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April 23, 2010

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

Re: Everpower Wind Farm Draft Environmental Impact Statement (DEIS)

Dear Chairman Phillips and Supervisor Eaton:

Respectfully, please accept the following comments on the above-referenced DEIS on behalf of Concerned Citizens of Cattaraugus County, Inc. (CCCC). CCCC members include about 600 families in the County, including many in Olean and Allegany, and several families in Chipmonk, Knapps Creek and the Four Mile Road areas who would be directly affected by the proposed project's visual, noise and other impacts.

CCCC continues to believe that the project as proposed has not demonstrated it can comply with the stringent noise limits for wind energy projects in the town's Zoning Ordinance II. We are grateful that the Planning Board has identified eight "sensitive receptor" locations that are farther than 2500 feet from the project site, at which the ordinance's limit of 3 decibels (A-weighted, or dBA) above background must be met. As more fully discussed in the attached new comments of acoustic engineer Richard James, ambient sound levels at four of these locations are in the low 20s dBA at night, and the ambient sound level is likely to increase by 3 dBA or more under certain meteorological conditions at these locations, where there is no intervening topography.

On February 20, 2009, and again on February 23, 2010, I submitted comments on the modulating (or pulsating) character of wind turbine noise, and the low frequency component of wind turbine noise, two characteristics that can be expected to make such noise more annoying to some people than other industrial noises measured at the same sound level. However, Everpower has never responded to those comments, and the DEIS does not address these problems. The Planning and Town boards should ask Everpower to address these earlier comments.

The Allegany zoning ordinance *requires* the DEIS to include an assessment of pulsating

and law frequency wind farm noise.[1] a review of everything that was published in 2009 on wind turbine noise, by the Acoustic Ecology Institute in New Mexico,[2] is being submitted to you separately by CCCC member Al Henderson. The AEI review is written in down-to-earth language and criticizes exaggerated claims by both wind project opponents and the wind industry. However, on these important questions of whether "wind masking" can be expected to mitigate turbine noise, and the modulating and low frequency characteristic of the noise, the AEI review clearly rejects the industry view. The failure to acknowledge and discuss these questions in the DEIS is the primary reason why the noise assessment in the DEIS lacks credibility, and is insufficient to demonstrate the ability comply with Allegany's zoning ordinance.

New York State Department of Environmental Conservation (DEC) provides guidelines for assessing and mitigating noise impacts, and I have attached a copy to these comments. According to DEC, noise impacts should be assessed under a worst-case scenario.[3] The absence of any wind masking, when there is wind at elevation and little or no wind at ground level (called "wind shear"), is a common occurrence and therefore should be assumed in any worst case scenario. Different wind speeds within the rotor-swept area is also a common occurrence, and results in low-frequency "thumping" sounds, which carry long distances. These sounds are also not well masked by even wind-related sounds at ground level, which are broad band sounds. Broad band noise does not cover up low frequency beating sounds, because the two kinds of sounds are very different.

These concepts are basis to acoustics. They are identified in the DEC guidelines, which state that impulsive and low frequency sounds will increase annoyance.[4] The way in which wind shear affects elevated sound sources has been identified in criticisms of David Hessler's work, the basis for the DEIS assertions about noise impacts, several times. Mr. James discusses and attaches to his comments a number of these criticisms. Mr. Hessler's failure to address these criticisms is no less than unprofessional, because his approach rejecting these basic concepts is contrary to published standards in acoustics. As a result, the Planning Board has no credible basis to conclude that Everpower can comply with the town's noise limit for wind projects.

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1 Zoning Ord. II, Section 5.25(B)(3)(h).

2 Jim Cummings, *AEI Special Report: Wind Turbine Noise Impacts*, Acoustic Ecology Institute (Santa Fe, NM) 2009, <AcousticEcology.org/srwind.html>. Mechanical sounds of utility-scale wind turbines have been reduced in modern models, but because their size has increased substantially, aerodynamic sounds (noise from air turbulence across the moving blades) has increased. *See id.* at 7 ("While overall noise levels per unit of energy output are dropping, today's turbines are far larger than older ones, so total noise output is not necessarily decreasing, and is now mostly generated by the sound of the turbine arms swinging through huge arcs in the air.").

3 DEC, ASSESSING AND MITIGATING NOISE IMPACTS, 2001, at p. 20 <http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf>.

4 *Id.*, p. 3 ("The amplitude (loudness), *frequency* (pitch), *impulse patterns* and duration of sound all affect the potential for a sound to be a noise.") (italics added).

The remainder of the comments below address whether the DEIS demonstrates that the benefits of the project outweigh the project's environmental and other burdens. The balance of burdens and benefits is a crucial requirement under the State Environmental Quality Review Act and its implementing regulations (SEQRA), and SEQRA gives the Town Board considerable discretion in determining whether the balance ultimately justifies approval of the project.[5]

The DEIS must comply with the SEQRA regulations in addition to the standards in the town's zoning ordinance. Under SEQRA, if the benefits outweigh the burdens, the project can be approved, if it also meets the requirements of the town's zoning ordinance. If the burdens are greater than the benefits, even if all the zoning requirements are met the Board as SEQRA lead agency should deny approval.

The SEQRA regulations make it clear that a DEIS must provide an *analysis* of benefits and burdens:

> [A DEIS] must assemble relevant and material facts upon which an agency's decision is to be made. It must analyze the significant adverse impacts and evaluate all reasonable alternatives. EISs must be analytical and not encyclopedic.[6]

Several claims are made in the DEIS about the ability of the Everpower project to make a significant contribution to energy needs and environmental goals. However, little or no analysis accompanies these claims. To assess the validity of these claims requires looking under the hood.

In an Appendix to this comment letter I have provided the results of independent analyses performed by the wind industry by the agencies that regulate the industry, and by other independent scientists and energy analysts. The Board should rely only on independent, published analyses that actually look under the hood for concrete benefits of wind farms. The sections of the DEIS on project benefits are highly misleading, are in important respects inaccurate, and are supported by little more than assertions from wind industry trade associations rather than independent sources.

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5 N.Y. Envtl. Conserv. L. § 8-0109(1) (the lead agency "shall act and choose alternatives which, consistent with social, economic and other essential considerations, to the maximum extent practicable, minimize or avoid adverse environmental effects."); *Town of Henrietta v. Department of Envtl. Conservation,* 76 A.D.2d 215, 223, 430 N.Y.S.2d 440, 447 (4th Dept. 1980) ("We must be ever cognizant that environmental amenities will often be in conflict with economic and technical considerations. To consider the former along with the latter must involve a balancing process. In some instances, environmental costs may well outweigh economic and technical benefits while in other instances they may not; but SEQRA mandates a rather finely tuned and systematic balancing analysis in every instance."). *See also* 6 NYCRR §§ 617.1(d), 617.2(p).

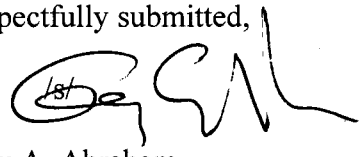
6 6 NYCRR § 617.9(b)(1).

Independent analyses are increasingly finding that utility-scale wind project benefits are far less than what project sponsors promise. A serious look at these analyses shows that the DEIS has failed to provide sufficient analysis for nearly every major benefit asserted for the Everpower project. Please look at the discussion in Appendix I.

If, as CCCC strongly urges, the Board concludes that the benefits of this project are in reality limited to financial payments to the Town, and financial payments to a handful of private landowners, but there will be few other benefits, then the Board look that much more closely at the environmental burdens and the risk of a decline in property values in and around the project area, burdening many more town residents and threatening financial benefits to the Town by eroding the town's property tax base. If in other words, the benefits clearly fail to outweigh the burdens, the Board should exercise its discretion under SEQRA to deny approval.

As has been frequently stated, the Everpower proposal would probably be the most intrusive project Allegany has experienced. It is my hope that the Board looks carefully at this letter and the others being submitted on behalf of CCCC.[7] To determine whether the location of industrial wind turbines in the town avoids unacceptable impacts, adequately mitigates those impacts that cannot be avoided, and provides benefits that clearly outweigh expected burdens will require an effort apprpriate to the project's size and potential effects.

Respectfully submitted,



Gary A. Abraham

cc: Carol Horowitz, Allegany Town Planner

7 Several comments by CCCC members are also being provided to you under separate cover addressing specific burdens expected to result from the proposed project.

APPENDIX

BENEFITS OF THE EVERPOWER WIND FARM PROPOSAL ASSERTED IN THE DEIS

The purpose of the Everpower proposal is to generate renewable energy for the regional electric grid. It is therefore crucial that the Planning Board and the Town Board get to the bottom of the question, whether in order to provide for our renewable energy needs, we need another wind farm. Among other things, the reviewing Boards need to dispassionately consider the facts about how utility-scale electricity is generated and why we need more renewable energy. This kind of inquiry is appropriate because the DEIS relies on assertions about the benefits of wind farms in general.

Renewable energy in New York today

There is no explicit state or federal policy to promote wind power. The United States and New York have adopted policies to shift reliance increasingly to *renewable energy.* It is not reasonable to simply adopt the wind industry's assertions that it can and will make a *substantial* or even *measurable* contribution to the goals of renewable energy policy.

New York is already a leader in the nation in terms of achieving a substantial portion of electricity from renewables. According to the New York Independent System Operator (NYISO), which manages the state's electric grid, about 18 percent of the electricity generated in New York comes from emissions-free hydropower.[8] This compares to the national average of about 12 percent of electricity from renewables, which includes 10 percent from hydropower.[9] Although not counted as a "renewable energy" source, another 30 percent of New York's electricity is generated in New York by emissions-free nuclear energy.[10] Against this background, new renewable energy technologies have a high burden to meet to show they can make an additional meaningful contribution to our need for additional renewable energy.

Concern about conventional, non-renewable power plant pollution centers primarily around the emissions of greenhouse gasses, which are linked to climate change and may, over time, result in catastrophic alteration of the environment. For this reason, the U.S. and New York are committed to developing sources of electric generation that would emit much less emissions than power plants fired by fossil fuels.

The most important greenhouse gas to reduce is carbon dioxide (CO_2) because of the long period of time CO_2 remains in the atmosphere compared to other greenhouse gasses, and because since the Industrial Revolution, a short two or three centuries ago in climatological time, the concentration of CO_2 in the atmosphere has risen steadily, threatening to reach "tipping points"

8 NYISO, 2009 Goldbook, p. 61 (Table III-2).
9 T. J. Brennan et al., Alternating Currents: Electricity Markets and Public Policy (2002), p. 166.
10 NYISO, *above*, note 8, p. 61 (Table III-2).

beyond which climate scientists believe global warming and climate change that results from global warming cannot be controlled.

Electric power plants are responsible for 40 percent of CO_2 emissions in the U.S., more than any other sector, including the transportation and industrial sectors.[11] Coal power plants are responsible for over 80 percent of these emissions.[12] Coal still supplies most of our electricity nationally, and in New York coal supplies 13 percent of our electricity. Natural gas emits about half to two-thirds as much CO_2 as coal combustion. When natural gas is added to coal, nearly half of New York's electricity is generated by polluting fossil fuels.[13] Meaningful reduction of these emissions is therefore the primary test by which the benefits of renewable energy technology must be measured.

If Everpower's proposed wind farm would not meaningfully reduce CO_2 emissions by displacing our need for fossil fuel-fired power plants, the Board must find that the need for the project is seriously diminished.

DEIS claims about capacity to generate electricity

Section 2.1 of the DEIS says the project "will deliver up to 72.5 MW [megawatts] of electrical power to the New York state grid," using 29 turbines with a rated or design capacity of 2.5 MW each. This "delivery" number assumes the project can generate electricity at 100% of its rated capacity. However, in Section 2.2 the DEIS also says the project will generate 30% of its rated capacity on average, "or enough electricity to meet the average annual consumption of between approximately 17,000 and 26,500 average NYS households."

This estimate is significantly higher than NYISO estimates. NYISO expects wind farms in New York to generate at 30% of their rated capacity in the winter, when demand for electricity is low, and only 10% in the summer, when load demand is highest.[14] Effective generation rates can be expected to be even less. GE Energy reported to NYSERDA in 2005 that, while the *capacity factor* of utility-scale wind turbines in New York is about 30%, the "effective capacity" of these turbines is 10%, "due to both the seasonal and daily patterns of the wind generation being largely out of phase with the NYISO load patterns."[15] Consistent with NYISO, this conclusion recognizes that most electricity from wind power is generated during cold winter

11 Natural Resources Defense Council, Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States (May 2008) 3, 10, 18 Fig. 6 <http://www.nrdc.org/air/pollution/benchmarking/ 2006/benchmark2006.pdf>.

12 *Id.* at 41; U.S. Department of Energy, Energy Information Adminstration (EIA), Fuel and Energy Source Codes and Emission Coefficients, <http://www.eia.doe.gov/oiaf/1605/ coefficients.html>.

13 *Id. See also* NYS Governor's Office, State Energy Planning Board, 2009 State Energy Plan (Draft, August 2009), p. 3, Fig. 1.

14 NYISO, *above*, note 8, p. 57, Note W.

15 GE Energy, The Effects of Integrating Wind Power on Transmission System Planning, Reliability, and Operations (Report on Phase 2), prepared for NYSERDA. March 4, 2005), p. 7.16, available at <http://www.nyserda.org/publications/ wind_integration_report.pdf>. Early "wind resource performance data has tended to validate the use of the [2005] GE study." New York State Reliability Council, L.L.C., Installed Capacity Subcommittee Meeting #76, May 4, 2007, p. 5, <http://www.nysrc.org/pdf/ICSMeetingMinutes/20070504 ICS Minutes_Final.pdf>.

nights, but electricity demand is greatest during warm summer days.

Thus, the Everpower project can be expected to generate much less that the 30% rate asserted in the DEIS.[16] In fact, no wind farm in New York has achieved a 30% generation rate. The Maple Ridge Wind Farm in Lewis County, located in the highest on-land wind resource area in New York, generates at 22%.[17]

Perhaps more importantly, it is highly misleading when the DEIS asserts that, even at 30%, the project could meet the needs of "between approximately 17,000 and 26,500 average NYS households." During hot summer days utility-scale wind projects frequently generate no electricity.[18] (Turbines do not operate until wind speeds at turbine height reach 6.7 mph.)[19] On those occasions no household could rely on the Everpower project to meet its needs.

Even if the project were to generate at 30% of its rated capacity, to get an idea of what contribution this would make to New York's electric needs this should be compared to the state's total generation rate, which in 2008 was 144,619,000 MWh, or 144,619 GWh.[20] Everpower asserts that its project could generate 190 GWh (at 30%). That is, by its own estimate the Everpower project could contribute only 0.13% to the state's needs, and a realistic estimate would put the contribution at between one-third and two-thirds of this amount, noting that unlike other electric generators, Everpower's project generates intermittently.

It should be noted that no direct contribution to the electricity needs of Allegany would be provided by the project. In fact, transmission line surges could negatively effect electricity customers locally.

DEIS claims about the cost of wind-generated electricity

The DEIS asserts that the cost of electricity generated by wind power is practically free, based entirely on a brochure funded by the U.S. Department of Energy that cites no research or other basis for this conclusion. The brochure on which the DEIS relies says this:

> Wind energy is a preferred power source on an economic basis because the operating costs to run the turbines are very low and there are no fuel costs. Thus, when the wind turbines produce power, this power source will displace generation at fossil fueled plants, which have

16 Everpower could bring some certainty to the question of what actual electricity generation can be expected from the Everpower project by providing the actual generation rate over time from the High Sheldon Wind Farm, which has been operating for over a year. But it has not done so.

17 Based on Federal Energy Regulatory Commission (FERC), *Electric Quarterly Reports (EQRs)*, Download Spreadsheets utility (by quarter and name of company), <http://www.ferc.gov/docs-filing/eqr/data.asp>. This utility provides the actual quarterly generation rate for each wind project which must then be compared to the project's nameplate capacity. *See also* Matthew L. Wald, *Wind Energy Bumps Into Power Grid's Limits*, The New York Times, August 27, 2008 (Maple Ridge "has been forced to shut down even with a brisk wind blowing" at times because existing transmission infrastructure is inadequate to handle a surge in load).

18 This is apparent from a review of the FERC data, cited in the previous footnote.

19 DEIS, pp. 3-31.

20 NYISO, *above*, note 1, p. 61 (Table III-2).

higher operating and fuel costs.[21]

However, according to the current draft of the New York State Energy Plan, New Yorkers can expect to pay a premium for renewable energy, including wind power, over and above what they now pay for electricity, in the "range from approximately $16 to $32 per MWh, [which] is the incremental price New York must pay in order to make renewable generation competitive in a market place where price is primarily driven by fossil-fuel resources."[22] "[M]arket intervention" such as "emissions cap and trade programs, renewable fuels standards and financial incentives" are necessary to allow wind-generated electricity to compete with cheaper fossil fuel generated electricity.[23] The assertion in the DEIS that "there are no fuel costs" should not be understood that wind generated electricity is free, or even that it is cheaper than conventional electricity. Ratepayers in Allegany can therefore be expected to pay incrementally more for electricity if the Everpower project comes on line.

As federal taxpayers, we pay much more for wind power than for fossil fuel-generated power. Federal subsidies and support provided for utility-scale wind energy amount to $23.37 per MWH in 2007, compared to coal which got $0.44, and natural gas, which got $0.25.[24]

When enterprise incomes declined precipitously in the fall of 2008, wind industry lobbyists complained to Congress that they could not finance wind projects, so federal tax credits should be converted into an outright grant. Congress agreed, and in the Stimulus Bill enacted into law last February a provision was added allowing wind farms to take a lump sum grant from the U.S. Treasury for 30% of the project cost in lieu of tax credits, so long as they construct the wind farm by the end 2010 and place the project into service by the end of 2011.[25] On September 1, 2009, under the first disbursement of the new grant benefit, the Canandaigua Power Partners wind farm in Cohocton (Steuben Co.) got a check for over $74 million from Treasury.[26] Nationally, $503 million was disbursed to wind farms in September to create 2,000 jobs, thus each job created cost taxpayers one quarter-million dollars.[27] On September 22, 2009, another

21 Jacobson, D.J. and C. High, *Wind Energy and Air Emission Reduction Benefits: A Primer,* National Renewable Energy Laboratory (2008), p. 4 <http://www.windpoweringamerica.gov/pdfs/policy/wind_air_emissions.pdf>. The DEIS cites this as its only source for this assertion, at pp. 7 and 255.

22 State Energy Plan, *above*, note 7, p. 36.

23 *Id.*, pp. 36-37. *See also* EIA, Federal Financial Interventions and Subsidies in Energy Markets 2007, April 9, 2008, p. 43 <http://www.eia.doe.gov/oiaf/servicerpt/ subsidy2/> ("renewable programs . . . such as wind, are not yet considered commercially viable because of cost and performance issues").

24 EIA, Federal Financial Interventions and Subsidies in Energy Markets 2007, *Executive Summary*, p. xvi, <http://www.eia.doe.gov/oiaf/servicerpt/subsidy2/index.html>.

25 The American Recovery and Reinvestment Act of 2009 (Stimulus Bill), Public Law 111-5, 123 Stat. 364, Sec. 1603 (February 17, 2009). *See generally*, Jeffry S. Hinman, *The Green Economic Recovery: Wind Energy Tax Policy After Financial Crisis and the American Recovery and Reinvestment Act of 2009*, 25 J. Envtl. Law & Litig. 35, at 55-68 (2009); and Stoel Rives LLP, The Law of Wind, *above*, note 9, ch. 9.

26 U.S. Department of Energy (DOE), *Treasury, Energy Announce $500 Million in Awards for Clean Energy Projects,* September 1, 2009 (press release), <http://www.energy.gov/news2009/print2009/7851.htm>.

27 *Id.* A typical 100 MW wind farm generates as little as five permanent local positions or as many as sixteen. *Cf.* Larry Flowers, NREL, Wind Energy Update, August 2009, <http://www.windpoweringamerica.gov/pdfs/wpa/wpa_update.pdf> (comparing permanent operations and maintenance jobs generated at wind projects in Iowa, South Dakota, Colorado, Oklahoma and Wyoming).

$550 million in new awards was disbursed, again most to wind farms.[28] Over half the federal renewable energy stimulus money disbursed in September went to Spanish wind farm developer, Iberdrola S.A., and 84 percent of the total went to foreign wind companies.[29] It is estimated that this program will cost taxpayers $10 billion over the next three years.[30]

It is thus not true, as asserted in the DEIS, that wind power is much less costly than other power plant fuels. Without federal, state and local tax credits, subsidies and grants, no utility-scale wind farms would be proposed.

DEIS claims about the project's potential to offset fossil fuel emissions

Another assertion made above on which the DEIS relies is that wind energy "will displace generation at fossil fueled plants." This is a very important issue because the ability of wind energy projects to displace emissiions from traditional power plants is much more limited than even their poor electricity generation rate would suggest.

In terms of the Town's SEQRA determination that the project can achieve its purposes, and that the project's benefits outweigh its negative impacts, the DEIS places great weight on the ability of the project to displace conventional power plant emissions, as the fundamental purpose of the project is to:

- Satisfy regional energy needs in an efficient and environmentally sound manner;
- Reduce . . . the use of fossil fuels in the electrical sector . . .[31]

Elsewhere, the DEIS asserts that the environmental benefits of the project are that "[w]ind-generated electricity displaces the use of fossil fuels in conventional power plants," and this project "will reduce New York's greenhouse gas emission, helping to achieve the State's CO_2 reduction goals" and thus will also reduce (in a meaningful way) "the negative environmental externalities associated with fossil fuel based power plant emissions," specifically "airborne mercury emissions" from coal-fired power plants that are polluting our fish.[32]

Electric power plants are responsible for 40 percent of CO_2 emissions in the U.S., more than any other sector, including the transportation and industrial sectors.[33] Coal power plants are

28 DOE, Treasury, *Energy Surpass $1 Billion Milestone in Recovery Act Awards for Clean Energy Projects*, September 22, 2009 (press release), <http://www.energy.gov/news2009/8038.htm>.

29 Russ Choma (Investigative Reporting Workshop, American University School of Communication), *Overseas firms collecting most green energy money*, October 29, 2009, <http://investigativereportingworkshop.org/investigations/wind-energy-funds-going-overseas/>.

30 Russell Gold, *Wind Farms Set Wall Street Aflutter*, Wall Street Journal, August 31, 2009.

31 DEIS, p. 7.

32 DEIS, pp. 12-14.

33 Natural Resources Defense Council, Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States (May 2008), pp. 3, 10, 18, Fig. 6 <http://www.nrdc.org/air/pollution/benchmarking/ 2006/benchmark2006.pdf>. *See also* EIA, Fuel and Energy Source Codes and Emission Coefficients, <http://www.eia.doe.gov/ oiaf/1605/coefficients.html>.

responsible for over 80 percent of these emissions.[34] Thus, if wind power could make a significant dent in our need for coal-fired (or natural gas fired) power plants, they could offset such emissions.

Very few energy analysts believe that wind farms can meaningfully displace emissions from coal-fired power plants. The primary reason why wind power is unable to meaningfully offset CO_2 and air pollutant emissions from other power sources is that wind power is intermittent and thus requires backup power from more reliable sources like coal-fired and natural gas-fired power plants.[35] Put differently, electricity consumers need power on demand, and wind power not only is unable to provide such power; the more wind power is integrated into the grid, the more backup power is needed that can be called upon at a moment's notice.

Because they generate electricity intermittently, European grid operator (and wind farm developer) E.On Netz reports that "wind farms can only replace traditional power station capacities to a limited degree," specifically about four percent because reliable generation capacity must be operated in reserve.[36]

The National Academy of Sciences finds that a substantial amount of wind power needs to be backed-up by other generators, depending on the distinctive features of the transmission system into which wind power is integrated:

> . . . the cost of [wind energy's] intermittency (in terms of back-up or reserve requirements) will be less if the generation mix is dominated by power plants with fast ramp rates (gas, hydropower) than if it is dominated by coal or nuclear plants, which have high capital costs and slow ramp rates. . . . Denmark, for example, has access to substantial hydroelectric capacity, which it relies on to balance the intermittent output from wind-energy installations.[37]

Accordingly, the Academy estimates that by 2020 wind-generated energy could displace about 8% of the capacity of more polluting sources, and could displace no more than 2.25% of U.S. anthropogenic CO_2 emissions; and using more wind power increases rather than decreases the need for reserve power, further reducing wind power's net displacement of CO_2.[38]

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34 *Id.* at 41.

35 *Cf.* EIA, Electric Power Industry 2007: Year in Review, *Overview*, <http://www.eia.doe.gov/cneaf/electricity/epa/epa_sum.html>.

36 E.ON Netz GmbH, Wind Report 2005, p. 10, available at <http://www.eon-netz.com/pages/ene_en/EEG__KWKG/Renewable_Energy_Sources_Act_/EEG_plants/Facts_and_figures_relating_to_wind_power/index.htm> ("In order to also guarantee reliable electricity supplies when wind farms produce little or no power, e.g. during periods of calm or storm-related shutdowns, traditional power station capacities must be available as a reserve. This means that wind farms can only replace traditional power station capacities to a limited degree. . . . In concrete terms, this means that in 2020, with a forecast wind power capacity of over 48,000MW (Source: dena grid study), 2,000MW of traditional power production can be replaced by these wind farms.")

37 National Academy of Sciences, Environmental Impacts of Wind-Energy Projects (2007), p. 35, available at <http://www.nap.edu/openbook.php?isbn=0309108349> (hereafter cited as "NAS").

38 NAS, 35, 52, 63-64. *See also* Richard S. Courtney (Center for Science and Public Policy, Washington, D.C.), *Wind Farms Provide Negligible Useful Electricity*, March 2006, p. 13, <http://ff.org/centers/csspp/pdf/

Government policies promoting wind power reduce pollution offsets even further. In states with a Renewable Portfolio Standard like New York, the RPS program creates a closed market for renewables with the result that wind energy does not avoid emissions from other energy sources because it completes only with other, zero-emissions sources in the closed market.[39] Thus, "no avoided air emission benefit exists if wind generation displaces another renewable project generation to meet a state (or future national) renewable portfolio standard."[40]

The DEIS emphasis on New York's RPS program, as a basis for concluding the project meets general social and environmental needs, should therefore be seriously questioned. First, the goal of the New York RPS, "an increase in renewable energy used in the State to 25% by the year 2013,"[41] is close to being achieved, as noted earlier primarily because of New York's hydropower resources. Second, the RPS goal does not single out wind power but instead promotes all renewable energy solutions. Whether there are more effective ways to achieve the goal is an open question, as wind power has yet to prove it can make a *significant* contribution to the goal. For example, the DEIS provides no evidence that wind power has any measureable effect on coal-fired power plant emissions.

Unless a region relies almost entirely on coal for power,[42] grid operators do not turn first to coal-fired power plants to accommodate intermittent power sources.[43] Instead, natural gas-fired or hydroelectric plants are directed by the grid operator to ramp up or down first because

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20060331_wind.pdf> ("large use of wind farms provides no reduction to the need to operate conventional thermal power stations and makes little or no reduction to emissions from them"); Michael J. Trebilcock (Professor of Law and Economics, University of Toronto), *Wind power is a complete disaster*, National Post (Canada), April 8, 2009 ("recent academic research shows that wind power may actually increase greenhouse gas emissions in some cases, depending on the carbon-intensity of back-up generation required because of its intermittent character."); Tyndall Centre for Climate Change Research, *Security assessment of future UK electricity scenarios*, July 2005, pp. 5, <http://www.tyndall.ac.uk/research/ theme2/final_reports/t2_24.pdf> ("Due to a relatively small capacity contribution of intermittent sources [in particular, wind energy sources] a considerable number of conventional plants might be running at low output levels over a significant proportion of their operational time to accommodate this intermittent energy. Consequently these plants will have to compromise on their efficiency resulting in increased levels of fuel consumption as well as emissions per unit of electricity produced."). *See also id.*, 24, 46.

39 Everpower is relying on "green tags" or renewable energy credits (RECs) provided through the RPS program to finance the project. *See* DEIS, p. 15.

40 Thomas Hewson Jr. and David Pressman, *Calculating Wind Power's Environmental Benefits*, Power Engineering, July, 2009, <http://pepei.pennnet.com/>.

41 As noted in the DEIS, p. 14.

42 Because of its reliance on coal power, China has had to increase coal-fired power plants as a result of aggressive development of wind farms. *China's Wind Farms Come With a Catch: Coal Plants*, Wall Street Journal, September 28, 2009, A17.

43 See NAS, 33 ("In general, coal-fired EGUs cannot be ramped up and down very easily, and their variable dispatch capacity is limited. Thus, they are more suited to baseload production (i.e., long periods of continuous power production) rather than to providing variable production to balance short term variation in load and demand."); D. Blakeway and C.B. White, *Tapping the Power of Wind: FERC Initiatives to Facilitate Transmission of Wind Power*, 26 Energy L. J. 393, 412 (2005) (compared to other conventional electric generators, nuclear and coal-fired power plants have "long ramp-up and ramp-down times"); World Nuclear Association, *Nuclear Power in France*, <http://www.world-nuclear.org/info/inf40.html> ("nuclear and coal-fired plants cannot readily alter power output, compared with gas or hydro plants").

their ability to do so is much greater than that of coal-fired plants.[44] In states like New York where substantial hydroelectric power is integrated into the grid, wind power may displace proven low emissions sources.[45] Little or no emissions reductions from coal combustion can therefore be realized as a result of greater integration of utility scale wind energy.[46]

While it is true that, once they are constructed, the fuel for wind farms is free and renewable, as noted earlier regarding the need for government support, the costs of getting there are substantial. Thus, whether wind power can offset emissions from other power plants, and by how much, is a much more complicated question than the simplistic assertion that it displaces fossil fuel emissions in the DEIS. The best information we have is that wind power can offset only a small fraction of the emissions that would be created by the same amount of electricity from other sources, and probably cannot offset a significant amount.

Life cycle emissions of wind farms

Substantial emissions are generated prior to construction of a wind farm, during the life cycle of wind turbine parts, the manufacture of concrete for foundations, and the opertation of trucks to transport parts and materials. These life cycle emissions should be considered when evaluating the net benefits f a wind farm.

For example, cement production is a substantial source of greenhouse gas emissions, accounting for about 2.5% of total global CO_2 emissions, or 5 billion of 220 billion tons emitted annually.[47] These emissions are not primarily from the burning of fossil fuels in the production of cement but rather from the production of clinker, a component of cement, when calcium carbonate is transformed into lime.[48] In terms of units of production, CO_2 emissions from the production of cement are "in the range of 0.85 to 1.35 Mg of CO_2 per Mg of clinker" and "900 to 1000 kg/tonne clinker."[49] That is, every ton of clinker generates approximately one ton of CO_2

44 Id.

45 On October 15, 2009, New York's Public Service Commission (PSC) adopted rules "requir[ing wind farm] developers to study whether or not their project is merely replacing an existing source of renewable energy such as a hydro plant." Larry Rulison, *New rule called obstacle to wind power: Advocates say regulation will impede shift to key clean power technology in the Empire State*, Albany Times Union, October 26, 2009, <http://www.timesunion.com/AspStories/story.asp?storyID=857320>. *Cf.* PSC, Order Prescribing Study Methodology, Case No. 09-E-0497, October 20, 2009, <www.dps.state.ny.us>.

46 David Chandler, *Renewable energy regulations may miss the mark, says MIT graduate student*, MIT News, October 1, 2008, <http://web.mit.edu/newsoffice/2008/renewable-energy-tt1001.html> (research finds "wind farms . . . almost never displace baseload coal-fired plants"). *See also* FactCheck.org, *Hot Air on Wind Energy*, April 10, 2009, <http://www.factcheck.org/2009/04/hot-air-on-wind-energy/> (finding U.S. Interior Secretary Ken Salazar's claim that "wind energy has the potential to replace most of our coal-burning power today is a very real possibility" to be "far-fetched").

47 Intn'l Panel on Climate Change (IPCC), Special Report on Emissions Scenarios (2000), Section 5.3.1., "Carbon Dioxide Emissions from Fossil Fuels and Industry," <http://www.ipcc.ch/ipccreports/sres/index.htm>; IPCC, Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (2000), pp. 175-182, "CO_2 Emissions From Cement Production," <http://www.ipcc- nggip.iges.or.jp/public/gp/gpg-bgp.html>. *Cf.* Tyler Volk, CO_2 Rising: The world's Greatest Environmental Challenge (MIT Press 2008), 67.

48 IPCC, "CO_2 Emissions From Cement Production," p. 176.

49 IPCC, Emission Inventory Guidebook (December, 2006), *Processes with contact, Cement, Cement (decarbonizing)*, p. 5, <http://www.eea.europa.eu/publications/EMEPCORINAIR4/ B3311vs2.4.pdf>.

emissions.

Modern wind turbines with a rated capacity of 2.5 MW or more require about 500 cubic yards of concrete base per turbine.[50] That is, each modern turbine can be expected to require about 112-170 tons of cement. A 29-turbine wind farm will therefore involve emissions of over 5,000 tons of CO_2 generated by the concrete required alone. If less than eight percent of traditional power plant emissions are avoided, as suggested by the National Academy of Sciences, at a 20% electric generation rate, the project would take years to pay back its concrete emissions.

Economic benefits are largely speculative

Section 1.1.8 of the DEIS, "Economic Benefits," asserts that in addition to direct payments to local taxing jurisdictions of about $740,000 per year, for tens years, construction related employment and its trickle-down effects will provide substantial economic benefits. This conclusion is based on running the U.S. Department of Energy Job and Economic Development Impact ("JEDI") Model.

A critical evaluation of this conclusion should look first to the permanent jobs and economic benefits the project would provide to the community. Four of the six permanent jobs expected to be created by this project are "technicians," bu the DEIS does not say whether these are entry-level, low-wage, no-benefit jobs, or what kind of jobs these might be.

Second, an objective evaluation of the JEDI model can be found in the National Academy of Sciences report on wind power. The Academy found that "[m]odels such as JEDI can improve understanding of the economic impacts of new energy facilities, especially when those impacts are considered at the macro level," but "assessments of the actual economic impacts of wind-energy facilities" provide better information.[51] The applicant should therefore better specify the kinds of permanent jobs the project would create.

The Academy goes on to recommend the following approach to assessing potential economic benefits:

> From the perspective of the local affected area, it may be best to focus on the jobs that will be directly created by the project—what skills they require, what their pay levels are, what their duration will be, and what the company's hiring practices are—as well as on reasonably anticipated effects—positive and negative —on the local economy.[52]

50 Kirk Morgan and Eric Ntambakwa, *Wind Turbine Foundation Behavior and Design Considerations*, AWEA Windpower Conference, Houston, June 2008, p. 2, Fig. 1, <http://www.garradhassan.com/downloads/reports/Wind_Turbine_Foundation_Behavior_and_Design_Considerations.pdf>. Garrad Hassan and Partners Limited (Bristol UK) is an international wind farm designer.

51 NAS, *above*, note 37, p. 167.

52 *Id.*, p. 168.

From this perspective, the DEIS comes up short. Maintenance of wind turbines once installed are generally assigned to outside specialty contractors. Local *permanent* jobs are largely limited to low-wage, low- or no-benefit inspector jobs intended to spot problems for which corporate headquarters will have to bring in outside specialists. The DEIS should state whether permanent jobs involve specialty skills that are likely to be brought in from outside the area.

In short, the DEIS discussion of economic benefits is woefully short on concrete information and analysis of the experience of actual operating wind farms. As such, the discussion provides very little basis for any solid conclusions on the economic benefits the community may expect from the project, apart from direct cash payments to local governments and a few lucky landowners.

The DEIS acknowledges that cumulative impacts when other wind farms in the region are considered may be substantial

Section 8.0 of the DEIS discusses cumulative impacts that may be expected from the development of all currently planned and operating wind farms in the region, including wind farms proposed in Cold Spring, Machias, Ashford, and those operating in Eagle and Wethersfield. A combined project in Centerville and Ashford has reportedly been abandoned, but another wind farm planned for Orangeville and the operating wind farm in Sheldon (both in Wyomning Co., the location of the Wethersfield wind farm) were not considered. Cumulative impacts expected would increase, compared to what is discussed in the DEIS, when the Centerville-Ashford project is omitted and the Sheldon and Orangeville projects are added.

The DEIS discussion of cumulative impacts is limited to birds and bats, at a very general and thus vague scope. No particular species of birds are discussed, for example. However, bald eagle is reported at most of these sites, as this species is rebounding in the region, and especially in the location of the Everpower project, along the Allegheny River, where it is common to see bald eagle when travelling on I-86 along the river. It has been estimated "that U.S. wind turbines kill between 75,000 and 275,000 birds per year,"[53] and outside of migratory flyways slow-flying raptors appear to be most at risk.[54]

The DEIS states that, withoput considering the three Cattaraugus County proposed wind projects, bird morality from the wind farms in the region, including the Everpower project, can be expected to be "1,457 to 2,313 cumulative avian fatalities per year."[55] Adding back the county

53 Robert Bryce, *Windmills Are Killing Our Birds*, Wall Street Journal, September 8, 2009. *See also* Donald Michael Fry, Director, Pesticides and Birds Program, American Bird Conservancy, *Testimony before the House Subcommittee on Fisheries, Wildlife and Oceans Oversight Hearing on: "Gone with the Wind: Impacts of Wind Turbines on Birds and Bats,"* May 1, 2007, <http://www.abcbirds.org/newsandreports/releases/070430_testimony.html>.

54 *Cf.* Michael Fry, *Wind power might blow a hole in bird populations*, The Los Angeles Times, November 2, 2009, <http://www.latimes.com/news/opinion/la-oe-fry2-2009nov02,0,1954510.story>. *See generally* U.S. House of Representatives, Committee on Natural Resources, Subcommittee on Fisheries, Wildlife and Oceans, Oversight Hearing, *Gone With the Wind: Impacts of Wind Turbines on Birds and Bats*, May 1, 2007, <http://www.gpoaccess.gov/congress/index.html>.

55 DEIS, p. 251.

project proposals, and the Sheldon and Orangeville projects, the numbers would be substantially higher. However, the DEIS fails to discuss expected impacts on raptors, including the bald eagle. The information should be supplemented with a look at raptors in particular, taking into account the full build-out of wind projects operating and planned for the region.

Although similarly vague, the DEIS acknowledges that "recent studies suggest that bat fatalities at wind farms may be higher in the eastern U.S.," and estimates cumulative bat mortality to be up to 4,762 bat deaths per year at the five projects considered. However, the DEIS provides no specific information on bat habitat in the and around the Everpower project area. As with the issue of bird/raptor mortality, the DEIS should be supplemented with site specific information on bat species and their habitat in and around the project area, and a cumulative morality estimate taking into account the full build-out of wind projects in the region should be provided.

Once this additional information is provided, the Planning Board and the Town Board will be able to assess the burden on avian species, for purposes of comparison to project benefits.

The locally valuable resources lost are not outweighed by project benefits

Section 6.0 of the DEIS, titled "IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES," a mere one page, fails to discuss all the resources that would be lost as a result of this project. Because this discussion should play an important role in determining whether project benefits outweigh project impacts, additional resources that would be diminished or lost must be considered.

Chief among these is the loss of the aesthetic amenities associated with the "Enchanted Mountains" horizon, which is the dominant visual resource from most unobstructed points in the Village, the St. Bonaventure University campus, our neighbors in the City of Olean, and those who reside in the Town along the Four Mile Creek valley, Chipmonk, Knapps Creek and the Rock City area, and all points in the southern portion of the town within a line of sight to wind turbines in the project area.

The acoustic environment is another obvious resource that would be lost, for those who live within about one mile of the project, depending on meteorological conditions and intervening topography that may block nuisance sounds. As noted in the cover letter to this Appendix, low frequency "thumping" sounds and modulating "pulsing" sounds characteristic of wind turbine noise intrude through broadband ambient sound levels, even when the ambient sound level is high. Most importantly, however, when the expectation of quiet is greatest, at night, wind turbine noise can be expected to be the most annoying, awakening residents who will be at risk of serious health effects if they suffer chronic sleeplessness.

Other burdens

On December 4, 2009, I submitted comments on the completeness of the Everpower project application, but the Planning Board was unable to review the comments prior to acting on

Everpower's request to make a completeness determination. Therefore, I respectfully ask that those comments be considered on the adequacy of the DEIS, which has not changed.

Everpower states that the project is planned for completion in one construction season, in 2011.[56] Therefore, the over 5,000 project truck trips discussed in my December 4, 2009 comments will have to be fit within about 10 months, with the result that truck traffic will dominate life in the Town for most of 2011.

No blasting plan, road construction plan and no specific transportation routes have been decided, as noted in my December 4, 2009 comments. Before approving the project, the town should insist that such plans be finalized and reviewed.

In these areas, the DEIS asks the Planning board and Town Board to defer review of such plans until after project approval. For example, access roads are planned to be "restored" to 16-20 feet in width,[57] but no gravel roads of this size presently exist in the project area. Run off and erosion control measures are not provided. Instead, the DEIS asks the Planning Board and the Town Board to defer review of such measures until after project approval:

> If access road construction or improvements require the installation of culverts, the Project Sponsor will provide drainage design and calculations to the Town for review. Any ditches or other water conveyance structures shall be assessed prior to any disturbance to determine if they are part of a stream or wetland and subject to U.S. Army Corps of Engineers jurisdiction.[58]

Figure 5 is offered for "typical access road details,"[59] but as the DEIS indicates, these may or may not conform to actual plans to be developed following project approval.

Where development of access roads and turbine sites encounters bedrock that cannot be excavated with a backhoe, the DEIS says blasting may be necessary, but no specific blasting plans are provided.[60] A "Preliminary Geotechnical Investigation" was conducted for the applicant by GZA, but this investigation was unable to determine whether blasting will be necessary.[61] A "Preliminary Blasting Plan" is provided in Appendix A, but the plan is entirely conceptual and lacks any details that would allow the Planning board or the Town Board to determine what to expect.

Similarly, the DEIS says that financial security sufficient to pay for the decommissoning of towers and turbines "will be available," but no commitment to any specific amount is made. Instead, the DEIS asks the Planning board and the Town Board to defer until after project approval its review and approval of the decommissioning fund, based on an engineer's estimate

56 DEIS, p. 22.
57 DEIS, p. 25.
58 *Id.*
59 *Id.*
60 *Id.*, p. 26.
61 *Id.*, p. 41.

that would "establish the cost of decommissioning" later.[62]

Apart from a funding mechanism, the DEIS says the applicant will "formulate a decommissioning plan cooperatively with the Town of Allegany" prior to any project approval. The Planning board and Town Board should insist that the decommissioning plan, the expected cost of decommissioning, and the funding mechanism to pay for implementing the plan be finalized prior to project approval.

The DEIS says that the "salvage value of the towers and turbines" will be applied as a discount on the amount of funds necessary for decommissioning. This seems highly speculative, particularly if scrap value will be a significant portion of the required funding. The Planning Board and Town Board should ensure that the decommissioning fund is sufficient to cover the cost of dismantling all turbines and restoring all turbine sites. The DEIS commits to use of an independent engineer to estimate these costs, and the Town should insist that the estimate be performed by an engineer it selects, at the applicant's expense.

The decommissioning plan specifies the removal and restoration activities it covers (and funds) "unless the Applicant can show that its land leases adequately address this issue."[63] Any demonstration that land leases specify the equivalent of the elements of a proper decommissioning plan and funding,[64] should be made prior to project approval.

Conclusion: the balancing test under SEQRA does not favor the project

Most of the claims in the DEIS about the burdens and benefits of the Everpower project are unsupported, or are based on shallow analysis provided by wind industry trade associations rather than independent research.[65] Many of the burdens the project will put on Allegany are obvious. For example, the impact of wind turbines on flying fauna, mainly birds and bats is not offset by measurable emission savings, so wildlife mortality cannot be a justifiable environmental impact. The same analysis needs to be made for visual and noise impacts, and the impact on the character of the community. Clearly, this will be a significantly intrusive project for residents in more than half the land area of the town, and many in adjacent towns.

These comments have focused on the asserted benefits as stated in the DEIS, concluding that such benefits are highly speculative or have been rejected by respected scientific analysis by the agencies that regulate or fund the wind industry. The DEIS has, in short, provided inadequate support for its assertions of numerous project benefits. The Planning Boards and the Town Board should therefore give the applicant an opportunity to supplement the DEIS with adequate

62 *Id.*, p. 31.
63 *Id.*, p. 32.
64 *Id.*, pp. 32-33.
65 A comment letter submitted to the Town by CCCC member Cathy Koebelin discusses at greater length the source of much of the DEIS information in wind industry trade association promotional literature, which should be distinguished from scientific studies conducted for project proponents or the industry, often pursuant to a government grant or agency directive, and should be distinguished from other independent scientific studies of wind energy benefits and impacts.

information addressing objective findings that wind farms in general, including its project, have yet to show *substantial* positive benefits to the communities that host them (not just a few members of such communities), enough to counter-balance its burdens. Alternatively, the Boards should find that the asserted benefits are unlikely to materialize and therefore the benefits fail to counter-balance the burdens, justifying project disapproval.