

MINUTES

PRESENT: R. Dodds
D. Haywood
T. Kratzer
P. Lubitz
S. McNicol
L. Senus
J. Strasser
M. Synchron, Alt #1
D. Pierce, Attorney
J. Slagle, Planner

ABSENT: J. Mathieu
E. Niemann

CALL TO ORDER

The meeting was called to order by D. Laudenbach at 7:32 PM.

NOTIFICATION

In order to ensure full public participation at this meeting, all members of this Board, and members of the public are requested to speak only when recognized by the Chair so that there is no simultaneous discussion or over-talk, and further, all persons are requested to utilize the microphones which are provided for your use by the Township. Your cooperation is appreciated.

Notification of the time, date and place of this meeting has been published in the Hunterdon County Democrat and Courier News, and has been posted in the Kingwood Township Municipal Building at least 48 hours prior to this meeting and has been filed with the Municipal Clerk.

NEW AND PENDING MATTERS

Re-Organization

Nomination of Chairperson

R. Dodds was nominated by J. Strasser, seconded by M. Synchron as Chairperson for 2011.

It was moved by D. Haywood, seconded by M. Synchron to close the nominations. All members present voted **AYE** on **ROLL CALL VOTE**, except R. Dodds, who **ABSTAINED**.

Nomination of Vice Chairperson

J. Mathieu was nominated by S. McNicol, seconded by R. Dodds as Vice Chairperson 2011. All members present voted **AYE** on **ROLL CALL VOTE**.

Appointment of Attorney

It was moved by D. Haywood, seconded by S. McNicol and carried to appoint David Pierce of Lindabury McCormick and Estabrook as the Planning Board attorney for 2011. All members present voted **AYE** on **ROLL CALL VOTE**.

Approval of Meeting Dates:

February 10, 2011	July 14, 2011
March 10, 2011	August 11, 2011
April 14, 2011	September 8, 2011
May 12, 2011	October 13, 2011
June 9, 2011	November 10, 2011
	December 8, 2011

It was moved by D. Haywood, seconded by S. McNicol and carried to approve the above dates for the Planning Board meetings for 2011. All members present voted **AYE** on **ROLL CALL VOTE**.

Designation of Newspaper

It was moved by S. McNicol, seconded by D. Haywood and carried to designate the Hunterdon County Democrat as the official newspaper of the Kingwood Township Planning Board for 2011 with the Courier as an alternate. All members present voted **AYE** on **ROLL CALL VOTE**.

R. Dodds introduced the representative from Banisch and Associates, Joanna Slagle.

Resolutions

It was moved by D. Haywood, seconded by S. McNicol and carried to adopt **Resolution No. 2011-01 - Nagy – Block 14, Lots 31.03 and 33 – Boundary Line Adjustment – Route 29 Fairview Road**. All members present voted **AYE** on **ROLL CALL VOTE**, except P. Lubitz, J. Strasser and M. Synchron, who **ABSTAINED**.

Windpowered Generation Towers

R. Dodds stated the Board members received the following memo from D. Banisch with regard to his suggested changes to the draft ordinance:

At the December 14, 2010 meeting, the Board requested additional information concerning noise and discussed the following revisions to the proposed draft Wind Energy ordinance amendment:

1. Require compliance with and make reference to standards at §132-54E. Performance standards for all uses. These standards include restrictions against electrical interference and glare, establish noise and vibration limits, which may be applied to small wind energy systems;

2. Identify noise level equivalents – i.e. recognizable types of sounds and associated noise levels for Board member reference (see attached tables providing this information at the end of this memorandum);
3. Include anti-climbing standards in ordinance. Anti-climbing standards are included in the revised 2nd draft ordinance amendment;
4. Add fence enclosure requirement. A requirement for fence enclosure is included in the revised 2nd draft ordinance amendment;
5. Establish maximum height as the same permitted wireless telecommunications tower height. The Township’s height ordinance standard for wireless telecommunications towers is “180’ unless the applicant can demonstrate a substantial need for a greater height.” This standard has been added to the 2nd draft ordinance amendment;
6. Establish maximum noise levels as per existing ordinance standards. The 2nd draft ordinance amendment references existing noise standards as per §132-54E., which are identified in the ordinance as follows:

With regard to noise generation, we’ve located two sources of information concerning typical noise generation for wind turbines. These include a document entitled “Primer for Addressing Wind Turbine Noise, Revised Oct. 2006, prepared by Daniel J. Alberts of Lawrence Technological University (pages 8 & 9). The following two tables are provided to provide Board members with sound power (noise) generated from (1) two small wind turbines and (2) utility scale turbines.

Table 4. Sound Power of Small Wind Turbines

Make and Model	Turbine Size	Wind Speed (meters/second)	Estimated Sound Power
Southwest Windpower Whisper H400	900 W	5 m/s	83.8 dB(A)
		10 m/s	91 dB(A)
Bergey Excel BW03	10 kW	5 m/s	87.2 dB(A)
		7 m/s	96.1 dB(A)
		10 m/s	105.4 dB(A)

The second source is a presentation entitled “Wind Turbine Noise, Infrasound and Noise Perception, prepared by Anthony L. Rogers, Ph.D., Renewable Energy Research Laboratory University of Massachusetts at Amherst, dated January 18, 2006. Dr. Rogers’ presentation provides an explanation of “Sound Power vs. Sound Pressure”, as follows:

- Sound power level is a measure of the source strength, LW
 –Typical values for wind turbines 90-105 dB(A)
- Sound pressure level is a measure of the level at a receptor (neighbor, microphone)
 –Typically < 45dB(A) , LAeq

Kingwood Township’s noise ordinance standards measure sound as the “Maximum Permitted Sound Pressure Level at the Property Line or along any Public Right-of-way within the Property.” This is a measure of the noise level at a receptor. According to Dr. Rogers, sound power levels (source strength) should be measured in accordance with IEC 61400-11, 2nd edition., which is a “Standard for Defining Wind Turbine Sound Power Levels.” This standard is referenced in the 2nd draft ordinance amendment. Dr. Rogers recommends that sound pressure levels should be calculated in accordance with a computer model to determine noise pressure as measured at the receptor. The computer model allows the modeler to predict sound pressure levels at various distances from the turbine. Kingwood Township’s ordinance relies on the use of equipment to establish sound pressure levels at the property line or public right-of-way line on the property (the receptor). Accordingly, the draft ordinance amendment requires a demonstration that sound pressure levels are achieved through the use of computer modeling.

* * * * *

Draft Ordinance Amendment

The following proposed ordinance amendment replaces existing ordinance provisions for ‘energy-generating equipment driven by wind’ as permitted accessory uses, which are found at §132-50.D., E. & F., establishes ‘small wind energy systems’ as permitted accessory uses with proposed standards, and establishes wind energy systems as permitted uses in the BP Zone.

- §132-50.D. currently reads as follows:
“D. Energy-generating equipment driven by wind, including structures, towers or poles. Energy-generating equipment driven by wind is permitted. (This is to be replaced in its entirety with a new Subsection D. as per below.)
- §132-50.E. currently reads as follows:
E. Height and area of accessory buildings and structures. The height and area of accessory buildings shall be as prescribed in Article II, ~~except for energy-generating equipment driven by wind, including structures, towers or poles, which, if it meets the setback requirements described in Subsection D. above, may be such height as necessary to function adequately, provided that the structure, tower or pole complies with all building and electrical codes.~~ (Strikethrough text above ~~thus~~ is to be repealed.)
- §132-50.F – a portion of which reads “. . . ; provided, however that energy-generating equipment driven by wind, including structures, towers or poles, may be erected in any yard, provided that it meets the setback requirement set forth in Subsection D.”

SECTION ONE. Amend §132-4 “Definitions” to include the following new definition:

SMALL WIND ENERGY SYSTEM -A wind energy conversion system, consisting of a wind turbine, a tower, and associated control or conversion electronics, that is used to generate electricity and has a nameplate capacity of 100 kilowatts or less.

SECTION TWO. Replace §132-50., subsection D., in its entirety, with the following new Subsection D, to read as follows:

§132-50.D. Small wind energy systems.

- (1) Minimum lot size: 20-acres.
- (2) The maximum height shall be 180' including any portion of the rotor when in operation, unless the applicant can demonstrate a substantial need for a greater height.
- (3) The minimum setback of the small wind energy system from any property line shall be 100' or 150 percent of the system height, whichever is greater.
- (4) The wind generator and the tower may be located in side and rear yard areas only. Associated control or conversion electronics, wiring and utility poles that are necessary for connection and power consumption on the property shall be set back from all property lines as prescribed in §132-50.F. below.
- (5) The wind generator and the tower shall remain painted or finished in the color or finish that was originally applied by the manufacturer, unless a different color or finish is approved by the approving authority.
- (6) The small wind generator and tower shall be enclosed within a fenced compound or suitable security barrier to restrict access to all exterior ground mounted equipment and components of the small wind energy system. Such fence or security barrier shall be of sufficient height to comply with electrical and building code requirements, but in no case shall be less than 6' in height.
- (7) The small wind generator tower shall be fitted with anti-climbing devices or suitable barriers to prevent climbing on the tower.
- (8) The small wind generation tower shall comply with §132-54E "Performance standards for all uses." Acceptable noise levels shall be calculated through the use of computer modeling to demonstrate that sound pressure levels comply with noise limits set forth in §132-54E. Noise level modeling shall be subject to approval by the Township Engineer.
- (9) There shall be no signs visible from any public road or neighboring property posted on a small wind generator system or any associated building, except for the manufacturer's or installer's identification, appropriate warning sign, or owner identification. Sound levels of the wind energy system shall not exceed 55 decibels as measured at the property line.
- (10) Abandonment.
 - (a) A small wind energy system that is out-of-service for a continuous 12-month period will be deemed to be abandonment. The Zoning Officer shall issue a Notice of Abandonment to the owner of a small wind energy system that is deemed to be abandoned. The notice shall be sent return receipt requested.
 - (b) The property owner shall have 30 days to respond to the Notice of Abandonment from the receipt date of the Notice.
 - (c) If the property owner provides information that demonstrates the small wind energy system has not been abandoned, the Zoning Officer shall withdraw the Notice of Abandonment and notify the property owner that the Notice has been withdrawn.
 - (d) If the Zoning Officer determines the small wind energy system has been abandoned, the property owner shall remove the facility in its entirety at the

owner's sole expense within 3 months after the owner receives the Notice of Abandonment.

(e) If the property owner fails to remove the facility in the time allowed under (d) above, then the Township may remove such system and place a lien on the property for the cost of the removal.

(11) The small wind energy system shall not cause flickering shadows on adjoining properties.

(12) The small wind energy system shall not be visible from any portion of the Delaware River and its Tributaries included in the National Wild and Scenic Rivers System.

(13) The small wind energy system shall comply with all applicable building and electrical codes.

SECTION THREE. Amend §132-50.E to repeal the following provision “except for energy-generating equipment driven by wind, including structures, towers or poles, which, if it meets the setback requirements described in Subsection D. above, may be such height as necessary to function adequately, provided that the structure, tower or pole complies with all building and electrical codes.” so that Subsection E. shall now read as follows:

“E. Height and area of accessory buildings and structures. The height and area of accessory buildings shall be as prescribed in Article II.”

SECTION FOUR. Amend §132-50.F. “Location.” to repeal the following provision: “; provided, however that energy-generating equipment driven by wind, including structures, towers or poles, may be erected in any yard, provided that it meets the setback requirement set forth in Subsection D.” so that Subsection F. shall now read as follows:

“F. Location. An accessory building may be erected in side and rear yard areas only at no less distance from the front lot line than the principal structure and shall be set back from side and rear lot lines as prescribed in Article III, and the Schedule of Lot and Building requirements located at the end of this chapter, except that, if erected on a corner lot, the accessory building shall be set back from the side street to comply with the setback line applying to the principal building for that side street, and except further that no poultry or livestock shelter shall be erected nearer than 100 feet to any lot line.”

SECTION FIVE. Amend §132-35.B. Permitted principal uses for the BP Business Park Zone, to add the following permitted principal uses, which shall read as follows:

(9) Major solar or photovoltaic energy facilities or structures in accordance with the provisions found at §132-60.A.

(10) Wind Energy Systems, in accordance with the provisions found at §132-50.D.

* * * *

We note that SECTION FIVE above includes a provision for the Major solar or photovoltaic energy facilities or structures. This is included to correct an error that we noticed in the recently adopted solar facilities ordinance.

We trust that this information is useful to the Board in its consideration of this matter.

The following tables were found on a web search to identify comparable noise levels for a variety of noise sources that may be familiar to Board members.

Noise Sources and Their Effects

Noise Source	Decibel Level	comment
Jet take-off (at 25 meters)	150	Eardrum rupture
Aircraft carrier deck	140	
Military jet aircraft take-off from aircraft carrier with afterburner at 50 ft (130 dB).	130	
Thunderclap, chain saw. Oxygen torch (121 dB).	120	Painful. 32 times as loud as 70 dB.
Steel mill, auto horn at 1 meter. Turbo-fan aircraft at takeoff power at 200 ft (118 dB). Riveting machine (110 dB); live rock music (108 - 114 dB).	110	Average human pain threshold. 16 times as loud as 70 dB.
Jet take-off (at 305 meters), use of outboard motor, power lawn mower, motorcycle, farm tractor, jackhammer, garbage truck. Boeing 707 or DC-8 aircraft at one nautical mile (6080 ft) before landing (106 dB); jet flyover at 1000 feet (103 dB); Bell J-2A helicopter at 100 ft (100 dB).	100	8 times as loud as 70 dB. Serious damage possible in 8 hr exposure
Boeing 737 or DC-9 aircraft at one nautical mile (6080 ft) before landing (97 dB); power mower (96 dB); motorcycle at 25 ft (90 dB). Newspaper press (97 dB).	90	4 times as loud as 70 dB. Likely damage 8 hr exp
Garbage disposal, dishwasher, average factory, freight train (at 15 meters). Car wash at 20 ft (89 dB); propeller plane flyover at 1000 ft (88 dB); diesel truck 40 mph at 50 ft (84 dB); diesel train at 45 mph at 100 ft (83 dB). Food blender (88 dB); milling machine (85 dB); garbage disposal (80 dB).	80	2 times as loud as 70 dB. Possible damage in 8 hr exposure.
Passenger car at 65 mph at 25 ft (77 dB); freeway at 50 ft from pavement edge 10 a.m. (76 dB). Living room music (76 dB); radio or TV-audio, vacuum cleaner (70 dB).	70	Arbitrary base of comparison. Upper 70s are annoyingly loud to some people.
Conversation in restaurant, office, background music, Air conditioning unit at 100 ft	60	Half as loud as 70 dB. Fairly quiet
Quiet suburb, conversation at home. Large electrical transformers at 100 ft	50	One-fourth as loud as 70 dB.

Library, bird calls (44 dB); lowest limit of urban ambient sound	40	One-eighth as loud as 70 dB.
Quiet rural area	30	One-sixteenth as loud as 70 dB. Very Quiet
Whisper, rustling leaves	20	
Breathing	10	Barely audible

[modified from <http://www.wenet.net/~hpb/dblevels.html>] on 2/2000. SOURCES: Temple University Department of Civil/Environmental Engineering (www.temple.edu/departments/CETP/environ10.html), and *Federal Agency Review of Selected Airport Noise Analysis Issues*, Federal Interagency Committee on Noise (August 1992). Source of the information is attributed to *Outdoor Noise and the Metropolitan Environment*, M.C. Branch et al., Department of City Planning, City of Los Angeles, 1970.

Decibel (Loudness) Comparison Chart

Here are some interesting numbers, collected from a variety of sources that help one to understand the volume levels of various sources and how they can affect our hearing.

Environmental Noise	
Weakest sound heard	0dB
Whisper Quiet Library	30dB
Normal conversation (3-5')	60-70dB
Telephone dial tone	80dB
City Traffic (inside car)	85dB
Train whistle at 500', Truck Traffic	90dB
Subway train at 200'	95dB
<i>Level at which sustained exposure may result in hearing loss</i>	<i>90 - 95dB</i>
Power mower at 3'	107dB
Snowmobile, Motorcycle	100dB
Power saw at 3'	110dB
Sandblasting, Loud Rock Concert	115dB
<i>Pain begins</i>	<i>125dB</i>
Pneumatic riveter at 4'	125dB
<i>Even short term exposure can cause permanent damage - Loudest recommended exposure WITH hearing protection</i>	<i>140dB</i>
Jet engine at 100', Gun Blast	140dB
Death of hearing tissue	180dB
Loudest sound possible	194dB

OSHA Daily Permissible Noise Level Exposure	
Hours per day	Sound level

8	90dB
6	92dB
4	95dB
3	97dB
2	100dB
1.5	102dB
1	105dB
.5	110dB
.25 or less	115dB

Perceptions of Increases in Decibel Level	
Imperceptible Change	1dB
Barely Perceptible Change	3dB
Clearly Noticeable Change	5dB
About Twice as Loud	10dB
About Four Times as Loud	20dB

Sound Levels of Music	
Normal piano practice	60 -70dB
Fortissimo Singer, 3'	70dB
Chamber music, small auditorium	75 - 85dB
Piano Fortissimo	84 - 103dB
Violin	82 - 92dB
Cello	85 -111dB
Oboe	95-112dB
Flute	92 -103dB
Piccolo	90 -106dB
Clarinet	85 - 114dB
French horn	90 - 106dB
Trombone	85 - 114dB
Tympani & bass drum	106dB
Walkman on 5/10	94dB
Symphonic music peak	120 - 137dB
Amplifier rock, 4-6'	120dB
Rock music peak	150dB

NOTES:

- One-third of the total power of a 75-piece orchestra comes from the bass drum.
- High frequency sounds of 2-4,000 Hz are the most damaging. The uppermost octave of the piccolo is 2,048-4,096 Hz.
- Aging causes gradual hearing loss, mostly in the high frequencies.
- Speech reception is not seriously impaired until there is about 30 dB loss; by that time severe damage may have occurred.
- Hypertension and various psychological difficulties can be related to noise exposure.
- The incidence of hearing loss in classical musicians has been estimated at 4-43%, in rock musicians 13-30%.

Statistics for the Decibel (Loudness) Comparison Chart were taken from a study by Marshall Chasin, M.Sc., Aud(C), FAAA, Centre for Human Performance & Health, Ontario, Canada. There were some conflicting readings and, in many cases, authors did not specify at what distance the readings were taken or what the musician was actually playing. In general, when there were several readings, the higher one was chosen.

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J. Slagle suggested 180' may be too high for wind generation towers. She stated the Planning Board may want to consider a height more in line with telecommunications towers, some of which are 120'. Putting the height in the ordinance places an extra burden on the applicant to demonstrate their need for additional height.

D. Pierce stated the ordinance should read that "it shall not exceed" this height. It is the character of the Township that the Board seeks to preserve.

L. Frank stated it has nothing to do with the height. If you are 180' off of the ground, the applicant can have a 90' rotor, 250' off the ground a 125' rotor. He stated 90' is the largest they make.

R. Dodds stated he feels very comfortable with 180'. An applicant needs to be able to come in with a certaintude of what is expected of them. It gets fuzzy if the applicant can demonstrate a need for a greater height.

In response to a Board member's question about restricting the height, D. Pierce responded the applicant can go for a variance.

There was some general discussion on the heights of cell towers in the Township. A concern was that the height of the tower might depend on the orientation of the land as well as the height of the growth on the lot. Also, a cell tower is stationery and this is a moving obstruction which might affect the viewshed. D. Pierce stated it is a worthwhile point. The applicant will not design a 150' tower if they only need an 80' tower. It is best to state the maximum height in the ordinance.

After some discussion, the Board requested the secretary obtain the height information of the cell towers in the Township from the Board of Adjustment Secretary.

In regard to the noise requirements, the Board felt the ordinance should be consistent with the current noise ordinance in Kingwood Township.

The ordinance will be listed on the agenda for discussion for next month.

PRIVILEGE OF THE FLOOR

F. Floyd, Chief of the Kingwood Township Fire Company and J. Drake, Deputy Chief of the Kingwood Township Fire Company, were present this evening.

F. Floyd stated the Fire Company will be providing their recommendations for the solar facilities.

Checklist Amendment – Environmental Impact Study

R. Dodds requested the matter be listed on next month’s agenda. He suggested possibly a workshop or subcommittee.

Resolution No. 2011-02 -Open Space and Recreation Plan Element

J. Slagle stated Banisch and Associates will have the map ready tomorrow as well as a revised table.

R. Dodds stated he, L. Schmid and S. McNicol will be reviewing the information to ascertain that all the preserved properties are on the map.

The Board adjourned the public hearing on the Open Space and Recreation Plan Element until the February meeting. S. McNicol stated there is a little bit of urgency since we are so overdue in completing this program. She is concerned about getting additional grants.

Approval of Minutes

It was moved by D. Haywood, seconded by S. McNicol and carried to approve the minutes of December 14, 2010, with the following corrections:

- Page 2 – “strait forward” corrected to “straight forward”;*
- Page 11 – change “water controls” to “stormwater controls”;*

All members present voted **AYE** on **ROLL CALL VOTE**, except P. Lubitz, L. Senus and M. Syrnick, who **ABSTAINED**.

County Wastewater Management Plan

R. Dodds stated the Environmental Impact Study reminded T. Decker that the Township will need to amend their steep slope ordinance and adopt riparian and septic management ordinances. P. Lubitz

stated the Township Committee is waiting for the model ordinances to be prepared and have requested them to be addressed at the February Township Committee meeting.

P. Lubitz stated it is his hope that all ordinances will be available to the public on the website prior to the Township Committee having the public hearing and final adoption.

R. Dodds thanked Banisch and Associates for the discount mentioned in correspondence dated December 31, 2010.

Zoning Violation Letters – Block 12, Lot 10 and Block 15, Lot 4.03

D. Pierce stated he does not believe the letters have been mailed. He had forwarded them to M. DeSapio. The Board was informed that M. DeSapio is no longer the Zoning Officer. The Board was advised the letters were forwarded to the new Zoning Officer, J. Barczyk.

APPLICATION STATUS

CORRESPONDENCE

R. Dodds reviewed as per the agenda.

PRIVILEGE OF THE FLOOR

S. McNicol stated she has reviewed an outdoor lighting ordinance. The Board might want to consider it at a later date. She suggested the Board might want to review the solar ordinance since new issues have been discussed.

There was a lengthy discussion between F. Floyd, J. Drake and the Board members in regard to solar panels and farms. Issues discussed were:

- a. Access for the fire department;
- b. Materials on site;
- c. Type of equipment to fight the fire;
- d. Input from the rescue squad;

F. Floyd stated the fire department would like to be more involved in the preparation of ordinances so they can review them prior to introduction.

The Board also discussed getting some input from the fire company with regard to some of the current ordinances.

In response to a hypothetical question by a Board member, D. Pierce stated the Board cannot condition approval on acquiring equipment for their fire department or rescue squad. If the Board feels it is a public health and safety issue, they can deny the application.

ADJOURNMENT

It was moved by P. Lubitz, seconded by T. Kratzer and carried to adjourn the meeting at 9:02 PM. All members present voted **AYE**.

Respectfully submitted,

s/Diane Laudenbach

Diane Laudenbach, Secretary