Scoping Comment
#393

May 16, 2009

To the WA Energy Facility
Site Evaluation Council;

Enclosed please find some informational articles on industrial wind power that I would like to add to the record for each Siting Council member. I believe that each of these articles offers a new perspective from which to study the effects and sustainability of industrial wind power projects, now and in the future.

I hope that these articles will be distributed to all the Council members. Thank you for this opportunity to present these pieces.

Sincerely, Jill Barker

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Profit, Not Power, the Major Goal Behind Wind Farms by John Droz

Due to its relatively easy access to transmission lines, Upstate New York state may end up with some 20,000 wind towers (e.g. www.windaction.org/documents/3575).

If this concerns you, keep reading. Although no wind farm is proposed for my immediate area, I believe that all Upstate New Yorkers are part of one community. See this Web page for a map, plus a list New York towns where wind farms are being targeted -- www.savewesternny.org/proposed.html.

To make this complex but profoundly significant issue easier to understand I have written the following summary. Please keep in mind that my comments are about industrial wind power only, as home based (or boat) systems are usually a good thing.

On the surface, wind power seems to be a potentially good thing: a clean, renewable source of energy, etc. But scientists don't make decisions based on first glance impressions.

To come to a meaningful understanding of complex matters like industrial wind power,open-minded people need to do a thorough examination of all major components of the issue, plus do a review of accumulated evidence to date (e.g. from wind power experiences in Europe).

Such an analysis will lead to two fundamental conclusions: 1) there is no consequential environmental benefit to industrial wind power, and 2) it is being promoted because it is an extremely lucrative business opportunity.

Here is a brief explanation as to why these are so.

1) There is no real environmental benefit as: a) wind is an unpredictable commodity. b) Energy generated from industrial wind power can not be stored. c) Because of a and b,as energy demand grows and wind power is added to the grid, 100 percent backup from conventional energy must be also still be built. d) Even in the short term, due to the complexity of nuclear and coal-fired power plants, they can not simply be "turned down" when wind power is available. In New York, hydro power (a clean, low cost,non-fossil fuel energy source) is typically cut back instead. So, since coal-fired power plants must operate at full capacity 24/7, and since conventional power plants must continue to be built — no emissions are reduced!

2) This is a lucrative business opportunity as: a) take the cost to build and erect the average industrial wind tower, b) subtract from that the government provided financial incentives (your money). c) Then the government requires the local utility to buy all of the electricity generated (needed or not) and often to pay a premium rate (again, with your money). d) After taking all of these numbers into account, each turbine turns out to be a government guaranteed 25 percent-plus per year income generator.

How did this all happen? Basically: a) global warming has become a hot political item,b) so Congress decided that they had to do something to show that they were"addressing the problem," and they set up a committee to determine what to do. c) Accurately sensing an opportunity to tap into some big money, the industrial windpower special interest lobby heavily influenced the process (some say they wrote the entire legislation — not that unusual. Very similar to oil companies influencing our energy policies.)

The bottom line is that what was legislated was not about helping the environment, and was not about benefiting taxpayers. It was principally designed to enrich large business concerns who wanted to feed at the government trough. Again, (unfortunately) not all that uncommon. (See www.ncpa.org/studies/renew/renew2.html.)

When an industrial wind power developer targets a community, their objective is to putup as many 25 percent income generators as they can get away with.

To achieve this financial goal, developers employ three effective strategies: 1) they not only take advantage of the global warming concern that is prevalent, they make it into a patriotic matter to support their business, 2) they know that most people do not understand the complexities of the wind power issue, so they frequently make broad,superficial, unsupportable benefit claims, and 3) they rely on the support they get from local people that they essentially buy off —with taxpayer money! Some reports show that they particularly target areas that are economically depressed to make their "financial incentives" more likely to be accepted.

Since this problem was legislatively created, it must be legislatively fixed. That will only happen when citizens are informed, and when citizens then subsequently speak up.

As a minimum we need to contact our state legislators to get them to enact at least a one-year moratorium on wind farms.

Additionally, the state needs to develop a comprehensive Resource Management Plan to deal with this and other resource issues.

To research this topic to your own satisfaction, please consider the findings of independent, environmentally concerned scientists that are spelled out at such sites as www.wind-watch.org/ and www.windaction.org/. Please consider making a donation to support their work. If after reading these you have any questions, please let me know at "aaprjohn@northnet.org".

John Droz, Jr. is a physicist with a 20-plus year track record of interest in the environment. He lives at Brantingham Lake, Lewis County, in the Adirondacks in NY.

posted by SARTRE at 4:55 PM _ Thursday Nov. 8, 2007

Cohocton Wind Watch, NY

- submitted by Jill Barker

May 9, 2008
Letters, Wisconsin

Engineer questions wind energy claims

With 49 years as a power engineer, going from engineer apprentice to manager of power supply for approximately two-thirds of rural Illinois, my blood curdles when I read some of the rabid pro-windmill articles rampant in the press these days.

Statements like "the wind is free" (then why do they need the massive tax breaks and subsidies) and "this wind farm will supply 35,000 homes," neglecting to finish the sentence with "for maybe 25 percent of the time, if you are lucky."

One has to come to the conclusion that these people do not even understand simple arithmetic let alone the power situation in the United States or, heaven forbid, the world.

It takes about 800 X 1000MW power plants or the equivalent to run this country on a daily basis. To be conservative, let's say 700 X 1000MW plants. Power demand in the U.S. increases a little over 2.5 percent per year, but again, to be very conservative, let's say 2 percent.

This means that we must build at least 14 X 1000MW power plants every year just to keep up. Windmill enthusiasts would of course have us build 7000 X 2MW windmills instead, blissfully ignoring the fact that the 14 X 1000MW coal or nuclear plants would still have to be built to fill the considerable gap left by the non-operating windmills when the wind didn't blow.

Customers would thus have to pay for two very expensive power plants to cover just one block of power. None of this would reduce the present CO2 load on the environment even if the windmills could run 100 percent of the time. What do we do then....build 350,000 X 2 MW windmills?

Jim Greenwood

Two Rivers

Tri-County News

9 May 2008

– submitted by Jill Barker

Summum nec metuas diem, nec optes - Marcus Valerius Martialis

About wind power

An Engineer's opinion.

This discussion addresses the economic and engineering aspects of wind power only. Other considerations require a separate discussion. I have tried to make this as clear as I can without resorting to jargon. Electric power is a complex field and there are actually few colleges teaching power engineering these days.

The idea of wind power has enormous appeal. In theory, the fuel is free, it is a renewable resource and itâ€™s use offsets an amount of fossil fuel. All of these things are, at least on the surface, true. However, the wind power proponents either ignore or gloss over the drawbacks to using wind power. There are many factors that make wind power â€“ in practice â€“ a very unattractive option from an engineering standpoint. Iâ€™ll address some of these, but first some basics.

Power 101

First, power must be generated. This can be accomplished by various means. Hydropower, natural gas fired turbine or combined cycle plants, coal fired plants and nuclear facilities. There are a few other ways, but they are usually very small (biomass, geothermal) or seldom used due to high fuel costs (oil) and will be left out of the discussion. Further, generating assets can be classified as base load, load-following or peaking.

Hydro requires a flow of water to turn a turbine. For this to work there must be sufficient head to turn the turbine. Simply put, there has to be a difference in height between the intake and discharge of the water used. Every readily usable source of hydro is currently in use in the US. To build additional plants would require the building of dams and flooding of large amounts of territory. Canada built some enormous hydro projects that flooded vast areas a few years back. This is not an attractive option in the US. Hydro plants are always considered base load units in that they are either full on or off-line. Base load constitutes the lower limit of demand on the power grid. Base loaded plants run at their maximum output and therefore at their maximum efficiency.

Gas turbines are simply jet engines coupled to a generator set. A typical use for this type of generator is as a â€œpeakingâ€□ unit. That means that they fire when demand picks up to a point where on-line base load and load-following assets cannot cover demand. A combined cycle plant uses the waste heat from the jet engine exhaust to generate additional power via a heat exchanger. Steam produced by the heat exchanger drives a steam turbine and generates additional power. Combined cycle units can be used as either base load (rarely, due to high fuel costs) or load followers. Load following plants increase or decrease output as demand fluctuates above the base load. Load followers run at somewhat lower efficiency when running below full power.

Coal and nuclear plants use the same general principle. Fuel is used to heat water into steam. The steam is then used to turn a turbine which in turn spins the generator. Coal units burn the fuel in a boiler. Most

of these plants use pulverized coal â€“ essentially they grind the coal into a fine powder and blow it into the firebox. Nuclear plants use a chain reaction in the core to produce the necessary heat. Nuclear plants are always used as base load units nowadays (some plants were used as load followers initially, but none are used that way now as far as I am aware). Coal plants can be used either way, but usually bigger plants are used as base load units as much as possible due to efficiency concerns. Load following units can best be thought of as a supercharger on the system. They run at relatively low levels of power output until demand increases. When needed, they increase output to meet increased demand for power up to their maximum output. But the key point is that they have to remain on the grid, running at less than peak efficiency at all times to be available to respond to load changes. The peaker units would be brought in when the load following units near their peak output.

That is a very, very brief overview of generation.

Transmission and distribution

Once the electricity is produced, it has to be sent to where it is needed. This is accomplished through transmission and distribution. Transmission uses extremely high voltages in order to reduce â€œline lossesâ€□. Basically, as voltage increases, the current decreases; the lower the current, the less line heating and line loss. To accomplish transmission, voltages from the generating plant are â€œstepped upâ€□- increased - to the transmission voltage by use of a transformer. The voltages have to be â€œstepped downâ€□ â€“ reduced - at the other end of the line, requiring another transformer. Transmission voltages vary widely, but are always in the higher kilovolt ranges. Line losses are a big factor in deciding where plants need to be located. The farther away the plant is from the end user, the more the line loss is experienced. At some point, all of the electricity generated at a given plant will have been used up in line losses. (Transmission transformers are enormously large and expensive, by the way).

Distribution is accomplished by further stepping down the voltages, often several times, each step requiring another transformer. If you trace your power line back, youâ€™ll see a transformer either on a pole or on the ground not far from where you live. Distribution system voltages vary widely until they reach the consumer. In the US, household use is always 120/240 volts. Industrial use is somewhat different and will be ignored for purposes of this discussion. The transmission/distribution network together with the connected generating assets is known as the grid. The grid is controlled by means of sophisticated load dispatch systems which increase or decrease generator outputs in response to demand.

That wraps up Power 101. Frankly, this is over-simplified, but if I really went into the more esoteric aspects, I would lose everyone but the engineers very quickly. These days, Iâ€™d likely lose a lot of them as well, since colleges have been teaching less and less about 3-phase power. Electric power is a rather complicated field.

Boiling everything down, then:

Power is generated, sent through wires and arrives at the point of use. The power supply must be able to respond to a change in demand, either increased or decreased demand, instantaneously. Electric power cannot be stored; it must simply be available when needed. Generating assets must be able to respond when demand changes. Base load units run at or very near full load at all times, load followers cycle up and down as needed and peakers kick in to meet high demand.

Wind power

Use of wind power can certainly offset a given amount of fossil fuel. This should be easy to understand. If you are getting electricity from a wind generator, you donâ€™t need to burn a certain amount of coal or gas. This is a true statement. There are, however, certain problems with this logic.

First, the construction of wind generators requires enormous up-front capital costs. Typically, I have seen estimates that wind generators cost at lease 50% more than equivalent coal/gas installations. Itâ€™s actually higher than that due to some other factors regarding infrastructure (discussed below).

Construction of wind farms requires very, very large areas. Farms are being built that cover thousands of acres. The advocates of wind power are all for building these huge farms â€“ as long as they are far away from where the advocates have to actually look at them. Why? Because these tower arrays are ugly. Well, I guess thatâ€™s dependant on who is looking at them, but I think they are unsightly. The residents of Marthaâ€™s Vineyard went ballistic when an offshore farm was proposed near them. The NIMBY effect rules in the planning of these farms. Hence, the farms tend to be sited far from the population centers where the power is most needed. This leads to increased line losses as discussed above.

In addition to the towers themselves, a vast infrastructure has to be built to connect all of those towers to the rest of the grid. This encompasses cable, towers or poles to carry the cable, transformers, switchgear and protective relaying. This amounts to a large expense and increases as more and more generating towers are placed. There is a definite impact to the environment and raw resources from all the manufacturing involved here. That impact is routinely ignored or downplayed by advocates of wind power.

Another problem with wind power is that the units tend to be full on when they are producing at all. This causes a problem in load dispatching. These wind power units cannot load follow, but are not reliable enough to use as base load units. Remember, base load is the lower limit which the grid must sustain. They also cannot be used as peakers. Most load dispatch systems I am familiar with somewhat reduce their load following plants output when wind power is available. But the load followers remain on line and producing ready to increase output when the wind power drops offline. So it is somewhat disingenuous to claim that wind power is replacing fossil generation. The fossil plants remain online albeit at a somewhat lower output. This lower output is accomplished at a somewhat lower overall efficiency. If you understand the modified Rankine Cycle that governs how power plants operate, you understand how this works.

Then there is the insurmountable engineering problem. The wind cannot be relied on to blow all the time within the operating parameters of the wind turbine. If the wind is not sufficient to turn the turbine blades no power is produced. If the wind is blowing too hard, the unit shuts down to protect itself and no power is produced. Therefore, the utilities are required to have 100% backup available for the wind generation because the power has got to be there when demand increases. Why? Because if the voltage is pulled down enough on the grid due to an increase in demand, the entire grid will collapse. Best case projections allow for wind systems to be available 35% of the time. Those projections are actually not accurate because they do not take into account time of day loading. In other words, the wind systems may be capable of producing power at night when demand is lowest, not during the day when it is most needed.

Basically, although some amount of fossil fuel is not used when the wind farms are actually on line, these projects can never be cost justified from an engineering standpoint due to the 100% backup capacity required. This is going to apply regardless of how high fuel prices go. There may be other justifications for construction of such a system, but the fact is that if one system is so unreliable that it

requires a 100% (reliable) alternate backup, it makes no engineering sense to install the first system. Economically, you are spending more than double what you actually need to, to achieve the desired result.

This is an area I know rather a lot about, having spent my career in the utility business.

The installation of every, single utility-owned project has been a purely political decision. I limit it to utility-owned because that is my field. But it is no different for any other project.

Bottom line - wind power cannot ever be economically or engineering justified. Any system that is so inherently unreliable as to require an installed 100% backup system cannot be justified. If you were required to buy a car that would only run a percentage of the time and could start or stop at completely unpredictable random times, would you be happy? And then after buying that car, you were required to buy another fully functional one to cover the times the first was unavailable? On top of that, the second car has to be kept idling at all times to pick up when the first car drops out on you. Would that make any sense to you?

From a purely engineering standpoint, installing a reliable system to cover for an unreliable system is never justified. It is a waste of time and money. In engineering, you build the reliable system and scrap an unreliable one.

However, State and Federal laws, rules and political pressures have made many utilities invest in what they know to be a losing technology for no other reason than to gain points with regulators. I know - I have been there when the projects were approved. Every person in the room understood it was a complete and utter waste of money - but the regulators encouraged (or outright required it) it AND ALLOWED THE UTILITIES TO PASS THE COSTS THROUGH to the consumers. Hence, the company gets "good boy" points AND doesn't actually have to pay for anything at all. The environmentalists successfully taxed every one of you (and me) with a technology that just makes them feel warm and fuzzy all over.

These projects could never be built without subsidies. Wind power proponents lobby and pressure the Government into providing substantial subsidies for the construction of these facilities. So the taxpayers foot the bill to build the wind farms. The utilities are required to buy the power produced by privately owned wind farms â€“ when they are actually on line â€“ often at a higher price than they can produce power from their own facilities. And the utility has to build full, stand-by generating assets to be there when the wind power isn't. So it's a triple whammy and waste of resources. We pay to build the wind power sites, pay again to build 100% redundant fossil systems and pay higher rates for the power as well.

There may be other reasons for installing wind power, but those reasons are political and/or moral (depending on viewpoint). Any argument that these projects make economic or engineering sense is not realistic. Thatâ€™s my opinion, based on many years of experience in the power field, as contrary as that is to environmentalist dogma on this issue.

Uncategorized | Gaius January 14, 2006

– submitted by Jill Barker

Lack of 'viability' makes wind power a poor choice

Viability, as elementary as it may seem, appears not to be part of the discussion when weighing alternatives for a more secure energy future. The fact that the methods we adopt to generate essential power in the coming years must, at the very least, be viable has not yet entered into the equation and demonstrates that no one is really thinking that far ahead.

Al Gore and T, Boone Pickens would have us revamp the nation's entire electrical infrastructure based on the whims of the breeze, regardless that it would wreak havoc on thousands of fragile eco-systems, natural landscapes, and rural communities overwhelmed in the aftermath of industrial wind-power development on such an immense scale.

This irrational, misguided concept fails to acknowledge the steadily rising costs of wind development and the undisputed fact that it cannot generate vital capacity, and simply isn't "viable." Research shows there are far superior alternative energies, and none that are so intrusive or degrading.

Wind cannot produce dependably or independently, and consistently fails to live up to even its own low expectations. It misleads us into believing that its development "here" will prevent an oil rig "there," or save our mountain tops from the ravages of coal mining. It won't.

Wind energy's proliferation simply adds to the rape of the countryside in the relentless pursuit for power, but contributes nothing tangible toward that end. Still, ideas like the 'Pickens Plan" proclaim to be about the "common good," though it will be Mr. Pickens himself who benefits the most by far.

Controversial carbon-offset programs, tax-avoidance schemes, and government mandates that are in large part a result of his own intensive lobbying efforts will increase his already astounding wealth to the detriment of citizens and taxpayers everywhere.

Commercial wind energy is pure folly and mocks environmentalism around the globe. It should be taken completely off the table when considering alternatives for investing our time and resources, but instead, because of political pressure, it's at the top of the list.

The federal production tax-credit program designed to bolster the U.S. renewable energy industry is being exploited by unscrupulous, often foreign wind-power companies. But if viability were the quantifying test, then no wind developer would ever meet the standard.

Our decision-makers and their advisors must stop pandering to special interests and start making a genuine effort to understand the basics of the many options out there and the distinct differences between them. Wise choices will ensure sustainability and environmental stewardship, not degradation. Industrial wind power won't stabilize soaring energy costs or cool a warming planet. It will only distract us from our goal of finding legitimate solutions that will truly make a meaningful and lasting difference.

Sue Sliwinski, Board Member
National Wind Watch, Inc.
(www.wind-watch.org)

– submitted by Jill Barker

A Problem With Wind Power

[www.aweo.org/windbackup.html]

by Eric Rosenbloom

Output figures from wind developers are typically annual averages expressed in the vague figure of "number of homes provided for." Homes, however, account for only a third of all electricity use, and electricity represents only a third of all energy consumption (only a fifth in Vermont). Further, home use of electricity varies widely through the day, week, and year, but wind plants generate electricity by the whims of the wind rather than the actual needs of the grid.

As averages, the figures ignore the fact that hour to hour, day to day, season to season, even the most windy sites experience periods of calm when the turbines are producing no electricity at all and cycles of slower wind when they are producing far less than their maximum capacity. When the wind is too fast, the turbines must shut down to avoid damage.

This variability, they say, is balanced by wiring up a multitude of sites, one of which at any time must surely be producing significant power. Instead of a "free and clean" source of energy, then, the necessary proposal is an expensive network of redundant installations that must fill most of our land and seascapes to make any meaningful contribution.

Despite local variabilities, however, the overall rise and fall of the wind is generally the same over the larger region. The grid must plan for the likely low point, i.e., the least power it may see from all of the attached wind plants. Large power plants cannot respond quickly to the hourly variations of the wind, so they must be already going when the power from the wind plants drops off.

There are solutions to this on a small scale, but for most grid systems, any power produced by wind plants is therefore in practice superfluous. The backup generation is already providing it.

On top of this uselessness, the turbines use a great deal of electricity themselves. Most of them cannot even run without input from the grid. Although they produce electricity intermittently, they consume it continuously. In every report I've seen, input from the grid is not accounted for in the figures of net output. Specifications from turbine manufacturers do not include the amount of electricity they require.

It may be that large wind turbines use as much electricity as they produce. Whether the wind is blowing in the desired range or not, they need power to keep the generator magnetized, to keep the blade and generator assembly (92 tons on a 1.5-MW GE) facing the wind, to periodically spin that assembly to unwind the cables in the tower, to heat the blades in icy conditions, to start the blades turning when the wind is just getting fast enough to keep them going, to keep the blades pitched to spin at a regular rate, and to run the lights and internal control and communication systems.

It is clear that industrial wind generation is not able to contribute anything against the problems of global warming, pollution, nuclear waste, or dependence on imports. In Denmark, with the most per-capita wind turbines in the world, the output from wind facilities equals 15%-20% of their electricity consumption. The Copenhagen newspaper *Politiken* reported, however, that wind provided only 1.7% of the electricity actually used in 1999. The grid manager for western Denmark reported that in 2002 84% of their wind-generated electricity had to be exported, i.e., dumped at extreme discount. The turbines are often shut down, because it is so rare that good wind coincides with peaking demand. A director of the western

marker of fossil fuel use.

But industrial wind facilities are not just useless. They destroy the land, birds and bats, and the lives of their neighbors. Off shore, they endanger ships and boats and their low-frequency noise is likely harmful to sea mammals. They require subsidies and regulatory favors to make investment viable. They do not move us towards more sustainable energy sources and stand instead as monuments of delusion.

-- *December 2004*

for the complete paper, including many links, click below

"A Problem With Wind Power"

[www.aweo.org]

– submitted by

Jill Barker

Friday, December 05, 2008

Denmark: no new wind energy since 2003

The world's leader in wind "penetration" -- with wind turbines producing energy equal to around 20% of the country's electricity use -- Denmark also leads in running up against the practical limits of erecting giant wind turbines to supply the grid. As Kent Hawkins has calculated, with the help of Vic Mason, who works in Denmark and has access to Danish-language reports, the actual penetration limit for wind, which is intermittent, highly variable, and nondispatchable -- all the very opposite of the grid's needs -- appears to be 6%, the rest being dumped into larger markets in Germany and the rest of Scandinavia.

In any case, Denmark has not added new wind energy capacity since 2003:

Year:	2001	2002	2003	2004	2005	2006	2007
Installed wind capacity (MW):	2,489	2,892	3,117	3,125	3,129	3,136	3,125

tags: wind power, wind energy

Labels: Denmark

– submitted by
Jill Barker

Subj: **National Wind Watch supports European call for wind energy moratorium**
Date: 1/15/2009 5:54:42 P.M. Pacific Standard Time
From: [redacted]@kirbymountain.com
To: [redacted]@wind-watch.org

[Send this to your members of Congress!]

National Wind Watch supports European call for wind energy moratorium

European Platform Against Windfarms (EPAW) also calls for study of wind power's record to determine its true benefits, costs, and adverse impacts

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Rowe, Mass., Jan. 15, 2009 – On the morning of October 4, 2008, before the second national protest against industrial wind energy development in Paris, several groups from France and other European countries agreed to form the European Platform Against Windfarms (EPAW).

On November 24, with more groups having already joined them, EPAW publicized a letter [1] that they will send to the Commissioners of the European Union and Members of the European Parliament.

The letter calls for an immediate moratorium on wind energy projects throughout the E.U. and independent study of wind energy to assess its carbon savings and its economic, social, and environmental impacts.

National Wind Watch supports this call and wishes them well.

We have a lot to learn from Europe, where there is a long experience with substantial presence of wind energy on the grid. The time is long overdue that regulators and planners should stop talking about what wind energy "can" do and start examining what it actually has done.

North America and the rest of the world also should heed EPAW's request for a reality check.

In December 2008, the British Wind Energy was forced by the Advertising Standards Authority to reduce by half its claims of how much carbon emissions might be reduced by wind energy. [2] This and other claims by the wind energy industry need to be examined by independent experts, so that energy policy is based on facts rather than sales material.

On the other side of the scale, the industry has long downplayed adverse impacts as "in the past" or aberrations. In recent years, however, the cumulating effects of industrial wind energy development, along with heavy-duty support roads and transmission infrastructure – on wetlands, on birds and bats, and on human neighbors – has become impossible to deny.

Organizations devoted to protecting raptors and bats have expressed deep concern about the siting of giant wind turbines where they can endanger these animals. [3] And a forthcoming peer-reviewed epidemiological study by Dr. Nina Pierpont of Malone, New York, describes the effect on people as "wind turbine syndrome", a common and consistent set of symptoms that include tinnitus, nausea, and depression. [4] When people suffering from this syndrome leave the area, the symptoms subside. Several families have had to abandon their homes to regain their health.

On January 9, 2009, the New York Supreme Court annulled a town law

regulating large wind turbines because the town board did not take a "hard look" at relevant areas of environmental concern, and it disregarded study committee recommendations for setbacks and noise standards to protect the health and well-being of residents. [5]

Everyone involved in promoting and supporting the spread of industrial wind needs to take a "hard look" at the facts. As Eric Rosenbloom, president of National Wind Watch, said, "If we have learned anything from the last eight years, from the collapse of Enron who helped create the modern wind industry [6] to the demise of Lehman Brothers who invested heavily in wind to avoid paying taxes [7], we can not trust the players themselves to look out for our or the environment's interests. We need policies based on facts, not promotional materials or wishful thinking."

/References/

[1] http://www.epaw.org
[2] http://www.wind-watch.org/news/?p=20985
[3] For example: Wilderness Society and Center for Biological Diversity, http://www.wind-watch.org/documents/?p=1165; American Society of Mammalogists, http://www.wind-watch.org/documents/?p=1039; North American Symposium on Bat Research, http://www.wind-watch.org/documents/?p=1037; Virginia Dept. of Game and Inland Fisheries, http://www.wind-watch.org/documents/?p=158; Hawk Migration Association of North America, http://www.wind-watch.org/documents/?p=1202
[4] http://www.windturbinesyndrome.com
[5] http://www.wind-watch.org/documents/?p=1198
[6] Most notably, Enron invented "green tags" to sell wind energy production twice. Also see: "Enron's Ken Lay asks for Texas Gov. Bush's help in securing tax credits for wind", http://www.wind-watch.org/documents/?p=1055; "How the White House Energy Plan Benefitted Enron", http://www.wind-watch.org/documents/?p=1075
[7] http://www.wind-watch.org/news/?p=20756

National Wind Watch is a nonprofit corporation established by campaigners from around the U.S. in 2005 to promote knowledge and raise awareness of the negative environmental and social impacts of industrial wind energy development. Information, analysis, and other materials are available on their web site: www.wind-watch.org.

-submitted by
Jill Barker

Wednesday, February 04, 2009 AOL: JilBrkrB

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Tuning and sensitivity of the human vestibular system to low-frequency vibration

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ABSTRACT

Mechanoreceptive hair-cells of the vertebrate inner ear have a remarkable sensitivity to displacement, whether excited by sound, whole-body acceleration or substrate-borne vibration. In response to seismic or substrate-borne vibration, thresholds for vestibular afferent fibre activation have been reported in anamniotes (fish and frogs) in the range −120 to −90 dB re 1 *g*. In this article, we demonstrate for the first time that the human vestibular system is also extremely sensitive to low-frequency and infrasound vibrations by making use of a new technique for measuring vestibular activation, via the vestibulo-ocular reflex (VOR). We found a highly tuned response to whole-head vibration in the transmastoid plane with a best frequency of about 100 Hz. At the best frequency we obtained VOR responses at intensities of less than −70 dB re 1 *g*, which was 15 dB lower than the threshold of hearing for bone-conducted sound in humans at this frequency. Given the likely synaptic attenuation of the VOR pathway, human receptor sensitivity is probably an order of magnitude lower, thus approaching the seismic sensitivity of the frog ear. These results extend our knowledge of vibration-sensitivity of vestibular afferents but also are remarkable as they indicate that the seismic sensitivity of the human vestibular system exceeds that of the cochlea for low-frequencies.

The otolith organs, the sacculus, utriculus and lagena, primarily respond to whole-body acceleration or tilt in gravity [9]. In fish these also are important auditory structures for acoustic near-field (particle motion) sensing [13,17]. Several studies have determined behavioral particle motion audiograms for non-specialist species of fish, e.g. the cod, plaice and dab [4]. These have indicated that the region of best sensitivity lies between 40 and 120 Hz, with threshold acceleration values of about −120 dB re 1 *g* at 80 Hz. During the course of evolution the amniote ear developed new structures for far-field (sound pressure) hearing in air, including the basilar papilla and the mammalian cochlea [6].

It has been established, however, that the otolith organs in terrestrial vertebrates have conserved a particular sensitivity to substrate- or bone-conducted sound [2,15,16,22] consistent with their function as near-field sound sensors in fish [4]. In some species of frog the saccule shows a fish-like band-pass response to acceleration with best frequencies between 20 and 160 Hz and thresholds between −90 and −120 dB re 1 *g*, while others show a low-pass response with best frequencies at 10–20 Hz [14]. Sensitivity to audio-frequency vibration has also been demonstrated in mammalian vestibular organs. In the monkey [27] best frequencies were between 125 and 177 Hz, with phase-locking threshold as low as −80 dB re 1 *g*, and in the guinea-pig at 500 Hz thresholds were 10 dB above the ABR threshold [3]. At present, however, no such threshold measurements have been obtained for the human vestibular system and this was the aim of our study.

Non-invasive assessment of human vestibular sensitivity can be accomplished by measurement of the powerful vestibulo-ocular reflexes (VOR) to head acceleration. The VOR normally serves to maintain eye gaze with head tilt or rotation and its main effects are mediated by a simple three-neuron arc connecting the vestibular portion of the 8th nerve to the motor neurones of the extraocular muscles [1]. In response to stimuli such as head movements, reflex activity occurs in the extraocular muscles, producing a compensatory eye movement. By placing surface electrodes around the eyes, synchronous muscle activity can be recorded in the form of ocular vestibular evoked myogenic potentials (OVEMPs) [23,25]. These responses are vestibular, rather than cochlear, in origin as they are present in deaf patients but are absent in patients with loss of vestibular function [18,24]. We aimed to measure the tuning and sensitivity of OVEMPs to whole head vibration in the transmastoid plane.

Four volunteers (2 females and 2 males between 31 and 52 years of age) with no auditory or vestibular deficits were stimulated using sinusoidal accelerations between 12.5 and 800 Hz (12.5, 25, 50, 100, 200, 400 and 800 Hz). The subjects were seated

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– submitted by Gill Barker

April 6, 2009
Oregon

Windmills in Oregon generating complaints about noise, possible health effects

Wind turbines may supply power without pollution but they are also generating complaints about noise and even possible health effects for people who live near them.

Dan Williams says the 240-foot-tall turbines he can see from his hilltop home near Boardman in Eastern Oregon make so much noise they keep him awake at night.

Williams is among neighbors along Highway 74 demanding that Morrow County enforce state noise regulations on the Willow Creek Wind Energy Project or revoke its land-use permit.

The 40-year-old construction contractor told The Oregonian newspaper in Portland that wind-energy companies downplay the noise.

"They said this is going to be about as loud as your refrigerator in your house, which is a crock," he said.

With Oregon on track to triple its wind-energy production in coming years, concerns are likely to increase.

Oregon wind farms already generate 1,000 megawatts, enough to power as many as 300,000 homes, said Lou Torres, spokesman for the Oregon Department of Energy.

Wind farms to produce an additional 2,000 megawatts are in the works, he said, giving the state a total of about 2,000 turbines, many taller than the Statue of Liberty when blades are pointed up.

"When that (work) is completed in the next couple of years, we will probably be fourth or fifth in the country on wind energy," Torres told The Oregonian.

Many are planned for Columbia Plateau in Morrow, Sherman, Gilliam, Wasco and Umatilla counties.

The Oregon Facilities Siting Council last July approved a 909-megawatt farm with 305 turbines spread over 32,000 acres in Gilliam and Morrow counties, being developed by Caithness Energy of Chicago.

But the backlash is getting some attention.

In January, a Massachusetts company yanked plans for a wind farm outside The Dalles after opponents complained that it would be too close to homes, ruin spectacular Columbia River Gorge vistas and put wildlife at risk.

Other critics, including some in Oregon, cite work by a New York doctor who coined the term "wind turbine syndrome" to describe effects such as headaches, dizziness and memory loss of living near the machines.

"This thing is not rare," Dr. Nina Pierpont of Malone, N.Y., said of the syndrome.

Industry representatives dismiss such talk.

Shawna Seldon, spokeswoman for the American Wind Energy Association in Washington, D.C., said her group is unaware of any peer-reviewed research linking wind turbines and negative health effects.

Likewise, Mike Logsdon of Invenergy, the 6-year-old Chicago company that built the Willow Creek farm, also said there is no evidence suggesting the turbines cause health problems.

Still, another resident of the area, Mike Eaton, agrees with Williams and other neighbors who complain about the noise and vibrations from the turbines.

The retired 61-year-old furniture maker said the turbines give him nausea by aggravating inner-ear and balance problems he's had since a 1966-67 tour in Vietnam subjected him to the constant pounding of an Army 155-mm artillery piece.

"I cannot live where I'm living now with these decibels and vibrations," he said.

Carla McLane, Morrow County planning director, said health issues never came up during planning for the 72-megawatt Willow Creek project. The county approved the farm in 2005, and turbines began operating this past December.

But Ryan Swinburnson, an attorney for Morrow County, said officials take the complaints seriously.

"The county's position is if there is a violation, the violating party needs to correct it," he said.

The Associated Press

The Seattle Times [1]

6 April 2009

URLs in this post:
[1] The Seattle Times: **http://seattletimes.nwsource.com/html/localnews/2008990618_windfarms06m.html?syndication=rss**

Submitted by
Jill Barker

November 19, 2008
Opinions, Oregon

Wind power: the "green" myth

Wind power has become increasingly publicized in Oregon as the "green" solution to the state's increasing energy demand. Currently, the Energy Facility Siting Council (under the Oregon Department of Energy) reports generating 889 megawatts (MW) of electricity with the power of wind. The council has recently approved the Shepherds Flat Wind Farm, which will add 909 MW, more than doubling the current capacity. Shepherds Flat is considered the largest single wind farm in the world and will cost over $600 million.

The Oregon Renewable Energy Act (SB 838) mandates utilities to use more renewable energy in their electricity generation: 5% by 2011 until 2014; 15% for 2015-2019; 20% for 2020-2024; and 25% in 2025. The surge in "green" activism and SB 838 have pushed the construction of new and bigger wind farms. However, the idea of environmentally friendly emission-free wind power could not be farther from the truth.

The most important factor to consider when evaluating the environmental impact of wind generation is that the power source is inconsistent and intermittent. This variability can present substantial challenges to incorporating large amounts of wind power into a grid system, since to maintain grid stability, energy supply and demand must remain in balance. In order to integrate wind energy, utility companies must provide a power load to meet the base requirements of the population. This means operating a natural gas or coal fired power plant below optimal efficiency to back up the variable power source. Because of difficulties and cost associated with shutting off thermal power plants, these plants will operate in spinning standby mode, which produces more CO2 per kilowatt hour (kWh) than if the use of the plant was optimized, thus offsetting the benefits of wind. Furthermore, the use of more wind energy increases the need for fossil fuel generating plants to operate on standby mode.

Wind power has many other negative externalities that are commonly overlooked, such as land and material use, construction emissions and habitat destruction. A typical wind farm requires as much as 10 to 80 acres per MW of electricity generated. The Shepherds Flat site will take up 21,919 acres. While operating at average capacity, the site will require 72 acres per MW.

To put this in perspective, a 900 MW natural gas powered plant may occupy 100 acres. Using a natural gas powered plant instead of a wind farm of the same capacity would, in a sense, "free up" enough land area that, if forested, potentially could offset 3,381,945 tons of CO2. This would be the equivalent to taking 673,694 cars off the road for a year.

Land usage is not the only concern with wind power. The construction of wind farms is in itself an environmental issue. The material requirements for wind turbines are up to 40-50 times greater than for gas powered plants per unit of output and can have only half the useful life. There are two major components of wind turbine construction, concrete and steel, both of which are major contributors to greenhouse gas emissions. Turbines require a significant amount of concrete to be placed at their

base. The production of cement, which is the main component of concrete, is one of the most energy intensive of all industrial manufacturing processes and accounts for 5-10% of the world's carbon dioxide emissions.

The production of steel for the turbines is also highly energy intensive, and each ton of steel produced adds approximately two tons of carbon dioxide to the atmosphere. The raw materials needed for the 303 turbines at the Shepherds Flat Wind Farm would be the equivalent of adding 48,653 cars to the road for a year. In addition to CO2 emissions, construction and operation of the facility has significant adverse impacts to soils that can affect crop production on adjacent agricultural lands, native vegetation, wildlife habitats and water quality.

Most wind sites are close if not adjacent to wildlife areas because of their remote locations. Six wildlife-protected areas are within 20 miles of the Shepherds Farm site. The Horn Butte Wildlife Area, a large nesting habitat for environmentally vulnerable long-billed curlews, is adjacent to the wind site. The Willow Creek Wildlife Area, a public viewing area for waterfowl, shorebirds and songbirds, is about a mile from the site. Nine endangered or threatened species have the potential to exist within the site's territory. Not only wildlife but historic monuments will be affected by its construction. The Oregon National Historic Trail, which passes through six states, crosses a portion of the site.

Even environmentalists understand the externalities of wind power. In New York, Laurie Farber resigned from her position as president of the Sierra Club, America's oldest and largest environmental organization, due to a dispute over the construction of a new wind farm.

She stated: "I found it intensely frustrating that groups refused to even want to consider that there might be any environmental impacts [of wind power].... They [wind power advocates] were willing to be blind about this, because of a 'renewable energy at any cost' attitude."

Since the introduction of wind energy into the industrial power market, wind energy lobbyists and other wind advocates have greatly overstated the environmental benefits and greatly understated its many adverse effects. Because the industry only exists through subsidies, wind power increases electric utilities' costs, which are passed on to the ratepayers for no actual environmental benefit. It is time to stop advocating for this "green" industry that neither improves the environment nor provides reliable consistent power.

By Todd Wynn

Todd Wynn is the climate change and energy policy analyst at Cascade Policy Institute, Oregon's free market public policy research center.

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[3] Cascade Policy Institute

18 November 2008

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[3] Cascade Policy Institute: **http://www.cascadepolicy.org/2008/11/18/wind-power-the-green-myth/**

– submitted by
Jill Barker

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Green Backlash: The Wind Turbine Controversy

As the nation rushes to add renewable energy to its power portfolio, a growing chorus of homeowners and others are expressing concerns about how industrial wind projects are affecting health, safety, lifestyle and property values.

Green marketing campaigns typically show rows of industrial wind turbines in remote windy locales. However, wind projects are increasingly finding their way into rural residential areas. With investment tax credits and government mandates advocating for additional installations, more homeowners and property owners may soon find themselves facing a turbine project proposal.

Low-profile yet widespread concerns expressed from Kansas and Wisconsin to Vermont and Pennsylvania about industrial wind complexes are showing up all over the Internet. The efforts of community groups and various experts to bring a full discussion to light of the costs and effects of turbines are resulting in a small but growing green backlash.

Wind Turbines One of three industrial turbines and a substation that now neighbor the Taylor family home in rural Illinois. © Rene Taylor

Homeowner Problems

"We've been given a life sentence," says Larry Lamont describing his life since 88 industrial wind turbines, each nearly 400 feet tall, were inserted among the homes, farmettes and farms in the rolling landscape of Fond du Lac County, Wis., where he lives. Lamont and his wife, Carol, moved there more than 30 years ago, renovating a pre-Civil War-era stone house and adding a 17 x 13-foot window wall to enjoy the views of the one-acre pond they dug and the wooded hills beyond.

When they heard about wind turbines coming to the area, they were supportive at first and even wanted one sited on their property. "We believed in them," says Lamont. That belief has changed. They now have three turbines closer to their home than one proposed for their property would have been. The family has experienced significant sleep disturbances, although, Lamont says, "we had been told it would sound like the refrigerator running." They have also lost their viewscape. "It was suggested that we pull a curtain over our window wall." The impact has been total, he says.

"Ducks and geese that had summered on the pond for the past 25 years left mid-summer and never returned and the bat houses on the barn also were abandoned," he says. "Wind towers are known to be fatal to bats because their lungs are ruptured by the pressure change created by the turbine blades. Now all we see on the pond is the reflection of the turbines, including their red lights at night."

– submitted by Gill Barker

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Site Evaluation Council
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Olympia, WA
98504-3172

Scoping Comment
#394

Washington State Energy Facility Site Evaluation Council

COMMENT FORM

Whistling Ridge Energy Project

Land Use Comment – Underwood, Washington, May 7, 2009

Name: Stephen Bronsveld

Address: [redacted] Underwood WA 98651

Please write any comments you have with respect to the Whistling Ridge Energy Project - Land Use

Leave this sheet in the Comment Box today, or mail it to: EFSEC, PO Box 43172, Olympia, WA 98504-3172. Comment letters must be postmarked by Monday, May 18, 2009.

Our local Plan for Long-term Economic Security is demonstrated by our roads. They get steeper and narrower and tighter as you get further away from the river on Dalles. They restrict industrial traffic to keep our community rural - and it works - you saw it yourselves. Please don't wreck our plan by punching through a big sweeping fast industrial road. You know

Use the back of this form if you need more room for your comments.

For more information about EFSEC's review of these project changes, please contact: Jim La Spina, EFSEC Siting Specialist, PO Box 43172, Olympia, WA 98504-3172, call (360) 956-2047, or e-mail efsec@cted.wa.gov

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the effect on development that large roads have. Astronauts can see roads into the Amazon from space because of the clearing that takes place on both sides. Look at how log trucks carry their back half piggy-back to make a short manuvarable vehicle with weight on the 8 driving wheels to be able to climie the steep roads uphill, Then transform to long wheel base log haulers with twice as many wheels and brakes on the ground and a rear wheelset that automatically counter steers to allow the load to go around corners regular tractor trailers could never make. This is how

x

Pg. 3. Brookfield Land Use W.R.

a very big logging industry can operate easily and efficiantly on right roads and the area can maintain its rural character. Preserving this long standing rural and quiet nature is important because it allows and encourages the kind of development we do want: Agriculture, Timber. Tourism. Under Title 22.

our community will grow. I know it is not "Big Numbers" like the wall st. guys would like, but it is our plan and we have a right to stick to it, if we want to.

There are aspects of the WREP application that bear on this:

Pg. 4. Brassfield Land Use W.R.

Sec. 2.19.5 Alternative Access

Pg. 2.19.3 Route 2 K-K- to Scoggins Rd.

" requires minor roadway improvements would not directly impact any non-project landowners "

- As you heard testified at the Underwood Hearing. the applicant has given this assurance before. It must mean that thier project will not trespass on or over and, certainly, that none of the land of any "non-project landowner" will be needed in any way. i.e. road widening etc.

Sec. 2.20.4.9.

"No... or any related facilities are proposed within NSA."

- The industrial road is a related facility

x

Pg. 5. Brussels Land use W.R.

Sec. 2.20.4.8.

Pg 2.20.-13

CG2930 to remain Category 1 road

- I don't see how that is possible. Road will be required to support generator part hauling and crane transport forever.

Sec. 4.2.1.3

Pg 4.2-20

Quotes 16 USC 544(c) section 17(a)(10) then attemps to mischarectorize what it says. The N.S.A. can preclude activities or uses outside the boundries so long as it doesn't do so based solely on inconsistancies that can be seen or heard.

X

Stephen Brouwer
[redacted]
Underwood WA 98651

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EFSEC
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98504+3172

Scoping Comment
#395

Rob McKenna
ATTORNEY GENERAL OF WASHINGTON
Government Compliance & Enforcement Division
PO Box 40100 • Olympia, WA 98504-0100 • (360) 664-9006

May 18, 2009

Allen Fiksdal
Energy Facility Site Evaluation Council
905 Plum Street SE
PO Box 43172
Olympia, WA 98504-3172
(360) 956-2047

RE: Comments on Scope of Environmental Impact Statement
Whistling Ridge Wind Power Project

Dear Mr. Fiksdal:

Counsel for the Environment (CFE) appreciates this opportunity to comment on the scoping of the Environmental Impact Statement (EIS) to be prepared for the Whistling Ridge Claim Wind Power Project (Whistling Ridge). CFE takes no position in support or opposition to the application of Whistling Ridge at this time. The following comments seek to ensure that the EIS fully captures and analyzes the proposed project's environmental impacts, and possible mitigation measures and alternatives.

Whistling Ridge is the first wind turbine farm to be sited in a forested area in the State of Washington. If approved and constructed, it will likely set a precedent for future development of wind turbine farms in forested habitat. Accordingly, the EIS should identify and carefully scrutinize all significant environmental impacts likely to result from the project, as well as all reasonable means of mitigating for, or avoiding, these impacts. Alternatives to the Whistling Ridge project and cumulative impacts should also be fully explored.

CFE believes that the EIS, at a minimum, should analyze construction and operation impacts to, or arising from, the following:

1. Rare and endangered plant species.
2. Avian species and avian habitat, including endangered and threatened species and species of concern.
3. Bats and bat habitat.

4. Wildlife and wildlife habitat, including endangered and threatened species, and species of concern.
5. Fish and aquatic habitat, including endangered and threatened species and species of concern.
6. Wetlands.
7. Surface water.
8. Ground water.
9. Air quality.
10. Noise.
11. Wildfire.
12. Traffic.

Thank you for the opportunity to comment on the scoping of the Whistling Ridge EIS. If you have any questions regarding these comments, please give me a call at (360) 586-2438.

Sincerely,

H. BRUCE MARVIN
Counsel for the Environment
Assistant Attorney General

HBM:cv

Cc: Linda Dalton, Senior Assistant Attorney General
Christina Buesch, Senior Counsel
Nathan Baker, Friends of the Columbia Gorge
Rick Aramburu, SOSA
Andrew M. Montano, BPA

Scoping Comment
#396

State of Washington
Department of Fish and Wildlife
Habitat Program - Major Projects Division - Wind and Water Energy Section

Mailing Address: 2620 North Commercial Avenue (509) 543- 3319
Main Office Location: 2620 North Commercial Avenue – Pasco, WA 99301

MWR-07-09

May 14, 2009

Allen J. Fiksdal, EFSEC Manager
Energy Facility Site Evaluation Council
P.O. Box 43172
905 Plum Street SE
Olympia, WA 98504-3172

SUBJECT: Whistling Ridge Windpower Project, EFSEC Application No. 2009-01

Dear Mr. Fiksdal:

The Washington Department of Fish and Wildlife (WDFW) has reviewed the above-referenced documents and offers the following comments at this time. Other comments may be offered as the project progresses.

General Comments

Based solely on the data contained in the application, and subsequent data that will likely be presented in the EIS, the proposed Whistling Ridge Wind Energy Project could have adverse impacts to birds and bats. Therefore, WDFW recommends additional studies, as identified in section 2.17.2, specifically, northern goshawk and bat surveys. However, it is uncertain that the additional data on northern goshawks, northern spotted owls, and bats coupled with the existing avian and bat data will alleviate WDFW concerns with potential impacts to birds and bats with this wind energy project. The habitat is predominately managed coniferous forests, a characteristic that has likely resulted in the high raptor, bat, and bird use/occurrence recorded at this site, and a habitat type that has little to none avian and bat data, impacts, and conclusions associated with wind energy development.

There is a lack of comparable wind power projects in coniferous forests any where in the U.S. from which we can assess preconstruction avian and bat data with operational fatality. However, based on the data and statements such as, "thus, based solely on the

presumed relationship between pre-construction bat activity and post-construction fatalities, bat mortality rates at SWRA may be higher than many other wind resource areas in the U.S" and "based on data collected during this study, raptor use of the Saddleback project area is...moderate to moderately high compared to most other WRAs evaluated throughout the western and Midwestern U.S" our approach to this project at this point in time is to proceed cautiously, carefully consider, protect, and conserve the natural resources of the site and adjacent lands, and slow down the incentivized green energy freight train that is barreling through the State of Washington.

Specific Comments

We recommend that the information presented on the Northern Goshawk, a State Candidate Species for listing and a Federal Species of Concern, be consistent throughout the application. For example, on Page 1-8 it states that "although no goshawks were detected during protocol surveys, individuals were spotted during general avian migration and breeding surveys." This is in contrast to the information in Section 2.17.2 that states "no goshawks were found on the project site, nor were any observed on any surrounding properties. It is highly unlikely that goshawks will be found on the project site..." However, the data in Appendices B-5 and B-6 indicate that northern goshawks were recorded during both the Fall 2004 and Summer 2006 surveys. Additionally, Section 2.17.2 states that goshawk, and other avian species surveys were conducted ion 2004, 2005, and 2008. The appendices indicate that these surveys were also conducted in 2006.

We recommend that any statements addressing raptor mortality of operational wind power projects in shrub-steppe and agricultural habitats with the anticipated raptor mortality of this site be removed from any future reports as they are misleading. They are misleading because "other new wind plants in the Pacific Northwest" are in shrub-steppe and agricultural habitats; not coniferous forest..." We appreciate that an attempt was made to suggest that raptor mortality "is expected to be low." However, based on information in the application, raptor use of the site is high. In fact, ..."raptor use of the Saddleback area in Fall is approximately 1.5 times higher than mean fall use at the other WRAs." (in east Oregon and Washington) and that..."raptor use of the Saddleback project area...is moderate to moderately high compared to most other WRAs evaluated throughout the western and Midwestern U.S."

Comprehensive auditory surveys were conducted for northern spotted owls and goshawks in 2004 and 2008. While the 2004 goshawk surveys appears to include the proposed turbine string to the east of the "Cedar Swamp" the 2008 survey does not. Interestingly, one bird species, the Barred Owl, was recorded frequently during the northern spotted owl surveys, but was not included in any of the avian reports. Additionally, while no spotted owls were recorded, we question the suitability of a wind farm within one of the few spotted owl special management areas in the State of Washington.

The bat data is extremely interesting and alarming in that "no data on bat mortality levels associated with wind energy developments in western coniferous forests are available to help predict risk to bats at the Saddleback Wind Resource Area." The data in Table 4 in Appendix B-8 should serve as warning that the Whistling Ridge Project could result in bat mortality 3-4 times higher than any other wind power project in the U.S. From Table 4, bat activity is a fairly good predictor of bat fatality. Fatality is presented in the number of bats/turbine. Using the Saddleback bat activity data from the table (138.4 bats) with the proposed 50 turbines, almost 7,000 bats could potentially be killed on an annual basis. However, "bat fatality patterns may differ from those in open habitats as well as in eastern deciduous forests."

The Turbine Timber Buffer (Figure 2.3-4), may reduce the typical open turbine string corridor, thereby reducing its appearance as an avenue for bird and bat travel, but may also attract birds and bats as a roosting, foraging, and nesting habitat. At this point, we recommend that additional discussions occur to develop the most suitable management actions along the turbine strings.

We also recommend that sensitive features such as such as snags, water, Oregon white oak, and talus be identified as an aid to impact assessment.

We look forward to working with all interested parties through the development of this project.

Sincerely,

Michael Ritter

Michael Ritter
Wind Mitigation Biologist

State of Washington
Department of Fish and Wildlife
Habitat Program
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