

Replies from Friends of Maine's Mountains 8/18/11

In order to protect the safety of the people of Sumner, please respond fully in writing to the following three questions. We require clear, concise, factual responses backed by scientific data, statistical data and certification. Responses must also include but are not limited to curriculum vitae (**CV**) of the author, the name of the journal and/or publication in which that expert opinion appeared, its date of publication, name of document, page number and a brief summary of the exact document.

1. Explain the potential safety risks arising from turbine icing giving statistical analysis of the risks, based on past observation of actual turbine icing and subsequent ice throw over the past 2 years. In addition please outline mitigating measures for projects liable to icing in New England. The Department of Physics and Astronomy's Professor Terry Matilsky whose **cv** includes but is not limited to applying the laws of physics to various commercial and environmental issues as well as providing expert testimony in such venues as the United States Federal Courts, prepared a document for the "Calculation of Ice Throw Distances For Wachusett Wind Power Site. With the information Mr. Matilsky had, blade radius, hub height, and the rotational speed of 20 revolutions/min combined with the knowledge of rotor tip speed, specific projectile range and velocity determined there is a theoretical maximum ice throw distance of 2,855 feet or simply put over a half a mile. Do you have any other expert documentation to refute these findings?

FMM does not. We would commend you to the operational Maine wind projects at Mars Hill, Kibby, and Stetson, all of which are sited in places with weather conditions similar to Sumner. Through the ISO-New England, FERC, DEP, and PUC, you should be able to glean information about the occurrence of icing. Anecdotal accounts of winters at Kibby and Mars Hill depict severe icing as the cause for power curtailment and even maintenance issues. We do not know of any bona fide accounts of ice-throw, although we acknowledge its likelihood.

What would Clear Sky deem as an appropriate “set back” to ensure the safety of homes, citizens, schools, businesses etc.?

While this question is not asked of FMM, we point out that “safety” has many aspects other than ice-throw. Protective setbacks, while imperfect, and while variably effective (depending upon many factors such as topography, atmospheric pressure, ambient noise, etc.), can inoculate against some of the safety impacts from turbines. For instance, FMM’s recent expert testimony before the Board of Environmental Protection makes the case that in many sets of conditions, a minimum setback of 1.25 miles is prudent vis a vis noise. Because of the complexity of the issue and the enormous scope and scale of wind turbine development, FMM urges regulating authorities to err toward caution. When comparing impacts and benefits, communities stand to lose much more than they might gain, so why take chances with safety?

2. On February 15, 2010 Gamesa (which is one of Clear Sky Energy LLC.’s Vendor Partners) encountered catastrophic damage when a large number of blades on its 2MW turbines cracked during a storm with winds measuring 70 mph. According to BluArc (an asset management company) in an interview with the San Diego Union Tribune the Gamesa blades are designed to stop and lock down in winds above 50 mph.

With this being said, what has been done over the past year and a half to improve and insure that such damage will not occur again, why didn’t the Gamesa blades stop and lock down as intended.

Furthermore, has Clear Sky considered switching blade manufacturers? For instance, Mitsubishi’s 2.4MW “Smart Yaw” units, are considered among the strongest in high winds, and can sustain winds up to 172.12 MPH.

Please see the Record Hill project in Roxbury, Maine for an example of TLC technology. The manufacturer touts it as state of the art, and helpful in preventing the malfunction described above.

3. Turbines can catch fire, and when they do they often send flaming shards into fields and forests. Mere fire engines cannot douse turbine fires. Firefighters have to allow the turbine fires to burn themselves out and to work feverishly to prevent the fires from spreading to other areas. What allowances is or has Clear Sky made to buy, store and maintain necessary fire equipment for any wind farm they may be constructing. What fire/rescue equipment is considered specific to wind tower rescues. What is the advanced training needed by local fire department personnel. Does the wind industry as a whole have an existing "Fire Plan Protocol", (often referred to SOP's/SOG's) how often is it updated. What safety plan has been drawn up and is expected to be adhered to by Cianbro with regard to fire/medical needs. Concerning construction safety does Cianbro have a standard protocol with regard to an on-site landing zone should there be the need for a Lifeflight medevac from any construction site. In their maintenance duties will Cianbro build and store maintenance equipment at wind farm sites along with road maintenance equipment as well. Does Clear Sky have a documented and/or filed contingency plan for escrow accounts for town reimbursement should a turbine fire occur at any farm and cause forest damage to parcels owned by nonparticipants, Town or State owned land?

While FMM appreciates the concerns expressed in Question 3, we admonish the IWOC to exercise extreme caution in this process. Sumner is taking six months to consider a major land use zoning decision. Its catalyst was the arrival of a commercial entity which *now sits at the table with you* as you consider the policy changes. The entity is not disinterested in its outcome. Clear Sky is not in the site location of development/review process. They have no special right to participate, although you might be helped by their presence. The questions above, and the answers to them, are more appropriate for a planning board and applicant. Your ordinance and the process that creates it ought to be dispassionate and should be crafted irrespective of any specific developer's plans, practices, or interests. Once your permitting authority has accepted an application as complete and the review process starts rolling, then sit down and haggle with Clear Sky. Until then, beware that every point of contention may become a bargaining chip. That is unavoidable, but it can aid the developer. What is avoidable is your propensity to bargain before it is time. In town after town we have seen this perversion of the process

play out. A would-be applicant is there to influence the outcome. All manner of defacto bargaining goes on; maybe a playground here or land conservation there...mitigation, lease fees, acknowledgement of hot-button issues....ceding your empowerment and autonomy is neither a healthy or proper way to govern.

In some towns, moratoria and ordinances have been completed absent any developer. Those tend to be the better ordinances. You have all the models; Phillips, Dixmont, Jackson...the towns that proceeded in protecting residents' health and property with no interference from a potential applicant are the towns that have done it right. That is not to say that interested parties like the wind "industry" were not participants in those ordinance drafting processes. We implore you not to get encumbered in courtesy just because these apparently nice people from Clear Sky want to make you an offer you cannot refuse. *Proceed as though no wind developer ever came knocking.* FMM understands that it might be difficult to be dispassionate with the developer participating in the very process (a new variation on spot-zoning) but you must do so. Your diligence is commendable, but you can draw on the successes of neighboring communities, adapting the principles to your unique local needs. Again, in all cases, the benefit of any doubt should inure to your citizens and their protection. This general advice is applicable to most of the questions you have posed.

In order to help the Sumner Industrial Wind Ordinance Committee (IWOC) conduct its research and protect the health and safety of our citizens by drafting a comprehensive and fair ordinance concerning wind power; please respond fully to us in writing via "**reply all**" email **before** the 18 August hearing, to the following three questions. Please ensure that Clear Sky's responses reach Friends of Maine Mountains and vice versa.

Please state the precise scientific or other scholarly authority and citation for your answers (for this we require **all** of the following: the title of the document, page number, author's name & title, a brief summary of the author's credentials as an expert, the name of the journal or other publication, in which the cited expert opinion appeared, and the date of publication).

It would be most helpful if you could email us a complete digital version of all scientific & scholarly documents cited in your response.

Top 3 Health Questions:

1. What is the safe and sufficient setback distance from an industrial wind power turbine needed to eliminate **all** possible adverse health effects of **long-term**, (24-7-365 over the 20 year lifespan of an industrial wind farm) continuous, fluctuating noise from industrial wind turbines to include audible noise, infrasound or low frequency (inaudible) noise, and infrasound (inaudible & vibrational) dBC -- that cause vibration of structures?

We recommend the approach adopted by the town of Phillips in their wind ordinance. It is neither all setback nor all decibel level. Hence it allows flexibility as may be required in variable conditions such as topography, foliage, atmospheric pressure, etc.

2. As a safeguard against the continuous and long-term, fluctuating, audible noise produced by industrial wind turbines, what audible dBA noise limits, as measured outside occupied buildings at night, are necessary to prevent sleep disturbances -- not only the obvious, selfreported "awakenings" -- but also the arousals & partial awakenings and fragmentation of sleep that might result in serious, long-term, adverse health effects in people, especially the elderly, young children and the chronically ill.

Especially in quiet rural areas, 35 dBA at night. 55 during the day. For the complete case on wind turbine noise protection, see the Board of Environmental Protection case file for FMM's Noise Rule petition:

http://www.maine.gov/dep/ftp/bep/ch375citizen_petition/pr_e-hearing/

namely the expert testimony of Rand, Nissenbaum, and James. See AR 02 – 44, 85, 89, 100, 103, 106, 109, 111.

3. What industrial wind turbine noise formula would your scientific and/or scholarly authorities recommend instead of specific setbacks or specific dBA and dBC limits -- and why would that formula be preferable?

See reply to previous two questions.

I am on the economic sub-group of the Industrial Wind Ordinance Committee. As you know the various sub-groups are sending questions to yourself and the proposed developer for advance preparation. If you have a chance to respond to the following in writing before the meeting it would be helpful. If not, given the late date, do not worry about it. It will be important if you can site sources for the information you provide as well. I am sure that you know the group has tried to focus on peer reviewed studies although we are all aware of issues with those as well.

1. We have been having trouble nailing down Winds impacts on Property Values, either for those properties which are close to the development or for the Town's in general. What information can you share with us on this topic?

FMM knows of anecdotal evidence worldwide suggesting that industrial development, especially to the massive scope and scale of wind power, harms residential property values. Naturally, if the industrial property makes the neighboring land more commercially valuable, like when a Mall continues to expand outward, this is not an exact formula. FMM does not envision Sumner as a retail magnet.

**We suggest that you study the work of Michael McCann. Here is an introduction to his work:
<http://northgowerwindturbines.wordpress.com/2011/07/11/wind-turbines-property-values-and-the-need-for-a-moratorium/>**

2. The proposed developer has suggested funding decommissioning on an accrual basis over the life of the project. We are nervous about decommissioning occurring earlier in which case there would be insufficient funds. The only way we can see covering this risk is to establish an escrow account fully funded at any given time in case decommissioning was required for whatever reason. Alternatively we could require an insurance policy be purchased by the developer which guarantees fund availability under prescribed scenarios. Have you any thoughts on these approaches, or others you have encountered?

After extensive research, Michael McCann Associates, a leading firm in studying the impact of wind turbine developments on property values in several states, recommends that an alternative to fully funded 'decommissioning' escrows is to require the bonding element, which would be to require that the developer obtain a specialized insurance policy from a high risk insurance carrier such as Lloyd's of London, if they will even insure against such impacts. If Lloyds was unwilling to provide such insurance, however, that should be compelling to the regulating authority that professional riskmanagement actuaries find such projects too risky for even them to insure. Under those circumstances the burden of risk is fairly placed with the developer, rather than the residential occupants who are being surrounded or otherwise directly impacted by close proximity of the project.

You should also discuss the implications of treating any Tangible Benefit Arrangement, Community Benefit Agreement, Payment in Lieu of Taxes, or TIF as a secured claim with super priority lien status in the event of default. To do otherwise would be to leave the town in a subordinate position to other creditors, not only if the town is left to clean up the physical plant, but to compensate the town for value that it was promised in lieu of tax payments.

3. Loss of Use is another concept we have been struggling with. It is tangentially related to Property Value but has some unique issues. Where developers can negotiate with land owners and abutters to the development how could you cover the potential Loss of Use and/or Property Value when you own land 3 miles away which overlooks the development? This could impact desirability in a major way. Any thoughts and ideas on protections that might be afforded?

The quick and easy answer is to just say no to wind developers. Their massive infrastructure, with requisite excavation, clearcutting, and changes to the landscape, will have long term impacts on your town. Ask yourselves if you expect this inefficient and expensive electricity generation source will be viable in ten years. Then weigh the risk versus the reward. But if you think the door should be left open to this sort of

development, protect yourselves. FMM introduced a bill in the 125th Legislative session, [LD 1042](#) “*An Act To Preserve and Protect Citizens' Property Rights and Values*” which was killed after heavy lobbying by wind interests. Sumner can seek indemnification using a similar mechanism. The bill would have provided exactly the protections you mention: it would have protected property owners in the vicinity of grid-scale wind energy developments from property value losses resulting from stigmas associated with large wind projects. It would have established a voluntary Property Value Guarantee Program to insure Mainers against the loss of equity attributable to gridscale wind development. FMM supports towns which require protections for property owners who could be adversely impacted by wind facilities, whether abutters or not.

We have been through the Financial Impact Modeling by Mike Rogers and believe we have a good handle on the revenue opportunity. Also, TIF's have received some serious conversation but the reaction overall is very lackluster. Anything else we should be looking at?

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that it was promised in lieu of tax payments. This is important, especially when a fire sale might net 20 cents on a dollar. Bear in mind the community has forgone tax revenue and quality of place for consideration. If this consideration disappears, the community has no taxes, no tangible benefits, a brownfield effect on overall property values, and a potential decommissioning liability. The town would have been better off taking straight taxes.

The wind "industry" has been fond of saying for over 30 years that evolution of technology would reduce the cost of wind power generation to be competitive with other forms of electricity generation. In the past five years turbines have increased in size from 1 MW to 3+ MW of capacity while the construction cost per MW has gone from \$1M to \$3M and the efficiency of those bigger turbines has only increased capacity factors by a tiny amount. Given that we are just beginning to learn of the long term maintenance costs and longevity of the 1 MW turbine, it is highly suspect and risky to be betting on the bigger turbines when the history of the previous generation has not yet proven itself. A major utility in Denmark retired a pilot program of 600 KW turbines 3 years ago that were state of the art technology when originally placed in service 12 years prior. Despite a "Cadillac" maintenance program the turbine blades were found to be disintegrating on decommissioning.

While developers clamor for more construction subsidies existing operators worldwide are begging for higher rate subsidies to cover increased maintenance costs. It is a never ending cycle of wasted dollars. If you must allow this sort of development, get your guarantees.

While we believe public investment is a pillar of our society, we are not indiscriminate in that belief.

Collectivisation ought to be for infrastructure, amenities, or services that are better funded socially than privately. Schools, transportation, defense, and public safety all come to mind as worthy socialized investments. We also tolerate a reasonable scarring of the earth for infrastructure that is deemed necessary and useful. These developments might or might not be publicly funded, but they all serve a great enough public good that their benefits exceed their impacts. Roads, bridges, airports, power lines, and cell towers come to mind as scars on the earth that are necessary and useful, thereby tolerable, albeit regulated. Grid scale wind power must prove itself necessary and useful before its impacts can be tolerated. FMM does not support tax-payer subsidies for wind

development. TIF is a local subsidy. TIF was designed to entice businesses to a region by offering the incentive of a tax break to a developer or business owner. Sacrificing new tax revenue could be justified because conventional wisdom said that a business would provide long-term stimulation to the local economy and provide jobs for area residents. Wind developments do not do that.

Wind developments might spur the local economy for a short period of time during construction (typically 6 months) but once that phase is completed, the 'boom' is over.

Wind developments, historically, provide few permanent jobs to locals. A rule of thumb is approximately one permanent job for every 12 to 15 turbines.

Under TIF, property owners are securing a larger profit for a Limited Liability Corporation and/or helping to finance the project when TIF is employed.

Wind developers do not need to be convinced to come to an area. They want Maine's hills, and will not be deterred from building their developments if they are not given additional subsidies in the form of TIF. It makes no sense to further burden taxpayers of rural (and often poor) communities when wind developers are already receiving taxpayer subsidies of up to 2/3 the cost of their developments.

1. What is the annual metered consumption of electricity used to power wind turbine functions?
2. What functions use electricity?
3. What is the net energy product of the windmills that you use?
4. If endangered bat and bird species mortality is found, who will be liable for the damage?

It is left to the residents of Sumner to enact your own regulations pertaining to wildlife. The US Dept. of the Interior's 'Guidelines for Building and Operating Wind Energy Facilities in Maine' were designed for the Wind Industry. The US Fish and Wildlife Service, which is charged with ensuring the safety and viability of this country's wild and aquatic creatures, goes to some length to inform the developers of wind turbine installations how to site their energy facilities for minimal impact on those species.

The report deals specifically with wildlife laws applying to wind power, including the Endangered Species Act, the Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty. Throughout the report wind industry developers are

'encouraged' to study in advance the potential adverse effects to native wildlife. They are 'encouraged' to develop site evaluations. They are 'encouraged' to incorporate measures to avoid and minimize risks. When it comes to tampering with wetlands, the Wildlife Service 'strongly supports' a sequential approach to 'avoid, minimize, and mitigate wetland impacts'. Developers are not compelled to do any of the above, as the law currently stands.

Washington's abject infatuation with wind power at any cost is responsible (along with much lobbying) for this kid glove treatment. FMM believes the law should state that wind developers MUST study the potential adverse impacts on our wildlife and incorporate measures to avoid risks. We also believe the USFWS should stipulate what types of studies are done, and the duration and amount of detail required for each one. If the USFWS does not require that, then Sumner has the ability to require such studies. And while the developers absolutely should pay for the costs of the research required, that money should be put into an escrow account overseen by a third party with no bias. And it should be the USFWS or the town which chooses the biologists and specialists, *not the developer*. That is only good common sense.

The US Department of the Interior allows 'take' and defines it thusly: "'Take' means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." And 'disturb' under the Bald and Golden Eagle Protection Act, means to agitate or bother "to a degree that causes, or is likely to cause...injury to an eagle, or a decrease in its productivity by substantially interfering with its normal breeding, feeding or sheltering behavior."

Understand this: It is illegal to 'take' those animals on the lists of endangered or protected species. Citizens would be in big trouble if we molested, disturbed or shot at any of those animals. That's as it *should* be. And yet—quoting from the guidelines— "If take of a listed species is anticipated, wind developers are encouraged to contact the Service to discuss obtaining an *incidental take permit*....A permit is necessary to avoid potential liability for take."

The USFWS says that if more than twenty-five individual birds or bats are 'taken' in a twenty-four hour period, that 'should' be reported to the Service within twenty-four hours. Anything less than twenty-five? Those bird and bat deaths can be summarized in *annual reports* provided to the Maine Field Office. Less than 8,759 birds and bats dying annually at each industrial wind development every year is not a sufficient number to report. FMM believes this is not acceptable.

5. Is your company aware of the problem of "barotrauma" on bat species? If so, what mitigation plans do you have?

6. What kind of environmental experience does your firm have?

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7. What other corporations/companies have the members of your firm worked for? What is your environmental record?

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8. Can you use existing roads, or do new roads need to be built?

If using existing roads, will they have to be improved? What width will the switchbacks be? How many cubic yards of earth will be blasted or excavated to make the roads and level the turbine pads and crane paths? Will any wetlands be filled in? How will you mitigate the fragmentation of wildlife habitat? Will you use herbicides to control vegetation on roadsides or in transmission corridors? These will all be discovered in an environmental assessment if an applicant review process begins. But you ought to address these in your ordinance.

XXXXXXXXXXXXXXXXXXXX-Replies from FMM to questions 6 & 7 removed as they could not be substantiated.