no required mechanical screening for Renewable Energy Systems.
9. Historic Structure: Renewable Energy Systems shall comply with Chapter 6-11 (Historic Preservation) of this Title.

6-15-4: SMALL WIND ENERGY SYSTEMS

1. Authorization of Use

1.1. Roof-Mounted Small Wind Energy System:

1.1.1. Permitted Use: Roof-Mounted Small Wind Energy Systems may be authorized administratively in all Business Districts listed in Chapter 7 and Industrial Districts listed in Chapter 8 in accordance with the requirements of this Title and subject to approval by the Director of Public Utilities and the Director of Transportation, Engineering and Development, or their designees.

1.1.2. Conditional Use: Roof-Mounted Small Wind Energy Systems may be authorized as a conditional use for any institutional, utility or non-residential use in a Residence District listed in Chapter 6 in accordance with the procedures established in Section 6-3-8 (Conditional Use) of this Title and the provisions of Section 6-15-6 of this Chapter.

1.2. Ground-Mounted Small Wind Energy System:

1.2.1. Permitted Use: Ground-Mounted Small Wind Energy Systems may be authorized administratively in the I (Industrial), ORI (Office, Research and Light Industrial), RD (Research and Development) and BP (Business Park) Districts in accordance with the requirements of this Chapter and subject to approval by the Director of Public Utilities and the Director of Transportation, Engineering and Development, or their designees.

1.2.2. Conditional Use: A Ground-Mounted Small Wind Energy System may be authorized as a conditional use in any Business District except the BP (Business Park) District or in any Residence District in accordance with the procedures established in Section 6-3-8 (Conditional Use) of this Title and the provisions of Section 6-15-6 of this Chapter.

2. Height:

2.1 Roof-Mounted Small Wind Energy System: The total height of a Roof-Mounted Small Wind Energy System shall not exceed ten feet (10') above the peak roof height or ten feet (10') above the maximum permitted height of the zoning district, whichever is less.

2.2 Ground-Mounted Small Wind Energy System:

2.2.1 In all districts except the I (Industrial), ORI (Office, Research and Light Industrial), RD (Research and Development) and BP (Business Park) Districts, Ground-Mounted Small Wind Energy Systems shall be limited to a maximum Total System Height of sixty feet (60').

- 2.2.2 In the I (Industrial), ORI (Office, Research and Light Industrial), RD (Research and Development) and BP (Business Park) Districts, Ground-Mounted Small Wind Energy Systems shall be limited to a maximum Total System Height of one-hundred fifty feet (150').
 - 2.2.3 In all zoning districts, the minimum clearance between the lowest tip of the rotor or blade and the ground shall be fifteen feet (15').
 - 2.2.4 Any Small Wind Energy System that exceeds the height limitations defined in this Section shall be required to obtain approval of a zoning variance in accordance with Section 6-3-5 (Variances) of this Title.
3. Location:
- 3.1. Roof-Mounted Small Wind Energy Systems:
 - 3.1.1. Roof-Mounted Small Wind Energy Systems shall be affixed to the roof deck of a flat roof or to the ridge or slope of a pitched roof and may not be affixed to the parapet or chimney of any structure.
 - 3.1.2. Such systems must be set back a minimum of five feet (5') from the edge or eave of the roof.
 - 3.2. Ground-Mounted Small Wind Energy Systems:
 - 3.2.1. Ground-Mounted Small Wind Energy Systems, including all appurtenances and anchoring equipment, shall not be located within the required front yard or corner side yard or in any utility, water, sewer, or other type of public easement.
 - 3.2.2. Ground-Mounted Small Wind Energy Systems, including all appurtenances and anchoring equipment, shall be set back a distance equal to 1.1 times the system height, from the base to all property lines, third party transmission lines, Ground-Mounted Small Wind Energy Systems, overhead electric distribution systems and communication towers.
4. Noise: Sound levels for any Small Wind Energy System shall not exceed the maximum decibels established in Chapter 14 (Performance Standards) of this Title. The city may, at its discretion, require a professional sound measurement by a third party expert at the expense of the property owner, to confirm performance of the wind energy system, in accordance with the Performance Standards, as measured from the ground level at the nearest property line.
5. Color: Small Wind Energy Systems may remain finished in the color originally applied by the manufacturer, unless otherwise authorized by the building permit. Finishes shall be non-reflective, neutral and monochromatic in color and shall minimize visual

disruption to the surrounding area. Ground equipment, such as cabinets and associated facilities, shall be factory finished to match or complement the color of other structures on the lot.

6. Unauthorized Access: Ground-Mounted Small Wind Energy Systems and all components thereof shall be protected against unauthorized access by the public. No climbing ladder, foot pegs or rungs shall be permanently attached below a height of twelve feet (12') above grade.

6-15-5: SOLAR ENERGY SYSTEMS

1. Authorization of Use:

1.1. Permitted Use:

1.1.1. Building-Mounted Solar Energy Systems may be authorized administratively in all zoning districts in accordance with the requirements of this Chapter and subject to approval by the Director of Public Utilities and the Director of Transportation, Engineering and Development, or their designees.

1.1.2. Ground-Mounted Solar Energy Systems may be authorized administratively in the Industrial and Business Districts in accordance with the requirements of this Chapter and subject to approval by the Director of Public Utilities and the Director of Transportation, Engineering and Development, or their designees.

1.2. Conditional Use: A Ground-Mounted Solar Energy System that is accessory to a residential use or any principal institutional, utilities or non-residential use may be authorized as a conditional use in any Residence District in accordance with the procedures established in Section 6-3-8 (Conditional Use) of this Title and the provisions of Section 6-15-6 of this Chapter.

2. Height:

2.1. Building-Mounted Solar Energy System: A Building-Mounted Solar Energy System may have a maximum height of ten feet (10') as measured from the roof surface on which the system is mounted to the highest edge of the system provided, however, that the system shall not exceed five feet (5') above the peak roof height or five feet (5') above the maximum permitted height of the district, whichever is less.

2.2. Ground-Mounted Solar Energy System: The maximum height of a Ground-Mounted Solar Energy System shall be six feet (6') as measured from the average grade at the base of the pole to the highest edge of the system.

3. Location:

3.1. Ground-Mounted Solar Energy Systems:

- 3.1.1. Ground-Mounted Solar Energy Systems shall not be located within the required front yard or corner side yard or in any utility, water, sewer, or other type of public easement.
- 3.2. All parts of any Ground-Mounted Solar Energy System shall be set back at least five feet (5') from the interior side and rear property lines.

6-15-6: CONDITIONAL USES

1. Application: A petition for a conditional use permit for a Renewable Energy System shall be initiated by application in accordance with the provisions of this Section, and may be issued in accordance with this Section.
2. Issuance: The City Council may issue or deny a conditional use permit pursuant to this Chapter and the procedures described in Section 6-3-8 of this Title.
3. Standards for Granting a Conditional Use:
 - 3.1. The City Council shall determine that the application has met all of the general requirements of this Chapter, except those for which a variance has been specifically granted or sought; and
 - 3.2. The proposed energy system shall further the intent of this Chapter and provide renewable energy to the property on which it is proposed; and
 - 3.3. The proposed Renewable Energy System is located in such a manner as to minimize intrusions on adjacent residential uses through citing on the lot, selection of appropriate equipment, and other applicable means; and
 - 3.4. The proposed Renewable Energy System complies with the service rules and policies of City of Naperville's Department of Public Utilities – Electric as may be amended from time to time; and
 - 3.5. The establishment of the proposed Renewable Energy System will not prevent the normal and orderly use, development or improvement of the adjacent property for uses permitted in the district.

6-15-7: MAINTENANCE AND REMOVAL OF RENEWABLE ENERGY SYSTEMS

1. Renewable Energy Systems must be maintained in good repair and operable condition at all times, including compliance with all standards in applicable building and technical codes to ensure structural and technical integrity of such facilities, except for maintenance and repair outages. If a system becomes inoperable or damaged, operations must cease and be promptly remedied.

2. If the City determines that a Renewable Energy System fails to comply with the applicable provisions of this Code, the City shall provide written notification to the property owner. The property owner shall have a period of ninety (90) days from the date of notification to either restore the Renewable Energy System to operation or remove the system.
3. In the event such Renewable Energy System is not brought into compliance with this Code within the specified time period, the City may remove or cause the removal of said facility at the property owner's expense.
4. The City may pursue any and all available legal remedies to ensure that a Renewable Energy System which fails to comply with this Code or which constitutes a danger to persons or property is brought into compliance or removed.
5. Any delay by the City in taking enforcement action against the owner of a Renewable Energy System and the owner of the property if such owner is different from the owner of such facility, shall not waive the City's right to take any action at a later time.
6. The City may seek to have the Renewable Energy System removed regardless of the owner's or operator's intent to said facility, and regardless of any permits that may have been issued or granted.
7. After the Renewable Energy System is removed, the owner of the Subject Property shall promptly restore the Subject Property to a condition consistent with the property's condition prior to the installation of the system.

6-15-8: **SEVERABILITY:** If any section, subsection, sentence, clause, phrase or portion of this Chapter is held invalid or unconstitutional for any reason by a court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such judgment shall not affect the validity of the remaining portions hereof.

6-15-9: **CONFLICTS RESOLVED:** This Chapter supersedes all chapters or parts of ordinances adopted prior hereto which are in conflict herewith, to the extent of such conflict.

SECTION 2: This Ordinance shall be in full force and effect from and after its passage and approval.

PASSED this _____ day of _____, 2010.

AYES:

NAYS:

ABSENT:

APPROVED this _____ day of _____, 2010.

A. George Pradel
Mayor

ATTEST:

Pam LaFeber, Ph.D.
City Clerk

Zoning District Height Comparison

District	Max Building Height	Recomm. Max Wind Tower Height	Max Telecomm. Height
Residence Districts (Ch. 6)			
R1A (Low Density Single-Family)	35' (2.5 stories)*	60'	60'
R1B (Medium Density Single-Family)	35' (2.5 stories)*	60'	60'
R2 (Single-Family and Low-Density Multiple-Family)	35' (2.5 stories)* – SF & duplex 40' (3 stories) -- all other	60'	60'
R3A (Medium Density Multiple-Family)	35'	60'	60'
R3 (Medium Density Multiple-Family)	43'	60'	60'
R4 (High Density Multiple-Family)	75'	60'	70'**
R5 (Mobile Home Park)	35' (2.5 stories)	60'	70'**
E1 (Low Density Estate)	35' (2.5 stories)	60'	60'
E2 (Medium Density Estate)	35' (2.5 stories)	60'	60'
E3 (Estate Transition)	35' (2.5 stories)	60'	60'
AG (Agricultural)	35' (2.5 stories) – house 50' – barns & silos	60'	60'
R1 (Low Density Single-Family)	35' (2.5 stories)*	60'	60'
Business Districts (Ch. 7)			
B1 (Neighborhood Convenience Shopping Center)	40'	60'	70'**
B2 (Community Shopping Center)	None	60'	70'**
B3 (General Commercial)	None	60'	70'**
B4 (Downtown Core)	None	60'	70'**
B5 (Secondary Downtown)	None	60'	70'**
OCI (Office, Commercial, Institutional)	43' – residential None – non-residential	60'	70'**
CU (College/University)	None	60'	70'**
BP (Business Park)	40'	150'	150'**
TU (Transitional Use)	40'	60'	70'**
HS (Health Services)	120'	60'	70'**
Industrial Districts (Ch. 8)			
RD (Research and Development)	100' – by right 150' – by conditional use	150'	150'**
ORI (Office, Research and Light Industry)	100' – by right 150' – by conditional use	150'	150'**
I (Industrial)	None	150'	150'**

* Teardown/Infill properties are subject to a height limitation of 35' to the mean of the roof, 40' to the peak.

** Additional height allowances are in place for co-location of antennas

Forystek, Katie

From: Naperville Area Homeowners Confederation [nahc-naperhomeowners@wowway.com]
Sent: Monday, November 08, 2010 12:28 PM
To: Forystek, Katie
Cc: drbobbuckman@sbcglobal.net; rafischer1
Subject: RE: Small Wind and Solar Renewable Energy Ordinance

Follow Up Flag: Follow up
Flag Status: Flagged

Hi, Katie.

Thank you for your reminder on the suggested deadline for input on the draft ordinance being sent to Council.

The Confederation Board of Directors has been carefully following the discussions around the ordinance proposal and the evolution of the direction proposed. We have discussed the issues at length, most recently at our Board of Directors meeting on November 6th,

On the whole, we are encouraged by the progress that has been made on the ordinance. Our one major concern, in terms of residential solar power, continues to lie with the differentiation between what is allowed street side, vs. other building elevations, regardless of the directional orientation of the structure to the best sources of sunlight.

Given the various technologies available, including cutting edge applications such as solar shingles, our feeling is that a one-size fits all approach could be shortsighted. We also recognize that the potential for issues with reflection and glare, as well as detriments to "curb appeal" may all factor into the discussion. Finally, we are strong believers in not only the rights of the homeowner, but also in the rights of the neighbors.

Accordingly, and looking for the best protection for all, it would be our preference that guidelines, including maintenance, height, angle, etc. as described within the ordinance proposal be created for residential solar. At the same time, we feel that the best approach may be to make any residential solar implementation a conditional use subject to the above described guidelines, but also subject to a comment and agreement process where implementations can be judged on their merits and possible impacts on neighbors and neighborhoods. Legally, what we are saying is that any residential solar implementation, regardless of the home elevation or direction it is facing, should be considered as a conditional use subject to the hearing process. While the full blown hearing and notification process will entail additional costs, these costs when compared to the cost of establishment of a functional and viable solar array may not be out of line.

As I have become the de facto point person for the Confederation on alternative power generation, please let me know if you have any questions on the above.

Thanks.

Bob

Bob Fischer
Vice President - Naperville Area Homeowners Confederation
www.napervillehomeowners.com



November 9, 2010

City of Naperville
Mayor and City Council
400 S. Eagle Street
Naperville, IL 60540

Dear Mayor and City Council members,

Naperville for Clean Energy and Conservation (NCEC) supports the City's effort to create and implement a renewable energy zoning ordinance. Much credit should be given to our community leaders and city staff members for having the foresight to be prepared for an increase in demand for renewable energy systems. Renewable energy, both decentralized small systems and centralized mass production, is the wave of the future.

Our current position and recommendations for the new zoning ordinance are primarily strategic in nature. Therefore, please recall two key Work Plan Recommendations from the city of Naperville ***Plan for Environmental Sustainability***:

1. The first Work Plan Recommendation from the city of Naperville's Plan for Environmental Sustainability is: "Investigate alternative energy technology in support of economic development."

As people adopt small renewable energy systems, a financial investment is necessary. This investment benefits both the end users and our local economy. Stimulating the local economy is a high priority and should not be limited. Current limitations for stimulating the local economy within the current plan draft are as follows:

- a) 6-15-3:7 Signage restrictions – completely preventing signage, will limit the amount of potential revenue from future renewable energy projects. For example, renewable energy system brands could become household brand names and could fairly compete with other energy providers such as Nicor, ComEd, Blue Rhino, Mobil and BP (BP is one of the largest solar providers globally). If signage will be allowable adjacent to a system in commercial districts (subject to all other zoning ordinances), then the ordinance should clarify this allowance.
- b) Overall flexibility – Naperville already promotes the fact that our electrical rates track below ComEd. There is a great opportunity to stimulate the local housing market and to attract new businesses to Naperville by making Naperville a community in which electricity is not only affordable, but can easily be generated and net metered. ComEd is openly against net metering due to the fact they are a for-profit-corporation. As energy rates continue to increase, Naperville can increase the margin at which it beats ComEd's prices (by not having to be subject to pricing on the open market during peak demand times) and can increase the energy cost savings to individuals and/or businesses willing to invest in renewables as a result of net metering.
- c) Property Values – According to the American Wind Energy Association, there is no evidence of detrimental effects upon property values. According to the research our members conducted, renewable energy systems tend to increase the value of the property upon which they are implemented, and tend to have no effect upon

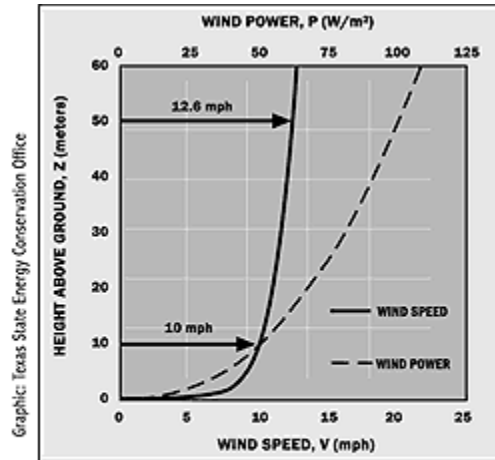
surrounding properties. Making it as easy as possible for Naperville citizens to increase their property values is beneficial to our community.

- d) Local retail stores such as *Home Depot* and *Menards* sell solar panels and wind turbines. There are also local solar and wind installers which will be negatively impacted by creating an ordinance which is too limiting.

2. The second Work Plan Recommendation contained within the city of Naperville Plan for Environmental Sustainability is: “Identify existing Code impediments to implementation of best practices for building, energy or site improvements.”

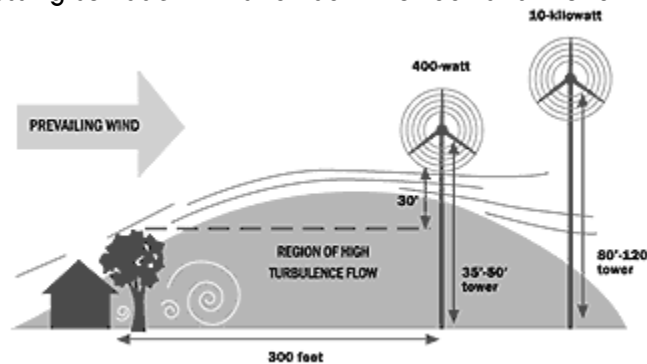
Code “impediments to implementation of best practices” currently exist in the draft ordinance. The best practices which have been impeded upon are as follows:

- a) The higher a wind system is installed, the more effective it becomes. We believe all height restrictions should be eliminated.



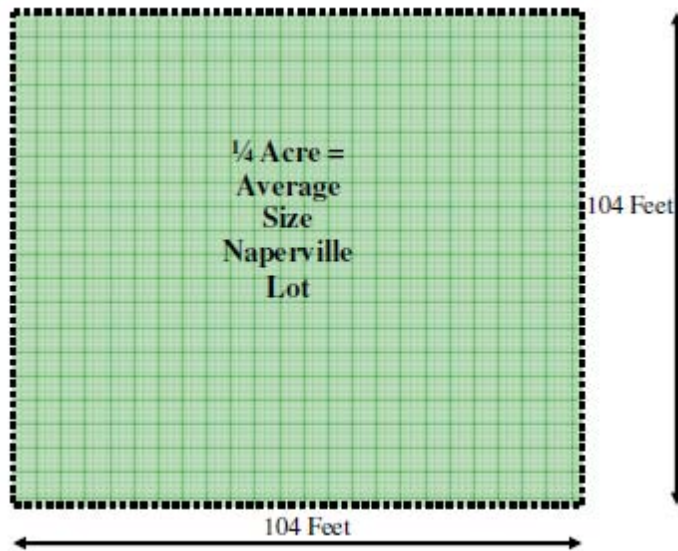
Typical Wind Shear Profile – Speed and power available in the wind increases with increasing elevation. The relationship is commonly referred to as the one seventh power law ($a=1/7$).

- b) The further a wind system is installed from built and natural features on the ground, the less the wind flow is interrupted. Therefore, special consideration and leniency should be given when addressing set-back limits for both the roof and the lot.

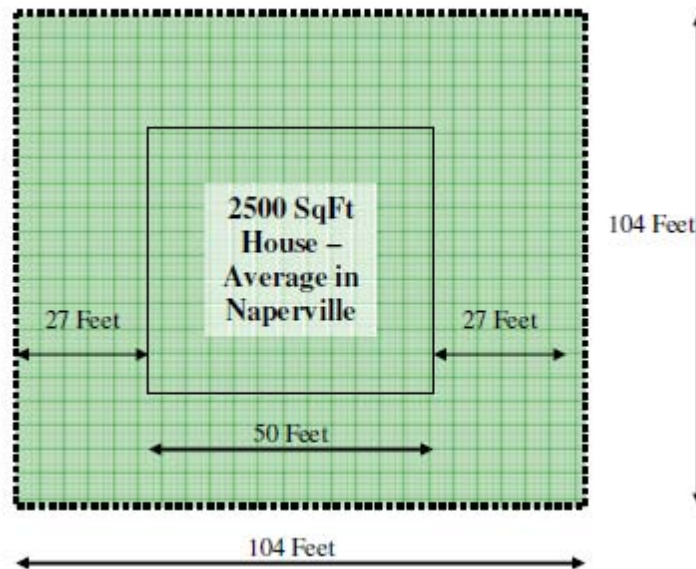


- c) Stand alone solar applications make the most sense for electric vehicle charging stations. As a way to maximize the benefit of the Smart Grid Initiative, the city fleet manager has plans to incorporate electric vehicles into the city of Naperville fleet as a way to bring additional cost savings to our community in the form of a reduction in petroleum needs. Therefore, the height limitation for these applications should be no less than 13’6”, the state standard for vehicle clearances.

- d) Roof mounted wind systems are banned in residential areas. This barrier needs to be removed. There is no basis for making this restriction. Furthermore, the setback requirement for ground mounted systems essentially prevents the “average” resident to utilize small wind systems. To illustrate this point, we can assume the average lot size within Naperville for homes is ¼ acre.



If the assumption is made the average home in Naperville is 2,500 sqft and the home is centered upon the ¼ acre lot, the home will have a footprint of approximately 50 feet by 50 feet which leaves only approximately 27 feet between the house and the lot line on all sides:



Assuming the average height of a Naperville house is 28 feet (10' for each story and 8' for the roof), a small wind system would need to be at least 5-10 feet higher than the roof in order to function properly.

Height of System	Setback Requirement
35'	38.5'
38	41.8
40	44
43	47.3
45	49.5
48	52.8
50	55

This means the average size home's small wind system would need to be at least 33-38 feet tall and the 1.1 times setback therefore would be 36.3 – 41.8 feet minimum setback. This essentially makes it impossible for the average Naperville lot/home to incorporate a small wind system into their property UNLESS the ordinance is changed in order to allow residents to utilize roof mounted systems.

According to wind estimates, most of Naperville is subject to better than average wind conditions for these small wind systems. Below are a few images of small wind systems applied in residential areas:



Additionally, because our city is locked into a 24 year contract with the IMEA which will predominantly provide fossil fuel (coal) generated electricity our electric utility does not have much flexibility for sourcing renewable energy on behalf of its residents. Therefore, our city leaders should provide as much opportunity as possible for residents to generate their own clean, renewable energy. http://www.suburbanchicagonews.com/napervillesun/news/2724364,6_1_NA19_COAL_S1-100919.article

Finally, it is the opinion of NCEC, the city of Naperville ordinance should generally be as flexible as reasonably possible. This umbrella zoning ordinance will be a general starting point for all projects. Various residential neighborhoods with unique characteristics can address their need for stricter limitations within their own home owner associations, architectural review boards, bylaws and/or covenants. Our Governor recently signed into law Public Act 096-1436 (HB5429) which requires home owner associations to address their own solar energy guidelines and to eliminate any language which may prohibit solar systems. Therefore, home owner associations can customize all renewable energy systems, in addition to solar systems, to best suit the needs of their neighborhood. Furthermore, if a law has been passed in IL which indicates home owners associations essentially cannot ban solar arrays it is possible a similar law will go into effect indicating home owners associations and/or municipalities cannot ban residential wind systems, including roof mounted wind.

The very first renewable energy projects implemented in our community will influence the rate at which the demand for these small renewable energy systems grows. NCEC, like many involved in this effort thus far, wants to ensure the success and safety of every renewable energy project and wants these projects to leave a good taste in people's mouths in order to maximize the growth rate of this demand. As Naperville residents, we understand the importance of setting and maintaining strict visual standards in our community but also look forward to the day renewable energy systems are seamlessly integrated into the visionscape of Naperville, similar to how most of us share the attitude the look of a fireplace chimney is charming and not an eyesore, or other noise-making mechanical devices are commonplace, such as air conditioner units, for everyday function and comfort.

Thank you very much for your consideration of these comments.

Sincerely,



Stephanie Hastings, NCEC President
On behalf of NCEC's Board of Directors
ncec.email@yahoo.com
630-428-1004 home
312-523-4347 cell



**NAPERVILLE PLAN COMMISSION
DRAFT MINUTES OF SEPTEMBER 15, 2010**

Call to Order

7:00 p.m.

A. Roll Call

Present: Bruno, Messer, Meyer, Sterlin, Trowbridge, Gustin, Herzog, Edmonds

Absent: Meschino

Student Members: Stancey

Staff Present: Planning Team – Thorsen, Emery, Forystek, Zawila
Department of Public Utilities -- Ritter

B. Minutes

Approve the minutes of the September 1, 2010 Plan Commission Meeting subject to modification on page 4 to reflect intent of location for ROLC.

Motion by: Gustin

Approved

Second by: Meyer

(8 to 0)

**D2. 10-1-113
Renewable Energy
Text Amendment**

Conduct the public hearing on the Small Wind and Solar Renewable Energy text amendment and continue to the meeting of October 6, 2010.

Suzanne Thorsen, Planning Services Team, gave an overview of the proposed Small Wind and Solar Renewable Energy zoning amendment.

- This amendment is initiated in accordance with the City of Naperville Environmental Sustainability Plan (2010) and associated work program.
- Scope of the ordinance is limited to wind and solar energy production.
- Overview of purpose, definitions, and regulations provided in the ordinance including illustrations for height, setback, and location. Proposed height limitations are consistent with the Telecommunications Ordinance.
- Additional language can be added similar to Accessory Structure Regulations in regards to the amount of area that the wind and solar technologies could occupy in a rear or interior side yard.
- Certain solar systems are exempt from the ordinance and building permits requirements as noted in the proposed ordinance. Staff will revise the language so that it is clearer.
- Shadow impacts were researched as part of this text amendment and data could not be found to substantiate concerns about smaller applications.
- Environmental impact studies are not proposed as a requirement with the

text amendment and have not been required for telecommunication facilities.

Plan Commission inquired about:

- Limitations that the text amendment may create for residents that want to install wind energy technologies
- Where the technologies may be permitted by right or as a conditional use
- Clarification of conditional use versus variance process
- Coverage requirements in addition to the height requirements for freestanding solar energy systems
- A restriction on the number of building-mounted wind energy systems in residential areas
- Whether an environmental impact study should be required when reviewing these types of technologies
- Clarification of whether consumer-grade solar systems (e.g., solar – powered landscape lights) are exempt from the proposed ordinance.
- Net metering and requirements
- Impact to property values, shadow flicker
- How the text amendment could apply to future technologies
- Quantity of energy that wind and solar technologies can produce and the energy an average home needs
- Ordinances in comparable communities
- How the ordinance would affect a property such as Brighton Car Wash that was previously considered by the City Council

Public Testimony:

Barbra Brady, PO BOX 499, Naperville IL 60566:

- Building Inspector for twenty years with a master's degree in construction technology and has worked for the past 30 years with the electrical industry in development of National Electric Code and International Green Construction Code.
- Supportive of the proposed ordinance. Naperville is on the leading edge of this issue.
- On August 17, 2010 Governor Quinn signed two bills supporting energy independence.
- Homeowners associations cannot prohibit installation of solar panels.
- Suggested that the ordinance be titled "Renewable Power Energy Systems" to get away from individual solar lights.
- Believes the setback should be 1.5 times the tip height as opposed to the 1.1 setback, as the current setback gives clearance but does not account for the depth of the base.
- Rooftop setbacks in International Green Construction Code are two times the tip height.

Jonathan Nieuwsma, 1508 Dempster Street Evanston IL, spoke on behalf of the Small Wind Committee of the Illinois Wind Energy Association:

- Net metering applies only to small systems but the rate at which this occurs depends on numerous factors.
- Shadow flicker is an issue for utility scale turbines that spin at 20-30 RPM but smaller turbines spin more rapidly and there is more blur. Shadow flicker is not an issue for small systems.
- Wind speed – power of system increases with cube of wind speed. There is not a direct relationship between height and power generation. Taller towers access higher wind speeds where there are fewer obstructions.
- Location of turbine is site-specific and important as it depends on location of obstructions and the prevailing wind direction.
- Setback is of concern as there is state law that limits setback to 1.1 times the total system height. The Naperville ordinance reflects the state law.
- A setback for building-mounted turbines would be reasonable.
- A homeowner will not profit from these types of systems but may be able to offset a fraction of their energy bill. However, for a commercial or industrial customer there is an opportunity to make a greater offset in energy consumption.

Michelle Hickey, 1360 W. Jefferson Avenue, Naperville IL, spoke on behalf of Illinois Solar Energy Association and as the manager of the City of Naperville's Renewable Energy Program.

- Setbacks – trees also can impose structural or property impacts due to branches or falling.
- Multiple systems would be cost prohibitive to install on a home. Net metering also creates additional limitations because there is no revenue to be generated.
- Solar systems are pitched towards the sun. For most systems, solar panels would not come far off the roof either due to solar access or wind shear. Building codes typically limit mounting at a rate that would not exceed 5'.

Plan Commission inquired about:

- The proposed setback of 1.1 times the height of freestanding wind energy systems and whether a similar requirement should be in place for roof-mounted wind energy systems
- How many communities have code for this type of technology
- State law that limits setbacks to 1.1 times the total system height
- The cost of installation and return of investment for wind energy systems

Plan Commission Discussion:

- Bruno – proposed to divide the ordinance into two components - one for wind, one for solar - for the purposes of voting. Believes that the main

issue is how wind systems affect the individuals who live around them (noise, visual). Does not support wind applications in residential areas and expressed concern about setbacks for freestanding solar energy systems in residential areas.

- Messer – does not have many issues with what is proposed and believes that the ordinance does not restrict potential future technology. The setbacks are going to prevent a freestanding turbine on the great majority of residential lots. Building-mounted turbine restrictions are not unlike the television antenna restrictions. Net metering also effectively imposes limits on the size and capability of a turbine, in addition to the financial constraints of the technology. Agrees that there should be a lot coverage limit for solar panels.
- Gustin – agrees with Commissioner Messer. Believes that property owners will also express a right to install systems and the city's role is to ensure that they are safe, sound and within the character of the community, and this should be expressed in the intent.
- Herzog – requested that staff evaluate setbacks for building-mounted wind energy systems. Expressed concern about design standards for different types of systems and requested more information – ex, ridge-mounted turbine vs. a pole with blades mounted to the side of a home.
- Edmonds – believes the topics of wind and solar are distinct within the ordinance. Staff should look at coverage limitations for solar renewable energy to parallel the Accessory Structure Regulations. Agrees with Herzog regarding setbacks for building-mounted turbines.

Plan Commission continued consideration of this case to October 6, 2010.



**NAPERVILLE PLAN COMMISSION
MINUTES OF OCTOBER 6, 2010**

Call to Order

7:00 p.m.

A. Roll Call

Present: Bruno, Herzog, Messer, Meyer, Sterlin, Gustin, Edmonds
Absent: Trowbridge, Meschino
Student Members: Stancey
Staff Present: Planning Team – Thorsen, Forystek

B. Minutes

Approve the minutes of September 15, 2010

Motion by: Gustin

Approved

Second by: Meyer

(8 to 0)

**D1. PC 10-1-113
Small Wind and
Solar Renewable
Energy Text
Amendment**

Petitioner: City of Naperville

Request: Continue the public hearing and recommend that City Council approve the ordinance amending Title 6 (Zoning Regulations) of the Municipal Code to establish zoning regulations pertaining to small wind and solar renewable energy.

Suzanne Thorsen, Planning Services Team, gave an overview of the proposed amendment.

- Edmonds sought clarification on business and industrial districts. A reference to chapter numbers for each district type was requested.
- Bruno asked about whether solar installations should be allowed facing the street in residential districts and suggested that leaving additional aesthetic restrictions to homeowner's association is inadequate and can open the city to legal ramifications

Public Testimony:

Kelly Jon Anderek, 463 Bourbon Lane: Licensed architect, expert in solar technology, founding member of Chicago Chapter of U.S. Green Building Council, member of Illinois Solar Energy Association.

- Supports the ordinance.

- Height is important for wind; however, the proposed height limitations are acceptable as a property owner can appeal to the City Council for a variance as needed.
- Discussed work with White Eagle Homeowners Association regarding a solar PV panel and guidelines for installations within the neighborhood.
- Homeowners will make a decision based on cost-benefit and find a solution in the market that suits them.
- The timeframe for return on investment for a solar system is long-term (appx. 20-25 years), however legislation is pending in the Illinois Legislature that would greatly reduce the payback period.
- Homeowners have an innate desire to see something attractive on their property.

Michael Perkins, 915 Havenshire Court

- A safety and maintenance plan should be required to address blade height from surface of roof.
- Neighbors have no recourse to prevent or approve a wind turbine. A requirement should be in place for 50% of neighbors to consent.
- Flicker, noise, vibrations should be addressed for wind turbines, as well as reflections from solar panels.

Jeff Gross, 600 Joshua Court, Naperville IL

- Believes that ground-mounted solar should be a conditional use in residential areas because solar systems may be used to heat a swimming pool and is concerned about impact on those systems.
- With respect to wind technology, cost-benefit is coming down significantly and property owners should be allowed to seek approval.
- Believes there may be legal precedent in the future to allow property owners to establish wind turbines.
- Aesthetics are a difficult issue, but that is a subjective judgment.

Jeff Liacone, 118 Daggett Ave., Lockport IL, spoke on behalf of Chicago Energy Conservation.

- The purpose of renewable energy technologies is to reduce carbon footprint and dependence on fossil fuels.
- Renewable energy presents educational opportunities.
- Aesthetics is a subjective issue.
- The ordinance should reflect the opportunities for neighbors to provide input on a renewable energy system.
- Discussed sustainable neighborhood development in New Lenox.
- The ordinance can be revised as technologies advance.
- Property owners should have the right to reduce their energy usage regardless of whether the installation maximizes efficiency.

- Would like to see roof-mounted turbines permitted on homes as the feasibility of roof-mounted turbines will improve in the future.
- Property owners should have the ability to put solar panels on the ground if they can't have them on their roof.

Barbara Brady, P.O. Box 499., Naperville IL

- Recommended wording regarding wind turbine speed (Section 6-15-3:4.4).
- Described a wind system in Romeoville that was operating under wind speeds that exceeded the manufacturer's design limits.
- Expressed concern about disallowing wind turbines on roof and the design of some systems that allow guy lines.

Plan Commission inquired about:

- Whether a 10' height limitation for roof-mounted turbines is too restrictive.
- Whether it would be preferred not to have a height limitation for renewable energy.
- Whether there are licensed professional solar and wind installers.
- Cost differential between solar PV panels and solar shingles and payback expectation for typical residential roof-mounted PV systems.
- Feasibility of a 45' tall wind turbine on a residential lot.
- Appropriate restrictions for ground-based solar.
- Maximum energy output limitations (e.g., 50 kwh).
- Whether permits would be required for installation of renewable energy systems.
- Telecommunications towers guidelines for monopoles versus lattice or guyed towers.
- Special setback requirements for forest preserve areas.

Plan Commission Discussion:

- Messer – views a 60' height limitation as a good compromise, as some research indicates that 70-80' is more optimal. Would like to see consideration added back in for roof-mounted turbines in residential.
- Meyer – Would like to see microclimate analysis, cost benefit analysis included in standards for a conditional use.
- Sterlin – would like to see a lot size requirement added. Concerned about aesthetics and would like to see involvement of HOA's.
- Bruno – expressed concern about the aesthetic impact of solar system installation on a front façade and would propose restrictions that require low profile units that do not project above the roofline, and that a streetside installation would require a conditional use. Stated support for allowing ground-mounted solar in residential areas with restrictions on area that are scaled to lot size. Concurs that screening should be required for solar systems. Believes that a 150' tower should be a special use.

Does not believe that creation of the code should be led by functionality.

- Gustin – concerned that screening requirements for roof-mounted systems will result in a more obtrusive appearance. Requested language clarification for Section 6-15-3. Would like to see language added regarding shadowing. Would like to see compliance period for maintenance reduced to 90 days. Noted that no ordinances currently exist for wind and solar energy despite private demand, and the city should be forward-looking.
- Herzog -- Does not believe that the height limitation for ground mounted wind turbines should exceed 10' above the allowable height of the zoning district. There should be screening requirements for solar and wind systems. In reference to the Environmental Sustainability Plan, considers roof-mounted solar arrays to be a best practice and wind farms to be a best practice, but feels that the ordinance should be responsive to proven best practices as opposed to emerging technologies and it is not Naperville's role to be leading edge on this topic.
- Edmonds – would like to see Standard 3.2 removed from Section 6-15-6 (Conditional Uses). Opposes a screening requirement. Referenced consistency of standards within the ordinance with other precedent in the Municipal Code, such as the Telecommunications Ordinance. Stated that it is the responsibility of Plan Commission to be forward looking and that staff has provided examples of how the technology is applied.

Plan Commission requested a decision matrix and continued the public hearing to October 20, 2010.



**NAPERVILLE PLAN COMMISSION
DRAFT MINUTES OF OCTOBER 20, 2010**

Call to Order

7:04 p.m.

A. Roll Call

Present: Bruno, Herzog, Messer, Meyer, Sterlin, Gustin, Edmonds
Absent: Meschino, Sterlin
Student Members: Stancey
Staff Present: Planning Team – Thorsen, Laff, Emery, Forystek
Engineer – Marquez

B. Minutes

Approve the minutes of October 6, 2010 subject to an amendment to reflect that the public hearing for the Small Wind and Solar Renewable Energy Ordinance was left open.

Motion by: Gustin
Second by: Meyer

Approved
(7 to 0)

**D1. PC 10-1-113
Small Wind &
Solar Renewable
Energy Text
Amendment**

Petitioner: City of Naperville
Location: N/A

Request: Recommend that City Council approve the Small Wind and Solar Renewable Energy Text Amendment.

Staff referenced the voting matrix provided in the agenda item and stated availability to respond to questions.

- Meyer inquired about how the regulations would pertain to parks.

Public Testimony:

Stephanie Hastings, 3825 King Court, Naperville IL spoke on behalf of Naperville for Clean Energy and Conservation.

- NCEC is in favor of current draft. Adjustments may be needed in the future, but should be considered after the ordinance is administered and specific concerns are identified.
- Stated that the ordinance should establish guidelines, not limits, for renewable energy and cannot address every possible concern.
- The ordinance will allow Naperville to remain competitive with

respect to the availability and pricing of electricity.

Jason Morin, 1532 Sequoia Road

- Opposes proposed restrictions on roof mounted wind turbines in residential districts.
- Supports renewable energy.

Michael Perkins, 915 Havenshire Court

- Believes that the ordinance should control location, size, and fit within a neighborhood.
- Stated that pole mounted solar tracker systems should be addressed in proposed ordinance.
- Stated that the ordinance should establish setbacks to protect endangered species at Springbrook Prairie.
- Stated that the wind and solar permitting process requires a public hearing, but does not require that the neighbor input be taken. Suggests that if 50% of residents within 100' sign off on a proposal, the public process could be bypassed.
- Suggested that City could develop a commercial wind farm which property owners can buy into to receive benefit.
- Expressed concern with Commissioner Bruno's previously proposed restrictions on solar panel placement on residential homes. Indicated that solar panels should be placed in a manner which best takes advantage of solar energy.

Plan Commission inquired about

- Regulation of endangered species.
- Clarification of proposed regulations for ground-mounted versus roof-mounted wind turbines.

Plan Commission closed the public hearing.

Plan Commission considered proposed Small Wind and Solar Renewable Energy Ordinance referencing the voting matrix provided in Attachment 2 of the October 20 agenda item.

1. Require screening for building-mounted solar. 2 in favor; 5 opposed.
2. Require screening for roof mounted wind. 1 in favor; 6 opposed.
3. Establish standards for shading or shadows (i.e., flicker). 4 in favor; 3 opposed.
4. Allow roof-mounted wind as a permitted use for residential uses. 1 in favor; 6 opposed.
5. Allow roof mounted wind as a conditional use for residential uses. 2 in favor; 5 opposed.
6. Increase maximum height of roof-mounted turbines to 15'. 2 in favor; 5 opposed.

7. Limit height of ground-mounted wind turbines in residential and business districts to 60' or 10' above the maximum height of the zoning district, whichever is less. 3 in favor; 4 opposed.
8. Limit height of ground-mounted wind turbines in industrial districts and BP district to 100' or 10' above the maximum height of the zoning district, whichever is less. 2 in favor; 5 opposed.
9. Establish a lot size requirement of ½ acre for ground-mounted wind turbines. 1 in favor; 6 opposed.
10. Allow building mounted solar as a permitted use only for low profile installations on facades that do not abut public right-of-way. 2 in favor; 5 opposed.
11. Allow building mounted solar as a conditional use on residential facades that abut public right-of-way. 4 in favor; 3 opposed.
12. Allow ground-mounted solar as a permitted use for residential use. 1 in favor; 6 opposed.
13. Allow ground-mounted solar as a conditional use for residential uses. Plan Commission struck this item, which is included in the proposed ordinance.
14. Limit lot coverage for ground-mounted solar to 0.5% of total lot area or a minimum of 20 square feet, whichever is greater. 2 in favor; 5 opposed.
15. Limit lot coverage for ground-mounted solar in accordance with the Accessory Structure Regulations (25% of required setback area cumulative for all accessory structures). Non in favor; 7 opposed.
16. Provide a list of required reports in standard 3.2 pertaining to conditional use standards. Withdrawn by Plan Commission.
17. Delete standard 3.2 pertaining to conditional use standards. Withdrawn by Plan Commission.
18. Provide a mechanism for future review of ordinance pertaining to bi-annual inspections. 1 in favor; 6 opposed.
19. Create additional allowance for Homeowners Association involvement regarding aesthetics Withdrawn by Plan Commission.

Plan Commission Discussion:

- Bruno – expressed support for the solar aspects of the ordinance provided that restrictions are placed streetside installation of rooftop solar panels. Expressed concern regarding the possibility of wind turbine installation in residential areas and recommends a lower height limitation for ground-mounted turbines in industrial areas.
- Messer – expressed support for the ordinance generally but recommends denial due to the proposed restrictions that would require roof-mounted solar panels facing a right-of-way to obtain approval of a conditional use.
- Meyer – expressed support for the ordinance and believes it will meet the community's needs for at least the next 2-3 years but will

likely need to be updated in the future.

- Trowbridge – expressed support for the ordinance and believes that the conditional use for wind turbines and solar panels will offer an additional layer of review.
- Gustin – expressed support for the ordinance as the city needs to provide opportunities for residents to install renewable energy systems. Noted concern that these systems be regularly reviewed to ensure that they are functioning, and recommended that inspection requirements be considered in conjunction with the Building Code.
- Herzog -- expressed support for renewable energy in general and the solar aspects of the ordinance specifically, but disapproves of wind turbines as they are not a proven technology in a suburban environment. Expressed concern about wind turbines on residential properties and the proposed height allowances in the Industrial districts. Stated that more time is needed to establish wind turbines as safe, aesthetically acceptable and efficient.
- Edmonds – expressed support for the ordinance but does not concur with the Plan Commission’s recommendation to require a conditional use for roof-mounted solar panels facing a right-of-way. Stated that concerns expressed by Commissioners Bruno and Herzog are not substantiated, and feels that the conditional use process provides an opportunity for public input and City Council control.

Plan Commission moved to recommend approval of PC Case #10-1-113, subject to incorporation of standards for shading and shadows, incorporation of the requirement that building mounted solar panels be processed as a conditional use when installed on residential facades that abut a public right-of-way, and subject to incorporation of regulations for the Health Services District consistent with other business districts.

Motion by: Gustin

Approved

Seconded by: Meyers

(4 to 3)

Ayes: Meyer, Trowbridge, Gustin, Edmonds

Nays: Messer, Herzog, Bruno

From: ac5371@aol.com [mailto:ac5371@aol.com]
Sent: Thursday, September 16, 2010 4:45 PM
To: Thorsen, Suzanne (TED)
Subject: Small Wind/Solar Renewable Energy Systems (D2 09.15.10)

09/16/10 (PC 10-1-113)

Plan Commissioners and Staff:

Thank you for creating, presenting and discussing the Renewable Energy Ordinance at the September 15, 2010 plan commission meeting.

I am contacting you to express my support for the separation of the small wind and solar renewable energy systems. While I do not necessarily agree with the reason that prompted the Commissioner to suggest this separation; I do see the future benefits to a chapter for each of these renewable energy systems.

Not too long ago, the introduction of satellite dishes to our community was in the form of rather large disks (that required space and owner maintenance); today, we commonly find satellite dishes mounted on homes. Who would have thought that technology would have altered the system so much so that these are common and far less unsightly? This example, in conjunction with the statement made by the city representative (I was unable to hear his name) about in the creation of this ordinance more renewable energy systems have come to the city's attention.

As technology is changing on a daily basis I believe that the city should separate these two systems in the code book; separation of these today in the code, may result in a code that is easier to understand, adopt and amended in the future. The wording and content of two separate chapters (one for solar and one for wind) may appear to be repetitive today, but in the (near) future the separation of energy systems may just be a benefit to the city's processing and application of the codes.

Thank you for your consideration,

Anissa Olley

From: [G.B](#)
To: [Thorsen, Suzanne \(TED\)](#)
Subject: Small Wind and Solar
Date: Sunday, September 19, 2010 10:14:20 PM
Attachments: [Wind and solar code changes.doc](#)

Hi Suzanne,

I hope the session with the Homeowners association went well for you on Saturday.

Attached to this email is a word document that outlines the changes I would propose to the Renewable Energy text.

The suggestions are the result of research on my part and informal input from local residents.

As you know this ordinance will impact every piece of property in Naperville. There are extensive permitted uses and I believe that a new ordinance affecting so many properties should not be too permissive.

I wanted to send a copy of the proposed changes to Chairperson Edmonds for her review but don't have the email address.

Would you kindly forward a copy of this email to her?

Thank you.

I am open to any questions you may have about the conclusions reached.

Regards,
Greg Bruno

The Small Wind and Solar Renewable Energy Systems chapter affects **every lot and structure in Naperville**. As such it extremely impactful and needs to be carefully constructed to protect the citizens of Naperville from unintended and unknown consequences. I am concerned that the initial drafts are allowing far too much as a permitted use in the area of renewable energy systems.

The logic used to produce these suggestions is based on a take it slow approach. These systems are very expensive. No resident or business would be expected to remove a system once installed. We need to take a gradual approach in allowing these systems to be installed.

The comments below would apply to residential homes only, not institutional buildings located in residential districts. They are meant as suggestions to improve proposed code. I am concerned that the code as written is way too liberal as a first step in allowing these systems. I am assuming 40,000 watts as maximum power that can be produced.

Solar Systems

Solar system height in residential districts for building mounted systems.

Low profile systems only. These are systems that are around 6 to 12 inches off the roof. No system may exceed the roofline on which it is mounted. (Meaning the system cannot protrude over the top of the roof.)

No system can be mounted a roof facing the street.

Low profile systems are the most common and are esthetically pleasing. This may not optimize the systems use but it does make the system more pleasing to neighbors.

If the roof positioning is not optimal for a roof-mounted system then a freestanding system can be used as an alternative.

Free Standing Solar Systems.

Industry standard panel sizes are 59" by 39" or roughly 5x3. Set the height limitation for free standing systems to match code for fences. This will reduce the overall height in residential subdivisions to 6 feet. A 10-foot setback would be required unless there is a fence. If a fence were present a 5-foot set back would be allowed.

Some limit on the amount of surface square footage of a Free Standing System needs to be established. For example, a solar system of 150 surface square feet can produce a max rate of 5000 watts. If a home can produce up to 40,000 watts then 10.7 two car garage door sized systems are allowed on the property (*a two car garage door is 16 x 7 or 112 square feet*). 10.7 garage door sized panels is clearly unacceptable on a residential lot. I would propose that a % of the lots total square footage be established as a maximum.

That way larger lots can have larger systems, smaller lots smaller systems. This would have ground based system size be proportional to lot dimensions. I would venture 3% of total lot square footage as a possible number. A 150 X 70 foot lot could have 315 square feet of system. 315 feet is the equivalent of 2.8 two-car garage door sized structures on a 70 X 150 foot lot. This may be too much. Point is we need a size restriction on allowable square footage for Free Standing Solar Systems.

Conditional use: Any system that would rise higher off a roof, need to face a road, or need to be higher than 6 feet for a freestanding system.

Institutions in Residential Zoning districts, Industrial and BP districts permitted use:

Building mounted systems: Permitted no higher than parapet on flat roofs and no higher than top of roofline on the roof it is mounted on for pitched roofs. Low profile only on pitched roofs.

Conditional Use

Any Freestanding System: Same as code for fencing for height. Set back must be some large number from a residence if property is not fenced.

Surface area of freestanding solar systems is limited to 3% of lot size.

Small Wind Systems

No small wind systems as a permitted use in residential districts.

All small wind systems as a conditional use in Commercial districts.

Industrial and BP Districts Permitted Use

Building Mounted: Same as proposed.

Freestanding: All freestanding systems are a conditional use. 60' maximum height. Under no circumstances should anyone be able to put up a 150' tower as a permitted use.

From: [NCEC](#)
To: [Thorsen, Suzanne \(TED\)](#)
Subject: Proposed Renewable Energy Zoning Ordinance
Date: Tuesday, September 21, 2010 11:15:22 AM
Attachments: [ncec_draft_rezo_feedback_9.21.10.pdf](#)

Suzanne,

Attached please find NCEC's comments on the draft ordinance.

The only issue that also came up, which I only offer as food for thought, is how will the city react when the property owner of an adjacent property creates either a built or natural shadow which interferes with an established permitted solar system?

Please let me know if you have any questions.

Thank you for all you've done to get this going and done!

Stephanie Hastings



September 20, 2010

City of Naperville
Department of Transportation, Engineering and Development &
Plan Commission
400 S. Eagle Street
Naperville, IL 60540

Dear Project Manager Suzanne Thorsen and Commissioners,

Naperville for Clean Energy and Conservation (NCEC) supports the City's effort to create and implement a renewable energy zoning ordinance. Much credit should be given to our community leaders and city staff members for having the foresight to be prepared for an increase in demand for renewable energy systems. Renewable energy, both decentralized small systems and centralized mass production, is the wave of the future.

The very first renewable energy projects implemented in our community will influence the rate at which the demand for these systems grows. NCEC, like many involved in this effort thus far, wants to ensure the success and safety of every renewable energy project and wants these projects to leave a good taste in people's mouths in order to maximize the growth rate of this demand. As Naperville residents, we understand the importance of setting and maintaining strict visual standards in our community but also look forward to the day renewable energy systems are seamlessly integrated into the visionscape of Naperville, similar to how most of us share the attitude the look of a fireplace chimney is charming and not an eyesore, or other noise-making mechanical devices are commonplace (air conditioner units, television antennas, satellite dishes) for everyday function and comfort.

Our current position and recommendations for the new zoning ordinance are primarily strategic in nature. Therefore, please recall two key Work Plan Recommendations from the city of Naperville ***Plan for Environmental Sustainability:***

1. "Investigate alternative energy technology in support of economic development."

As people adopt renewable energy systems, a financial investment is necessary. This investment benefits both the end users and our local economy. Stimulating the local economy is a high priority and should not be limited. Current limitations for stimulating the local economy within the current plan draft are as follows:

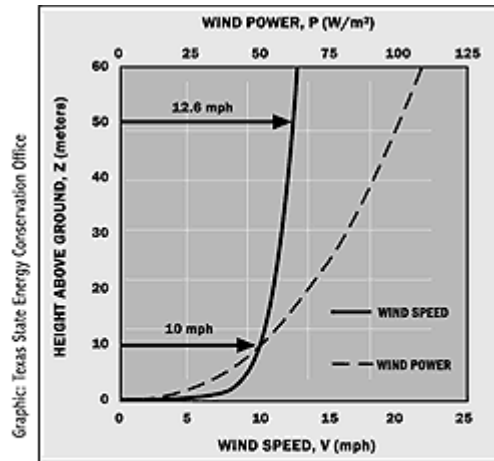
- a) Size & Height restrictions – the taller/larger a system, the more costly and the more our local economy will be stimulated. Let the free market dictate size/height.
- b) Color restrictions – this limits the number of manufacturers/installers who will be attracted to bring their business to Naperville.
- c) Signage restrictions – completely preventing signage, will limit the amount of potential revenue from future renewable energy projects. For example, renewable energy system brands could become household brand names and could fairly compete with other energy providers such as Nicor, ComEd, Blue Rhino, Mobil and BP (BP is one of the largest solar providers globally). If signage will be allowable adjacent to a system in commercial districts (subject to all other zoning ordinances), then the ordinance should clarify this allowance.

- d) Overall flexibility – Naperville already promotes the fact that our electrical rates track below ComEd. There is a great opportunity to stimulate the local housing market and to attract new businesses to Naperville by making Naperville a community in which electricity is not only affordable, but can easily be generated and net metered. ComEd is openly against net metering due to the fact they are a for-profit-corporation. As energy rates continue to increase, as they always have, Naperville can increase the margin at which it beats ComEd’s prices (by not having to negotiate pricing on the open market) and can increase the energy cost savings to individuals and/or businesses willing to invest in renewables as a result of net metering.
- e) Property Values – According to the American Wind Energy Association, there is no evidence of detrimental effects upon property values. According to the research our members conducted, renewable energy systems tend to increase the value of the property upon which they are implemented, and tend to have no effect upon surrounding properties. Making it as easy as possible for Naperville citizens to increase their property values is beneficial to our community.

2. “Identify existing Code impediments to implementation of best practices for building, energy or site improvements.”

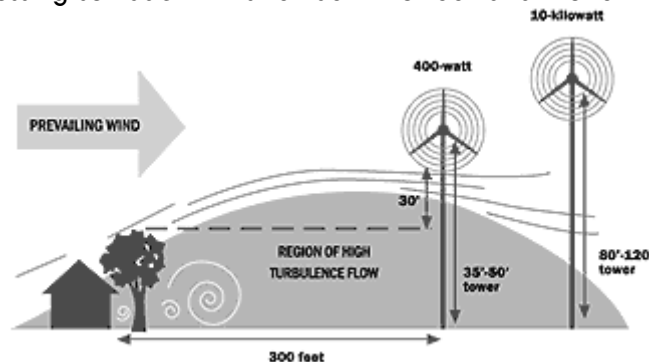
Code “impediments to implementation of best practices” currently exist in the draft ordinance. The best practices which have been impeded upon are as follows:

- a) The higher a wind system is installed, the more effective it becomes. We believe all height restrictions should be eliminated.



Typical Wind Shear Profile – Speed and power available in the wind increases with increasing elevation. The relationship is commonly referred to as the one seventh power law ($\alpha=1/7$).

- b) The further a wind system is installed from built and natural features on the ground, the less the wind flow is interrupted. Therefore, special consideration and leniency should be given when addressing set-back limits for both the roof and the lot.



- c) Stand alone solar applications make the most sense for electric vehicle charging stations. The city fleet manager has plans to incorporate electric vehicles into the city of Naperville fleet as a way to bring additional cost savings to our community in the form of a reduction in petroleum needs. Therefore, the height limitation for these applications should be no less than 13'6", the state standard for vehicle clearances.

Additionally, because our city is locked into a 24 year contract with the IMEA which will predominantly provide fossil fuel (coal) generated electricity our electric utility does not have much flexibility for sourcing renewable energy on behalf of its residents. Therefore, our city leaders should provide as much opportunity as possible for residents to generate their own clean, renewable energy. http://www.suburbanchicagonews.com/napervillesun/news/2724364,6_1_NA19_COAL_S1-100919.article

Finally, it is the opinion of NCEC, the city of Naperville ordinance should generally be as flexible as reasonably possible. This umbrella zoning ordinance will be a general starting point for all projects. Various residential neighborhoods with unique characteristics can address their need for stricter limitations within their own home owner associations, architectural review boards, bylaws and/or covenants. Our Governor recently signed into law Public Act 096-1436 (HB5429) which requires home owner associations to address their own solar energy guidelines. Therefore, home owner associations can customize all renewable energy systems, in addition to solar systems, to best suit the needs of their neighborhood.

Thank you very much for this opportunity to participate in this public hearing.

Sincerely,



Stephanie Hastings, NCEC President
On behalf of NCEC's Board of Directors
ncec.email@yahoo.com
630-428-1004 home
312-523-4347 cell

From: [Michelle Hickey](#)
To: [Thorsen, Suzanne \(TED\)](#)
Subject: Re: Freestanding Solar
Date: Tuesday, September 21, 2010 8:31:35 AM
Attachments: [follow_bird-c.png](#)

Suzanne,

The ISEA recommends that you change the word "freestanding" to "ground mounted" solar systems, since that is the common term to refer to a ground roof mount (like the one at the Fort Hill substation) and a pole-mounted system. Homeowners really shouldn't be zoned for a pole-mounted system. To avoid the problem with churches and schools, you can recommend a variance. If you want to restrict height, then 6' should be adequate. Anyone wanting a system above 6' would have to request a variance. A typical pole-mounted system would be set at a minimum of 10'.

With regard to setbacks, most turbines should actually be installed close to the edge of the building for adequate performance. Did IWEA provide any guidance regarding setbacks?

Definitely add the restriction for only 25% of space can be utilized for renewable energy installations.

Any other questions?

Michelle Hickey

Program Coordinator

[Illinois Solar Energy Association](#)

O: 312.376.8245

C: 630.281.0184

[Illinois Solar Tour](#)

Saturday, October 2, 2010

10 am - 3 pm

Join us for the largest grassroots SOLAR event in the World!



On Sep 16, 2010, at 4:40 PM, Thorsen, Suzanne (TED) wrote:

Hi Michelle,

Following up on last night's Plan Commission meeting – can you please give me a sense of the typical height for a freestanding (ground-mounted) solar system? I'm not having any luck finding information on the web. Santa Barbara, CA limits the height to 6'. Schaumburg limits the height to 15'.

I'm probably going to be revising this ordinance in the next day or so. We will be sending out the PC packet (which will include ordinance revisions) next Thursday so if you can get back to me by say Monday that would be super-helpful.

Also if there's any other information you think I need to know, please pass it my way.

Thank you!

Suzanne

Suzanne Thorsen, Project Manager | p: 630.420.6080 | f: 630.420-6657 | thorsensu@naperville.il.us | 400 S. Eagle Street
Naperville, IL 60540

From: [Thorsen, Suzanne \(TED\)](#)
To: [Thorsen, Suzanne \(TED\)](#)
Subject: RE: Revised Ordinance comments
Date: Tuesday, September 28, 2010 8:42:05 AM
Attachments: [SWC Zoning Ordinance List As of August 29 2010.xls](#)

From: Jonathan Nieuwsma [mailto:jonathan@windforillinois.org]
Sent: Monday, September 27, 2010 11:09 AM
To: Thorsen, Suzanne (TED); 'Matt Overeem'
Cc: Forystek, Katie
Subject: RE: Revised Ordinance comments

Hi Suzanne,

Thanks for passing the APA document along; that will be helpful. I saw the article in which you were quoted in the Trib yesterday--good for you!

Also, another reference for you: I've attached a list of jurisdictions with small wind zoning ordinances--not guaranteed to include everyone, but at least those that have crossed our radar. One of the commissioners had asked how many other communities are working on this, so feel free to include in the packet for 10/6. Also, if you'd like to include our "Small Wind 101" presentation in the packet I'll get you an up to date copy.

Jonathan

Jonathan Nieuwsma
Illinois Wind Energy Association
Chairman, Small Wind Committee

312.546.4899 office
773.255.0716 mobile
jonathan@windforillinois.org
www.windforillinois.org

Jurisdiction	Weblink	Section	Notes
Municipality			
Aurora	http://www.aurora-il.org/documents/planning/ordinance/appendix_a_zoning.pdf	20	No specific language-went
Batavia	http://www.cityofbatavia.net/Content/templates/?a=1988	4.1	
Buffalo Grove	http://library7.municode.com:80/default-test/template.htm?view=browse&doc_action=setdoc&doc_keytype=tocid&doc_key=979a10f7974b733cd091cf64e01df978&infobase=16229	030	
Chicago	http://www.amlegal.com/nxt/gateway.dll/Illinois/chicagozoning/chicagozoningordinanceandlanduseordinanc?f=templates\$fn=default.htm\$3.0\$vid=amlegal:chicagozoning_il	17.17.0311.B(4)	Building mounted only. Allo
Decatur	http://www.ci.decatour.il.us/citydocuments/zoning%20ordinance.pdf	35	
Des Plaines	http://www.desplaines.org/Services/CommunityDevelopment/DesignDesPlaines/DraftUnifiedDevelopmentOrdinance.pdf	2.3-30.E(7)	Being considered by city co
Lake in the Hills	http://www.lith.org/MunicipalCode.html#Zoning_Ordinance	27	
Libertyville	http://www.libertyville.com/DocumentView.aspx?DID=901	6-3.4	
Lincolnshire	http://www.village.lincolnshire.il.us/code/code0617.pdf	6.17.5	
New Lenox	http://www.newlenox.net/pdf_planning/Wind_Solar.pdf	37	
Oswego	http://www.oswegoil.org/community-development/zoning-ordinance.pdf	7.01.B(16)	
Schaumburg	http://www.sterlingcodifiers.com/codebook/index.php?book_id=365	154.90.02	
Sugar Grove	http://www.sugar-grove.il.us/2010Agendas/06012010/RenwblEnrgyOrd.pdf	11.4.20	
County			
Champaign	http://www.ccrpc.org/LRMP/PDF/LRMP_Final/FINAL_FORMAT_Volume1/8_v1_Chapter6.pdf	Chapter 6	No specific language
Ford	http://www.fordcountycourthouse.com/zoning/documents/AppendixB.pdf	Appendix B	
Henry	http://www.henrycty.com/codepartments/zoning/Forms/windzoningordinance.pdf	2.06.C	Small wind defined as 50kW or less
Iroquois	http://www.co.iroquois.il.us/wp-content/uploads/2009/08/privatewindordinance1109.pdf	N/A	
Jo Daviess	http://www.sterlingcodifiers.com/codebook/index.php?book_id=655	8.5B-50	
Kane	http://www.co.kane.il.us/development/szpdf/zoning_ordinance.pdf	5.4.6	
Kendall	http://www.co.kendall.il.us/zoning/zoning_ordinance/Section_04.pdf	4.18	Small wind allowed as a conditional
Lake	http://www.lakecountyil.gov/Planning/ZoningandDevelopmentServices/Documents/Proposed%20UDO%20Text%20Amendments/Wind_Energy_Facilities.pdf	6.4.13	!!! This ordinance is not up-to-date.
Lasalle	http://www.lasallecounty.org/np/flctybrd/zoord.htm	7.1.DD	
Lee	http://sterling.webiness.com/codebook/index.php?book_id=334	10.9.2	
Macon	http://www.co.logan.il.us/zoning/ordinance/section_3.pdf	3.41-3(G)	
McClean	http://www.mcleancountyil.gov/build/pdf/Zoning_ordinance.pdf	40.6.50	
Ogle	http://www.oglecounty.org/zoning/Zoning%20Ordinance/Division%205.pdf		Accesory in AG, Special use in R
Peoria	http://library3.municode.com/default-test/home.htm?infobase=11309&doc_action=whatsnew	24-4-2.C2	
Rock Island	http://www.rockislandcounty.org/uploadedFiles/ZB/ZoningOrdinance.pdf	3.2.40	
Sangamon	http://www.co.sangamon.il.us/Departments/RegionalPlanning/PDFs/Ordinance-February-2009.pdf	17.49.030	
Shelby	http://www.shelbycounty-il.com/ZoningAdministration.htm	2.16	
Tazewell	http://www.tricityrpc.org/sites/tcrpc.netplatform.net/files/uploads/189_Tazewell%20adopted%20small%20wind%20energy%20ordinance.pdf	7.4	
Whiteside	http://www.whiteside.org/index.php?option=com_docman&task=cat_view&gid=41&Itemid=40	19-5812.12	
Will	http://willcountylanduse.com/DevReviewDiv/Current/Documents/ZoningOrd/Section08_090625.pdf	8.27	
Woodford	http://woodford-county.org/index.php?section=30#mod_842	27	

From: [Matt Overeem](mailto:Matt.Overeem@windforillinois.org)
To: [Thorsen, Suzanne \(TED\)](mailto:Thorsen.Suzanne@ted.com)
Cc: jonathan@windforillinois.org
Subject: Revised Ordinance comments
Date: Saturday, September 25, 2010 9:53:45 AM

Hello Suzanne,

Thank you for revising the ordinance to reflect the comments received. I believe you have done a good job in your presentation. Yes, people actually do watch those re-runs.

The concerns about roof top are off-tangent and I would suggest that your ordinance provide less language or remain mute so that these types of installations would need closer staff review. The commissioner was indeed correct that there are a lot of non-typical installations out there. The pole mounted turbine idea is far-reaching but I have heard it before. I have seen small turbines mounted to garages or sheds to provide power. I believe the urban roof mounted or building mounted turbine is still a proof-of-concept idea, someday the technology may be beneficial. Right now, I believe there are more issues to the roof or building mounted. Without even considering the aesthetic issue, these turbines are more decorative or for making a statement.

You could also differentiate between roof mounted and building mounted in your definitions to highlight the commissioner's concerns. Building mounted could have those side yard or property line or to any adjacent structure distances considered.

I have several pictures of streetlight pole mounted turbines, parking lot light pole turbines and of small turbines mounted on roofs but I would refer you to Mick Sagrillo's columns on the issue or to Paul Gipe's Windworks webpage on the issue. I can get you in contact with these two gentlemen where you can get a national perspective. I caution you that Jonathan was very kind to urban turbines – Mick and Paul will not be so kind.

The 60' limit in residential is still a concern. While there are urban turbines being sold on 60' towers these are the exception and their power output is showing this as a poor decision. To include this height limit in your ordinance lessens the positive impact your ordinance will have. The 1.1 times regulation will place more restrictions based on lot size. I recommend that you drop the 60' height wording in favor of the 1.1 times regulation. Thus your 1.1 rule in the ordinance would allow a taller turbine on larger lots, for example that residential lot which houses the high school. To limit to 60' is essentially dooming that turbines output and life expectancy due to poorer winds, wind shear and ground turbulence issues. Again, this would be a case where a parcel on a huge lot would be allowed taller turbine heights while for the smaller 50-100' urban lot, it would basically be impossible to site a turbine due to the 1.1 bulk regulation. Please reconsider this as I believe that Naperville has the base for a national model ordinance.

Also, the whole discussion on tower failure is incorrect...towers buckle or bend. I know of only one tower on a commercial/industrial turbine that ever fell over completely on its side. I know of no small wind tower that has done this. Most buckle in the mid or top section. The blades then hit the tower and aim directly to ground. They do not arch through the sky like a cannon ball. While I disagree with the 1.1 requirement, I believe it is the best compromise as it allows for taller towers on larger lots. As Jonathan N. pointed out an engineered tower is designed not to fail. I would point out that is what insurance and manufacturer's liability is for if it does. Restrict home built, non-engineered towers.

The discussion of system height is off track. The discussion should be about how high above the ground you want rotating blades. Based on the discussion, I could install a 20 foot rotor on a 30 foot pole and be quite a hazard and nuisance. I would lighten the language about height calculations and focus on eliminating the attractive nuisance and truly the noise issue. Keep the bottom of the rotor at least 15 feet 5 meters off the ground and the rotational dimension so many feet away from other structures or public ways. If this does not make sense, let me know and we can talk.

Also, as more of a background, if you could use the graphs from AWEA regarding small wind – the one commissioner who was thinking that these are cost prohibitive does not understand the explosive growth small wind has seen and is seeing. Using the small wind sales over the last decade shows a trend – they are coming and they are being installed. Unfortunately, there is no chart or table on installed locations – urban versus rural, large lot vs. small, etc.

SO as a recap for the wind –

- differentiate in your definitions between roof and building mounted,
- eliminate the 60' height restriction in residential in favor of the more restrictive 1.1. rule,
- restrict home built or non-engineered tower assemblies, not tower height
- show the commissioners that the trend for small wind is exponentially growing – while they may not be all around YET they are coming, and
- keep the blades so far off the ground or away from other structures, ways

In the discussion on solar – don't forget the x-y trackers that are out there. Also, there is a company that sells ground reflectors to focus solar radiation on to arrays or into north facing windows – picture a series of mirror planted around the yard to re-direct sunlight. Hey there are a lot on entrepreneurs out there working on the solution.

Concentrating solar with an accessory column for the boiler is also possible. Think about a down-sized, home scale concentrating tower array like they have in the desert. Yes these are on the horizon for homes, businesses, laundries, pools.

As a favor, I would ask if you could scan and send me the APA brief on small or large wind. I would greatly appreciate the information.

I appreciate the opportunity to assist you with my comments.

Thanks,
Matt Overeem

mattovereem@thewindway.com

From: [Thorsen, Suzanne \(TED\)](#)
To: [Thorsen, Suzanne \(TED\)](#)
Subject: FW: Wind Turbine follow-up
Date: Tuesday, September 28, 2010 9:04:11 AM
Attachments: [small wind turbines.doc](#)

-----Original Message-----

From: d.metcalfe [<mailto:dmetcalfe@pobox.com>]
Sent: Friday, September 24, 2010 4:14 PM
To: Thorsen, Suzanne (TED)
Subject: RE: Wind Turbine follow-up

Hi Suzanne:

Attached is a Word doc with a variety of small wind turbines. As you can see by their variety, there are many different designs. As of today, there are over 526 small wind turbines from over 190 manufactures. Some of the newer thinking for homes/buildings are roof ridge designs, as the windward side of the roof funnels wind right to the turbine.

If you want some comments on the wind ordinance, let me know.

doug metcalfe
email: dmetcalfe@pobox.com
c: 630-204-6664

Suzanne:

As of 9/24/10, there are over 526 small wind turbines from over 190 manufactures. Here is a sample of different designs. Hope this helps with the development of the ordinance
Doug Metcalfe



MW 1100
Mag Wind
VAWT



WS-2B
Windside
VAWT



O'Connor Wind Energy
HAWT



Windspire
Mariah Power
VAWT



Helix Wind
VAWT



Four Seasons Windpower
VAWT



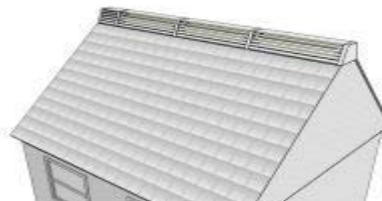
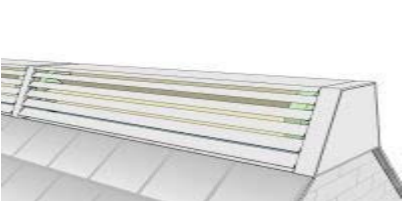
Seahawk
Pac Wind Inc.
VAWT



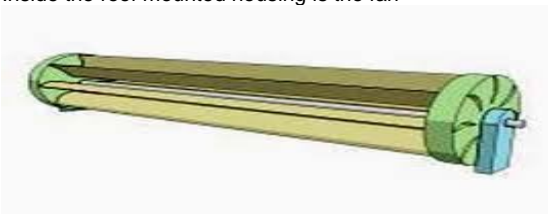
Energie PGE
HAWT



JETPRO TECHNOLOGY, INC. HAWT 1000



Inside the roof mounted housing is the fan



Ridgeblade [Power Collective Ltd](#)