

ZONING BOARD OF APPEALS
238 Main Street, Cold Spring, New York 10516

MEETING AGENDA
March 11, 2013
7:30 p.m.

1.) Approval Of February 11, 2013 Minutes

PUBLIC HEARING

2.) Gleick, James Appeal # 883 TM# 82.-1-42.1
200 Long and Winding Rd.

CONTINUATION

Applicant would like to install a Residential Wind Turbine that will be 152 feet in height. According to the Code of The Town of Philipstown, no structures shall exceed 40 feet in height, therefore the applicant is requesting a 112 foot height variance.

3.) NEW/ OLD BUSINESS

*** ITEMS MAY NO BE TAKEN IN ORDER AS LISTED**

ZBA ACTIVE APPEALS

#883 Gleick, James Public Hearing

ZONING BOARD OF APPEALS

FEBRUARY 11, 2013

MINUTES

The Zoning Board of Appeals for the Town of Philipstown held a work session on Monday, October 15, 2012, at the Philipstown Town Hall, 238 Main Street, Cold Spring, New York. The work session was opened by Vincent Cestone, Chairman, at 7:30 p.m.

DRAFT

PRESENT: Vincent Cestone	- Chairman
Robert Dee	- Member
Bill Flaherty	- Member
Lenny Lim	- Member
Paula Clair	- Member
Dominic Cordisco	- ZBA Council
Tina Andress- Landolfi	- Secretary

ABSENT: None

PLEDGE OF ALLEGIANCE WAS SAID

Vincent Cestone- The first thing on the agenda is to review the minutes for both October and November. Are there any changes or corrections to the minutes?

Lenny Lim- She spelled my name wrong.

Paula Clair- I had a few grammatical things, but nothing you cant figure out. should we correct them or not?

Vincent Cestone- I think so.

Paula Clair- OK

DRAFT

Vincent Cestone- I make a motion to except those sets of minutes as submitted, plus the correction on Lenny's name.

Lenny Lim- I will second.

Vincent Cestone - All those in favor?

ALL MEMBERS WERE IN FAVOR.

MINUTES APPROVED

Vincent Cestone- The next item on the agenda is resolution number 877 which was finalized awhile back, and tonight we want to read the resolution. Dominic if you could read up to the conditions we would appreciate it.

Dominic Cordisco- Sure.This the Lausca matter.

Resolution to be inserted

Vincent Cestone- Ok thats good. This resolution basically grants Lausca's request for voiding the Code Enforcement Officers violations.I make a motion to except it as submitted. Do I have a second?

Board Member- Second

Vincent Cestone- All those in favor?

ALL MEMBERS WERE IN FAVOR

DRAFT

Bill Flaherty- I would like to make a correction on page five of the interpretation seventh line . Change six food to six foot.

Dominic Cordisco- Yes

Vincent Cestone- Ok so let me redo the motion, and except it as amended.

Bill Flaherty- I will second

Vincent Cestone- All those in favor?

ALL MEMBERS WERE IN FAVOR

Vincent Cestone- OK. Roll call vote on granting the Lausca Appeal.

Lenny Lim- Vote in Favor

Robert Dee- Vote in Favor

Bill Flaherty- Vote in Favor

Paula Clair- Vote in Favor

Vincent Cestone- So do I, unanimous.

Vincent Cestone- Ok, next item on the agenda is a review of completeness of appeal number 883, James Gleick. Does anyone on the Board have any issues with the appeal as submitted?

Robert Dee- I just have a question. I see that the application says your going to cut a 85 foot radiation to cut the trees around this unit, or 84 foot circumference. Is that correct?

DRAFT

Doug Passari- (Inaudible) some logging done first.

Robert Dee- Im sorry.

Doug Passari- He is going to have some logging done first. They are going to remove some mature trees, and then we are going to put the turbine in that location.

Connor Kays-The 84 feet radius that you're looking at is actually the _____ radius. That is the distance from the center of the tower to the **inaudible**. That entire area does not need to be cleared to put the wind turbine in. Just where the anchors are placed and around the base of the turbine. It will be up to Mr. Gleick exactly how many trees he is going to want to clear. We don't need that 84 foot radius (inaudible)

Robert Dee- What do you need the logging for? A road to get in?

Connor Kays-No. We don't need any road access. We just want to try and keep trees away from the guide cables, and the tower base its self. just in case a branch falls or a tree falls.

Robert Dee-Do you have any idea how many trees roughly?

Connor Kays-Usually it is less than ten.

(inaudible)

Vincent Cestone- Dominic do you have any issues with this application before we deem it complete?

Dominic Cordisco- No, I don't have any completeness issues, there a number of procedural considerations.

Lenny Lim- Can we have your name?

Connor Kays- Yes. Connor Kays, KAY S.

DRAFT

Lenny Lim- And the gentlemen behind you?

Connor Kays- We do have a copy of the deed and we do have an authorization letter from the customer giving us permission to talk about the application.

Doug Passari -hands the board the deed and and letter of authorization.

Vincent Cestone - Ok, if there is no issues with the review for completeness. we will deem it complete, then we will move on to the next item which is a public hearing on the same issue. If the applicant wishes to make a presentation, the floor is yours.

Connor Kays- I know that the board is pretty familiar with the project at this point. I don't know if you guys can see this, but just to give you and idea. The turbine we are proposing is a 10 kw residential unit. The blades on the turbine are about 12 feet long, so about twice my height. The whole height of the turbine will be 140 feet. This is an overhead shot of the property. This is the customers driveway, home, and the red pin is the turbine location.

We also have distance measurements here. The closest proximity to a property line is 200 feet. In all other directions we are farther away from property lines. Topographic map is a little tough to read from that distance probably, but this just shows that we are not on a ridge, so we are not sitting right over the top of a huge incline. There are higher elevations around the turbine, so it is not like we are sitting on top of a mountain. Other pictures, these are just pictures of the exact turbine that we are proposing that is a 140 foot guide tower. This one is a 120 foot height, it is a little shorter, but it does give you an idea of the size of the turbine compared to surrounding buildings and those types of things. It is a residential turbine. The entire height of the turbine itself is less than half of what you would see on a commercial size turbine. It is considerably smaller than any of the large mega lot turbines you may have seen in commercial fields.

DRAFT

Vincent Cestone- How many watts is it?

Connor Kays- The turbine rated by the manufacturer is 10,000 watts. (inaudible) the state agency that dictates the grant rates it at 8.6 or 8,600 watts. That is just a matter at what wind speed you decide to rate it at.

Paula Clair- I have a question. In your document, I don't know what page because they are not numbered, there is a page that says Hudson Wind Energy, and it talks about the latitude, longitude and the elevation. I see an elevation of 720.80 feet. What is that?

Connor Kays- 721?

Vincent Cestone- That is the elevation above sea level. 720.8

Paula Clair- Oh I see

Connor Kays- That is the bottom of the turbine above sea level. We will be adding 140 feet to that.

Paula Clair- Ok

Connor Kays- That gives you a good idea at what we are looking to do. Just to give you some more reference as far as what this turbine will look like compared to a commercial turbine, which most people are seeing. You probably have never noticed a Bergey if you have ever driven by one. They are not as unsightly as you think. This turbine is 140 feet tall. The commercial ones range from 300 to 400 feet up in the air. The ones that you can see from miles and miles away are four times as high as this turbine will be. In the sound and other draw backs you will hear with larger turbines (inaudible) this is extremely quiet compared to commercial turbine. We are not at a hub height high enough to impact bird flight. It is only a single turbine, it is not a field, so there is no turbulence issues with birds or other things along those lines. Frankly we are just too low to mitigate any migration patterns. Birds will fly at that height, but we will not be in the way of any huge migratory patterns. For the turbine base we are going to run underground a minimum of 18 inches around 2 feet, 2 inch conduit for our wire run, and some small electrical boxes that will go at the residence to inner tie the unit. It is a great tied unit, so we are back feeding the customers grade and reducing their electric bill directly. This turbine will produce about 9600 kw hours a year. The customer uses about 20,000, so we are hoping to cut his bills in half with this turbine. It is all on sight production. If he produces extra in a given month, the utility company will bank that for him. They treat it just like roll over minutes, he can use it in a month when the wind is just not that good, so it is for all on sight production. I think that gives a pretty good idea of the project. The base of the tower is a 3x3 pad. The guide anchors will come out at an 84 foot radius. Those anchors go about 6 feet deep. overall they not disturbing much land at all, we don't need an access road. There won't be any drainage or other issues with the site. Once we leave we are not disturbing much soil, and everything should be replaced.

Vincent Cestone- Why the 140 feet height?

Connor Kays- The 140 feet height is all about production. The taller the turbine is the more productive it is going to be. The heights from Bergey

range from 68 and 140 feet in 20 foot intervals. If we were to put this turbine at 120 feet even one step down from where we are proposing, then we are losing about 50 percent of production. That has to do with the turbulence from the trees, just in general every 20 feet we go up we typically see anywhere from 1,000 to 2,000 kw hour per year increase in production.

Vincent cestone- How come a turbine with blades as opposed to an axial type?

Connor Kays- Axial turbines are very new, and so far very unproductive. I have not come across in the last six years anything near as productive as they are suppose to be. It is certainly not as productive as a horizontal access turbine. Some of the bigger ones out there is Urban Green has a decent vertical access turbine. The biggest one they have is a 4000 watt unit, and you would be lucky to get 2000 kw hours out of it on the best site. They just are not there. The claims for vertical turbines are they can work with more turbulent winds, they just don't need as high of wind speeds to be productive, and the data just flat out has not shown that. They don't make them as big, and they are just flat out not as productive as a horizontal axis turbine. Bergey has been in business for about fifty years, this turbine has been prime tested, and it has very few moving parts. It is designed with a maintenance free perspective in mind, so we have been working with them for over five years now. They have turbines all over the world operating. The oldest one around is still kicking in the states, is fifty years old.

Vincent Cestone- This generates DC?

Connor Kays- This actually generates what they call a wild dc signal, so it is three phase signal that comes off the turbine. It is not a clean signal that comes off the turbine.

Vincent Cestone - So it is very (inaudible) with the sixty hertz?

Connor Kays- That is correct, Yes. It will go into the inverter, that will ____ into dc, then back into a clean 240 volt dc. The inverter is extremely picky, it has to register the grid, and it basically pings the grid on a regular basis, and it has very low tolerances for hertz and voltage that needs to see from the grid. If there is a power surge or a power outage the inverter will automatically disconnect the turbine from the grid then it will continue to ping the grid until it continues to see that clean signal again. Once it see that signal it will wait five minutes, then it will turn the turbine back on to the grid. That is all per _____ regulations with the utilities, every inverter whether it is wind or solar anything that is (inaudible) with the grid has to meet those test and certifications, and that five minute waiting rule.

Vincent Cestone- They use AC because it is less maintenance on it?

Connor Kays- The use AC in this state. Bergey uses AC just because they can transfer more juice, and they can deal with that noisy signal.

Vincent Cestone- Yes, there is no brushes or anything like that.

Connor Kays- Exactly, it is a brushless permanent magnet turbine. The DC power you see on smaller turbines (inaudible) The AC just makes more since.

Paula Clair- I have a question. This is more curiosity related more to this particular issue. If the power goes out, does the wind turbine continue to make electricity for the site?

Connor Kays- It will not, no.

Paula Clair- It will just go into the grid, and that is it?

Connor Kays- Yes. It is a balancing act, so if the turbine is producing less than the customer is using, they just use that much less from the grid. If they are even then the customers meter wont move. If they are producing more, then their meter will actually spin backwards.

Paula Clair- I see.

Connor Kays- In order to have backup power you need batteries, and different electronics, and from Bergey a different turbine that looks the same, but it is not. That turbine actually puts out DC, because it goes directly to a battery bank. They are much more expensive and maintenance heavy (inaudible)

Lenny Lim- In the material package you gave us, they keep mentioning that 80 to 140 feet would be the the ideal height.

Connor Kays- That is correct.

Lenny Lim- Ok, then why not lower it? Why not go towards more the 80 then the 140?

DRAFT

Connor Kays- As I said before, I only have one copy, but you guys can pass it around.

Lenny Lim- No we wont. I would like a copy for everybody.

Connor Kays- Ok. We will have to produce.

Lenny Lim- We don't have time to stand hear and read and pass it down.

Connor Kays- Ok, sorry. at 120 feet, so one step down from our proposed height, the estimated production is only 4600 kw hours. We would actually loose out on 50 percent of our production just by dropping down one tower height.

Lenny Lim- Is 80 feet acceptable? Will he have the electricity that he needs for his property?

Connor Kays- No, it wont be cost effective for him to do that. He is getting a grant from the state that is based on the estimated production of the turbine.They give him three dollars and fifty cents for every kw hour that we

estimate he is going to produce. That money comes directly to the installer, so the customer does not have to pay anything. That grant can be upwards of fifty percent of the total cost of the project. For every kw we can produce or estimate we can produce, we get an extra three dollars and fifty cents from the state.

Lenny Lim- That is an economical answer to the question. Can you produce as much power?

Connor Kays- No.

Lenny Lim- What can you do at eighty feet?

Connor Kays- At eighty feet we are looking at, if you look on that. We are a 10k turbine, and the estimated production at the max end is 3200 kw hours.

DRAFT

Lenny Lim- Is that sufficient for a single family dwelling?

Connor Kays- No. Most single family dwellings use an average of 10,000 kw hours per year. This particular residence uses twice that. If we were to go with an 80 foot height we would be producing less than 25 percent of what they are utilizing. The grant would be 75 percent smaller. Turbine cost does not change a whole lot with height, so it just makes the project not feasible at that point.

Vincent Cestone- The issue here is that this turbine is three or four times higher than our maximum height, so it is not insignificant. It is an issue.

Connor Kays- Right, and we do understand that. It is tough in this industry, because a lot of towns have height restrictions in that range. We honestly won't do turbines at those heights. Even at eighty feet, there is only one turbine I have done at eighty feet in the state, and it is located right on Lake Ontario. Other than that, you basically have to be at least at 100 feet, and a site like this where we have trees surrounding the area. In order to get

enough production out of the turbine to be cost effective and useful we need to be above that height.

Robert Dee- The blades are 12 feet right?

Connor Kays- That is correct. Eleven and a half feet.

Robert Dee- So actually you are going above 140 feet with the blades.

Connor Kays- Yes from tip to base you are at 152.

Robert Dee- So it is 152 feet?

Connor Kays- Yes, with the blade height up there.

Bill Flaherty- Can these turbines withstand hurricane winds?

Connor Kays- They can.

Bill Flaherty- Without collapsing?

Connor Kays- Yes. These are designed in Norman Oklahoma, which is tornado valley, they have a couple turbines that have gone through tornados and are still standing. They are not necessarily still operating, but they did not come down. They are rated to a 150 mph gust, and 100 mile per hour steady winds. They can withstand a hurricane without coming down. We engineer them to be placed in the worse soil conditions possible, we engineer them to be put o a beach, so the foundations, the depths, the amount of concrete are well over designed for the typical soil conditions we find.

Bill Flaherty- So you are saying they are extremely (inaudible) and impervious to heavy winds?

Connor Kays- Absolutely, that is a huge design point for Bergey.

Bill Flaherty- They are relatively quiet?

Connor Kays- Yes, they are relatively quiet. We only add 1 to 6 decibels at a 200 feet distance (inaudible) these you would look at 32 decibels for someone to notice a difference. In very high winds, you may if you are right on the property line, and probably a little closer you might hear a little buzz from them, but certainly not from outside of the property lines. Again that would only be in extreme weather conditions, and would hear the weather more than the turbine itself in those types of weather conditions.

Bill Flaherty- I have been to several sites where turbines were used, and I heard a whizzing sound constantly.

Connor Kays- Sure, from large scale wind turbines. Large scale winds are much louder, they are much larger, they disturb a lot more winds. They can make some noise. You can be within 400 to 500 feet from those, and you will hear them. You also typically have a number of them in a small area, so that adds to the noise factor.

Bill Flaherty- You don't think that will be a factor (inaudible) there are no neighbors relatively close to the site, so I don't think it will be disturbing.

Connor Kays- Right.

(inaudible)

Connor Kays- There are also trees that are going to deaden that noise. There a lot of factors that go in there. I would be shocked if anyone could hear this from the property lines. Visually as well, I don't believe it is going to be noticeable from anywhere other than right on the property, roads neighbors, unless they walk right to the property line I don't think they will be able to see the turbine. Typically for wide open sites that are on a decent hill, you wont notice the turbine until you get to about three hundred feet of the property if you were driving down the road. With the trees, the setbacks from the roads, and other homes in the area, I don't think anyone would notice it is there.

Vincent Cestone- You are not putting a monopole in the ground, you are putting a pole with guide wires on it?

Connor Kays- It is a triangular tower, and each side of the triangle is a foot, so it is a lattice structure that goes up, and yes it will have guide cables that come from the tower. There are three guide points, three different anchor points and each anchor point has three cables that come down to it. Those come from three different heights of the tower.

Vincent Cestone- And Color?

Connor Kays- Color, typically we propose the standard Bergey colors. Their standard is white and yellow. We do black blades, that is an environmental precaution they recommend in the North East for snow melting purpose. I doubt you would ever see any snow or ice on these, but because Bergey recommends it, we typically do black blades. There are color options. We would need to discuss that with Mr. Gleick, but we do have the option to go gray, which blends in about as well as you can with the surrounding skyline. That is a no cost option if the board feels that is necessary. We try to stick to the Bergey yellow and white, but it is a small point in the long run for this.

Robert Dee- You changed the application to 140 feet, but it is actually 152 feet.

Connor Kays- If that is how you guys want to look at it. I have towns that go both ways. Most of them look at hub height.

Robert Dee- I would rather it go to 152 feet, that is exactly what the height is going to be.

Connor Kays- Ok

Robert Dee- My other question is, in your presentation you have a warning high voltage label about five foot above grade. How much voltage would be there?

Connor Kays- The turbine itself on the loud AC side can push up to around three hundred volts, so it is fairly high voltage. It is not a whole lot higher than what the standard voltage is.

Robert Dee- are you going to have any site guards? If the kids get on the property is there going to be a fence around it? It would be a danger to the kids, I mean kids are curious.

Connor Kays-Sure

Robert Dee- You know that when they get the word there is a wind turbine, you know that they are gonna go on the property.

DRAFT

Connor Kays- As far as all the electrical things go, all the electrical is in conduit and protected. The disconnect to the base of the tower is locked, so there is no hazard of them getting into any electrical, unless they bring a sledge hammer and start smashing things. As far as climbing on the tower goes, they do make guards that can be placed, and also the with guide towers you can remove pegs up to ten or fifteen feet to prevent climbing. Either one of those precautions can be put into place.

Bill Flaherty- Will there be any lighting at all?

Connor Kays- No, there is no lighting proposed.

(inaudible) Multiple conversations.

Connor Kays- Will not effect any nautical flying planes. We are well below that. The FAA will recommend lighting if we are up over 175 feet typically, and even then we have to be in the proximity of a airport, before they would recommend that. In this case we know that we are well below the threshold, if we are ever near an airport, we run the criteria through the

FAA, and the only time they have ever recommended that is when it was next to an airport, and they did require lighting for that.

Vincent Cestone- If you go to two hundred feet then you have to have lighting.

Connor Kays- Yes, two hundred feet and up (inaudible)

Vincent Cestone- Anymore questions from the board?

Paula Clair- Yes. when we had this before us a couple of months ago, it was uncertain whether this was going to be a major.

Vincent Cestone- It is a major.

Paula Clair- It is a major. **DRAFT** ok, I guess my question is for our attorney. Do we have the latitude to approve a variance of this kind? You know, because the zoning law or the Town Law says forty feet. What kind of latitude do we have here?

Dominic Cordisco- You have some latitude. To answer your question, maybe I can take a step back for a second. It was decided that it was a major application, and rightfully so. In order to meet a minor application criteria you have to meet all the requirements, including being no higher than forty feet, and this clearly is not. It triggers the major application portion of this. You are hearing this for the first time tonight, the actual real presentation. This is a multi step process, because first of all, once it triggers a height variance , they also have to obtain a special permit from this board. You are considering two things, they are both related, but they are two separate things. One is a variance for height, and the other is a special use permit. Special use permit is a permit issued by the board where you are deciding whether or not in essence the application and what they are proposing to do fits in with the surrounding community. I have a number question in connection with that. I know that we have testimony tonight that there are no visual impacts, that there is no substantial noise impacts. In the materials that were submitted, it stated that the residence

itself, the Gleick's residence, is listed as being 213 feet away. That is all fine and good for the Gleick's, because they are putting this tower up, and if they are impacted by the tower either by noise or by visual, it is there tower. I think you need to look at where the next nearest neighbor is. It is the neighbor that could be eventually impacted, but it goes even further than that. When you are granting special use permit, this board has to comply with the State Environment Review Act, so you have the obligation under SEQR to evaluate the potential environmental impacts. That would include visual impacts, visual impacts from a scenic nature, all of those items are scenic, visual impacts, noise impacts, you even mentioned logging before. That is the kind of thing the board has to take the totality of those circumstances and evaluate whether or not what they are proposing to do has been minimized to the extent that it does not impose any significant environmental impacts. Maybe 140 feet or 152 feet does not impose any significant environmental impacts that are significant, but you are not at the stage yet where you can make that decision in my opinion. You have not been presented with information yet that would allow you to make that kind of judgement call. That is not even the end of the process. Lets assume they can provide that kind of information, and the board is satisfied, and your questions are answered, and at the end of the process you grant the variance for 140 feet or 152 feet or whatever variance you grant, and you grant the special use permit that goes along with it. They then have to get site plan approval from the Planning Board as well. There are issues that the Planning Board might be focused on, and that might be safety of the tower, safety of the structural integrity of the tower to make sure it is on soil that is going to withstand the tension of having that tower on it. Make sure that the tower does not blow down, if it was to blow down, make sure it does not blow down on the house, or the neighbors property. Those are all site plan related issues, but they don't even get to answer in those, because they wouldn't be before the Planning Board until this board **(inaudible)** Those are some of my comments.

Vincent Cestone- This would be measured on the five factors.

Dominic Cordisco- Correct, this would be a five factor test for an area variance, because what they are seeking is an area variance to go from 40 feet to 152 feet.

Vincent Cestone- As far as the SEQR part, do we have to declare ourselves lead agency?

Dominic Cordisco- That is a good question. I have been thinking about that. You have two choices. You can circulate for lead agency, and that would mean that this board would become lead agency under SEQR, and the decisions you make under SEQR would be binding on any other board including the Planning Board. That is one way to do it. It may be beneficial for the applicant to do that, in the sense that your looking at the special permit aspect of this, which is very similar to the SEQR in terms of the ultimate goal of SEQR. (inaudible)

DRAFT

Vincent Cestone- But that would also tie the Planning Boards hands if they wanted to make changes?

Dominic Cordisco- It would, because the Planning Board would be bound by whatever SEQR determination that you made. The other way to do it would not to circulate for lead agency. You still have an obligation to complete SEQR, but if and when the application goes to the Planning Board, then the Planning Board would also have to complete its own SEQR review in connection with the application. Theoretically they could have their own issues with SEQR environmental impacts, such as noise or visual impacts, so it is bit of a conundrum.

Connor Kays- Just to interject a little bit on the SEQR. We (inaudible) State grants (inaudible) a separate board decides to pick that up. Typically the SEQR itself is negligible. A lot of the SEQR has to do with soil. The only thing we have is visual and noise. If neither board wants to do it then _____ will take the lead agency. They do not like to do that, but they have done that before for boards who did not want to take that stand. We will have the state run as lead agency for the SEQR purpose alone. Any of those three options works for us.

Vincent Cestone- With this being a major application, I would assume that we would have to go through a multi part SEQR.

Dominic Cordisco- It is a major application. The application itself is what SEQR would consider to be an unlisted application. SEQR has three different categories of action. One is a type one application which requires a long form. The long form, the current one is about 18 pages. There is a new one going into effect on April 1st, and that one is about 27 pages. It has a lot of questions in it that would not be applicable to this application.

Connor Kays- 90 percent of the long forms that I have filled out are not applicable to this.

Dominic Cordisco- Correct, but this application is an unlisted application, so you have the choice to decide whether or not you want the short form. The short form is truly short, it is just one page. Even with the short form that would not preclude you from asking, or them providing a noise and visual information, or any other questions you might have as a addendum to that. The gentlemen is correct, that the primary impacts would be noise and visual. It is not like a cell tower, where you have a cell to at similar height where you have radio frequency admissions and also have to be evaluated to the limited extent that the Federal Government allows you to do that. This is primarily noise and visual. I personally question whether or not the applicant has provided enough information yet.

Connor Kays- There is noise data. You have 10 copies of that. It gives you an idea where they ran a test in a specific area with no turbine, then they ran the same test with the turbine in place. It is pretty in depth, but it does go through the distances and the noise level (inaudible)

Dominic Cordisco- If I may, Was this a noise test done on this property?

Connor Kays- No, that gets very difficult, because we can go out and test the noise at the site, but until the turbine is installed you are not going to know exactly what the turbine is going to add at any given point. This is

what we typically use (inaudible) study that we could provide that goes into more depth. They have tested a number of turbines, but to do an actual site test without installing the turbine wont do a whole lot of good.

Dominic Cordisco- Hold on we are getting ahead of ourselves, because we have not identified how close the neighbors are, if there are any neighbors, there might not be any neighbors.

Paula Clair- I think that is in the material.

Greta Passari- (inaudible) too far from Microphone.

(inaudible) Multiple Conversations

Robert Dee- We don't know at this point if that can be observed from those homes do we?

DRAFT

Connor Kays- We don't know, not for sure.

Lenny Lim- Can we do what we do for the cell towers? A crane or a balloon test?

Dominic Cordisco- You could do a balloon test. you certainly at a minimum take photographs from that vantage point along that road showing into the site.

Lenny Lim- From all, north, east, south, and west. We could go ourselves

(inaudible) Multiple Conversations

Connor Kays- As long as there is no wind, we have to play with the weather a bit. If we time it right we can do it.

Dominic Cordisco- It would have to be 150 feet.

Connor Kays- We can go north, south, east, and west as long as there are roads for us to be at, and we can take pictures in each direction. Typically in a set up like this (inaudible)

Dominic Cordisco- What you could do is tie those photos down to an aerial photograph like that, Where you were.

Vincent Cestone- I think that is something that this board would want to see. then if you could zoom out so we could see where the surrounding houses will be.

(inaudible)

Vincent Cestone- They would be the ones most effected. I don't know if any of the neighbors are here now, but one of the things this board is going to try and do is protect those neighbors.

DRAFT

Robert Dee- You guys speak for Mr. Gleick right?

Connor Kays- Yes

Robert Dee- The goal of this whole project is basically going to save r. Gleick 50 percent of his electric bill?

Connor Kays- That is correct. It reduces (inaudible)

Robert Dee- Ok

Connor Kays- Also a lot of the customers look at it as an investment, the return on the system over thirty years is pretty lucrative.

Robert Dee- I understand, Im just trying to figure out (inaudible) what the project is.

Connor Kays- He is going to save 50 percent. He is taking advantage of the State Grants, and tax breaks that are available right now. That in a nut shell is what he is looking to do.

Robert Dee- Did you also say that excess capacity is sold back to the utilities.

Connor Kays- Excess capacity is not necessarily sold back to the utilities, but if he produces more than they use in a given month, then the utility company will go out and see that the meter reads less than it did a month ago. So lets say they produce an extra 200 kw hours in that month, the customer will see that 200 kw credit on his bill, and they treat it like roll over minutes. If the next month he is 100 kw hours short, they will give him 100 kw hours from his credit, and he still has 100 left to use. The utility company and the customer look at it on a yearly basis, because anything you produce in that twelve months you can credit back to yourself within twelve months. After a twelve month period, in this case it is not going to happen, because we are doing only 50 percent, If he were to do more than that, every twelve months the electric company would zero his meter out. If he had a credit on his bill at that time, they would credit him a cash amount. It is an extreme amount of money, so you want to break even or use everything that you produce. On a twelve month basis it is a give and take. On a yearly basis they will credit your account if you have extra after twelve months.

Robert Dee- The next time you come back here, your application is going to be changed to 152 feet?

Connor Kays- Yes, and we will have a balloon study. We will (inaudible) sound report as well.

Vincent Cestone- Dominic is there something they need to provide us that we are forgetting?

Dominic Cordisco- You said that you included proxy, and I did not see it as part of the application.

Connor Kays- Im sorry?

Dominic Cordisco- The proxy. The applicants permission for you to speak tonight.

Connor Kays- Oh yes, we submitted that right at the beginning tonight.

Dominic Cordisco- I saw the deed, but did not see that.

Connor Kays- Did you get this?

Dominic Cordisco- Yes I did, sorry I thought it was part of the deed. There is nothing else, but we are on for public hearing tonight, so my recommendation would be to continue it till next time they resubmit.

DRAFT

Vincent Cestone- What I am trying to do is minimize back and forth as much as we can. Trying to cover as much as we can, so every month we are not asking him for one thing.

Dominic Cordisco- Sure, I think there was a couple more open items that we mentioned tonight. You mentioned that there was going to be logging.

Connor Kays- I think that might be an over statement, we do have a couple of trees that we are going to have to remove. I don't think the customer is planning on taking down the forest. I think there are six to ten trees at most.

Robert Dee- Those wires are going to come out 85 feet, you are going to have to cut down more than six trees. I am looking at your picture, and it is heavily wooded.

Connor Kays- You are talking 3 or 4 in this area, maybe more in this area. If we need something specific on that, that is something we have to talk to the owner about. The only thing I ask is that if we were to put a turbine up, he is allowed to cut trees down at will, so while it is a result of the turbine.

Vincent Cestone- There is something in the code about logging, you cant just go down and cut.

Connor Kays- So he cant just go out and take one tree down?

Vincent Cestone- One tree is different.

(inaudible) Multiple Conversations

Dominic Cordisco- Clearing and acre, Im not entirely sure of that section of the code, but there are thresholds.

Connor Kays- We will look in the section of the code, and figure that out for ourselves.

DRAFT

Dominic Cordisco- You should identify whether you are under it or over it. If you are over it you need to consider if you are stumping. If you are just taking the trees down and leaving the stumps there then you are not doing any soil disturbance, of course it is you know it might not be that attractive. (inaudible) That is something I just flagged for you. Another question you might want to answer is in connection with the safety.

Robert Dee- I would like you to include how you propose to keep kids off it, and keeping kids from getting electrocuted

Vincent Cestone- Generally with the cell towers, which this is similar

(inaudible) Interruption, and Multiple Conversations.

Vincent Cestone- Usually they require fencing around the structure so they don't even get to it.

(INAUDIBLE) MULTIPLE CONVERSATIONS

Connor Kays- We will take a look at that, along with some labeling. You guys have some electrical, but I will submit some extra data on the connections.

Bill Flaherty- I have a question. Can this board declare itself lead agency in this situation?

Dominic Cordisco- You can, it is one of your options. If you declare yourself lead agency, you have to send notice to the agencies. The two that come to mind is the Planning Board, and NYCERDA which issues the grant in connection with the application. What happens is you send out the notice, then there is a thirty day waiting period before you can take any action. That thirty day waiting period is for the Planning Board and NYCERDA to comment on whether or not they think you should be lead agency or not.

DRAFT

Connor Kays- Im telling you right now with NYCERDA will want for you to be lead agency, they will if in a pinch if they have to, but they will want you guys to do it.

Vincent Cestone- We will decide on that at the next meeting.
(inaudible)

Bill Flaherty- Will that take a motion on our part?

Vincent Cestone- I would rather table that for the next meeting. We will decide at the next meeting, because I want to talk to the Planning Board first.

Bill Flaherty- Cant we do that tonight?

Vincent Cestone- No, I don't want to do it tonight. I want to talk to the Planning Board first.

Connor Kays- (Inaudible)

Bill Flaherty- At the last meeting you indicated you were going to be talking to Mike.

Vincent Cestone- Yes, but not about lead agency.

Bill Flaherty- Oh no?

Vincent Cestone- No, I want to talk to him about that to get his feelings, and I want to talk to Dominic. We will decide next meeting. It is not a time crunch thing.

Robert Dee- The last meeting you had, you said that you were going to go to the Town Board to try and discuss the code. Did you do that?

Doug Passari- Yes, we did that.

DRAFT

Robert Dee- How did you make out with that?

Doug Passari- Not well, it is still a major.

Robert Dee- Im just curious.

Doug Passari- (inaudible) here is eight copies. The letter that Mr. Gleick wrote.

Vincent Cestone- Unless there are more questions from the board, I would like to get to the audience if they want to comment. Are there any questions from the board? Anyone from the audience wish to speak right now? Since there is no one who wants to speak on this right now, Im going to continue this on to our next meeting which is going to be in March. Monday the 11th. Right Tina? Does that make since?

Tina Andress- Landolfi -Yes, I will tell you in a minute. Yes the 11th.

Vincent Cestone- At the next meeting besides what you have, we are going to discuss the logging. we will have some arial views of the

neighbors, a balloon study showing us what it would be like, and we are going to talk about fencing and safety. We will decide at that meeting who will be lead agency.

Connor Kays- At that point we will be looking to approve the variance, and then we need to go to the Planning Board for a special permit?

Vincent Cestone- We will see what the meeting brings. These meeting tend to have questions.

Dominic Cordisco- Tina points out, that in order to make the submission deadline, you would need to submit your materials by February 25th.

Vincent Cestone- With the balloon test, several members have expressed their desire to see the balloons test. When you decide to do this, let the town know, and they will contact us and we will schedule some time to come out.

Connor Kays- Doug will get in touch with you before that. Like I said it will be very weather dependent, so we will schedule a day and keep our fingers crossed, then let you guys know in the morning if that day is going to work or not. We can certainly schedule that. It will help you guys out if we get ourselves set up before you come out, because it will take some time to get (inaudible)

Vincent Cestone- Yes, so if you are gonna do the test at ten in the morning.

Connor Kays- We will let you know.

Vincent Cestone- Let us know, because time is not an issue for us. We are available.

Dominic Cordisco- My last suggestion is, I think the application has been before the Conservation Board?

Tina Andress- Landolfi- No.

Dominic Cordisco- No it has not? I think it might be helpful for them to seek the opinion of the Conservation Board. It is not binding on you, but it might provide more background as to if they have an opinion on the application.

Vincent Cestone- So, How?

Tina Andress- Landolfi- How that works is, you make a referral to the Conservation Board asking them to give their reviews and comments on the application.

Vincent Cestone- Right, and can you just let them know that our next meeting will be on March 11th. If they could have it by then, that would be great. If they cant, that is ok too.

DRAFT

Dominic Cordisco- It is not binding. It is an optional process.

Tina Andress- Landolfi- Their meeting is actually tomorrow, so they are always one night after you. I don't know if they would have the next meeting, because it is not on tomorrow nights agenda, but I can call the inspector tomorrow and see if I can bring one packet and see if it is something they can briefly look over.

Vincent Cestone- If they want to call me, they can call me.

Tina Andress- Landolfi- Im going to be referring this over to them for you, so what you are really going to want is their comments on the clearing of the trees.

Vincent Cestone- To look at the plan in total, but specifically the trees, and the issues that they find of importance to them. With that, unless there is any other comment from the audience, this will be continued to the March 11th. The Public Hearing is still open, where we will address a majority of these issues. Thank you so much.

Connor Kays- Will notices be sent to the neighbors?

Vincent Cestone- You mean re advertised?

Connor Kays- Yes.

Vincent Cestone- No, as long as the Public Hearing is still open, we don't need to re advertise.

Connor Kays - Ok

Vincent Cestone- Is there any old or new business? If not, then I make a motion to adjourn. Do I have a second?

Lenny Lim- I second.

DRAFT

Vincent Cestone- All those in favor?

ALL MEMBERS WERE IN FAVOR

MEETING WAS CLOSED.

NOTE: These minutes were prepared for the Zoning Board of Appeals and are subject to review, comment, emendation, and approval thereupon.

DATE APPROVED: _____

Respectfully Yours,
Tina Andress- Landolfi, ZBA Secretary

Mr. James Gleick
200 Long and Winding Rd.
Garrison, NY 10524

Philipstown, NY
Zoning Board of Appeals
February 25, 2013

RE: Gleick Residential Small Wind

February 2013 ZBA Public Hearing

Add'l Information Request

Included are the additional items board members felt were necessary documents to support and complete the Gleick residential small wind appeal application.

1.) Balloon test:

First test done Wednesday, February 20, 2013 12:00 and recorded
A second test will take place Thursday, February 28, 2013 12:00
(back up date for inclement weather is Sunday, March 3, 2013 12:00)

1a.) Pictures Ground Level and Aerial:

Four initial pictures from all directions (N E S W) at base pad showing immediate surroundings
Photographs in N E S W directions at 100 & 300 feet looking out from base pad during balloon
Test, and looking in towards base pad

1b.) Aerial Picture showing closest neighbors / distance in feet from tower base

2.) Tree Removal definitions as stated Philipstown to insure proper tree removal

3.) Safety measures: Anti climb fencing sheet and additional safety measures (label's/locks)
submitted on three line drawing & three line note description per NYSERDA and the NEC 2011
guidelines.

3a) Utility Interconnection: System will meet all Central Hudson Gas & Electric PSC requirements for
interconnection, inspection documentation will be submitted prior to CO being granted.

4.) Sound: American Wind Energy Association (AWEA) Acoustic levels

5.) Variance height: needed height is 112' for variance

Base Pad South



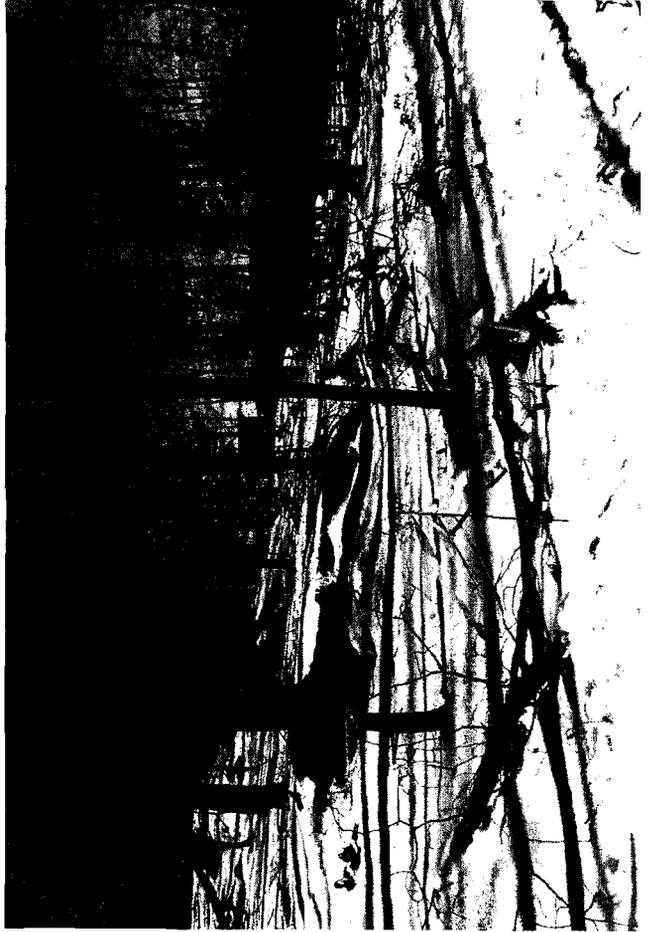
Base Pad East

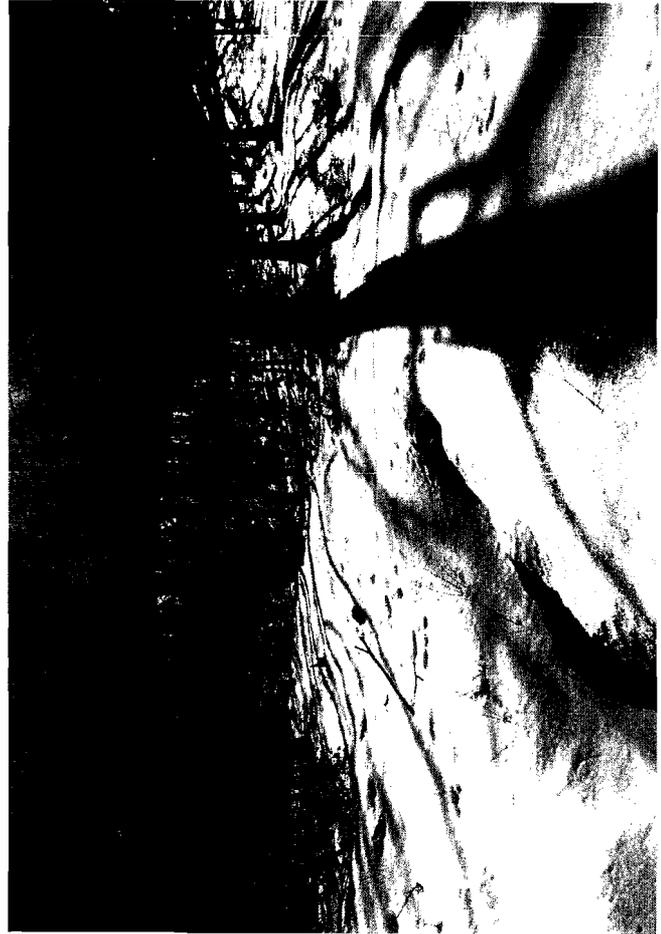


Base Pad North



Base Pad West





View from North and East
100 & 300 vrds to Base Pad



View from South and West
100 & 300 yds to Base Pad

Gleick Balloon Test
North View at 100 & 300 yards



Gleick Balloon Test
East View at 300 & 100 yards



— Gleick Balloon Test —
South View at 300 & 100 yards



— Gleick Balloon Test —
West View 300 yards



— Gleick Balloon Test —
West View 100 yards

— View from Cloudbank Rd. Looking South
Gleick Balloon Test —



— View from 9D_Mandalay Rd. Looking
East Gleick Balloon Test —



— View looking up from Bottom of Gleick Driveway —



— 9D Looking East at Balloon Test —

Source Lat/Long 41.34315 -73.94812

Pictometry 1:3 Auto



Mr. James Gleick
200 Long and Winding Rd.
Garrison, NY 10524

10kW Residential Small Wind
140' Guyed Lattice Tower

The Gleick residential small wind project will require tree removal only in the direct foot print area of the tower base pad - a 6 x 6 (36 sq ft) area, and in 160' radius which is less than a half-acre that includes the three anchor pads.

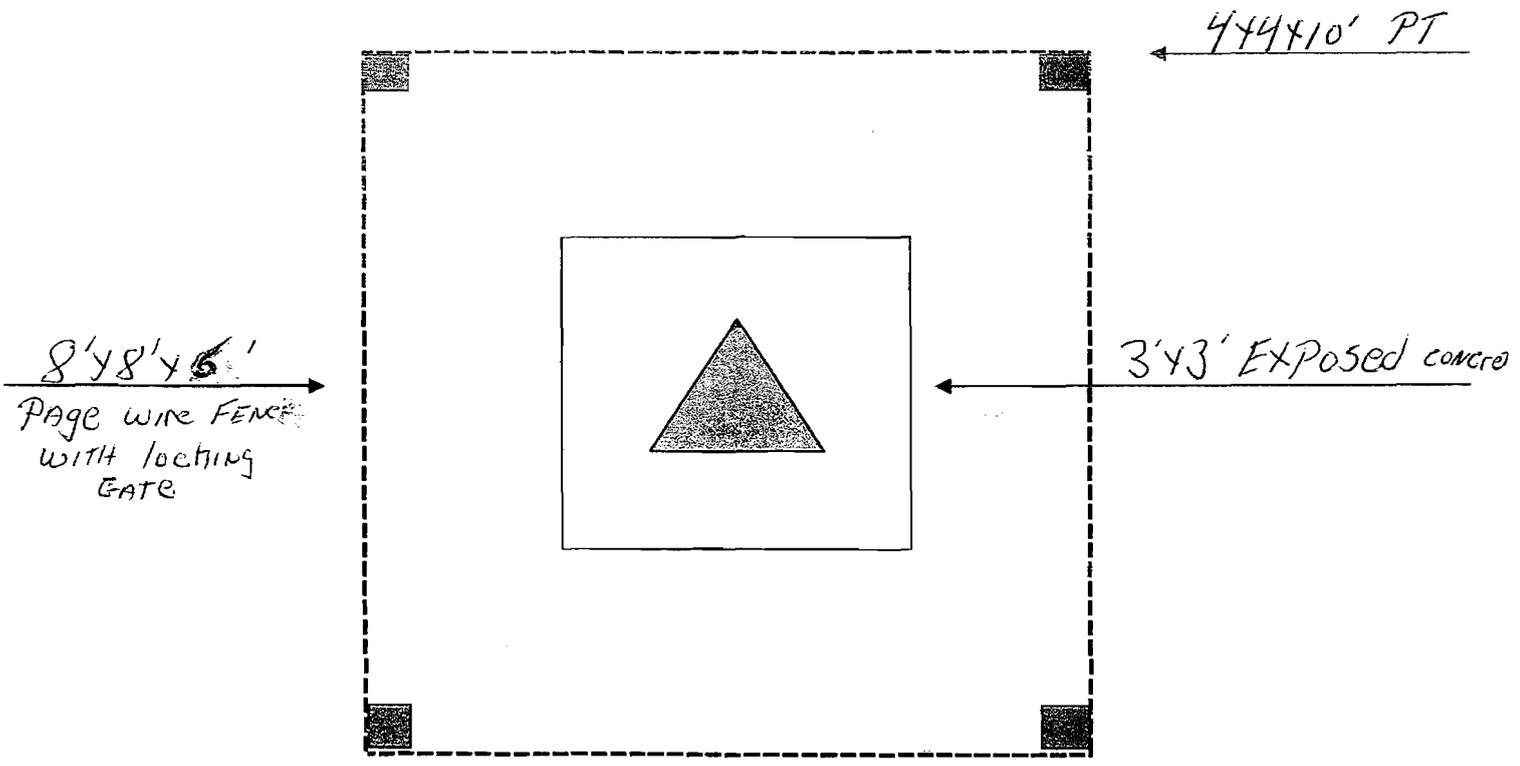
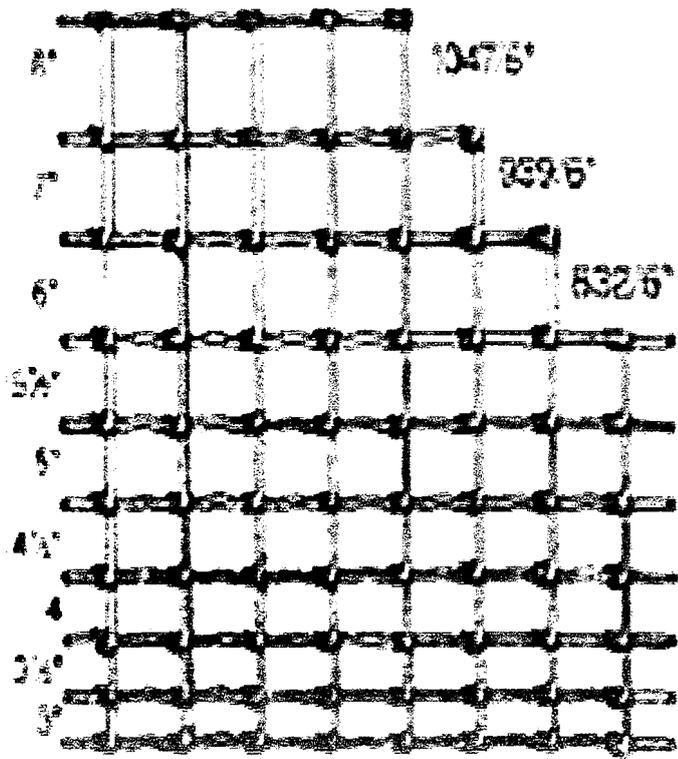
This small wind project meets criteria as stated in the Philipstown Code :

Chapter 159. TIMBER HARVESTING AND FOREST MANAGEMENT

Under § 159-6. Exempt operations. A timber harvesting permit is not required for the following operations:

- A.** The cutting, removal or harvesting of trees or timber from an area of two acres or less in size on any lot or from a contiguous area of two acres or less in size on adjacent lots.

- E.** The cutting or removal of timber or trees in connection with a bona fide operation for which a special use permit has been issued pursuant to Town Code Chapter 175, Article XI.





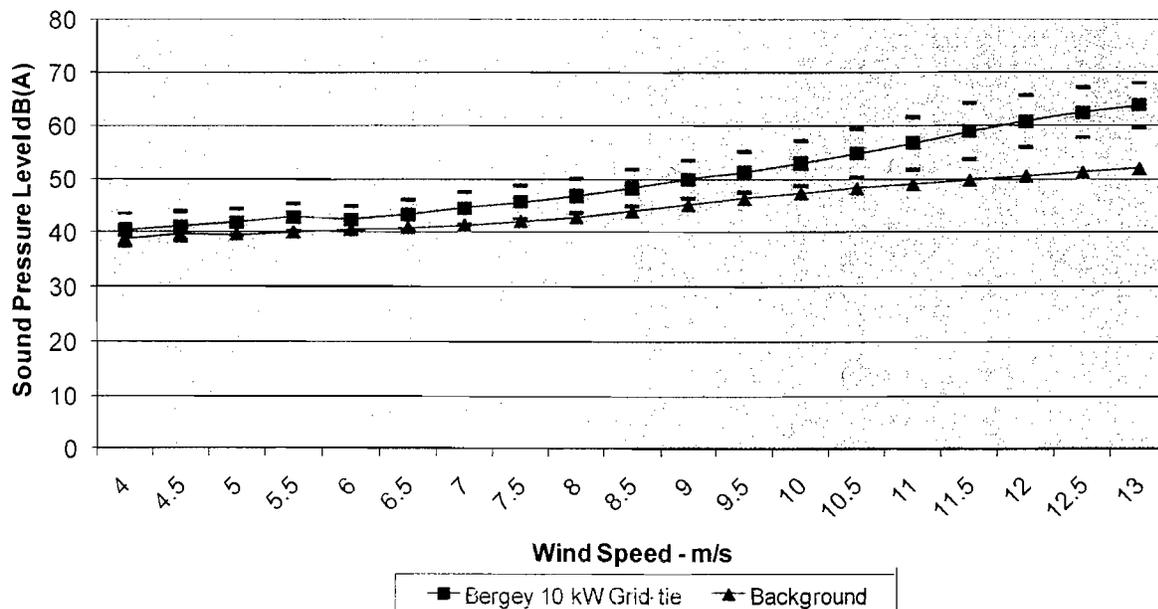
July 14, 2010

Acoustic Characteristics of the Bergey Excel-S 10 kW Wind Turbine

The following noise level data were taken by the USDA Agricultural Research Service in Bushland, Texas. USDA-Bushland is a contractor to the U.S. Department of Energy and has been field testing small wind turbines since the 1970's. This acoustics testing was conducted in support of certification of the BWC Excel-S to AWEA 9.1-2009. Per the AWEA standard, the tests were conducted in accordance with IEC 61400-11, "Wind Turbine Generator Systems, Part 11 - Acoustic Noise Measurement Techniques".

The sampling microphone was a calibrated Larson Davis Model 824, which was placed 34.2m (112 ft) from the base of the 30m (100 ft) wind turbine tower. The slant distance was 46m (151 ft). Wind speed was taken at a height of 10 m (33 ft)

Noise Data Collected on Bergey 10 kW Grid-tie, 30.5 m tower
USDA-ARS Lab near Bushland, TX (June 2010)



The data range provided is 4 m/s – 13 m/s because the calculation of the turbine component of the total sound pressure was calculated using background sound data at the same site from an earlier test on another brand of wind turbine and that test range was 4 – 13 m/s. Background sound levels must be taken with the wind turbine shutdown and that is more difficult to achieve on the Bergey Excel than the other brand previously tested. New background sound data over a wider range is currently being gathered. We do not believe there will be any significant differences in the results when this newer background data is available.

The calculation of the wind turbine contribution to total sound levels follows the guidelines in IEC 61400-11.

For a typical 5 m/s (11.2 mph) average wind speed site the wind speed will be below 11 m/s (25 mph) over 95% of the time. In this range the Excel-S wind turbine will add just 1 – 6 dBA to the background. As a general rule it takes 3 dBA added before a person will perceive a separate noise source.

AWEA Rated Sound Level: 52.1 dBA

The Rated Sound Level is the sound level at 60 m (197 ft) that the wind turbine will not exceed 95% of the time in a 5 m/s (11 mph) average wind speed site. The previous version of the BWC Excel-S had an AWEA Rated Sound Level of 54.7 dBA. The new version is quieter because the more powerful neodymium alternator has reduced the rated rotor speed from 300 RPM to 240 RPM.

The Sound Power Level is the total noise right at the source – the top of the tower. For the BWC Excel-S turbine the Sound Power Level corresponding to the AWEA Rated Sound Level is 91.0 dBA. Sound diminishes with distance. The Sound Pressure Level is the sound a listener would hear at the distance given, in this case 60m (197 ft)

The binned sound pressure and sound power level data is provided on the following page.

**2010 Excel-S Acoustics Test Data
Bushland, 46 m Slant Distance**

Wind Bin (m/s)	Recorded Sound Pressure Level (dBA)	Std Dev	Backgrd Sound Pressure Level* (dBA)	Turbine Sound Pressure Level (dBA)	Turbine Sound Power Level (dBA)
1	37.08	0.35			
1.5	36.14	0.55			
2	36.70	1.68			
2.5	38.57	3.05			
3	39.18	3.03			
3.5	39.94	3.27			
4	40.39	3.04	38.7	40.39	78.5
4.5	41.06	2.75	39.55	41.06	79.2
5	41.76	2.47	39.48	41.76	79.9
5.5	42.71	2.66	39.84	42.71	80.9
6	43.51	2.66	40.31	42.21	80.4
6.5	44.56	2.81	40.67	43.26	81.4
7	45.75	3.01	41.2	44.45	82.6
7.5	46.87	3.10	41.87	45.57	83.7
8	48.08	3.24	42.65	46.78	84.9
8.5	49.55	3.41	43.72	48.25	86.4
9	51.04	3.60	44.91	49.83	88.0
9.5	52.40	3.78	46.14	51.23	89.4
10	53.92	4.17	47.17	52.89	91.0
10.5	55.53	4.53	48.13	54.66	92.8
11	57.31	4.92	48.91	56.63	94.8
11.5	59.35	5.22	49.73	58.85	97.0
12	61.07	4.88	50.48	60.67	98.8
12.5	62.69	4.71	51.17	62.37	100.5
13	64.02	4.24	51.85	63.75	101.9
13.5	65.44	3.79			
14	66.60	3.29			
14.5	67.39	3.12			
15	68.10	3.04			
15.5	68.92	3.40			
16	69.60	3.18			
16.5	70.02	2.63			
17	71.42	1.82			
17.5	71.79	1.71			
18	71.53	3.22			
18.5	72.14	2.30			
19	73.00	1.13			
19.5	70.10	4.93			
20	62.00	0.00			

* - From 2006 test on another turbine

Sound Levels at a Distance from the Turbine

Sound Power Level is defined as the sound level at a distance of 1 meter (3.3 ft) from the source, which we take as the center of the rotor or, in other words, hub height. As a person gets farther and farther away from the wind turbine, the intensity of the sound they will hear reduces as the square of the distance. The following table provides the AWEA Rated Sound Levels at different distances from the base of the turbine, assuming a 30m (100 ft) tower. These levels do not include a contribution from background noise levels.

Distance from Turbine (meters)	Distance (feet)	Slant Distance (m)	Sound Press. Level (dBA)
30	98.42	42.4	53.5
60	196.85	67.1	49.5
90	295.27	94.9	46.5
120	393.70	123.7	44.2
150	492.12	153.0	42.4
180	590.55	182.5	40.8
210	688.97	212.1	39.5
240	787.40	241.9	38.4
270	885.82	271.7	37.4
300	984.25	301.5	36.5
330	1,082.67	331.4	35.6
360	1,181.10	361.2	34.9
390	1,279.52	391.2	34.2

Factors to be considered by the board

Area Variance Application
Mr. & Mrs. James Gleick
200 Long & Winding Rd., Garrison, NY
10kW Residential Small Wind

- 1a.) There will be no detriment to nearby properties in granting an area variance.
The closest structure is owned by the applicant (small studio) and is 217' away
The wind energy conversion system (WECS) can not be seen from the sited location.
It will not block views or have exterior lights, banners or flags.
- 1b.) There will be no negative impact from a variance on the character of the surrounding neighborhood.
Utility poles, flag poles, transmission cell towers and others are all structures in the community that are above the 40' height limit.
Specific set backs for a residential small wind installation are required and will follow both Town and State guidelines.
The WECS is situated on the east side (back) of the 30+ acre parcel on top of a Mt. surrounded by forest
The closest human occupied structure is 1,800' to the west of the property on Route 9D.
- 2.) Without a variance the proposed residential small wind project can not be completed. Height is a must when incorporating small wind power as the chosen renewable resource. Restricting tower height is like putting solar in the shade. Even at a high elevation with spectacular wind speeds, the lowest industry standard for 10kW residential turbine can range from 100' to 140'tower height. Mature trees can be 75 to 100'. Key factors in determining tower height are obstruction and elevation.
For a turbine to harness the desired wind speeds to generate electricity a tower must have a height that is greater then the surrounding obstructions such as trees & buildings.
- 3.) The current dimensional table for RR has a maximum height of 40'. A variance of 112' is necessary for the erection of the Gleick WECS small wind project for residential on-site energy consumption and net metering.
- 4.) There will be no significant impact on the environment. All soils disturbed will be reclaimed, base and anchor pads will be backfilled. There will be no physical change to the landscape.
There will be no blasting and no paving involved with this residential project.
Trees located within the 84' area radius of the site will be cut down and used for fire wood by the resident. No lose of vegetation that would create changes to the natural look or harm the environment will take place. No wetlands or water courses will be disturbed. The Well is located >100' north of site, the Septic is >200' to the west.
No pollution will be created by this project. The rated sound level is 54.7 dbA. Traffic will be not be increased. The chosen site away from neighboring properties and will not dramatically alter the scenic character of the surrounding forest.

Philipstown, New York Zoning Board of Appeals
Area Variance Application
Mr. & Mrs. James Gleick
200 Long & Winding Rd., Garrison, NY
10kW Residential Small Wind

1.) Location of Property:

Address 200 Long and Winding Rd, Garrison, NY 10524
Adjacent Road(s) West on 9D Bear Mt. - Beacon Highway
Landmarks Manitou

2.) Names and Addresses of Adjoining Property Owners:

See attached sheet and map

3.) Provisions of Zoning Code Involved:

Article III, § 175-101 D
Article VII, § 175-204 (1)
Article IX, § 175-60 A & C (1) & (2)

4.) Previous Appeal:

No

Type of Appeal:

an INTERPRETATION OF THE Zoning Code or Maps
 a VARIANCE from the Zoning Code
a SPECIAL USE PERMIT under the Zoning Code

5.) Details of Appeal:

(a) Interpretation of Zoning Code is Requested

(1) An exact Statement of the Interpretation requested is:

Re-address how residential small wind is categorized in the current zoning. Streamline permitting process to allow for small wind as an accessory use with zoning that is in line with the States On-Site Small Wind requirements.

(b) A Variance from the Zoning Code is requested:

(1) An exact Statement of the details of the Variance requested is:

This Residential Small Wind project meets and conforms to all zoning requirements in Philipstown however, is restricted do to the RR max height set at 40'. An area variance is needed for the installation of the 140' guyed lattice tower. Variance request is for **102'**.

(2) The Grounds on which this variance should be granted are:

For Small Wind to be effective and efficient, turbines must be atop towers that are 80-140' to adequately harness wind speeds to generate significant energy. The current zoning for does not separate small wind from industrial or commercial wind. Small wind (residential, farm or rural business) is for on-site consumption.