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February 23, 2010

Patrick H. Eaton, Sr., Supervisor
Robert Phillips, Planning Board Chair
Town of Allegany
Town Hall
52 West Main Street
Allegany, NY 14706

Re: Comments on completeness of the Everpower pre-draft EIS

Dear Pat and Bob:

Please accept the following comments on the adequacy of the pre-draft EIS submitted to the Planning Board by Everpower.

At the request of the applicant Everpower, the Planning Board has scheduled a special meeting for February 24 to determine whether the pre-draft EIS is complete for purposes of further review. Everpower made this request in order to obtain acceptance into NYISO's "class year" for 2010, to begin the process of NYISO approval of Everpower's connection to the regional electric grid. However, in specific areas discussed below the pre-draft EIS is missing important information.

Preliminary Blasting Plan

According to the applicant's "Revised Preliminary Geotechnical Evaluation," dated January 15, 2010 (by GZA), the Everpower project area includes "large 'house-sized' boulders and boulder fields within the current proposed turbine array, which could make turbine foundation construction difficult," (p. 1), bedrock is "exposed or generally within 1 meter of the surface," (p. 6) and bedrock outcrops were observed within the project area. (p.7; *see* pictures at pp. 7-8). Accordingly, the preliminary report concludes that blasting may be necessary:

> Foundation construction will likely encounter bedrock that requires removal . Shallow bedrock is expected to be removed by ripping with an excavator or able to be broken by pneumatic hammer. Depending on location and depth, bedrock removal may require blasting. (p. 21).

However, in the applicant's "Preliminary Blasting Plan" (3 pages), no blasting plan is actually provided, because blasting is "not anticipated." If necessary, according to the preliminary plan, blasting will be subject to approval "by the applicant." The only guidelines for the applicant's discretion are entirely conceptual, contingent upon further information, and fall far

short of the detailed information that should be included in even a preliminary blasting plan.

To approve blasting the applicant will require the following:

A. "sufficient . . . protective cover" to prevent rock particles from leaving the site (what kind of "cover"? what differences in performance can be expected from alternative kinds of cover?)

B., C. noise from blasting equipment may reach 128 decibels at an inhabited building, and 140 decibels at an uninhabited building (can such impacts be avoided? will there be any notice to homeowners? how will Everpower be assured that buildings near the site are uninhabited?)

D. any detonating cord must be "covered by crushed rock or other suitable cover to reduce noise and concessive effects" (is crushed rock effective in achieving the desired results? what "other suitable cover" will be considered? what differences in performance can be expected from alternative cover materials?)

E. a pre-blast survey will be conducted at each site (why not in the DEIS, where such surveys can be reviewed prior to a decision on project approval?)

F. blasting will be subject to time restrictions (what times?)

G. blasting will be recorded

H. a post-blast survey will be conducted (at each turbine site?)

Given the applicant's acknowledgment regarding the likelihood of blasting, a real blasting plan based on pre-blast surveys at each site that may require blasting should be included in the DEIS. The Board should therefore ask Everpower to rectify the absence of such information before accepting the pre-draft EIS as complete.

Interference with Wireless Communications

The potential for interference with wireless communications has been raised in previous communications.[1] Despite revising several parts of the pre-draft EIS in January, Everpower has not provided any information on the potential of the proposed project to affect weather forecasting for our area, and air traffic safety.

Staff from the National Weather Service presented a paper at the American Wind Energy Association annual conference in 2007 discussing the need to evaluate the effect of wind farms

[1] *See* my December 4, 2009 letter to the Planning Board and the Town Board in support of CCCC's petition to remove the distance limit within which the town's noise standard for wind farms applies, page 5.

on weather forecasts, including emergency warnings of severe weather events:

> These forecasts and warnings provide life-saving information to the public, support military operations, and information to resource protection decision makers. NEXRAD data are now displayed in real time on FAA air traffic controllers' screens for airspace management and safety of flight. The NWS teams with local emergency managers to ensure warnings for tornadoes, severe weather, and flash flooding are disseminated to the public. The emergency managers rely on the radar data for making final warning decisions and updating the public on the status of severe weather events.[2]

This paper finds that wind farms interfere with weather radar both during periods of calm air and periods of wind turbine operation. Looking at two mid-western wind farms, the authors found over several months interference occurred 86% and 97% of the time, respectively.[3]

> Wind farm returns [i.e., radar interference] during precipitation events have serious operational impacts. Weak rain showers can be mistakenly identified as strong thunderstorms and large regions of velocity data can be disturbed (aliased into an incorrect velocity measurement interval) and erroneously displayed over areas much larger than the wind farm itself. Both conditions lead to loss of important data and possible incorrect decision making. Misidentification of rain showers as strong thunderstorms can lead to major aviation problems because of needless and expensive rerouting of commercial aircraft to avoid the supposed thunderstorms.
>
> The worst operational impacts occur during severe convective storms and heavy rainfall. When life-threatening events occur, weather forecasters must quickly make crucial warning decisions. For these decisions, they rely on correctly displayed radar data and algorithm output. Both missed events and generation of false-alarm warnings are taken very seriously because of the negative impact they have on the whole warning system (emergency managers, the television and radio media, and all users of the warnings, including private-sector weather vendors and the general public).[4]

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[2] Richard. J. Vogt et al., *Weather Radars and Wind Farms – Working Together for Mutual Benefit,* presented at the American Wind Energy Association WINDPOWER 2008 Conference, Houston, TX (June 1 – 4, 2008), <http://www.roc.noaa.gov/windfarm/WindPower2007_final_wheader.pdf>, at 5.

[3] *Id.*, at 6.

[4] *Id.*, at 7.

Because the impacts of wind farms on weather radar has been known for some time, there is no excuse for omitting a discussion of such impacts in the pre-draft EIS. Reports of weather radar interference by wind farms in New York confirm that this remains a problem.

In a letter to his local newspaper, Sheldon Town Board member Glenn Cramer reports:

> TV and radio reception have been destroyed in most areas of the town. Also, the Buffalo Doppler radar can no longer forecast weather conditions accurately in locations east of our wind farm.[5]

Last June the Watertown newspaper reported that "Maple Ridge Wind Farm is one of several [wind] farms in the state causing problems for the National Weather Service Forecast Office in Buffalo."[6]

In February, 2009, WIVB Buffalo (Channel 4) meteorologist Don Paul reported that wind turbines operating in Wyoming County are having similar effects:

> These tall structures with spinning blades create both highly reflective fixed targets which cannot currently be eliminated by software in the NWSWSR 88-D Doppler radar (or any other local radar), as well as spurious indications of precipitation in the scattering and reflection of radar energy cause by the moving portion of the target–the spinning blades. . . . These false echoes can, if not treated properly, cause false precipitation accumulations in the 88-D's database, and can–to some extent–interfere with the detection of precipitation and velocity data near and just past these targets. That's not a good thing, meteorologically. . . . there are currently no legal requirements which would take into consideration problems caused by too close a proximity to the nation's first line of defense in storm and severe storm detection and warning.[7]

However, the pre-draft EIS includes a report by Comsearch addressing potential impacts on cellular/PCS communications, radio and licensed microwave transmissions, but no information is provided on interference with weather radar.

Nor is any information provided on potential impacts to aircraft radar. It has been

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[5] I provided to the Board a copy of Mr. Cramer's letter to the editor on December 11, 2009, via email to Ms. Horowitz.

[6] Nancy Madsen, *Wind farms interfering with Doppler radar*, DAILY TIMES (Watertown, NY), June 24, 2009.

[7] *Don Paul Weather Blog*, entries by Don Paul, February 27, 2009. A copy of the entries is attached. These entries are no longer posted on the WIVB website, <http://blogs.wivb.com/>.

reported that "wind turbines may prevent radar from seeing aircraft or send false returns that could be interpreted as aircraft . . . pos[ing] a risk to aircraft safety."[8] By 2004, the British Ministry of Defence had successfully opposed nearly half of the wind farms proposed in Britain "because of their proximity to air-defence stations."[9]

It is a relatively simple matter to run the Federal Aviation Administration's (FAA) screening tool to determine whether wind farm development in the Chipmonk area will require an aeronautical study to protect Air Defense and Homeland Security radars. The FAA screening tool allows users to input the longitude and latitude of an area proposed for wind farm development and obtain information on potential inference with long range radar, weather radar (also termed next generation radar or NEXRAD), and military operations.[10] Before accepting the pre-draft EIS as complete, the Planning Board should require Everpower to report the results of a run of the screening tool and, if so indicated, the results of any required follow-up studies or communications with federal officials.

Transportation impacts

The pre-draft EIS includes a report by CME, "Route Evaluation Study," dated January 12, 2010, but the study "does not identify a specific regional routing plan." (p. 1). Instead, the determination whether there are significant limits for transportation of wind turbine parts and other construction materials is assigned to a "future transportation provider":

> the future transportation provider for the project should document potential regional constraints such as bridge restrictions as the project is progressed. . . . It is recommended that the transportation provider determine if some of the heavier wind farm components such as the transformer can be regionally shipped to the site via the existing railroad line that runs through Olean located north of the project site. (p. 1).

According to Section 3.8 of the pre-draft EIS, turbine blades up to 160 feet long must be transported to turbine sites by means of 87 truck trips, even if delivered by rail. The pre-draft EIS estimates over 3,800 truck trips to turbine sites will be necessary, including 1,450 trucks carrying concrete. However, this "does not include the trips associated with the construction of access roads."

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[8] *Windfarms now a threat to air safety*, NEWS & STAR (West Cumbria, UK), December 11, 2001, <http://www.newsandstar.co.uk/>.

[9] Laura Nelson, *Air force clips the wings of UK wind power*, 428 NATURE 111 (March 11, 2004), <http://users.erols.com/iri/EnewsApril5,2004.htm#3>.

[10] *See* FAA, <https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp>.

Several miles of access roads will be required with up to ten feet of gravel bedding to accommodate a crane weighing 75 tons.[11] This gravel is generally removed after construction and trucked elsewhere, including to local roadways in need of repair resulting from project truck and equipment traffic. A substantial number of additional truck trips hauling gravel and exiting construction sites will therefore be necessary.

Although no routing plan is provided, six alternative trucking routes are identified in the CME study, and one of these proposed routes is identified as the preferred route. The preferred route (#5) brings all materials to turbine sites by trucks via I-86 to Exit 26, north of downtown Olean. From there trucks would be routed south on Route 16, through the downtown area to the intersection of Route 16 and Nichols Run Rd.

Proposed routes ##3, 4 and 6 also take trucks through Olean to Route 16 and Nichols Run Rd. Route #3 takes trucks off I-86 at Exit 24 near the Village of Allegany, through Olean via Route 417 to Route 16 and Nichols Run Rd. Route #4 would take some turbine parts off at the railroad on Constitution Avenue, through Olean via Buffalo Street to Route 16 and Nichols Run Rd. Route #6 takes trucks via I-86 to Exit 26, through downtown Olean to State Line Rd. and to Nichols Run Rd.

Only proposed routes ##1 and 2 would avoid the Village of Allegany and the City of Olean. Route #1 takes trucks through Limestone via Route 219, to Church St. and to Nichols Run Rd. Route #2 takes trucks through the towns of Carrollton and Allegany via Route 219, to Nine Mile Rd. and to Chipmunk Run Rd.

The pre-draft EIS also lacks any evaluation of the degree of roadway deterioration that may occur, and the level of remediation that may be required. This is important because the CME study acknowledges that "roadway impacts might occur," in which case a remediation plan will be necessary. (p. 12). However, no plan is provided.

The CME study tells us in general terms what kind of information will be necessary to develop a plan: "Confirmation of improvements, construction details, traffic control plans, escort vehicles, scheduling etc. will be necessary." (p. 12)

No plan for modifying the transportation infrastructure to accommodate the project is provided. For example, use of I-86 Exit 24 in Allegany may require improvements to the exit ramp. (CME, p. 5). At the intersections of Route 16 and Nichols Run and Chipmunk Run roads, "intersection turning radii" will require widening. (p. 10).[12] Additional improvements to Nichols

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[11] 75 tons is assumed in the applicant's noise assessment, p. 29, Table 3.7.1.

[12] The turning radius at the intersection of Route 219 and Nine Mile Rd., which would be used in Route #2, is more severe than the Route 16-Nichols Run Rd. intersection and would therefore presumably also require widening.

Run Rd. are likely to be needed because the road is posted with a 10 ton limit. As noted above, according to the applicant the crane used to erect turbine towers weighs about 75 tons.

Because the six proposed routing choices have different impacts, and will require different improvements and post-construction remediation, before accepting the pre-draft EIS as complete the Planning Board should require more information about specific impacts on roads and traffic, improvements, and remediation.

Noise impacts from operations

The applicant's noise impact assessment is seriously deficient and therefore requires substantial supplementation to be considered complete.

Despite revising its noise impact assessment, the applicant has not addressed any of the criticisms of the methodology and approach of the earlier assessment. Because expert comments in support of those criticisms were included with my December 4 letter, the absence of any response in the newest version of the applicant's noise assessment is very surprising. This deficiency will leave the Planning Board and the Town Board to puzzle over the differences between acoustic experts without much, if any guide as to how to evaluate those differences.

As explained at length in comments attached here by Richard James, there is no basis in any published acoustic standards for Mr. Hessler's approach, "normalizing" (estimating) wind speeds at ground level based on wind speeds at turbine height. Mr. Hessler insists on this approach in order to support a conclusion that background sound levels will be higher than normal due to wind-induced noise whenever there are winds at about 400 feet in height.

The theory that wind speeds will always and in every instance be sufficient to generate elevated background noise when turbines are operating has been specifically disproven by van den Berg, whose demonstration has been credited by several acoustic engineers addressing wind turbine noise assessment. Because Everpower has yet to put in a professionally defensible sound study, the Planning Board should insist that Everpower supplement the study before accepting the pre-draft EIS as complete, by addressing van den Berg's research and that of Pedersen, Cummings, James, Morehouse, Schneider, and Leventhall referenced in my December 4 letter.

At operating wind farms, according to Mr. Hessler, "Modern wind turbines of the type proposed for this project do not generate low frequency or infrasonic noise to any significant extent and *no impact of any kind is expected from this*." (Hessler, Rev. D, p. 26). This conclusion is not based on any research, and Mr. Hessler cites none. The conclusion is also contrary to the Allegany zoning ordinance, which *requires* an assessment of low frequency noise impacts. *See* Ord. II § 5.25(B)(3)(h)(i).

The Minnesota Department of Public Health report on wind turbine noise[13] relies on a 2004 study by Pedersen and Waye that finds that wind turbine noise is more annoying than other noise sources emitting the same A-weighted (dBA) sound level because of its characteristic "impulsiveness, *low frequency noise* and persistence of the noise."[14]

The Minnesota report also relies on a study by Kjellberg and others that finds that noise modeling does not predict the occurrence of annoyance during operations of a wind farm unless a 6 dB "penalty" is added to dB(A) when dB(C) – dB(A) is greater than 15 dB. A 15 dB difference between A-weighted and C-weighted sound measurements establishes the presence of significant low frequency sound.[15]

[16]The Minnesota report also relies on standards adopted by Denmark, Sweden and Germany, where low frequency noise from wind turbines is regulated.

Finally, the Minnesota report relies on World Health Organization (WHO) guidelines for limiting noise impacts to preserve the ability to sleep undisturbed:

> In their noise guidance, the WHO (1999) recommends 30 dB(A) as a limit for "a good night's sleep". However, they also suggest that guidance for noise with predominating low frequencies be less than 30 dB(A).[17]

It is therefore highly misleading at best, and at worst unprofessional for Mr. Hessler to label the proposition that wind turbine noise can include "excessive or even harmful amounts of low frequency noise" as no more than a "widespread belief" that, for purposes of assessing potential noise impacts of the Everpower project, can be disregarded. (Hessler, rev. D, p. 31).

The only basis for Mr. Hessler's view that low frequency sound would be insignificant is a study that applies the procedure for measuring wind turbine noise under IEC 61400-11. However, as Mr. James shows, the IEC 61400-11 standard is based on ideal test conditions and does not take into account air turbulence effects of ridgeline topography or wind shear. For these reasons, application of the IEC 61400-11 measurement procedure can be expected to predict optimum, not worst case outcomes.

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[13] Minnesota Department of Health, PUBLIC HEALTH IMPACTS OF WIND TURBINES (2009) <http://www.health.state.mn.us/divs/eh/hazardous/topics/windturbines.pdf>.

[14] *Id.*, p. 20.

[15] *Id.*

[16] *Id.*, pp. 21-22.

[17] *Id.*, p. 22.

Without meaningfully addressing the finding that excessive low frequency noise can be generated by utility-scale wind turbines, and the substantial rejection of the wind-masking theory in professional acoustics literature, Mr. Hessler's noise assessment has the distinct appearance of trying to put a square plug in a round hole. The Everpower turbine sites have, after all, been selected to fit within a few large land parcels to which the company has committed itself. Everpower made such commitments without as much study as now found in the pre-draft EIS. When Mr. Hessler was questioned under oath about Everpower's ability to meet guidelines for the protection of residents from the adverse effects of noise from wind turbine sites which the company had already selected, at a proposed wind project in Champaign County, Ohio, he replied as follows:

> I think the reality of the situation is that it's very difficult to avoid putting wind projects near houses in this country. There are very few practical sites that are remote [enough to avoid annoyance from wind turbine noise]. It's a balance between the two interests.[18]

Where the balance lies in Allegany is of course in the first instance a question for the Planning Board and the Town Board. However, without any meaningful study of the potential for excessive noise under conditions of calm air at ground surface while winds operate turbines 400 feet above, or the potential for particularly annoying low frequency noise, the Board will be unable to evaluate the noise impact of the applicant's proposal.

At a minimum, the Board should direct Everpower to address the reasons why the weight of the professional literature on wind turbine noise does not apply to this project. Bald rejection of the findings of that literature by Mr. Hessler without any affirmative demonstration for his contrary views is inadequate to ready Everpower's pre-draft EIS for review of the potential for unacceptable noise impacts.

Noise impacts from construction

As noted above, the applicant's "Revised Preliminary Geotechnical Evaluation," dated January 15, 2010, finds that noise from blasting equipment may reach 128 decibels at an inhabited building, 140 decibels at an uninhabited building. This finding is dramatically higher than acknowledged in Mr. Hessler's "Environmental Sound Survey and Noise Impact Assessment," dated January 27, 2010. At page 31 of this report the applicant's acoustic consultant concludes:

> construction noise is unlikely to constitute a significant adverse impact. Temporary sound levels ranging from 44 to 51 dBA are conservatively estimated

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[18] Breanne Parcels, *Testimony continues*, DAILY CITIZEN (Urbana, OH), December 2, 2009 (quoting from the hearing transcript of a proceeding before the Public Service Commission of Ohio). This news story is attached.

at the nearest homes . . .

However, this report does not consider blasting noise. Moreover, in the list of construction equipment from which noise impacts are modeled, neither an excavator nor a pneumatic hammer are included, equipment identified in the "Revised Preliminary Geotechnical Evaluation" that will be necessary to remove bedrock even if no blasting is needed.

Because the applicant's noise assessment fails to estimate noise impacts from blasting or other equipment, the noise assessment is incomplete and inadequate to evaluate construction noise impacts.

Standards for determining the adequacy of the pre-draft EIS

Under the State Environmental Quality Review Act (SEQRA) and its implementing regulations, whether the pre-draft EIS submitted by Everpower is adequate is subject to a large degree of discretion by the Planning Board. An application for project approval is not "complete," according to the SEQRA regulations, "until a draft EIS has been accepted by the lead agency as satisfactory with respect to scope, content and adequacy."[19]

However, the Planning Board is also bound to apply the standards under the Town's zoning ordinance, which add to the SEQRA requirements for adequacy. The Allegany ordinance states that the application is not adequate until the applicant submits sufficient information to determine whether the proposed project can comply with the noise limits in the ordinance. Everpower has failed to provide sufficient information to allow the Board to evaluate low frequency noise impacts, and impacts at all sensitive receptors.

Regarding the whether the project can comply with the Town's noise limits, Section 5.25(C)(2) of the Town's Ordinance II states: "*In order to enable the Planning Board to make this determination,* the applicant shall submit the noise assessment required in Sub-section 5.25(B)."

The required noise assessment "*shall include* low frequency, infrasound, pure tone, and repetitive/impulsive sound." Ord. II § 5.25(B)(3)(h)(i).

As noted above, Everpower's current pre-draft noise assessment rejects the need for any analysis of low frequency sound, contrary to the findings of the Town Board when enacting local regulations for wind farms that such an analysis is required. Thus, until the pre-draft EIS includes some study of low frequency sound effects of the Everpower project, the Planning Board should not accept it as adequate or complete.

The required noise assessment must also include actual "analyses at affected sensitive

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[19] 6 NYCRR § 617.3(c)(2).

noise receptors." Ord. II § 5.25(B)(3)(h)(iii). The analyses must include "estimates of expected noise levels at sensitive receptor locations," (Ord. II § 5.25(B)(3)(h)(iv)), and "specific measures proposed to mitigate noise impacts for sensitive receptors consistent with the requirements of this ordinance." Ord. II § 5.25(B)(3)(h)(v).

On February 12, 2010, the Planning Board and the Town Board invited from CCCC a short list of residences within the vicinity of the proposed Everpower project that could be designated as "sensitive receptors" pursuant to the local law. *See* Ord. II § 5.25(B)(3)(h)(ii). The invited list was provided to the boards on February 19.

If the Planning Board identifies additional sensitive receptor points, Everpower will need to incorporate any analysis of expected noise levels at those locations or any specific measures to mitigate noise impacts at those locations. Until Everpower includes such receptor points in its noise assessment, the pre-draft EIS cannot be deemed adequate or complete.

Conclusion

Because Everpower's pre-draft EIS includes insufficient information to allow the Planning Board and the Town Board to evaluate the potential impacts of blasting and excavation, interference with weather and aircraft radar, transportation and transportation infrastructure; and because Everpower has failed to comply with the noise assessment requirements in the Town's zoning ordinance, the boards should require substantial additional information to make the pre-draft EIS complete and adequate for further review.

As has been emphasized in previous communications, and summarized again in the attached comments from Mr. James, Everpower's noise assessment improperly elevates background sound levels in the community, underestimates project-only sound impacts using an elusive modeling technique, and fails altogether to assess the potential for excessive low frequency noise impacts under an unsupported theory that wind turbines do not have such impacts. these deficiencies must be addressed before the boards and the public can hope to meaningful review Everpower's proposal.

Sincerely,

Gary A. Abraham

gaa/attachments:

1. *Don Paul Weather Blog*, entries by Don Paul, February 27, 2009

2. Letter from Gary A. Abraham to Allegany Planning Board and Town Board, December 4, 2009

3. Letter from Richard James to Gary A. Abraham, February 19, 2009

4. Breanne Parcels, *Testimony continues*, DAILY CITIZEN (Urbana, OH), December 2, 2009

5. Letter from Richard James to Gary A. Abraham, February 22, 2010, with attachments:

6. Dick Bowler, ETSU-R-97: WHY IT IS WRONG (July 2005)

7. The Working Group on Noise from Wind Turbines, THE ASSESSMENT AND RATING OF NOISE FROM WIND FARMS (ETSU-R-97) (September 1996), Executive Summary

cc: Carol Horowitz (via email)