



THE MAINE WOODS

A Publication of the Forest Ecology Network

“In wildness is the preservation of the world.” Henry David Thoreau

Volume Twelve Number One • January 2012

Free



**Don't Get Caught in
the Great Green Wind
Scam's Web of Lies!**

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“We are already fighting World War III and I am sorry to say we are winning. It is the war against the Earth”

Raymond Dasmann

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A Voice in the Wilderness by Jonathan Carter

GREAT GREEN MOUNTAINTOP INDUSTRIAL WIND SCAM

For the last two and half years, FEN has been at the forefront of exposing what I call the "Great Green Mountaintop Industrial Wind Scam". If I had been asked three years ago about the potential for wind on Maine's mountains, I would have been enthusiastic. Indeed, FEN supported the Mars Hill project, endorsed John Baldacci's Wind Taskforce, and took little notice of the Expedited Wind Law when it was passed by the legislature. I remember the day Angus King called to talk about his plans for the Highland Mountains - in my backyard. He mentioned that there was a great renewable energy opportunity on the ridges of the Highland Mountains. In fact, the winds were so strong that one of the meteorological test towers had blown down. I told him I would be happy to snowshoe up with him and take a look. This was mid- January -- he declined!



FEN director Jonathan Carter along the Maine coast.

Hindsight is always 20-20. FEN's initial delirium around mountaintop

industrial wind was partly a result of our great commitment to stopping the ongoing crisis of climate change - a commitment we still maintain. In addition, in FEN's defense, a lot of what we know today about the massive ecological damage with no carbon reduction was not well documented and understood.

FEN has always taken positions based on science. We have always tried to find the most recent research and to examine it with an open and questioning mind. This is not always easy, and as a scientist, I know that it is possible to fall into the trap of finding only the science that fits your agenda. But in this case, the facts are the facts and the science is very clear - mountaintop industrial wind destroys forests, lays waste to fragile mountaintops, alters mountain hydrology, causes soil erosion and heavy metal leaching, eliminates important wildlife habitat, kills birds and bats, and does NOT reduce carbon emissions. In addition, it destroys the wild, scenic quality and silence of the mountains with flashing red lights and industrial high and low frequency sounds.

This issue of *The Maine Woods* is focused on exposing the lies and propaganda of the industrial wind developers. First Wind, Independence Wind, Iberdrola, Trans-Canada, and Patriots Renewable etc. have all exploited the fear of climate change in order to pocket billions of citizens' tax dollars. These folks don't care about climate change. They are not ecological thinkers. They do, however, represent the epitome of the corporate greed that has engulfed this country and the western world. These mountain slayers and profiteers are scam artists. With their money and bribes, they have bought public policy by buying politicians and gained access to the treasury through outright grants, loan guarantees, and production tax credits.

This group of scam artists, through their liberal dispensing of money and incestuous networking, have been able to form a cabal with the armchair environmental groups

- like NRCM and Maine Audubon. This cabal reminds me of the alliance between these "enviro" groups and the paper industry during the timber wars more than a decade ago. In the beginning, some understanding for the armchairers' betrayal of the Maine mountains was warranted. After all, it took FEN time to get to the truth. However, in spite of their legitimate concerns about climate change, there is no way an environmentalist can continue to endorse mountaintop industrial wind - unless, perhaps, there is a money trail!

I remain optimistic that the gold rush and ecological carnage of industrial wind will cease in the coming year. FEN has done a great job helping to inspire many wind warriors and to educate the public about the lies of the industrial wind cabal. If it were not for the efforts of FEN and others, it is very probable that we would be experiencing industrial wind construction on Sisk Mountain, on

Stewart, Witham, Burnt, Bald and Briggs in Highland, on Bowers Mountain and Dill Hill, on Ragged Mountain in Camden, and on Saddleback Mountain in Carthage. It is clear that when the free money dries up, the mountain slayers and profiteers will close up shop. Unfortunately, we have already lost pieces of wild Maine - Mars Hill, Kibby Mountain, Stetson, Record Hill, Rollins, Freedom, Vinalhaven, and Spruce Mountain. There is some solace in knowing that in ten years, when many of these boondoggles are standing idle and rusting, we can take them down and allow nature to heal the damage to the forests and mountaintops.

I hope you find this edition of *The Maine Woods* both informative and thought provoking.

For the Planet,

Jonathan Carter, Director, Forest Ecology Network



Great Horned Owl by Paul Donahue



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The Villains of Mountaintop Industrial Wind - the Mountain Slayers and Profiteers of Maine

The folks listed below are the who's who of the worst of the worst. History will judge them as the pivotal destroyers of Maine's mountains and supporters of greedy profiteers. There is a degree of cronyism between all these politicians, corporate concerns, and environmental sell-outs, as well as endless money trails, some blatant others less obvious.

Angus King - former Governor of Maine. Co-owner of Independence Wind and mountain destroyer of Record Hill. Stands to walk away with millions of our tax dollars - 40 million from outright grants and 100 million federal loan guarantee, which is currently being challenged in a lawsuit in California. His son, Angus King III, is a VP of Mergers and Acquisitions of First Wind, the largest wind developer in Maine.

Rob Gardiner - co-owner of Independence Wind. Former Director of Natural Resource Council of Maine and the Conservation Law Foundation (both of which are avid industrial wind shills). He also currently sits on the board of Central Maine Power. A complete insider who helped write the visual impact section of the Expedited Wind Law, which basically takes away the right of individuals to challenge the negative impact on their property.

Dylan Voorhees - Natural Resource Council of Maine (NRCM) clean energy director. He is a complete shill for the wind industry. Voorhees and NRCM are constantly using the fear of climate change to promote industrial wind - even though the evidence shows clearly that mountaintop industrial wind does not reduce greenhouse gases. NRCM supported industrial wind in the remote Kibby Mountain Range. For their support, \$500,000 dollars was given them by TransCanada - the same corporation involved in the Alberta Tar Sands ecological disaster.

Ted Koffman - former member of Maine state legislature and currently the director of Maine Audubon. Maine Audubon under Koffman's leadership has accepted thousands of dollars from Maine Wind Developers. Not surprisingly, they have supported many of the proposed industrial wind projects, in spite of the fact that some of these projects threaten Bicknell Thrush, Bald Eagle and many other migratory bird species.

John Baldacci - former governor of Maine. It was during his administration that the industrial wind folks were able to solidify state government support through the passage of the Expedited Wind Law in 2008. As governor, he is ultimately responsible, but in truth he was just a puppet being manipulated by financial supporters with close ties to the wind industry. Of particular note: senior policy advisor, Karin Tilberg (former Maine Audubon staff), Alec Giffin, director of Forest Service, and Dora Mills, director of public health, all played a major role in developing the wind law and discounting the increasing body of scientific evidence supporting the claims that mountaintop industrial wind does not reduce carbon and does pose a public health threat.

Kurt Adams - former Chief Counsel for John Baldacci, who appointed him to head the Public Utilities Commission (PUC). Adams left PUC to become a VP of First Wind, where he received millions of dollars in compensation. The quintessential insider who will do almost anything to please his corporate overlords.

John Hinck - former chair of Energy and Utilities Committee and project leader for the Natural Resource Council of Maine (NRCM). He currently is running for the U.S. Senate against Olympia Snowe. Hinck's wife,

Juliet Brown, is an attorney for Verrill Dana in Portland, which lobbies for Iberdrola and TransCanada. She has represented TransCanada, First Wind, and Angus King's firm, Independence Wind. Brown sat on the governor's task force that wrote the Expedited Wind Law which her husband voted for in 2008. Brown was also responsible for brokering the \$500,000 payment by TransCanada to NRCM, Maine Audubon, and the Appalachian Trail Club for dropping their opposition to the Kibby Mountain industrial wind development.

George Smith - former director of the Sportsman's Alliance of Maine (SAM). Mr. Smith has a well-deserved reputation for "following" the money. As director of SAM he accepted large donations from many forest destroyers and developers. He is now a shill for the industrial wind folks, and not surprisingly, takes money from them.

Jack Parker - President and CEO of Reed and Reed, an industrial wind contractor. Reed and Reed is responsible for much of the on the ground destruction of the Maine mountains - Mars Hill and Kibby projects. Reed and Reed regularly gives money to wind lobbyists and environmental groups which will act as shills for industrial wind.

Peter Vigue - CEO of Cianbro Corporation, Maine's largest construction company. Vigue has been an outspoken proponent of industrial wind, both onshore and offshore. Cianbro has already made millions from industrial wind, mostly from building transmission lines. Vigue is really adept at playing the political game, and Cianbro is not shy about spreading money around to buy friends and influence.

Jeremy Payne - Executive Director for Maine Renewable Energy (MREA). Payne is the hired gun for the wind industry. He is their primary spin doctor in Maine. He works closely with industrial wind developers, construction firms, and "sold out" environmental organizations. Payne along with Voorhees of NRCM work hard to heighten the public's fear of climate change and energy insecurity to advance the wind industry's position.

Paul Williamson - Director of Maine Renewable Energy Initiative. The purpose of the initiative is to provide

the leadership for the development of Maine's wind resources. This organization is nothing more than a front for the wind industry and its corporate cronies.

George Baker - CEO of Fox Island Wind, Energy Specialist for Maine Island Institute, a keynote speaker at American Wind Energy Association. Mr. Baker is responsible for the Vinalhaven Turbines which have forced people out of their homes and resulted in individual health problems.

Other Notables

Sean Mahoney - Conservation Law Foundation (Rob Gardiner former Director). The Conservation Law Foundation has filed as an intervener in favor of industrial wind before LURC.

Beth Nagusky - former attorney for PUC and NRCM. Director of Baldacci administration Office of Energy, Independence and Security. Currently, Maine Office Director for Environment Northeast (ENE).

Stacey Fitts - state legislator and chair of the Energy and Utilities Committee. He was a member of the Baldacci task force that wrote the Expedited Wind Law of 2008. He has blocked every effort on the part of citizens to repeal or amend the law. He is a shill for the wind industry.

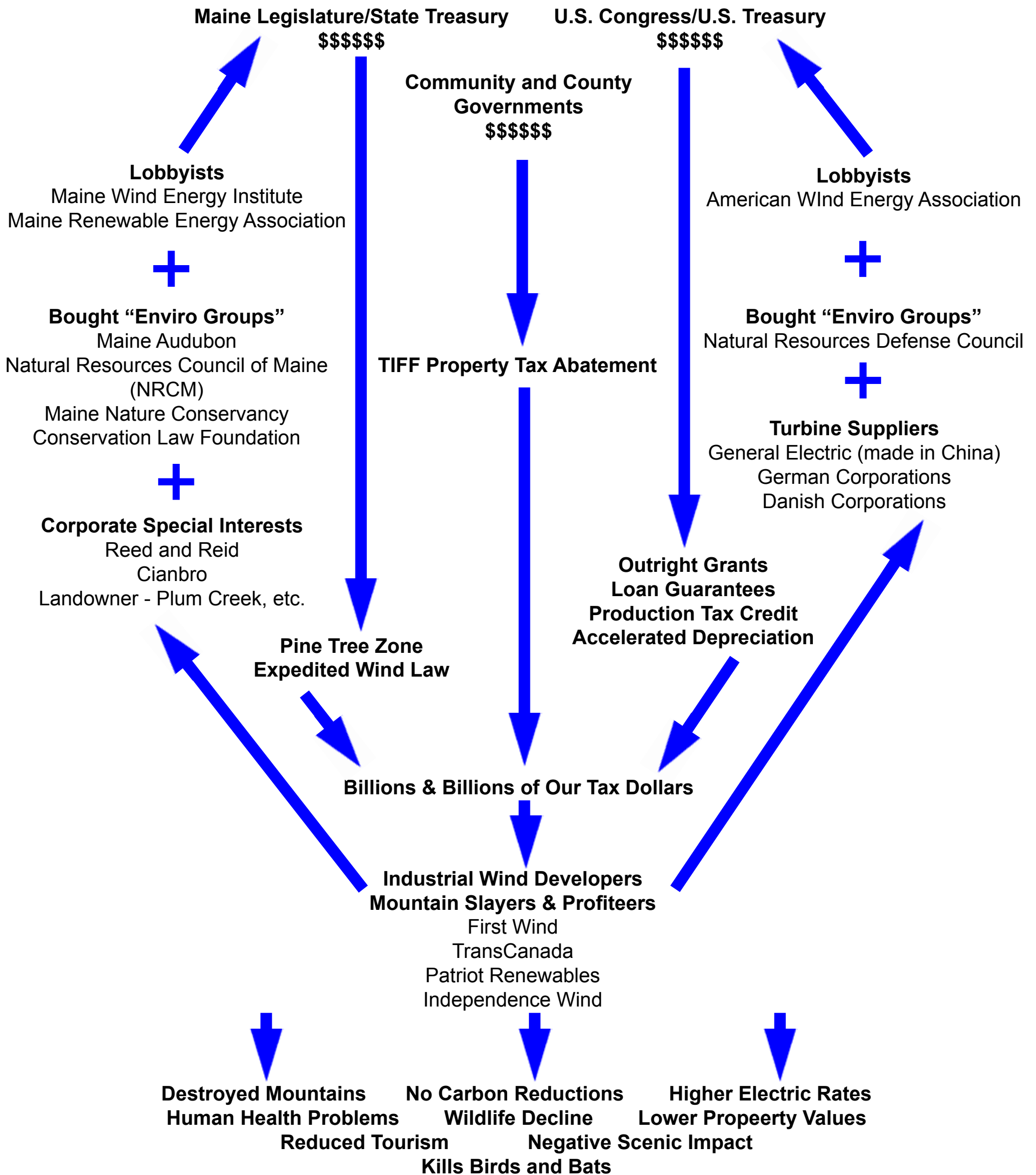


Peter Didisheim - Director of Advocacy, Natural Resources Council of Maine. Key member of task force which wrote Expedited Wind Law of 2008.

Jody Jones - Wildlife Ecologist, Maine Audubon Society. Key member of task force that wrote Expedited Wind Law of 2008.

Alex Du Houx - member of Energy and Utilities Committee. Votes consistently pro-industrial wind. He is Campaign Director for Operation Free, whose logo includes an industrial wind turbine.

Corporate Cronyism and the Great Green Wind Scam Flow Chart



The Great Green Wind Scam

by Jonathan Carter

Not only will large-scale wind power blight Maine, but it won't lower emissions or reduce our oil dependence.

Mountaintop industrial wind development in Maine is both an ecological disaster and economic boondoggle. The mountaintop wind developers, or as I like to call them, "the mountain slayers and profiteers," are foisting upon the state an Enron-esque scam. This house of cards will collapse. The only questions are, when, how much damage will have occurred, and how many billions of dollars of stranded costs will the ratepayers and taxpayers have to pick up?

From an ecological perspective there is absolutely no way one can defend mountaintop industrial wind development.

Blasting and mountaintop leveling cause irreversible damage to soils, hydrological flows and the unique assemblages of plants and animal. Thousands of bats and birds will be killed and many species of wildlife, including bear, moose and deer, will be forced to flee from the massive ground vibrations and the pulsating of high- and low-frequency noise.

If, as envisioned by the state, 360 miles of mountaintop industrial wind structures are built (resulting in 50,000 acres of clearcut), the visual pollution of 400-foot towers with flashing lights, and the accompanying noise pollution, will penetrate thousands of square miles of the Maine wild lands. It would completely alter the bucolic nature of the quiet Maine countryside.

The biggest fraud being perpetrated by the mountain slayers and profiteers is that mountaintop industrial wind will somehow reduce our dependence on foreign oil and somehow result in lower greenhouse gas emissions.

Three years ago, before I started to examine the science around mountaintop industrial wind, I would have wholeheartedly agreed -- but the facts are the facts.

Mountaintop industrial wind use will not reduce our consumption of oil and will not reduce greenhouse gas emissions. Only 1 percent of the electricity in the United States is produced by oil. In Maine we have two oil-fired electric power plants, which, because of the high expense, are only used when peak demand outstrips supply. Three separate studies have now documented that industrial wind does not reduce greenhouse gas emissions.

It is a simple concept to understand. Since wind energy is intermittent and unreliable, it cannot be counted on, and thus requires backup fossil fuel power availability. When the wind blows, a fossil fuel plant has to be turned down or off. When the wind stops blowing (which can vary on a minute-to-minute basis), the power source has to be ramped up again. It is analogous to driving in stop-and-go traffic -- more fuel is consumed and greater amounts of carbon are emitted.

Yet the American Wind Energy Association (a lobbying group paid for by the wind developers) still is trying to paint industrial wind as a "green" renewable energy. This is analogous to the tobacco companies for years telling us that cigarette smoking is not hazardous to our health. And, like the tobacco companies, the wind industry has its paid-for scientists and environmental groups

promoting its mantra.

If the ecological disaster of mountaintop industrial wind development is not enough to convince people to say no, then just consider the economic impacts.

Wind development would not even be a dream if it were not for the massive federal subsidies -- your tax dollars. If Maine constructs 360 miles of mountaintop industrial wind towers, \$5 billion of your money will be placed in the bank accounts of the wind developers. Currently, a wind developer can get 30 percent of a project's cost upfront from the U.S. Treasury. This does not include the loan guarantees, accelerated depreciation and potential production tax credits. While wind developers like to point out that they get a significantly smaller piece of the total energy subsidy pie than other energy projects, the fact remains that on a per-megawatt-produced basis, wind subsidies are 12 to 20 times greater. (Wind is subsidized at \$23 per megawatt -- the next nearest subsidy is nuclear at \$1.59 per megawatt).

The bottom line is that mountaintop industrial wind

is uneconomical. It will not only raise electric rates (which is terrible for business), it will also have the unintended consequence of undermining Maine's most reliable and profitable industries -- tourism and recreation. It is our "quality of place" that brings 34 million visitors each year. It is our quality of place that generates \$10 billion in sales each year. Our quality of place is the pot of gold at the end of the rainbow.

If we destroy the golden egg, our competitive advantage will disappear and folks will no longer want to come to "Vacationland," where every mountain has monstrous 400-foot towers with flashing lights. They might as well stay home in New Jersey.

Another unintended consequence of mountaintop industrial wind development is its impact on property values.

Recent nationwide studies have documented that property values plummet 20 percent to 40 percent within a two-mile radius of industrial wind turbines. There are already scores of folks in Maine who, because of the noise and visual pollution of wind turbines, would like to sell and move. However, most of these folks are stuck because nobody wants to buy their property.

How can we let these profiteers do this to Maine families?

In the final analysis, this house of cards the wind developers have built is going to come crashing down -- but not because these folks have seen the light, become less greedy and developed an ecological conscience.

Yes, like Enron, mountaintop industrial wind development is based on a pyramid scheme that is unsustainable. Industrial wind not only is unreliable, but the cost, even with the huge subsidies, cannot compete with the cost of natural gas.

At \$4 per million BTUs, natural gas costs would have to more than double to become more expensive than mountaintop industrial wind, with its \$6.65 per million BTU subsidy. Switching to natural gas on a national scale -- replacing coal -- would have the added advantage of reducing electricity generation-related greenhouse gases by as much as 75 percent.

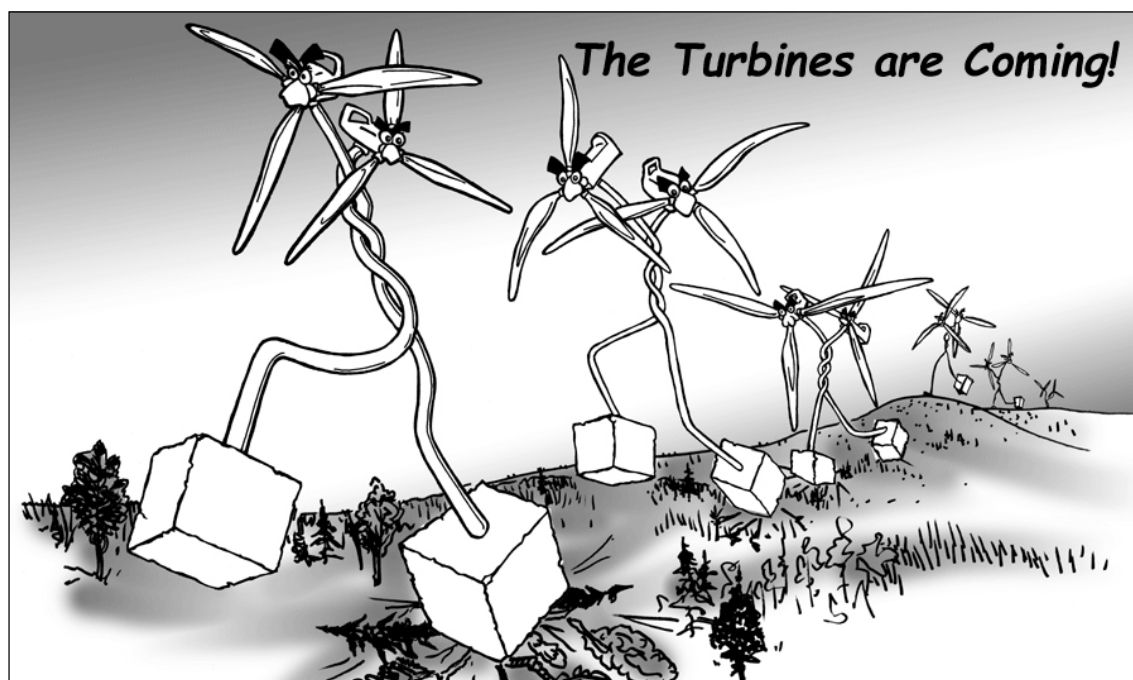
In conclusion, I want to make it clear that I believe strongly that we need to move away from fossil fuels. We need to pursue renewables -- residential/community wind and solar, geothermal, micro-hydro, etc. Energy conservation and efficiency should be our top priority. Unfortunately, intermittent and non-storable mountaintop industrial wind power is not the answer.

It is not the benign "green" industry some would like to have you believe.

The environmental damage to this place we love and call Maine will be catastrophic. It will significantly raise our electric rates, which will stifle business development and drain dollars out of the pockets of Mainers. It will reduce tourism and recreation revenue as well as strip Mainers of wealth through reduced property values.

The gold rush of wind developers, feeding at the trough of federal and state subsidies, must be stopped before Maine is transformed from a wild and bucolic paradise to an industrial wind wasteland.

Jonathan Carter is director of the Forest Ecology Network. This article was originally published in the Portland Press Herald.



energy is two to three times more expensive than conventional sources. If you add the cost of the necessary new transmission lines and associated facilities, the price differential gets even bigger.

Why would it be in Maine's interest to destroy our mountaintops to create energy that is three times more expensive and will undoubtedly raise our electric rates? This becomes even more absurd when one considers that Maine already has a surplus of energy -- yes, we are a net exporter.

The Maine wind developers like to talk about the contribution of about \$800 million spent to date on industrial wind in Maine. What they fail to mention is that most of this money was provided by federal government subsidies -- our tax dollars.

In addition, the bulk of the \$800 million paid for turbines that were manufactured in foreign countries.

In truth, the economic benefit to Maine thus far has been small -- only a few hundred temporary construction jobs. The irony is that once these projects are completed, they create very few permanent jobs.

The increased cost to ratepayers and taxpayers for a small number of temporary construction jobs is many times more than the wages paid by the developers for these jobs.

So how do these developers get away with bilking billions of our tax dollars to generate wind energy by destroying our mountaintops with industrial turbines, which in the long run are going to significantly raise our energy costs? This is a con job and a scam.

By any measure, mountaintop industrial wind use is

Wind Integration: Does It Reduce Pollution and Greenhouse Gas Emissions?

by the Institute for Energy Research

Many claim that wind generation is beneficial because it reduces pollution emissions and does not emit carbon dioxide. This isn't necessarily the case. The following article explains a phenomena called cycling where the introduction of wind power into a generation system that uses carbon technologies to back-up the wind actually reduces the energy efficiency of the carbon technologies. Recent studies have been done with actual data to evaluate the impact that cycling has on pollution and carbon dioxide emissions. Energy modelers evaluating the impact of legislation such as Senator Bingaman's American Clean Energy Leadership Act and the American Power Act proposed by Senators Kerry and Lieberman should take note for their models most likely are underestimating the cost of compliance by incorrectly modeling the integration of wind power into the electricity grid.

Wind is not a new technology. It was one of our principal sources of energy, along with wood and water, prior to the carbon era. But the use of renewables in the pre-carbon age was very different from the current use of renewables. Today, people rely on energy being available 24 hours a day, 7 days a week, 365 days a year, regardless of whether the sun shines, the wind blows, or there are high or low water levels. We now have over 1,000 gigawatts of generating plants, and a large and elaborate electrical grid that requires great coordination among system operators to avoid disruptions.

Also, in the pre-carbon energy era, when renewables were the sole source of energy, there were no coal-fired or natural-gas fired power plants to provide back-up power. Studies have found that the efficiency of those carbon-based plants is affected by incorporating wind energy into the system. When a plant's efficiency is reduced, its fuel consumption and emissions increase, causing unintended consequences that wind proponents do not disclose. Requiring even larger amounts of renewable energy through renewable portfolio standards will only exacerbate this problem.

Background

Our various electricity generating technologies were designed and constructed to meet electricity demand based on their best operating characteristics for meeting portions of the electricity load duration curve. The load duration curve illustrates periods of constant demand that are served by base-load power versus periods of intermediate and peak demand. Owing to their high capital cost, low fuel cost, and high capacity factors, technologies such as coal and nuclear were designed to operate continuously to meet the base-load demand component. Owing to their lower capital costs but higher fuel costs, natural gas technologies, including combined-cycle and turbine plants, were designed to meet intermediate and peak electrical load.

Wind is an intermittent technology since it can generate power only when the wind blows. Its low operating cost (with no fuel component) and the mandates of state

Renewable Portfolio Standards (RPS) make it practically a "must take" technology for system operators. RPSs require that a certain amount of electricity generation be produced by renewable fuels. The renewable target mandates tend to start out low but increase over time, with those of most RPS states reaching 15 to 30 percent by 2020 or 2025. Wind tends to be the primary technology for meeting RPS targets, since it is lower in capital cost than solar, thermal, and photovoltaic technologies, the other politically acceptable "green" technologies.

Part of the rationale for introducing RPSs is that the substitution of "green" technologies for carbon technologies is supposed to reduce pollution emissions as well as



carbon dioxide emissions. However, studies have shown that this may not be the case. As conventional generation (coal or natural gas) is reduced to make room for wind generation and is then increased as wind generation subsides, its heat rate rises. The heat rate is a measure of a generating station's thermal efficiency commonly stated in units of Btu per kilowatt-hour. This reduction in efficiency increases its fuel consumption and emissions. When sudden increases or decreases occur in generation output, it is referred to as "cycling".

The Bentek Study

Bentek did a study of the results of integrating wind into the generation mix of the Public Service Company of Colorado (PSCO), using data from the company's financial reports, the Energy Information Administration, the Federal Energy Regulatory Commission, the Environmental Protection Agency, and the National Renewable Energy Laboratory. PSCO is a largely coal-fired utility with 3,764 megawatts of coal-fired generators, 3,236 megawatts of gas-fired combined-cycle and gas turbine capacity, 405 megawatts of hydro and pumped storage capacity, and 1,064 megawatts of wind generators. Colorado has an RPS that required 3 percent of the electricity generated by investor-owned utilities come from qualifying renewable technologies by 2007, and 30 percent by 2020.

Colorado's energy demand is highest during the day,

peaking in late afternoon or early evening. Wind generation, however, is greatest between the hours of 9 pm and 5 am; it cannot be counted on to provide power when most needed, and so is used when available to meet the RPS. Most of the time that wind generation is available, it backs out (or replaces) natural gas. However, there are times when coal generation, which provides over 50 percent of PSCO's base-load generation, is backed out to make room for the wind generation. When this happens, coal generation is cycled, causing its heat rate to increase and resulting in more fuel consumption and emissions. In PSCO, coal cycling predominates because of the low amount of gas generation in the system since most of its gas-fired generation is from turbines and because wind is strongest at night when coal use is even more pronounced.

In the Denver non-attainment area, PSCO has 4 coal-fired plants: Arapahoe, Valmont, Pawnee, and Cherokee. Between 2006 and 2009, these coal-fired plants have experienced higher emission rates ranging from 17 to 172 percent higher for sulfur dioxide, 0 to 9 percent higher for nitrous oxide, and 0 to 9 percent higher for carbon dioxide. In 2008, Cherokee even switched to a lower sulfur coal, but still ended up with sulfur dioxide emissions higher by 18 percent. And, between 2006 and 2009, these plants reduced their generation by over 37 percent, exacerbating further the increase in emissions.

Because the PSCO data are limited, Bentek checked their results against data from the Energy Reliability Council of Texas, whose utilities are required to report generation levels by fuel every 15 minutes. Texas has the most wind capacity in the country - over 9,500 megawatts. Texas also has an RPS that was instituted during George W. Bush's governorship and that pushed Texas ahead of California in wind capacity during 2006. The Texas renewable portfolio standard requires that utilities have 5,880 megawatts of renewable capacity by 2015, including a target of 500 megawatts of renewable-energy capacity from resources other than wind. The legislation also set a target of reaching 10,000 megawatts of renewable energy capacity by 2025, although it will be exceeded much earlier. However, even in Texas, which has a large natural gas-fired capacity base, with over 40 percent of its generation being natural gas-fired, coal-fired generation is cycled as is shown in the graph below.

Another benefit that wind power generators get is that their forecast power generation entails no penalty if it is not available. Other generators must provide their own back-up power if their generation is suddenly unavailable. But the owners of wind generators believe that they can't be held accountable for whether the wind blows and thus for inaccuracies in their forecasting capability. For example, on February 26, 2008, a cold front moved through West Texas and rendered wind's output 1,000 megawatts less than promised, and that unexpectedly had to be made up by other generating technologies. Only careful and extensive coordination, such as was carried out in West Texas on that cold February day, can divert brown outs and black outs from occurring.

The Netherlands Experience

Two researchers, C. le Pair and K. de Groot, found that

the Netherlands Government was overestimating the amount of carbon dioxide reductions associated with wind production. The government was using incorrect data because it did not correct for the reduction in efficiency of the conventional power plants once wind was introduced into the system. Using data provided by CBS, the Dutch Institute for Statistics, the researchers made an estimate of the “turning point” where the efficiency reduction of conventional power plants balances out the fuel savings from wind energy. Using data for 2007, when wind power was at 3 percent, they found the turning point to be at an efficiency reduction of 2 percent based on all the power stations serving the Netherlands. That is, when the efficiency of the back-up plants was reduced by over 2 percent due to cycling caused by the integration of wind energy into the system, fuel use and emissions of the back-up plants increased.

Heat Rate Simulations

An engineer, Kent Hawkins, evaluated several heat rate simulations to represent cycling of the plants when wind is introduced into the system. One set of simulations evaluates wind energy replacing coal power with different technologies serving as the back-up power to wind, in order to evaluate their effect on fuel use and carbon dioxide emissions. He found that because of cycling, carbon dioxide emissions increase with the incorporation of wind energy if coal is the sole back-up power for wind. If coal and gas turbines or gas combined-cycle and gas turbines are used to back up the wind power, carbon dioxide emissions are reduced mainly due to the lower carbon dioxide emissions produced from natural gas generators as compared to coal generators. This is best seen by examining the last bar in the chart below where the lowest carbon dioxide emissions result when natural gas combined-cycle plants are solely used to replace coal.

An interesting consequence of this analysis is that certain areas of the world where wind is integrated into a system that is primarily coal-based may result in an increase in total carbon dioxide emissions from using wind in their generating sector. That is, in these circumstances, wind would not be providing an offset in carbon dioxide emissions, but would actually be providing an increase in those emissions. China, for example, relies on coal for 80 percent of its generation and natural gas for only 2 percent. China also added the most wind power of any country in 2009, 13 gigawatts, ranking third in the world in total wind capacity, with the United States first and Germany second. Since China’s wind would primarily be backed up by power from coal-fired generating units, it is no wonder that China’s carbon dioxide emissions increased by 9 percent in 2009.

Conclusion

As more wind units are built and data become available regarding their integration into conventional energy systems, we will learn more about the effects of wind units on the operation of conventional plants. A few studies have been done showing that the effect of wind integration on both fuel consumption and emission reductions can in fact be negative. Further evaluation of our current wind units and their effects on fuel consumption and emissions should be done before increasing the penetration of renewable energy to the 20 and 30 percent levels currently mandated by some state renewable portfolio standards, and before a national renewable portfolio standard is considered for enactment.

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Wind Power Won’t Cool Down the Planet - Often Enough It Leads to Higher Carbon Emissions

by Robert Bryce

The wind industry has achieved remarkable growth largely due to the claim that it will provide major reductions in carbon dioxide emissions. There’s just one problem: It’s not true. A slew of recent studies show that wind-generated electricity likely won’t result in any reduction in carbon emissions—or that they’ll be so small as to be almost meaningless.

This issue is especially important now that states are mandating that utilities produce arbitrary amounts of their electricity from renewable sources. By 2020, for example, California will require utilities to obtain 33% of their electricity from renewables. About 30 states, including Connecticut, Minnesota and Hawaii, are requiring major increases in the production of renewable electricity over the coming years.

Wind—not solar or geothermal sources—must provide most of this electricity. It’s the only renewable source that can rapidly scale up to meet the requirements of the mandates. This means billions more in taxpayer subsidies for the wind industry and higher electricity costs for consumers.

None of it will lead to major cuts in carbon emissions, for two reasons. First, wind blows only intermittently and variably. Second, wind-generated electricity largely displaces power produced by natural gas-fired generators, rather than that from plants burning more carbon-intensive coal.

Because wind blows intermittently, electric utilities must either keep their conventional power plants running all the time to make sure the lights don’t go dark, or continually ramp up and down the output from conventional coal- or gas-fired generators (called “cycling”). But coal-fired and gas-fired generators are designed to run continuously, and if they don’t, fuel consumption and emissions generally increase. A car analogy helps explain: An automobile that operates at a constant speed—say, 55 miles per hour—will have better fuel efficiency, and emit less pollution per mile traveled, than one that is stuck in stop-and-go traffic.

Recent research strongly suggests how this problem defeats the alleged carbon-reducing virtues of wind power. In April, Bentek Energy, a Colorado-based energy analytics firm, looked at power plant records in Colorado and Texas. (It was commissioned by the Independent Petroleum Association of the Mountain States.) Bentek concluded that despite huge investments, wind-generated electricity “has had minimal, if any, impact on carbon dioxide” emissions.

Bentek found that thanks to the cycling of Colorado’s coal-fired plants in 2009, at least 94,000 more pounds of carbon dioxide were generated because of the repeated cycling. In Texas, Bentek estimated that the cycling of power plants due to increased use of wind energy resulted in a slight savings of carbon dioxide (about 600 tons) in 2008 and a slight increase (of about 1,000 tons) in 2009.

The U.S. Energy Information Administration (EIA) has estimated the potential savings from a nationwide 25% renewable electricity standard, a goal included in the Waxman-Markey energy bill that narrowly passed the House last year. Best-case scenario: about 306 million tons less CO2 by 2030. Given that the agency expects

annual U.S. carbon emissions to be about 6.2 billion tons in 2030, that expected reduction will only equal about 4.9% of emissions nationwide. That’s not much when you consider

that the Obama administration wants to cut CO2 emissions 80% by 2050.

Earlier this year, another arm of the Department of Energy, the National Renewable Energy Laboratory, released a report whose conclusions were remarkably similar to those of the EIA. This report focused on integrating wind energy into the electric grid in the Eastern U.S., which has about two-thirds of the country’s electric load. If wind energy were to meet 20% of electric needs in this region by 2024, according to the report, the likely reduction in carbon emissions would be less than 200 million tons per year. All the scenarios it considered will cost at least \$140 billion to implement. And the issue of cycling conventional power plants is only mentioned in passing.

Coal emits about twice as much CO2 during combustion as natural gas. But wind generation mostly displaces natural gas, because natural gas-fired generators are often the most costly form of conventional electricity production. Yet if regulators are truly concerned about reducing carbon emissions and air pollution, they should be encouraging gas-fired generation at the expense of coal. And they should be doing so because U.S. natural gas resources are now likely large enough to meet all of America’s natural gas needs for a century.

Meanwhile, the wind industry is pocketing subsidies that dwarf those garnered by the oil and gas sector. The federal government provides a production tax credit of \$0.022 for each kilowatt-hour of electricity produced by wind. That amounts to \$6.44 per million BTU of energy produced. In 2008, however, the EIA reported subsidies to oil and gas totaled \$1.9 billion per year, or about \$0.03 per million BTU of energy produced. Wind subsidies are more than 200 times as great as those given to oil and gas on the basis of per-unit-of-energy produced.

Perhaps it comes down to what Kevin Forbes, the director of the Center for the Study of Energy and Environmental Stewardship at Catholic University, told me: “Wind energy gives people a nice warm fuzzy feeling that we’re taking action on climate change.” Yet when it comes to CO2 emissions, “the reality is that it’s not doing much of anything.”

Robert Bryce, a senior fellow at the Manhattan Institute, recently published his fourth book, “Power Hungry: The Myths of ‘Green’ Energy and the Real Fuels of the Future” (PublicAffairs).



Why the Wind Industry Is Full of Hot Air and Costing You Big Bucks

by Robert Bryce

The American Wind Energy Association has begun a major lobbying effort in Congress to extend some soon-to-expire renewable-energy tax credits. And to bolster that effort, the lobby group's CEO, Denise Bode, is calling the wind industry "a tremendous American success story."

But the wind lobby's success has largely been the result of its ability to garner subsidies. And those subsidies are coming with a big price tag for American taxpayers. Since 2009, AWEA's largest and most influential member companies have garnered billions of dollars in direct cash payments and loan guarantees from the US government. And while the lobby group claims to be promoting "clean" energy, AWEA's biggest member companies are also among the world's biggest users and/or producers of fossil fuels.

A review of the \$9.8 billion in cash grants provided under section 1603 of the American Recovery and Reinvestment Act of 2009 (also known as the federal stimulus bill) for renewable energy projects shows that the wind energy sector has corralled over \$7.6 billion of that money. And the biggest winners in the 1603 sweepstakes: the companies represented on AWEA's board of directors.

An analysis of the 4,256 projects that have won grants from the Treasury Department under section 1603 over the past two years shows that \$3.37 billion in grants went to just nine companies -- all of them are members of AWEA's board. To put that \$3.37 billion in perspective, consider that in 2010, according to the Energy Information Administration, the total of all "energy specific subsidies and support" provided to the oil and gas sector totaled \$2.84 billion. And that \$2.84 billion in oil and gas subsidies is being divided among thousands of entities. The Independent Petroleum Association of America estimates the US now has over 14,000 oil and gas companies.

The renewable energy lobby likes to portray itself as an upstart industry, one that is grappling with big business and the entrenched interests of the hydrocarbon sector. But billions of dollars in 1603 grants -- all of it exempt from federal corporate income taxes -- is being used to fatten the profits of some of the world's biggest companies. Indeed, the combined market capitalization of the 11 biggest corporations on AWEA's board -- a group that includes General Electric and Siemens -- is about \$450 billion.

Nevertheless, the clock is ticking on renewable-energy subsidies. The 1603 grants end on December 31 and the renewable-energy production tax credit expires on January 1, 2013. On Monday, AWEA issued a report which predicted that some 37,000 wind-related jobs in the US could be lost by 2013 if the production tax credit is not extended.

But the subsidies are running out at the very same time that a cash-strapped Congress is turning a hard eye on the renewable sector. The collapse of federally

backed companies like solar-panel-maker Solyndra and biofuel producer Range Fuels, are providing critics of renewable subsidies with plenty of ammunition. And if critics need more bullets, they need only look at AWEA's board to see how big business is grabbing every available dollar from US taxpayers, all in the name of "clean" energy. Indeed, AWEA represents a host of fossil-fuel companies who are eagerly taking advantage of the renewable-energy subsidies.



Consider NRG Energy, which has a seat on AWEA's board. Last month, the New York Times reported that New Jersey-based NRG and its partners have secured \$5.2 billion in federal loan guarantees to build solar-energy projects. NRG's market capitalization: \$4.3 billion. But NRG is not a renewable energy company. The company currently has about 26,000 megawatts (MW) of generation capacity. Of that, 450 MW is wind capacity, another 65 MW is solar, and 1,175 MW comes from nuclear. So why is NRG expanding into renewables?

The answer is simple: profits. Last month, David Crane, the CEO of NRG, told the Times that "I have never seen anything that I have had to do in my 20 years in the power industry that involved less risk than these projects."

Or look at E.On, the giant German electricity and natural gas company, which also has a seat on AWEA's board of directors. In 2010, the company emitted 116 million metric tons of carbon dioxide an amount approximately equal to that of the Czech Republic, a country of 10.5 million people. And last year, the company -- which has about 2,000 MW of wind-generation capacity in the US -- produced about 14 times as much electricity by

burning hydrocarbons as it did from wind.

Despite its role as a major fossil-fuel utility, E.On has been awarded \$542.5 million in section 1603 cash so that it can build wind projects. And the company is getting that money even though it is the world's largest investor-owned utility with a market capitalization of \$45 billion.

Another foreign company with a seat on AWEA's board: Spanish utility Iberdrola, the second-largest domestic wind operator. But in 2010, Iberdrola produced about 3 times as much electricity from hydrocarbons as it did from wind. Nevertheless, the company has collected \$1 billion in section 1603 money. To put that \$1 billion in context, consider that in 2010, Iberdrola's net profit was about 2.8 billion Euros, or around \$3.9 billion. Thus, US taxpayers have recently provided cash grants to Iberdrola that amount to about one-fourth of the company's 2010 profits. And again, none of that grant money is subject to US corporate income taxes. Iberdrola currently sports a market cap of \$39 billion.

Another big winner on AWEA's board of directors: NextEra Energy (formerly Florida Power & Light) which has garnered some \$610.6 million in 1603 grants for various wind projects. NextEra's market capitalization is \$23 billion. The subsidies being garnered by NextEra are helping the company drastically cut its taxes. A look at the company's 2010 annual report shows that it cut its federal tax bill by more than \$200 million last year thanks to various federal tax credits. And the company's latest annual report shows that it has another \$1.8 billion of "tax credit carryforwards" that will help it slash its taxes over the coming years.

The biggest fossil-fuel-focused company on AWEA's board is General Electric, which had revenues last year of \$150 billion. Of that sum, about 25 percent came from what the company calls "energy infrastructure." While some of that revenue comes from GE's wind business, the majority comes from building generators, jet engines, and other machinery that burn hydrocarbons. The company is also rapidly growing GE Oil & Gas, which had 2010 revenues of \$7.2 billion. GE Oil & Gas has more than 20,000 employees and provides a myriad of products and services to the oil and gas industry.

GE has a starring role in one of the most egregious examples of renewable-energy corporate welfare: the Shepherds Flat wind project in Oregon. The majority of the funding for the \$1.9 billion, 845-megawatt project is coming from federal taxpayers. Not only is the Energy Department providing GE and its partners -- who include Caithness Energy, Google, and Sumitomo -- a \$1.06 billion loan guarantee, as soon as GE's 338 turbines start turning at Shepherds Flat, the Treasury Department will send the project developers a cash grant of \$490 million.

On December 9, the American Council on Renewable Energy issued a press release urging Congress to quickly extend the 1603 program and the renewable-energy production tax credit, because they will "bolster renewable energy's success and American competitiveness."

But time is running short. Backers of the renewable-energy credits say that to assure continuity on various projects, a bill must be passed into law by March 2012. If that doesn't happen, they are predicting domestic investment in renewable energy could fall by 50 percent. A bill now pending in the House would extend the production tax credit for four additional years, through 2017. The bill has 40 sponsors, 9 are Republicans. The bill is awaiting a hearing by the House Ways and Means Committee.

Industrial Wind Power Output FAQ

by National Wind Watch

What is a megawatt or a megawatt-hour?

Manufacturers measure the maximum, or rated, capacity of their wind turbines to produce electric power in megawatts (MW). One MW is equivalent to one million watts. The production of power over time is measured in megawatt-hours (MWh) or kilowatt-hours (kWh) of energy. A kilowatt is one thousand watts. Production of power at the rate of 1 MW for 1 hour equals 1 MWh of energy.

What is the power capacity of wind turbines?

General Electric (GE) makes a widely used 1.5-megawatt model. If the wind is in the ideal range for that mode, i.e., between 27 and 56 mph, this 1.5-MW wind turbine will produce power at the rate of 1.5 MW, which is its rated, or maximum, capacity. GE has a new line of turbines rated at 2.3, 2.5, and 2.7 MW, and other manufacturers have similarly rated models.

What determines how much power a wind turbine can produce?

The power is generated from the energy in the wind, so a turbine's power is determined by its ability to capture that energy and convert it to rotational torque that can turn the generator and push electrons into the grid. A taller tower provides access to steadier winds, and larger blades capture more wind energy. A larger generator requires larger blades and/or stronger winds.

How much energy do wind turbines produce?

Every wind turbine has a range of wind speeds, typically 30 to 55 mph, in which it will produce at its rated, or maximum, capacity. At slower wind speeds, however, the production falls off dramatically. If the wind speed decreases by half, power production decreases by a factor of eight. On average, therefore, wind turbines do not generate near their capacity. Industry estimates project an annual output of 30-40%, but real-world experience shows that annual outputs of 15-30% of capacity are more typical. With a 25% capacity factor, a 1.5-MW turbine would produce $1.5 \text{ MW} \times 365 \text{ days} \times 24 \text{ hours} \times 25\% = 3,285 \text{ MWh} = 3,285,000 \text{ kWh}$ in a year.

What is "capacity factor"?

The capacity factor is the actual output over a period of time as a proportion of a wind turbine or facility's maximum capacity. For example, if a 1.5-MW turbine generates power over one year at an average rate of 0.5 MW, its capacity factor is 33% for that year.

What is the typical capacity factor for industrial wind turbines?

The average capacity factor for 137 U.S. wind projects reporting to the Energy Information Agency in 2003 was 26.9%. The total capacity factor for EU-27 countries in 2007 was 13%, according to the EIA.

What is the difference between capacity factor and availability?

A wind turbine may be "available" for 90% or more of the time, but its output depends only on the wind. Without the wind, it is like a bicycle that nobody rides: available, but not spinning. The turbine's "capacity factor" is its actual average output as a fraction of its full capacity. This is usually between 15% and 30%.

Do wind turbines work 30% of the time or 90%?

Neither. The first figure is a theoretical capacity factor,

the amount of energy actually produced over a year as a fraction of the turbines' maximum capacity. The second figure is availability, the amount of time that a turbine is not shut down. Neither figure expresses the amount of time that a wind turbine is actually generating electricity.

How much of the time do wind turbines generate energy?

Wind turbines generate electrical energy when they are not shut down for maintenance, repair, or tours and the wind is between about 8 and 55 mph. Below a wind speed of around 30 mph, however, the amount of energy generated is very small. Wind turbines produce at or above their average rate around 40% of the time. Conversely, they produce little or no power around 60% of the time.

Are capacity factor and efficiency the same?

No. Efficiency is a measure of how much of the kinetic energy in the wind is converted to electrical energy. It is unavoidable that some energy is lost in the conversion process. Even when a wind turbine is generating power at its maximum capacity, the electrical energy produced is only a fraction of the energy in the wind. (At best, it may be near 60%, which is actually quite efficient.) Efficiency is a matter of engineering and the limits of physics and usually irrelevant to normal discussion. Capacity factor is a measure of a wind turbine's actual output, which varies with the wind speed, over a period of time.

How many homes can a wind turbine power?

Proponents often express projected output as "enough to power x homes." According to the Energy Information Agency, the average US household uses 888 kWh per month, or 10,656 kWh per year. An average 1.5-MW turbine (26.9% capacity factor) would produce the same amount of electric energy as that used by almost 332 households over a year. It must be remembered, though, that wind power is intermittent and variable, so a wind turbine produces power at or above its annual average only 40% of the time. That is, most of the time, it is not providing its average power to its average number of homes. It must also be remembered that residential use accounts for only a third of our total electricity use.

How does wind variability affect wind power reliability?

A wind turbine's production is usually expressed as an annual average, masking its highly variable output. But because production falls off dramatically as the wind speed drops (by a factor of eight for every halving of the wind speed), most of the time the wind turbine is producing well below its average rate. The average rate of output or more is seen only about 40% of the time.

How does wind power's variable output affect the grid?

Wind turbine production of power responds to the wind, which even at the "best" sites varies dramatically from hour to hour and minute to minute. The grid, however, must respond to user demand. Since the grid dispatchers can't control wind power production any more than they can control user demand, wind turbines on the grid do not contribute to meeting demand. By pushing power into the grid, they simply add another source of fluctuation that the grid must balance.

What is wind power's capacity credit?

Wind power has a very low "capacity credit," its ability to replace other sources of power. For example, in the U.K., which boasts of being the windiest country in

Europe, the Royal Academy of Engineering projects that 25,000 MW of wind power will reduce the need for conventional power capacity by 4,000 MW, a 16% capacity credit. Two studies in Germany projected that 48,000 MW of wind power will allow reducing conventional capacity by only 2,000 MW, a 4% capacity credit (as described in "Wind Report 2005," Eon Netz). Similarly, the Irish Grid calculated that 3,500 MW of wind power could replace 496 MW of conventional power, a 14% capacity credit, and that as more wind turbines are added their capacity credit approaches zero. And the New York State Energy Research & Development Authority found in March 2005 that onshore wind power would have a capacity credit of 10%, based on a theoretical capacity factor of 30%. (See some of these and other documents here at National Wind Watch.)

How much back-up power is needed for wind power?

According to Eon Netz, one of the four grid managers in Germany, with 7,050 MW of wind power capacity installed in its area at the end of 2004, the amount of back-up required was over 80%, which was the maximum output observed from all of their wind power facilities together. That is, for every 10 MW of wind power added to the system in this case, at least 8 MW of back-up power must also be dedicated. In other words, wind needs 100% back-up of its maximum output.

Doesn't a unit of electricity produced by wind turbines reduce a unit from another source?

Because the grid must continuously balance supply and demand, yes, it must reduce the supply from somewhere else when the wind rises enough to start generating power. If there is hydropower on the system, that is the most likely source to be reduced, because it can be switched on and off the most readily. Some natural gas plants can also switch on and off quickly. Otherwise, the output from fuel-burning plants is ramped down or it is switched from generation to standby. In either case, it still burns fuel.

Can wind turbines help avoid blackouts?

No. Wind turbines themselves need power from the grid to work. A blackout knocks them out, too. If they were providing power at the time, that loss aggravates the effect of the blackout.

What is the difference between large and small turbines?

Small turbines are designed to directly supply a home or other building. Their variable output is balanced by battery storage and supplemented by the grid or an on-site backup generator. Large turbines are designed to supply the grid itself. The variable output of large wind turbines adds to the complexity of balancing supply and demand, because there is no large-scale storage on the grid.

National Wind Watch, Inc.

www.wind-watch.org



A Letter to the Department of Environmental Protection

by Bradbury Blake

Dear Jessica Damon:

I write once again to protest the issuance of permits for any utility scale wind projects in the State of Maine. In this case, it is regard to the illegal expansion of the permit issued to First Wind for the project that was approved for Oakfield. Should the DEP (Department of Environmental Protection) fail to say no to this proposed amendment to the Oakfield permit, it is, in my view as a citizen of this state, an illegal use of discretionary power. This project as now proposed by First Wind is NOT the project that was approved by DEP. Fifty 3.0 megawatt turbines is not 34 1.5 megawatt turbines! This project now sprawls far beyond the initially approved footprint onto different terrain and impacting a far greater area. To not clearly state to the developer that such radical change in what was permitted amounts to an entirely new project, subject to a new regulatory review process, is to show undue favoritism to a corporate entity at the expense of the rights of the citizens for participation in regulatory review processes that affect them in many dramatic ways.

The heinous Expedited Wind Permitting Process is bad enough in curtailing citizens' voice in reviewing the applications to DEP. To bend to the demand

of the developer to completely change a permit once granted, without an entirely new, open process denies the citizens' rights to due process, especially the whole new class of people who are impacted by the expansion who were not impacted or substantially less impacted by the project that was initially granted a permit. This is illegal. This is immoral. Who's state is this, anyway? The citizens of Maine or First Wind? For whom does the DEP, an entity of state government created by and for its citizens, work? First Wind or the citizens of Maine?

As a citizen, as an astute observer of the issues regarding implementation of the Expedited Wind Permitting statute and the applications reviewed by both DEP and LURC, and as an active participant in the DEP process of reviewing applications for the Rollins Wind project in Lincoln Lakes, the Record Hill Wind project in Roxbury, the Spruce Mt. Wind project in Woodstock, and the Saddleback Ridge Wind project in Carthage, I have reached several conclusions:

1. The DEP staff works actively with the wind developer and shuts out the citizens, particularly in not adequately providing advance notification to the general

public (such as "DEP has approved a site location for a Met Tower by a wind developer and beware, citizens, this may mean they want to do a project in this area") nor ever allowing legal hearings.

2. The DEP staff merely "goes through the motions" in providing so-called public comment meetings in lieu of hearings, where expert testimony is sworn and cross examination is allowed for the record.

3. The DEP staff do not listen to the citizens when we carefully research and present information and critiques of wind project applications. The quality of responses to



Wind turbines on the north end of Rollins Mt., with Mt. Katahdin in the background.

critical and pertinent questions raised have been superficial, vague, and dismissive. Citizen participation seems to be treated as an annoyance, whereby anything a wind developer wants gets full attention.

4. The assumption that anything and everything that a wind developer puts in an application is "Gospel", true, accurate, has sound basis in science and on the ground research has been proven by citizens over and over again to be bogus. Yet DEP continues that assumption. I personally exposed several outright omissions and re-use of old data gathered elsewhere in the Rollins Wind project application by First Wind, the developer of this questionable Oakfield project, and DEP never responded, just brought out its "Rubber Stamp" and approved. There are now hundreds of similar instances across the state whereby dozens and dozens of earnest, honest citizens raise questions and provide crucial information, all for naught.

5. From the interaction with DEP staff members, I have, reluctantly, gained this perception: Though many DEP staff may have strong environmental credentials and have, in many instances, provided strong critiques of en-

vironmental impacts of development that have provided vital protections to Maine's natural resources, wildlife, and citizens' quality of life, there appears to be a pervasive attitude that developers of utility scale wind power projects need not have such scrutiny as other projects. Hiding behind the explicit favoritism of the Expedited Wind Power statute lurks DEP staff who are willing to allow destruction of Maine's mountains, devastation of ecosystems, fragmentation of wildlife habitats, and imposition of health destroying shadow flicker, blade glint, audible noise annoyance way beyond ambient dBA levels, and low frequency sound (dBC scale) not even considered, in order to satisfy a misguided concept that wind power is inherently a good solution for what might be perceived as global climate concerns.

6. Just what is fair, anyway? As my friend on one of the Lincoln Lakes pointed out, "I cannot push a rock aside to make it easier for my grandchildren to get in Caribou Pond without DEP having a fit, but they let First Wind blast the (expletive!) out of Rollins Mt. and put up eighteen 389 foot wind turbines across the same pond?" So here is the same question once again, same players DEP & First Wind: is it fair to the citizens of this state that First Wind be allowed to hugely expand their permit and completely change what they are doing without due process for the citizens? Will

residents of Island Falls, and property owners on Pleasant Pond and Mattawamkeag Lake have any rights?

I would appreciate, as a human being, a respectful answer to these points. As a life-long resident and taxpayer of Maine, I should expect a thoughtful answer. As a cynic about the "Rubber Stamping" of the onslaught of wind power projects that will be the ruination of all I hold dear about our bountiful natural resources and beautiful state, I doubt I will get one. Come on, Jessica Damon, come on DEP staff, come on, Commissioner Aho, for once do the right thing and deny this illegal expansion of the Oakfield Wind permit and make First Wind start over and give the citizens the right to critique this proposal.

Bradbury D. Blake
25 Westminster Terrace
Cape Elizabeth, Maine 04107

photo by Bradbury Blake

Industrial Wind Update - Municipal and Legal

by Lynne Williams

When the towns of Dixmont and Jackson passed their wind ordinances in 2009, they were among the first such ordinances in the state. The residents of these towns were concerned that their town would be a target of industrial wind developers, who had already built a project in Mars Hill, one on Kibby Mountain, and one in Friendship. Both towns passed restrictive ordinances that served as models for the numerous ordinances subsequently passed throughout the state.

While the state and the wind industry has encouraged towns to pass ordinances based on the toothless state Model Wind Ordinance, most towns have put in the time and effort to educate themselves on the issues surrounding industrial

wind and have handcrafted ordinances specifically drafted for their own towns. In 2010, the town of Eastbrook in Hancock County, passed a comprehensive wind ordinance that was the first to include noise limits that were stricter than those in the state noise regulations. In the hearing on the subsequently permitted Bull Hill Project, an unincorporated territory next to Eastbrook, LURC considered the

Eastbrook ordinance, even though they were not legally required to, since it applied only to Eastbrook, not the UT. A number of the commissioners felt strongly that if a town takes the time and effort to hammer out and pass a wind ordinance, they should at least consider the wishes of the voters who live in a town that abuts a project in the UT.

In just the two month period of November and December, 2011, seven towns approved restrictive wind ordinances: Frankfort, Deer Isle, Caratunk, Brooksville, Cushing, Rumford, and Newry, and the town of Peru passed a moratorium on permitting wind projects, in order to give the town time to draft an ordinance. This unprecedented involvement by the citizens of Maine in crafting ordinances to protect the values of their towns belies the argument that the overwhelming majority of Mainers support industrial wind.

The ordinances crafted by these towns are as unique as the towns are unique. Some focus on noise issues, some on setbacks, some on scenic values that will be impacted by a wind project. The large corporate industrial wind developers have largely stayed out of the towns with ordinances, in order to avoid conforming their projects to a municipal ordinance. However, smaller developers, such

as Eolian Energy, have essentially ignored the fact that a significant proportion of the populace does not welcome them. Eolian Energy, a New Hampshire company seeking to build an industrial wind project in the Town of Frankfort, sued the Town, and is pressuring for a revote on the ordinance. Rather than picking up their chips and moving on, this company is attempting to undermine a legal vote at Town Meeting.

All towns must be aware that they need to carefully consider drafting and passing an ordinance regulating wind projects in their town. While most Land Use Ordinances include a clause stating that any use not expressly permitted in the town or in certain zones in the town, is



The Mars Hill industrial wind project.

prohibited, the wind developers are very clever at getting industrial wind farms included in categories of permitted activities. Most frequently, they argue that the wind project falls into the category of “essential services,” which are typically permitted in all, or most, zones in a town. Historically, “essential services” have included telephone polls, sewer mains, cables, and the like, not huge, industrial facilities that tower over the landscape. But time and again, municipal Planning Boards have bought into the argument and have approved these projects.

Towns can only protect themselves by specifically defining what category of use an industrial wind project falls into, where that use is permitted and what the constraints are on the project, including setbacks, day and night noise standards (absolute standards and where the measurements are taken from), decommissioning plans, financial capacity plans, visual impact assessments, and other important factors. Towns might also think about preparing a “scenic inventory,” that would require consideration of scenic impacts on various identified locations.

If you would like to learn more about passing a municipal wind ordinance, start with <http://www.windtaskforce.org/page/wind-opposition-websites> which is the web sit

of the Citizen’s Task Force on Wind Power and has a lot of good information and contacts to get you started on the educational and organizing process.

Legal Update

Friends of Maine Mountains has appealed the Department of Environmental Protection’s grant of a permit for an industrial wind project on Saddleback Mountain. The appeal was to the Board of Environmental Project and based on numerous factors, including the close proximity of the project to Mt. Blue State Park and Webb Lake, resources of state significance and on due process violations.

First Wind’s Bull Hill Project recently submitted the required updated financial capacity numbers which are currently being scrutinized by financial professionals working with the Intervenor Concerned Citizens for Rural Hancock County. Given that First Wind has four projects in various stages (Oakland 1 is permitted; First Wind was not allowed to withdraw Bowers, and is currently attempting to redesign the project; Bull Hill is permitted but current financial capacity has not been determined; and a draft decision has just been issued by the DEP for the Oakfield Expansion), it will be difficult for them to demonstrate that they have the financial capacity to develop all four of these projects, given that their financial documents seem to utilize the same assets to cover the cost of multiple projects. The Intervenor on the Bull Hill project will be commenting on the financial submissions and will appeal the financial capacity decision to LURC if they believe that First Wind failed to adequately demonstrate the required financial capacity.

First Wind’s Bower’s Project, as noted above, is being redesigned and will be back before LURC in April. At the December LURC meeting, two Commissioners stated that they doubted that the project could be redesigned so as to meet the LURC standards.

The Oakfield expansion has been met with extensive opposition, including many letters to the DEP and a petition including over 690 signatures. The draft decision granting the permit was recently issued, and the draft is unlikely to be significantly amended prior to the issuance of the final decision. “Protect Our Lakes,” the opposition group in the Oakfield/Island Falls region, plans to appeal the permit to the BEP and, if necessary, to the Maine Supreme Judicial Court. The Oakfield expansion project also requires a permit from the Army Corps of Engineers and there has been significant concern expressed by the U.S. Fish and Wildlife Service about harm to eagles at the project location. Opponents have been submitting comments to the Army Corps of Engineers urging them to take these concerns seriously and to deny the permit.

Lynne Williams is an attorney from Bar Harbor who has worked on behalf of the Friends of Lincoln Lakes, the Concerned Citizens for Rural Hancock County, and Protect Our Lakes and she has consulted with industrial wind opposition groups in the Downeast Region and the Western Mountains. Lynne is also one of the attorneys representing FEN and RESTORE: the North Woods in the Plum Creek appeal.



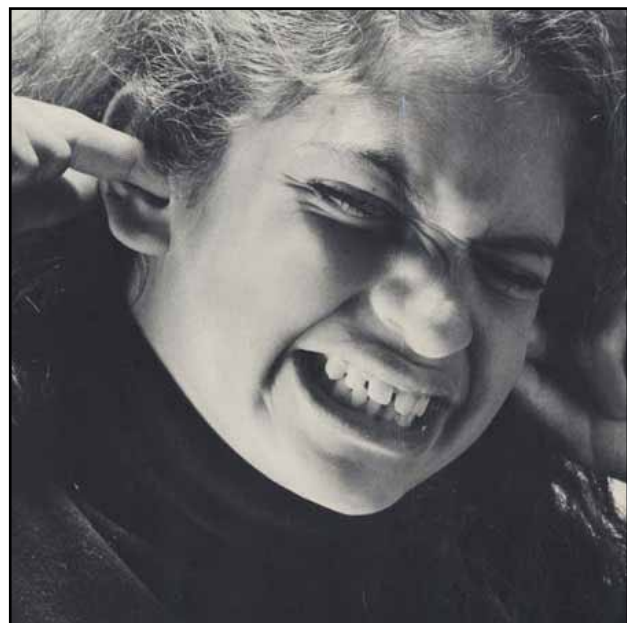
Nature of the Noise Issues

by the Acoustic Ecology Institute

Many people living near wind farms, in all parts of the country, report that noise from the 250 to 400 foot tall turbines is much more disruptive than they had been led to believe by project planners. Over the past couple of years, industry representatives have been far less likely to claim that turbines will be inaudible, but there is still a tendency to assure residents that likely noise levels (generally 40-50 dB) will be easy to live with. Many rural residents share the shock of one woman in Maine who discovered that, at night in rural areas, "40 dB is loud!"

How loud are current-generation wind turbines? Manufacturer specs for today's 300-400 foot, 1.5-2 megawatt wind turbines indicate that the "source level" of their noise emissions are generally 98-104 dB, roughly the same loudness as a chain saw or stereo at maximum volume (though turbines obviously have a very different - and potentially less penetrating - type of sound). With this in mind, it makes a certain sense that industry sound models and public assurances would suggest that turbines should have negligible impacts beyond several hundred feet. However, we must remember that the noise source is not at ground level, quickly dissipated by trees and buildings; rather, it emanates from high above the ground, with a direct, unobstructed path to a very large surrounding area.

These days it's not hard to find reams of compelling first-hand accounts online of wind farm noise, so there's little need to present a long litany here. More useful, perhaps, would be a concise summary of the types of problems reported by people living within earshot of turbines. First and foremost is sleep disruption. There is little question that noise levels more than 5 or 10 dB over the still late-night ambient levels of 20-30 dB can wake people. Some wind farm neighbors report many nights of getting only four or five hours sleep. Less appreciated is that low levels of noise also trigger non-waking arousal during sleep, which disrupts normal sleep stages, leaving the sleeper less well-rested upon waking in the morning. Many wind farm neighbors complain of headaches, irritability, trouble concentrating, and similar symptoms that are



often rooted in lack of solid nighttime rest.

For some people, turbine noise is also disruptive during the day. People report not being able to spend time in their gardens, or that their children play outside less. Metal workshop roofs can rattle in low frequency sound waves, making it difficult to stay and work. A smaller number of people report strange pressure in their ears or chest, or other physiological responses that can occur at any time of day or night when turbines are operating;



these may be associated with particular wind or atmospheric conditions, or with a pre-existing physiological sensitivity or imbalance.

In the most extreme cases, families are forced to move from their homes to escape the effects of the ongoing noise disturbances. These are not necessarily people living extremely close to turbines; such unlivable situations have occurred from 1000 feet to over a half-mile from the closest turbines. Some wind farm developers have actually bought out neighbors that were especially impacted, though most are left to make the best they can with a piece of property that will be difficult, if not impossible, to sell. I have not seen any comprehensive listing of residents who had to move, but such reports are becoming more common in the US, Canada, and the UK, totaling perhaps three to six per year.

Finally, and hardest to address, are concerns about low-frequency noise. Here at AEI, we have yet to fully assess these issues, since there is enough clear information regarding audible noise to work with for now. Complicating assessment of likely impacts, low-frequency noise varies more than audible noise in both propagation patterns (which can be affected by geology as well as topography and air conditions) and in how sensitive different people are to both audible sound and sub-audible acoustic energy (infrasound). Certainly there are people whose homes seem to vibrate in some sort of resonance when nearby turbines are active; whether these are low-frequency effects, or a resonance within the structure from low-level audible noise, is sometimes hard to ascertain. It also appears that larger turbine blade diameters may be associated with highly amplitude-modulated

infrasound; such impulses, even of sound well below hearing range, may be perceptible, either on the edges of audibility or as a physical sensation. Much less clear is whether such low-frequency sound, at relatively low levels (compared to those experienced in, say, a factory or jet fighter), can itself cause health effects; suffice to say, there is much debate on this question, and while the balance of evidence suggests that health impacts are unlikely to be widespread, it's premature to say - as the industry suggests - that the case is closed.

Most of those who are sharing their stories do so not because of some underlying dislike of wind energy; indeed, many were supporters of local wind projects who simply believed the reassuring promises of wind companies. Rather, they hope that by sharing their nightmares of disrupted lives, they might be able to help others avoid a similar situation. Over and over when listening to these folks, you hear the refrain, "if they'd only built them a little farther away." Some suggest a half-mile would likely have worked for them, while others say there are some turbines out to closer to a mile that are troublesome. In stark contrast to industry assumptions that those complaining are simple NIMBYs, the fact is that most of those who are struggling with noise are more than willing to see turbines; they just don't want to hear them so often. While some people end up angry, and may speak from a place of distrust or spite (and after all, we all know that every town has its share of cranky naysayers who always feel put upon), many more simply want to help others understand that it's not always easy to adapt to the types of noises that wind turbines make. When other communities hear the same comforting assurances that they had heard, there is a

desire to be sure that the whole picture is made clear.

Variability in sound propagation

During permitting, wind companies must present data to assure regulators that the sound levels at residences near their turbines will meet the local noise requirements. They do this by using sound models into which they input information specific to the location (noise levels of the turbine models being used, wind patterns, terrain topography and plant cover, etc.). The result is a neat and tidy diagram showing what sound levels will be expected around the individual turbines, and in the landscape within and around the wind farm as a whole. These models are being continually improved, so as to better incorporate the effects of many turbines in combination, new data from the field (especially from instances in which the models had been inaccurate), and the like. The models are used to place turbines in the landscape in a pattern designed to assure that houses will not be exposed to sound above the local limits — but importantly, the siting is often finely tuned to just barely come in under the noise limit; therefore, any variation from the model's predictions can be problematic for neighbors (and especially so if the limits are set above likely true ambient levels, or are based on long-period averages).

Inevitably, any model will have its limitations. In many cases, sound models over-estimate the noise actually received in the field, thanks to more turbulence in the air and interference from the ground than the models assume (it is common for modelers to include some conservative assumptions to minimize the chance that they will underestimate impacts). On the flip side, there

are clearly times when noise levels in the field exceed those predicted by sound models; these situations, if they occur with any regularity, can cause sleep disruption or other annoyance reactions that lead to community agitation.

the loudness, which is changing – modulating – over the course of each couple of seconds. When the AM is more than 5dB, the variability becomes clearly noticeable; it can be most troublesome when the quieter end of the pulse is not quite audible (for example, at relatively long distances).

turbines. In these reports, people speak about feeling the pressure waves in their chests, or that the waves rattle metal roofs. One compelling report from a hunter in Vermont notes that from “a half-mile to over 2 miles away, the sound is a low, dull, penetrating, throbbing series of never-ending pressure waves - hour after hour, day and night, sometimes for days on end, like Chinese water torture. While I was hunting there this year, I noticed that I didn’t need a compass to orient myself in the deep, dark woods 2! miles away so long as the turbines were throbbing.”



Some recent field studies indicate that while the AM occurs over the course of 1 to 2 seconds between peaks (or troughs) of the noise level, the increase in noise occurs in only a tenth of a second or so, meaning that it is perceptually experienced as an impulse of sound, which is much more attention-grabbing than a gentle sinusoidal swaying of sound.

Several recent studies have presented models and measurements that continue to address outstanding questions about the directionality of AM. It appears that AM is most pronounced to the sides of turbines; this may be due to the motion of the blades or because noise coming off the trailing edge of the blades is directional. An interesting finding in one recent detailed record-

All these qualities of the sound creates more annoyance at lower dB levels than other types of sounds. These unusual qualities of wind turbine noise likely explain another important research finding. Noise control experts have long used annoyance curves to predict what sound levels will trigger significant annoyance in nearby residents; these curves link rising sound levels to increasing proportions of the population reporting being annoyed. Several studies have now shown that annoyance curves for other noise sources are not applicable to wind turbine noise: around wind farms, equivalent levels of annoyance are triggered by much lower noise levels.

The above information has been excerpted from *Wind Farm Noise: 2009 in Review - research, public concerns, industry trends* published by the Acoustic Ecology Institute



Increasingly, acousticians are working to zero in on the specific wind conditions that are occurring during the times when neighbors are most bothered by turbine noise, so that they can adapt their turbine operations to reduce noise in this situation.²² This is still a relatively new line of inquiry, and there are no clear summaries of these studies available; until comparisons can be made across several wind farms, such studies will be considered preliminary.

The most commonly noted situation in which turbine noise becomes problematic for neighbors is in a stable nighttime atmosphere. This means that there is a layer at ground level in which the wind is nearly still, with a layer of stronger wind above ground level yet below turbine height, with little turbulence between these layers; in these situations, the background ambient noise can be very low (20-30dB) at people’s homes, while the turbines are operating and making noise. In some cases, the higher winds aloft may be carrying the turbine noise further than the models expect, thanks to the minimal turbulence. It is also not uncommon that the turbines can be operating at or under a noise limit of 40dB or 45dB (or even 36dB²³), yet be much louder than the background, and so be especially irritating. In addition, there is some indication that the pulsing character of the noise can be more dramatic when wind speeds are lower at the bottom of the blade diameter than at the top, again not unlikely in these nighttime conditions.

The unusual nature of wind turbine noise

Amplitude Modulation

Many neighbors report the pulsing, beating character of the noise as being the key factor that makes it harder to ignore or get used to than other noises. This pulsing is known as “Amplitude Modulation” (AM): amplitude is

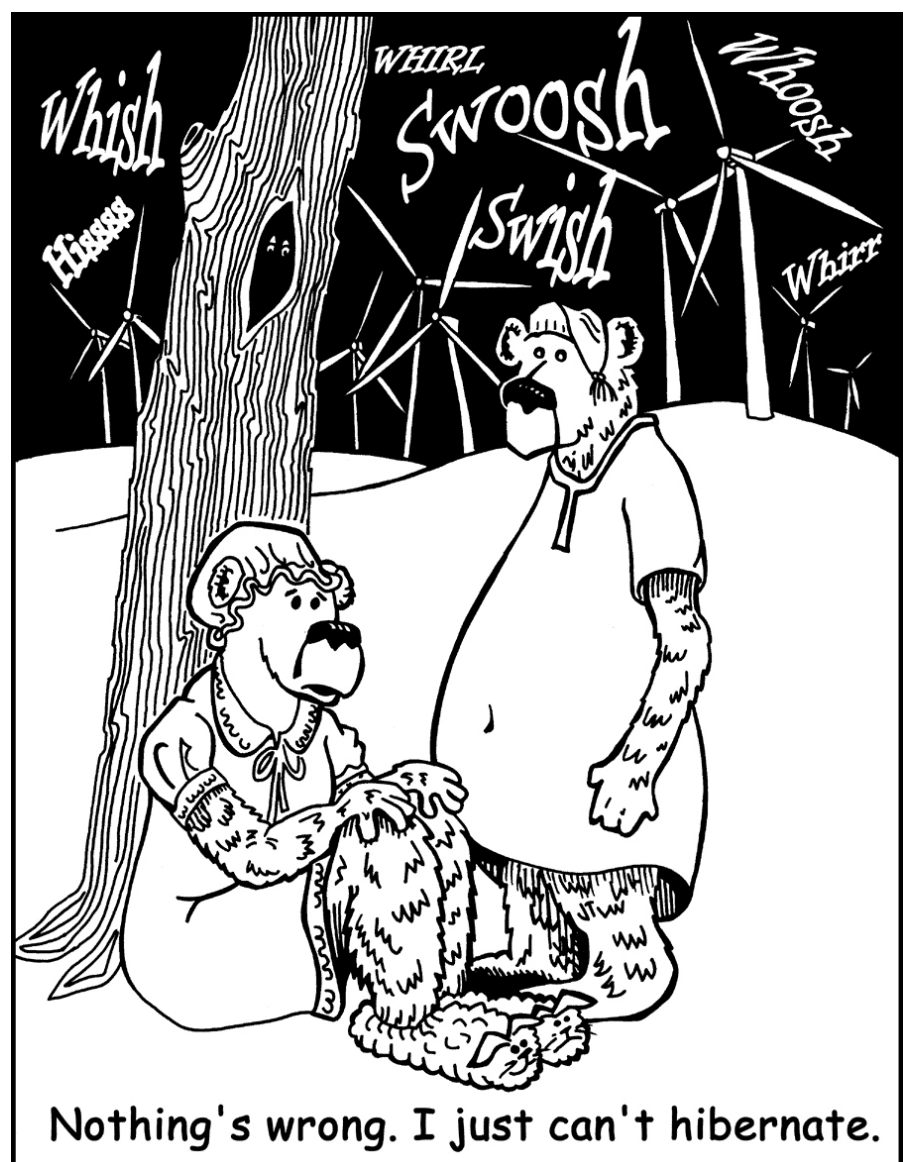
ing study was that while the noise levels were lower to the side, the AM was only noticeable there²⁴; this makes me wonder whether one reason that AM is troublesome is that it may occur in zones where the turbines are otherwise largely imperceptible.

Grab-bag of sounds

Another aspect of wind turbine noise that neighbors often mention is the many different sounds that are heard at different times: thumping, whistling, rumbling (the “train that never arrives” sound), as well as the pulses.

Low-frequency sound or physical/palpable “pressure waves”

Though it remains hard to quantify, many neighbors report various experiences of low-frequency sound or vibration around some wind farms. It’s not clear if these are caused by particular geological situations, or by mechanical problems, or by the growing size of turbine blades. While we cannot make any concrete conclusions at this point, low frequency effects certainly bear ongoing consideration. Perhaps related are some reports of what are experienced as “pressure waves” from



Blackpoll Warbler Kill at Laurel Mountain Wind Farm

The massive Laurel Mountain Wind Farm, near Elkins, West Virginia was just opened officially with a ribbon-cutting ceremony today, but it's already making news in a most ungreen-friendly way. Word is leaking out regarding a massive kill of migratory songbirds that took place about two weeks ago at one of the turbine farm's installations. According to the West Virginia Department of Natural Resources, 484 birds perished after striking a structure associated with this twelve mile string of 61 mountaintop turbines. Most of the birds were Blackpoll Warblers. Blackpolls are champions of long distance migration, breeding to the northern limits of the boreal forest in Canada, Alaska, and in the northeastern lower states, mostly in New England. Their migration is an epic journey that spans much of the Americas, with the birds ending up in South America where they overwinter.

Not all the facts seem to be out yet - and I'm not sure why it took two weeks for this tragedy to come to light - but it appears that the birds were NOT killed by being pureed after flying into a spinning turbine. As the farm was just officially dedicated TODAY, I'm not sure that the turbines were even fired up and spinning two weeks ago.

Apparently a bank of bright lights that are used to provide illumination at a substation were left on overnight during cloudy, low-visibility conditions. The birds became disoriented by the lights - a common occurrence with brightly lit structures - and perished after flying into the building. Even though it apparently was not the turbines themselves that caused this disaster, it should serve as a red flag. Large numbers of songbirds migrate along Allegheny and Appalachian mountain ridges, and clearly lots of birds pass through the Laurel Mountain turbine gauntlet. Future occurrences of this type should be avoidable by merely turning the lights off, at least during peak migratory periods. But it is a huge open question as to whether birds will still strike the spinning turbines at night. I hope that

someone conducts diligent monitoring at this farm to determine whether this kill will prove to be an isolated incident, or if indeed we have another Altamont Pass on our hands.

Industry, environmental groups, and politicians alike are rushing pell-mell into the supposedly "green" wind industry. Ohio is one of the front lines, as many a plan is afoot to site turbines along, and in, Lake Erie. And Lake Erie is one of THE major migratory corridors for birds in the Great Lakes region. I think that sites do exist where wind turbines probably will not cause much, if any, bird or bat mortality. But it is becoming increasingly demonstrable that some of the best locations for harvesting wind are

also major migratory pathways for birds, and wind farms and birds mix about as well as oil and water.

Poorly sited wind farms are akin to fracking the air. The collateral damage to migratory animals can be unacceptable in terms of outright kills. But another factor that is seldom written about involves the terrestrial fragmentation that comes with the installation of these facilities (this includes fracking, too). Access roads must be carved into forests or Great Plains prairie, large footprints must be stamped out for the physical facilities, and towers and wires strung or buried to transmit the electricity. Individually, it is hard - maybe impossible



An adult male Blackpoll Warbler.



AES Corporation's Laurel Mountain Wind Farm,

- to prove ecological damage caused by a single turbine installation. But add them all up and we start to instigate death by a thousand cuts, at least for some species.

<http://jimccormac.blogspot.com/2011/10/blackpoll-warbler-kill-at-w...>

Bird Backers Rip Feds on Wind Power Rules

by Kristy Hessman

The one aspect of wind energy that keeps it from being an environmentalist's dream-come-true is back in the news. The American Bird Conservancy (ABC), a nonprofit that works to maintain healthy bird habitats, is emphatically criticizing the federal government's latest wind power guidelines, saying they don't do enough to prevent the death of birds or prosecute those responsible for the deaths. The group also chided the government for not allowing the public enough time to weigh in on revised guidelines.

According to ABC, the latest version of the wind energy industry guidelines were issued by the U.S. Department of the Interior (DOI) on Sept. 13, with the comment period open until Sept. 23. The group says the guidelines were developed by a federal advisory committee, then revised by U.S. Fish and Wildlife biologists to improve the protections included for birds. A second set of proposed guidelines was then issued by DOI on July 12 this year, but rather than strengthening the initial draft, it removed many key bird protection elements, ABC claims.

ABC says that because the guidelines are voluntary, industry compliance is unlikely. It also criticizes what it sees as assurances that wind companies won't be prosecuted for illegally killing federally protected birds such as bald and golden eagles. The group claims one wind power plant in California is already estimated to have killed over 2,000 eagles. It did not name the site, but last year we reported on a deal between NextEra Energy Resources and the state of California in which the company would replace older turbines its Altamont Pass complex with newer ones less likely to kill birds. In that case, that state cited a 2004 study that "found that the 5,400 older turbines operating at Altamont Pass killed an estimated 1,766 to 4,271 birds annually, including between 881 and 1330 raptors such as golden eagles - which are protected under federal law - hawks, falcons and owls."

According to ABC, the Fish and Wildlife Service estimated that in 2009, the wind industry was killing about 440,000 birds per year. With the Federal Government targeting a 12-fold increase in wind generated electricity by the year 2030, annual bird mortality is expected to increase into the millions without any changes taking place, the group said. Species of particular concern for the conservancy included the golden eagle, greater sage-grouse and the endangered whooping crane.

Earlier this year, the American Wind Energy Association (AWEA) responded to claims of massive bird deaths from wind-power plants, saying that "wind power is far less harmful to birds than the fossil fuels it displaces" and that "incidental losses of individual birds at turbine sites will always be an extremely small fraction of bird deaths caused by human activities."

<http://www.earthtechling.com/2011/09/bird-backers-rip-feds-on-wind-power-rules/>

Raptors and California's Altamont Pass



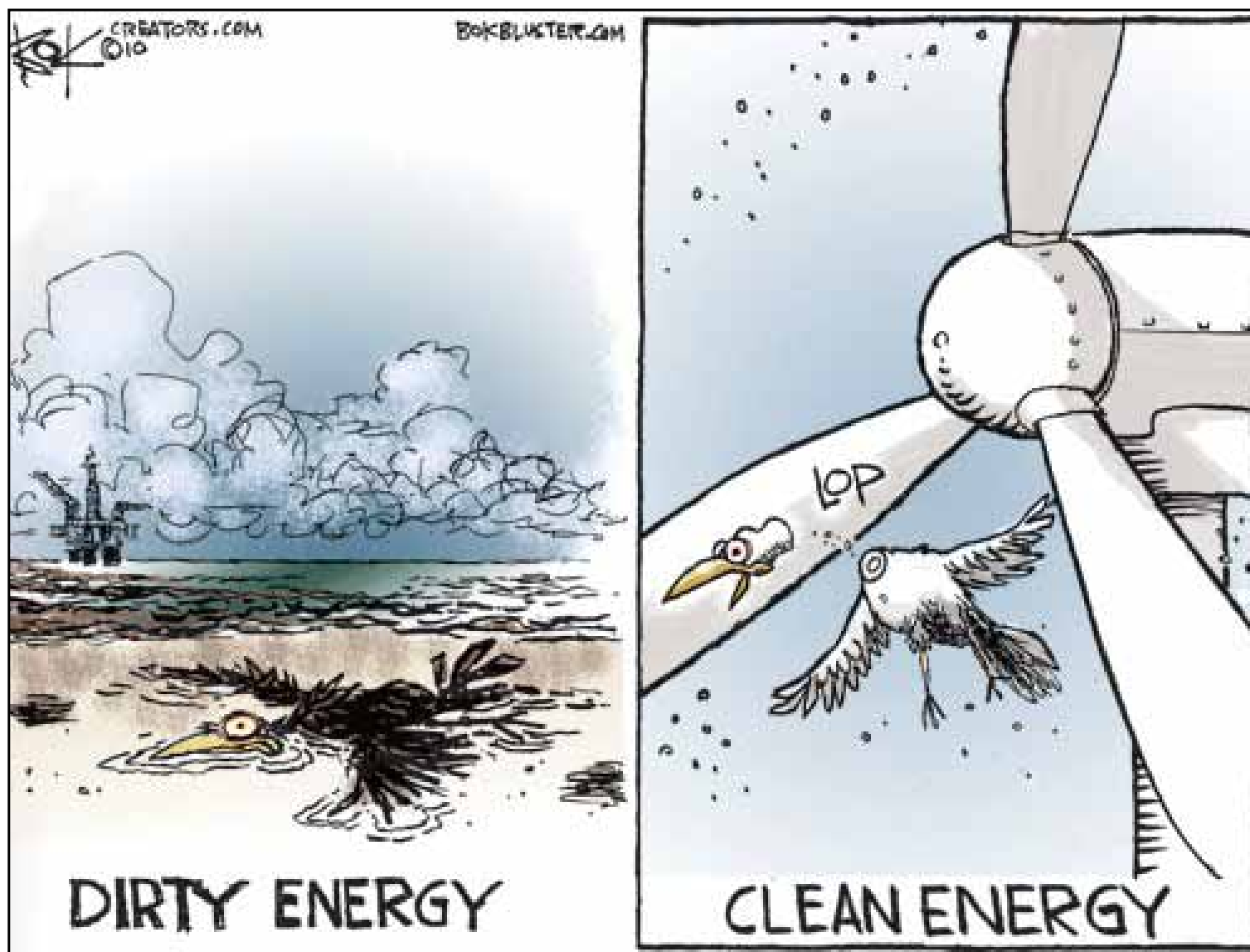
California's Altamont Pass Wind Resource Area



A dead Golden Eagle, a victim of the wind turbines at Altamont Pass in California.

When it comes to raptor mortality from wind turbines, California's Altamont Pass Wind Resource Area has the worst reputation in the country. In 2008, a study funded by the Alameda County Community Development Agency, estimated that about 2,400 raptors, including Burrowing Owls, American Kestrels, and Red-tailed Hawks - as well as about 7,500 other birds, nearly all of which are protected under the Migratory Bird Treaty Act - are being killed every year by the wind turbines at

Altamont Pass. In June 2011, the Los Angeles Times reported that an average of 67 Golden Eagles have been killed every year for the past three decades by these wind turbines. Wildlife biologists estimate that the region around the pass would need 167 pairs of nesting Golden Eagles to produce enough offspring to compensate for all of the eagles being killed by the bird Cuisinarts at Altamont, but the region only has 60 pairs of Golden Eagles.



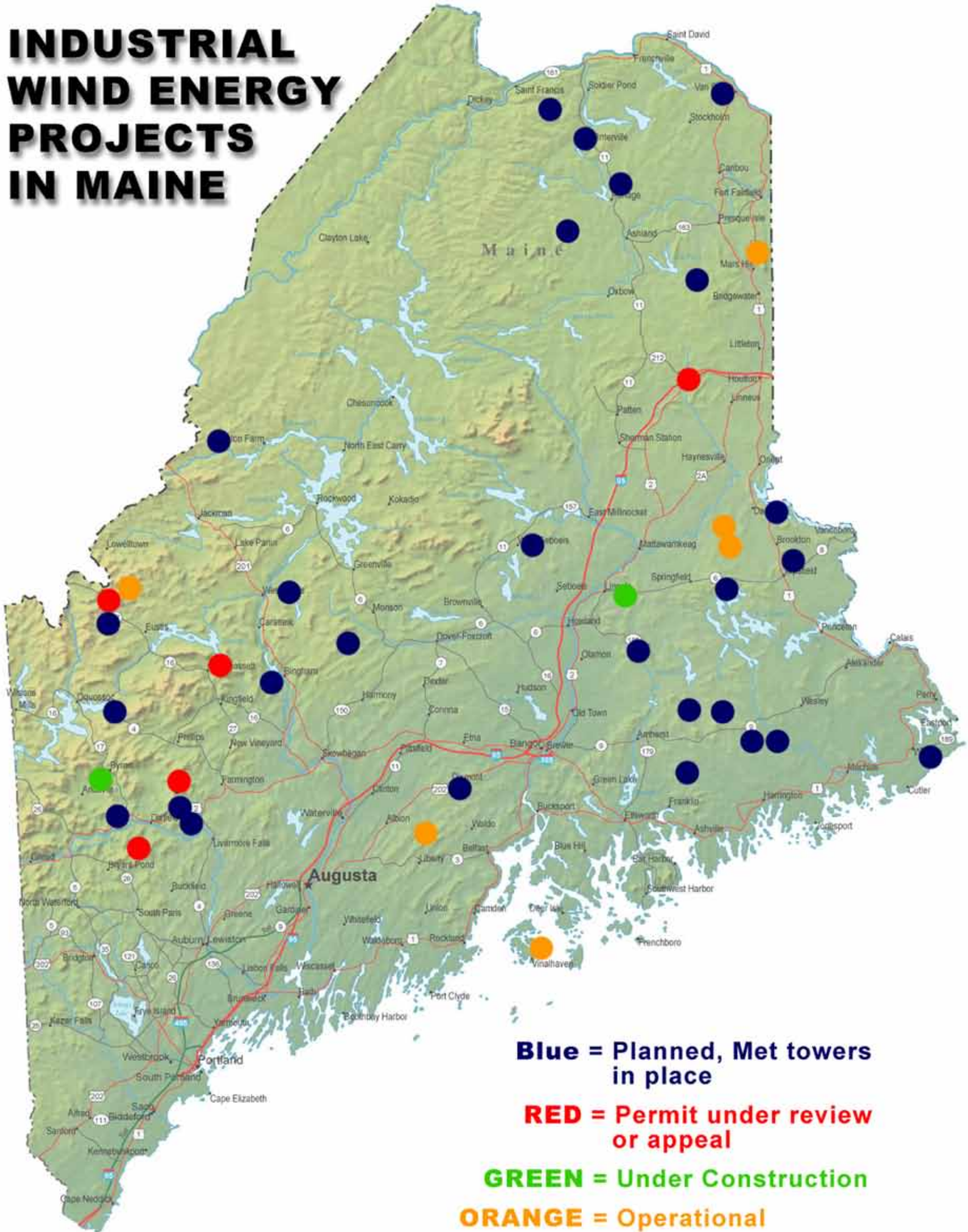
WIND PROJECTS IN MAINE



PROJECT	LOCATION	DEVELOPER	PROJECT STATUS	SIZE	NUMBER OF TURBINES
Mars Hill	Mars Hill, Aroostook County	First Wind	operational	42 MW	28 (1.5 MW turbines)
Stetson Ridge	Townships T8R3 and T8R4, Washington County	First Wind	operational	57 MW	38 (1.5 MW turbines)
Beaver Ridge	Freedom, Waldo County	Patriot Renewables	operational	4.5 MW	3 (1.5 MW turbines)
Kibby Mountain	Kibby and Skinner Townships, Franklin County	TransCanada	operational	132 MW	44 (3 MW turbines)
Number Nine	near Bridgewater, Aroostook County	Horizon Wind Energy	in development	350 MW	
Oakfield	Oakfield, Aroostook County	First Wind	Permit application submitted to DEP in June 2011	150 MW	50 (3 MW turbines)
Rollins	Lincoln, Lee, Winn, Burlington, and Mat-tawamkeag, Penobscot County	First Wind	operational	60 MW	40 (1.5 MW turbines)
Kibby expansion	Sisk Mountain, Kibby and Chain of Ponds Townships, Franklin County	TransCanada	Permit approved by LURC in January, 2011	33 MW	11 (3 MW turbines)
Highland	Watering Tub-Bald Mountain and Briggs Hill-Burnt Hill, Highland Plantation, Somerset County	Independence Wind	Permit application withdrawn May 2011. Applicant may resubmit at a later time.	90-117 MW	39 (2.3 MW to 3 MW turbines)
Record Hill	Roxbury and Byron, Oxford County	Independence Wind	under construction	50.6 MW	22 (2.3 MW turbines)
Black Mountain	Black Mountain, Rumford and North and South Twin Mountains, Roxbury, Oxford County	First Wind	in development	40 MW	19 (12 turbines in Rumford and 7 turbines in Roxbury)
Stetson II	Jimmy and Owl Mountains, Township T8R3, Washington County	First Wind	operational	25.5 MW	17 (1.5 MW turbines)
Vinalhaven	Vinalhaven, Knox County	Fox Islands Wind	operational	4.5 MW	3 (1.5 MW turbines)
Spruce Mountain	Spruce Mountain, Woodstock, Oxford County	Patriot Renewables	under construction	20 MW	10 (2 MW turbines)
Saddleback Ridge	Saddleback Ridge, Carthage, Franklin County	Patriot Renewables	Permit approved by DEP in October 2011	33 MW	12 (2.75 MW turbines)
Bowers Mountain	Bowers Mountain, Carroll Plantation, Penobscot County and Dill Hill, Kossuth Township, Washington County	First Wind	Permit application submitted to LURC in March 2011	69.1 MW	27 (ten 3 MW turbines and seventeen 2.3 MW turbines)
Bull Hill	Bull Hill and Heifer Hill ridges in Township T16 MD, Hancock County	First Wind	Permit approved by LURC in October 2011	34.6 MW	19 (1.8 MW turbines)
Fletcher Mountain	Lexington Township, Somerset County	Iberdrola	In development	60-80 MW	
Bingham	Bingham, Somerset County	First Wind	In development	49.7 MW	

The above information is from the website of the Natural Resources Council of Maine... http://www.nrcm.org/maine_wind_projects.asp

INDUSTRIAL WIND ENERGY PROJECTS IN MAINE



Real Estate Values and Grid-Scale Wind Energy Facilities

by Karen Pease

Grid-scale wind energy facilities are still a novelty on Maine's horizons. The first industrial wind project, Mars Hill, was commissioned in 2007. Since that time, several other wind facilities have come online....Beaver Ridge in Freedom, Fox Island Wind on Vinalhaven Island, Kibby I and II in the Boundary Mountains to the west, Stetson I and II down east in Danforth. In the summer of 2011, Mainers watched as Rollins Mountain and Rocky Dundee were sacrificed for First Wind's Lincoln project, which stretches through that town and into Burlington, Winn and Lee. At the same time, Independence Wind of Brunswick began building its Record Hill wind facility in Roxbury, and Patriot Renewables is placing turbines atop Spruce Mountain in Woodstock.

What effect will these industrial developments have on the value of real estate in the near vicinity of these projects? Wind developers offer promises of reduced property taxes when they propose building a wind facility within a town's borders. But what do they say about the impacts their industrial projects will have on the *value of the property* for which those citizens pay taxes?

Market value is determined by the price for which a property is bought or sold on the open market under conditions with no extenuating circumstances. Properties in the shadow and 'sound-shed' of wind turbine facilities have not yet been put on the open market in Maine. Until there is hard and incontrovertible sales data, we cannot say with certainty that the impact of industrial wind facilities on property values will be detrimental. What we *can do* is look to other areas of the United States in which wind energy facilities have an established history.

The Board of Adams County, Illinois was confronted with a proposal to build a large wind energy facility within its borders. This Board decided to be proactive, and engaged real estate appraiser Michael McCann to study the effects of grid-scale wind developments on real estate property values. Here are some highlights of Mr. McCann's summary.

1. Residential property values are adversely and measurably impacted by close proximity of industrial-scale wind energy turbine projects to the residential properties, with value losses measured up to 2-miles from the nearest turbine(s), in some instances.

2. Impacts are most pronounced within "footprint" of such projects, and many ground-zero homes have been completely unmarketable, thus depriving many homeowners of reasonable market-based liquidity or pre-

existing home equity.

3. Noise and sleep disturbance issues are mostly affecting people within 2-miles of the nearest turbines and 1-mile distances are commonplace, with many variables and fluctuating range of results occurring on a household by household basis.

4. Real estate sale data typically reveals a range of 25% to approximately 40% of value loss, with some instances of total loss as measured by abandonment and demolition of homes, some bought out by wind energy developers and others exhibiting nearly complete loss of marketability.

5. Serious impact to the "use & enjoyment" of many homes is an on-going occurrence, and many people are on record as confirming they have rented other dwellings, either individual families or as a homeowner group-funded mitigation response, for use on nights when noise levels are increased well above ambient background noise and render their existing homes untenable.



6. Reports often cited by industry in support of claims that there is no property value, noise or health impacts are often mischaracterized, misquoted and/or are unreliable. The two most recent reports touted by wind developers and completed in December 2009 contain executive summaries that are so thoroughly cross-contingent that they are better described as "disclaimers" of the studies rather than solid, scientifically supported conclusions. Both reports ignore or fail to study very relevant and observable issues and trends.

7. If Adams County approves a setback of 1,000 feet,

1,500 feet, or any distance less than 2-miles, these types of property use and property value impacts are likely to occur to the detriment of Adams County residences and citizens for which the nearest turbines are proposed to be located.

8. The approval of wind energy projects within close proximity to occupied homes is tantamount to an inverse condemnation, or regulatory taking of private property rights, as the noise and impacts are in some respects a physical invasion, an easement in gross over neighboring properties, and the direct impacts reduce property values and the rights of nearby neighbors.

9. A market value reduction of \$6.5 million is projected for the residential property located in the footprint and within 2-miles of the pending Prairie Mills project located in east Adams County.

That summary says it all.

Value losses of **25% to 40%**. Those value losses have occurred up to **2 miles away** from the wind facilities.

Noise and sleep disturbance issues affecting people **within 2 miles** of a project.

"Ground Zero" homes sometimes deemed a **'complete loss'**.

Approval of wind developments close to occupied homes is tantamount to an **"inverse condemnation"**...

And the list goes on. In an area of the country where industrial wind facilities have become commonplace, an experienced and professional appraiser says to expect "25%-40% value losses in properties up to 2 miles away".

We do not have reliable or accurate comparable sales data, yet. The homes which have been most severely impacted by industrial wind facilities have not been placed on the open market. Many of the property owners are engaged in lawsuits with

wind developers. Others have not yet gone that route, but have abandoned their homes and have moved in with relatives or have bought property far away from the wind facility which adversely impacted their health and quality of life. Still others have remained in their homes - hoping against hope that those engaged in opposing Maine's wind energy plan will be successful in seeing regulations pass which are protective of their health, their property values and their quality of life.

Real estate professionals cannot rely on anecdotal reports to determine impacts on the value of real property, but must depend on data based on sales of properties listed on the open market. That is the only 'accepted' way in

which to estimate value. What real estate professionals can and must do, however, is listen to their clients and their customers. They can and must gauge and assimilate the words and actions of each.

A sporting lodge owner in Washington County says: "If I knew 15 years ago, before I purchased our land, built our lodge, cabins, and started our business, that they were going to put windmills up across the lake and within 2 or even 5 miles from us, I would have never done it. However, now, with 15 years and our whole lives invested into our place, our business, as well as over half a million dollars. **We are just trying to survive."

**A buyer client, who wanted to bring her husband to a second showing of a farmhouse situated on 90 acres of land in the valley of the proposed Highland and Lexington/Concord industrial wind projects, asked this: "Will we see any turbines from this property if the applications are approved?" From that piece of real estate, there were five ridge tops within view of the farmhouse on which wind developments are proposed to be built. That prospective buyer called later to cancel the second viewing, stating that she and her husband were trying to get farther away from development, and not closer to it. They did not wish to own a farm in a rural, unorganized territory which had the potential to be surrounded by industrial development.

**No less than 3 Highland Plantation homeowners discussed putting their homes on the market when the Highland Wind LLC development application was first submitted. They wanted to sell before their property was burdened with the noise and scenic impacts of *four dozen 400 foot tall turbines* ...because they were concerned about the potential inability of their investment to retain its value.

**Owners of a home on Vinalhaven Island purchased a house on the mainland and moved out of their 'dream home' due to the fact that they could no longer tolerate the high, low and ultra-low frequency noises of the 3

'Fox Island' turbines. No relief was forthcoming, even after the state of Maine's Department of Environmental Protection found the turbines to be in non-compliance. These citizens consider their home on Vinalhaven to be unsaleable.

**Owners of a lakeside cabin in Lincoln put their property on the market immediately after the Rollins Mountain turbines went online. Residents of Switzerland, they purchased their "American dream" getaway on the shores of the Lincoln lakes. But the view of the turbines and the perpetual flashing of the red strobe lights across the lake have marred their Maine Experience. They are considering looking for comparable property in Canada if they are able to sell their cabin in Lincoln Lakes.

**Home owners in Freedom have sold out to the wind developer, Patriot Renewables. There is no way to gauge whether or not they got fair market value for their property, due to the fact that the homes weren't on the open market.

**Several homeowners in Mars Hill are engaged in a lawsuit with First Wind due to the fact that their homes are under assault by the unique sounds and vibrations emitted by wind turbines. If their quality of life is impacted to a degree which made them bring a lawsuit against First Wind, what impact does that have on the value of their real estate?

Common sense tells us that the people who are impacted by Maine's wind turbine developments are not complain-



ing without cause. They are not engaged in litigation because they wish to spend hard-earned income on legal fees. They have not spent money on doctor's fees and prescription medications for frivolous reasons. They are not abandoning their homes because they want to pay both a mortgage payment *and* a monthly rental fee.

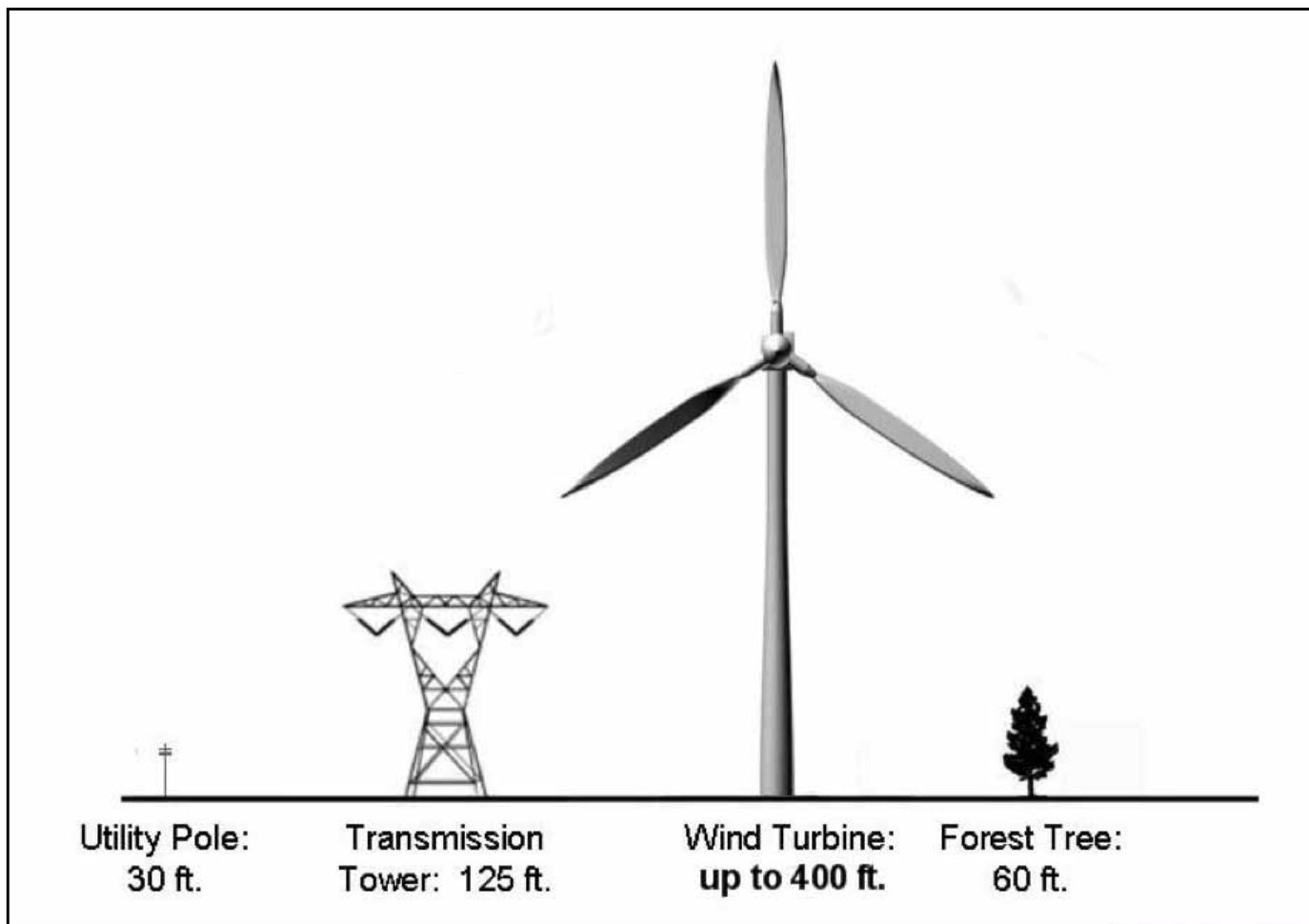
As additional wind facilities are permitted and constructed, more Mainers will have first-hand experience about what happens when industrial developments are built on the ridgelines of Maine's mountains, in quiet rural areas.

Mainers would do well to learn from the experiences of others in America, Canada, Europe and Australia. If turbine facilities reduce property values by 25%-40% on the American plains, imagine how detrimental wind turbines will be atop our unique and ancient mountains - mountains which are an economic driver for Maine's robust nature-based tourist economy.

Unfortunately, by the time we have hard data to prove the impacts of wind facilities on property values, it will be too late. Maine's wind energy plan calls for 300 miles of industrial wind turbines to be installed atop our mountains, in order to meet the state's goal of 2700 MW by 2020.

How many parcels of real estate will lie within 2 miles of those 300 miles of wind turbines?

Let us demand that *Maine's energy policies be determined by science and economics.* If those are the yardsticks by which wind energy is measured, we need not worry about whether or not our real estate lies within the vast footprint of industrial wind.



Review of Events on Vinalhaven

Here is a review of important events of the past year related to neighbors of the wind turbines on Vinalhaven.

Last August, FIWN (Fox Islands Wind Neighbors) appealed in Superior Court against the Maine Department of Environmental Protection (DEP). For two years, neighbors of the Vinalhaven wind turbines fought for restoration of the peace and quiet they used to enjoy.

The neighbors sought to obtain compliance on the violation of state noise standards. Fox Islands Wind repeatedly mischaracterized the effort by neighbors who, as a result, endured and continue to endure a well-organized campaign to minimize the troubles and expenses shouldered by neighbors whose property, through no fault of their own, is close to the industrial wind turbines.

We are still waiting to learn if Superior Court will provide neighbors with an avenue of judicial appeal. DEP and Fox Islands Wind are objecting, arguing that the 2008 Wind Energy Act provides no legal recourse to plaintiffs. (For a good backgrounder though written in 2010, <http://pinetreewatchdog.org/2010/08/09/wind-power-bandwagon-hits-bu...> Pine Tree Watchdog here.)

Our suit alleges that the DEP regulatory decision on the Vinalhaven wind turbine noise was politically motivated and, moreover, ignored the recommendations of staff. Some DEP staff members have since been re-assigned or resigned as a result of unprecedented political interference.

The neighbors had diligently worked and invested considerable efforts and money to improve noise evaluation

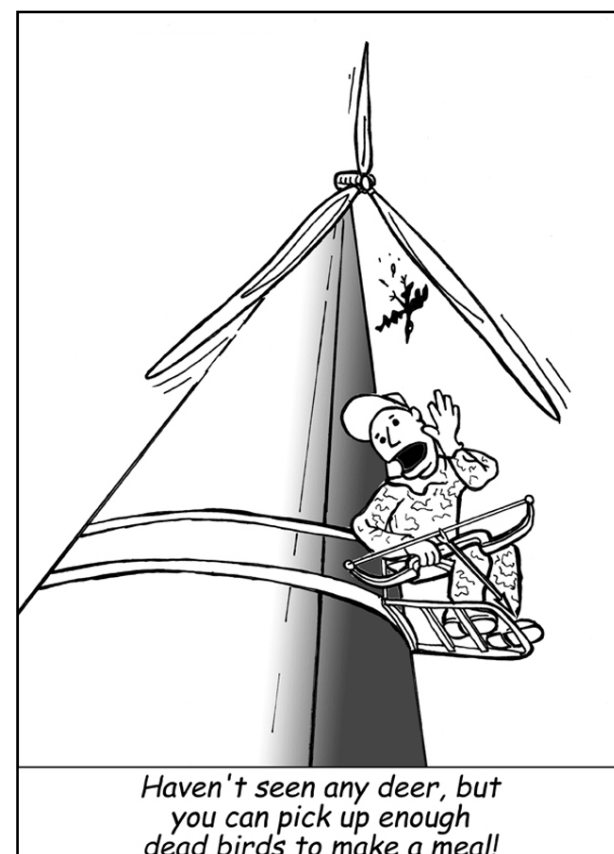
and analysis that the state's own experts discovered to be deficient. Some Vinalhaven residents think that the neighbors have sued the town or FIW. That is not true. We sued the state of Maine for denying due process; a right every citizen ought to believe is worth protecting.

We don't use the term "politically motivated" carelessly: our search of records from the Governor's Office shows Fox Islands Wind imploring the Governor's Office to block DEP staff who had proposed an amendment to the FIW permit allowing for a more equitable way to address the noise issue on Vinalhaven. FIW is entitled to its own opinion, but not its own facts.

In October, the Maine BEP recommended lowering the night time noise level to 42 dBA for all new wind turbine projects. The difficulties on Vinalhaven and other early Maine turbine locations substantially guided the amended policy determination. More recently, Maine's LURC decided that a new wind farm should operate at a night time level of 40 dBA at the nearest property line. Fox Islands Wind operates, in its opinion, at night time 45 decibel level (A weighted) and the daytime 55 dBA limit. Neighbors close to the turbine know that FIW is not sharing data because the turbines continue to run out of compliance.

With respect to the pending matter in Superior Court, Fox Islands Wind, through its attorney Pierce Atwood, writes: "Petitioners (are not) bereft of any remedy as they claim. First they can complain to their town authorities—the ordinary avenue for relief for any other small-scale project."

How a complaint to town authorities would work is not up for debate. Local Vinalhaven selectmen cannot deal with the complexity of the noise issue and will continue to defer in all matters to Fox Islands Wind. Pierce Atwood's attorney adds, "Second, like any other land



owner and as to any other project, small or large scale, nothing would foreclose Petitioners from suing for nuisance—if they had reasonable grounds for so complaining under established law."

Offensive as it may be to suggest the neighbors sue for their rights, Pierce Atwood knows that the next step of litigation is much more costly than anything that has come before.

In the meantime the wind turbines churn noisily, threatening the health, property values and spirit of an island community. It takes a lot of "greenwashing" to ignore what is happening to property owners near the wind turbines. DEP staff – only months ago—recommended that Fox Islands Wind reach out to neighbors to discuss legitimate grievances and options. The noise continues but FIW is silent.

Neighbors on Vinalhaven and some other early turbine locations in Maine like Mars Hill are a "test" for the wind turbine industry. The results of that test are clear—at least so far as wind turbine noise are concerned: if developers can overcome a few unfortunate victims of wind turbine noise, there is money to be made. Many communities in Maine are turning away from industrial wind. Restrictive ordinances approved by Maine citizens on and since Election Day last month include Frankfort, Deer Isle, Caratunk, Peru (Moratorium, not ordinance), Brooksville, Cushing, and Rumford. Mainers are smart enough to see for themselves what happened here and can think for themselves: eight recent votes on wind power...eight votes against wind power.

The neighbors' case to Superior Court will likely be heard in January or February, 2012. Until that time, interested observers ought to question the claims of how much money has been "saved" by industrial wind power on Vinalhaven. If power prices have been declining, why are utility bill costs going up. We asked FIW for specific detail. No answer. Hopefully other Vinalhaven residents will have better luck finding out why their electric rates have increased so dramatically.



Wind turbines on Vinalhaven.

Is There an Environmentalist in the House?

by David P. Corrigan

I used to think that our environmental groups were dedicated to protecting our environment and that they genuinely cared for the animals, the mountains and the waters. As one who grew up hunting, trapping and fishing, I often didn't see eye to eye with all of the policies of some of these groups, but I liked to think that their main goal was the same as mine - to protect our natural world, and to make sure that it endures.

Now I know that far from saving the Planet, most of these non-profit groups have only two real goals - first, make a lot of money, and second, solidify their political power.

Pessimistic? Jaded? Unfair? Perhaps. But consider the points below, and then tell me what you think.

Maine Audubon, a group who supposedly exists to preserve and teach about bird life, now lists First Wind as one of their sponsors. This is the same First Wind whose industrial wind developments are killing large numbers of birds, and the same First Wind who would really like to erect turbines atop almost every piece of high ground in Maine and New England. It's the same First Wind that routinely sites projects on ridge lines that are known to be pathways for not only smaller migratory birds and bats, but also raptors like hawks and eagles. Audubon "consults" with the wind industry, and claims that they endorse "appropriately sited" wind developments. If birds are dying, and very little electricity is being produced in return, then just what constitutes "appropriately sited"? Perhaps the projects where Audubon gets paid to help "consult"? Or the projects, like Trans-Canada's Kibby Mountain Project, where Audubon, and NRCM dropped their objections AFTER Trans-Canada agreed to a half million dollar payout to preserve a different piece of bird habitat, in exchange for being allowed to destroy the critical Bicknell's Thrush habitat within their project area?

The wind industry and the so called "environmental groups" who take their money claim that cats kill more birds than wind turbines. Tell me, when was the last time you saw a house cat kill five hundred migrating birds in one whack? And, when was the last time you saw a house cat kill a flock of Canada Geese, or a Bald Eagle, or a Golden Eagle, or a hawk, or a crane? When was the last time you saw a house cat devastate a critical high altitude habitat? When you really think about, the "cats kill more birds than wind turbines" argument starts to lose its luster. But then, no one is paying Audubon to support house cats.

As a Maine Guide and a hunter, you might think that I would have good things to say about the Sportsman's Alliance of Maine (SAM). You would be wrong. SAM promotes itself as being the voice of the sportsman. It claims to care about traditional Maine values, and the animals, and the habitat. And yet, SAM spoke in favor of the First Wind Bowers Mountain Project. This is the

same project that was opposed by the Maine Professional Guides Association and the Grand Lake Stream Guides Association because of the devastating impact that this project would have on the habitat, animals, waters, and traditional tourism industry of the the Downeast Lakes Watershed Region. Did SAM stand up to defend its members, and the animals and the habitat? Nope, they stood up and spoke in favor of their Corporate Sponsor, First Wind. I sat there and listened as former Secretary of State, and then SAM Executive Director, Matt Dunlap



went on and on about what a great company First Wind is and how great this project would be for Maine. Follow the money....and the politics.

The American Lung Association has often stood up and spoken in favor of these wind projects. They give a glowing report of how these projects will save us from smog, and particulates, and death. They conveniently forget to mention that most of our air pollution blows in from the Midwest. They forget to mention that no coal or oil fired generator anywhere in the world has ever been shut down because wind power went online. They forget to mention that wind requires 24/7 back up from these same polluting generators because the wind can't be counted on to blow all the time. And, they forget to mention that by selling their Renewable Energy Credits on the open market, wind projects actually enable some of the world's worst polluters to stay in business. What else are they forgetting to mention? Money, or politics? Unfortunately, the answer is, both.

The Natural Resources Council of Maine would like us to think that their purpose is to protect the people and environment of Maine. Somehow, I doubt it. I began to doubt it after I saw them drop their opposition to the Trans-Canada Kibby project. That project was totally inappropriate, and did irreversible damage to unique mountain habitats. And yet, with the promise of half a million dollars in mitigation, NRCM dropped its opposition.

As an intervenor in The Highland Wind Project, I saw

NRCM begin to participate with a wishy-washy stance, and then simply drop out. They dropped out even knowing that this project, if it moved forward, would do unprecedented damage to mountain ecosystems, and would affect several endangered species.

Then, as an intervenor in the Bowers Mountain Project, I thought that NRCM might finally take a stand. I did, that is, until I got a call from one of their witnesses, who told me that NRCM had dropped him and the entire case like a hot potato. In the end, NRCM dropped out as an intervenor, but sent one of their people to the public portion of the hearing to speak "neither for nor against." I know for a fact that they had a rather good case "against", so what happened? Money, and politics.....

Peter Didisheim and Dillon Voorhees of NRCM routinely make the rounds in Maine giving PowerPoint demonstrations promoting wind. Sometimes they tell us that if we don't put up lots of wind turbines, fast, then businesses on the Maine coast will soon be underwater. At other times, they tout "facts", trying to convince us that these projects are really good for the local economy. The real facts say otherwise. These men know this, and yet, they continue to spread propaganda. Recently, others and I tried to post some facts and a call for scientific method as replies on the NRCM blog. They refused to publish, or even acknowledge them. Follow the money, and the politics.

Now NRCM (partnered with wind industry contractors) is spearheading a petition drive to force an even higher renewable energy standard on Maine's electricity ratepayers. What they fail to tell the well meaning people who sign this petition is that it is aimed almost entirely at wind, that it specifically excludes hydro, and that there is no other technology, other than wind, readily available to meet the proposed goals. They don't tell you that it will increase the number of totally inefficient wind turbines on our mountains, and increase the number of power lines. They don't tell you that it will end up killing untold numbers of birds and animals, fragmenting habitat, polluting waters with both runoff as well as thousands of tons of herbicides, and destroying our growing ecotourism business. They don't tell you that it will do all of this while increasing your electric rates, destabilizing the electric power grid, and that it will not only NEVER shut down a coal or oil fired generator, but could, in the long run, lead to MORE fossil fuel use to back up the unreliable wind.

This is the reality of money and politics in today's environmental organizations. So, I ask you, is there an environmentalist in the house?

David Corrigan, a Registered Maine Master Guide, lives in Concord Township where he runs Fletcher Mountain Outfitters, a year round guiding business. He spends summers in a canoe on the Kennebec, and fall in the mountains. Lately, he spends a lot of time trying to protect the wild lands of Maine from industrial wind development. He can be reached at maineguide@live.com, or check out his blog at www.realwindinfoforme.com/log

Flaws in the Wind Power Permitting Process

by Monique Amiel and Steve Thurston

The following is a written response to the issues raised in the review of wind power permitting by the Office of Energy Independence and Security as requested by the legislature in resolve LD 1366. As co-chairs of the Citizen's Task Force on Wind Power, a statewide coalition of more than 400 citizens concerned about the proliferation of industrial wind projects in Maine, we strongly encourage the legislature to undertake a comprehensive assessment of the costs and benefits of mountain top industrial wind turbines. Rather than relying on unproven theories of global climate benefits to justify the sacrifice of Maine's iconic landscapes, or pie in the sky schemes to reduce petroleum consumption with electric cars and electric space heating powered by wind turbines, we believe more attention should be focused on the cost to ratepayers and taxpayers, the impact wind turbines have on local residents' well being, and the negative consequences of wind turbines becoming the dominant feature of the landscape wherever they are located.

We believe there are serious flaws in the process which created and now sustains Maine's aggressive agenda for land based wind power.

1. Assumption of health and climate benefits. There is no scientific evidence that wind power projects in Maine (or elsewhere) will have any direct or indirect effects on Maine's air quality or the global climate, yet a presumption of such benefits is the foundation upon which Maine's wind power agenda is based. Such claims continue, as we see in First Wind's application in Oakfield, where it is asserted that improved health will result from the cleaner air created by this wind project. One source of this incredibly unscientific claim is no less than the former Director of Maine Center for Disease Control and Prevention. Where are the peer reviewed studies upon which such claims are based? They do not exist, and yet policy is determined as if such claims are undisputed facts. The Governor's Task Force on Wind Power admitted that there was disagreement about wind power's ability to reduce fossil fuel emissions and left it up to the legislature to decide. The governor's Emergency Bill, LD 2283, was drafted to make the presumption of climate benefits un-rebuttable but the supporting evidence is missing.

2. Assumptions about the moderating effect of wind power on the market price of electricity. There is no evidence that wind generated electricity will have any significant effect on the price of electricity in the ISO-NE market. Wind power receives subsidies which are worth more per MW than the average cost of a MW of electricity in the ISO-NE wholesale market today. Without these massive subsidies industrial wind investment would not exist, because the cost would make wind uncompetitive with the mix of generation sources avail-

able today and in the foreseeable future.

3. Disregard for the degree to which wind turbines alter the character of the area where they are located, based on the misguided belief that turbines deserve special treatment because of their supposed benefit to society. Maine's mountains have been protected from intrusive development for decades but now they are fair game for wind developers. No economic impact analysis, or cumulative impact analysis was done by the Governor's Task Force. Ignoring the present and future value of Maine's unspoiled scenic vistas creates a distorted view of wind power's benefits.



Mountaintop removal at the Mars Hill wind project.

4. Failure to acknowledge the experiences of people living near turbines, not only in Maine but worldwide, whose lives are invaded by the sounds produced by these massive machines. Instead of listening to the complaints of residents living near Maine's first few wind projects, Maine government has ignored them and given the wind industry a free pass to continue placing ever larger and noisier wind turbines too close to homes. To make matters worse, wind developers are permitted to purchase noise easements from land owners whose properties are too close to meet noise limits, and to enter into lease agreements with landowners who agree to allow turbines on their property, without disclosing the potential health effects that may arise from the projected noise levels. In granting noise easements and leasing land for turbines, landowners are bound by "gag order" clauses that prohibit them from complaining about noise if it becomes an issue. There needs to be a warning label – Wind turbines may be hazardous to your health. Substantial evidence shows that industrial wind turbine noise may cause sleep disturbance, anxiety, vertigo, headaches, annoyance and other health effects for some people.

5. The appearance of conflict of interest by lawmakers. The co-chair of the UTE committee works for an engineering firm which benefits from wind power development. Another committee member's wife is the lead attorney for wind project permitting and litigation in the state. These committee members' strong support for wind power is tainted by these associations and the public's trust in government is eroded by the appearance of conflict of interest. They should recuse themselves from participating in wind power legislation.

6. Irregularities in the permitting process. The law is clear that financial capacity must be demonstrated prior to the start of construction. In the Rollins Wind project, First Wind received DEP approval to begin construction without proof of financing even as their IPO

failed and was withdrawn. In the Record Hill Wind project an illegal condition was included in the final order allowing construction to begin without evidence of financing. The word "construction" in the draft order was changed to "operation" in the final order issued 5 days later. When questioned about financial capacity by interested parties the DEP referred to the changed condition but also asked Record Hill Wind to provide updated financials. Record Hill Wind responded that it did not have financing in place but was relying on the changed condition to move forward with construction. The DEP project manager claims the wording change was a drafting and editing error but that is not a believable explanation. The assistant attorney general who acts as legal counsel for the DEP has not responded to repeated requests to explain how and why this change was made. Only

when Record Hill Wind received a US Dept of Energy Loan Guarantee almost 2 years after the commencement of construction did the

project wrap up its financing package.

7. Refusal of DEP to hold public hearings on controversial aspects of wind project applications, particularly noise. The DEP has never held a public hearing on a wind project, preferring "public meetings" which do not allow cross examination of witnesses, documentation in the record of how every piece of evidence is considered, or the development of findings of fact and a conclusion based on all testimony in the record. Evidence which supports the issuance of a permit is cherry picked, while evidence which does not support the decision is ignored, instead of being examined and responded to. The preponderance of the evidence is not established and permits are issued without sufficient justification. The public is not well served when its ability to fully participate in a fair and open adjudicatory proceeding is denied.

8. Maine's wind power agenda was foisted upon a misinformed and uninvolved public. The elimination of obstacles to wind power development was imposed upon the state by a zealous governor, John Baldacci, who wanted history to record his legacy as the "renew-

able energy” governor. His predecessor, Angus King, now a wind power developer, has been roaming the state for several years giving inaccurate speeches about the benefits of wind power. Describing Maine as, “the Saudi Arabia” of wind, and claiming that Maine would become uninhabitable without wind power replacing foreign oil, King’s widely reported self promoting PR campaign has softened the citizenry to passively accept wind turbines. Baldacci named his chief of staff Kurt Adams to become Chairman of PUC, where he worked to implement the governor’s wind power agenda. Adams subsequently accepted stock options from First Wind while still employed by the state, and soon after resigned from public office to take employment with First Wind. Such actions do not serve the citizens of the state but take advantage of position for personal gain. Citizens should be the benefactors, not the victims, of public policy.

9. Wind sprawl requires massive transmission upgrades. Central Maine Power, a subsidiary of Spanish energy conglomerate Iberdrola, one of the world’s biggest wind project developers, received approval for the “MPRP” a \$1.5 billion project. Sold to the public as necessary for “reliability” to replace aging lines, the MPRP is in reality a massive infrastructure project to overbuild Maine’s transmission system to accommodate the haphazard release of energy from dozens of remote wind projects, which otherwise could not be connected. The low capacity factors of wind projects means low utilization of the increased transmission capacity. CMP/ Iberdrola is guaranteed a 13.8% return on this investment, which will cost CMP’s ratepayers about \$10 million per year just to cover the ROI.

10. Maine’s RPS mandate of 20% of electricity to be supplied by renewables by 2020 will require a huge increase in the number of wind plants or Alternate Compliance Payments will be required. In either case, the cost to Maine’s landscape or ratepayers will be unacceptable. Maine’s goal of 2700 MW of land based wind power and 300 MW of ocean wind power is less than half the total MW required to meet this mandate. No other states in the ISO-NE have significant wind potential, or aggressive plans to exploit their ridges. Public opposition to wind power is growing rapidly due to its negative impact on high value landscapes and quality of life. In Vermont Elizabeth Miller is commissioner of the Department of Public Service, the state agency that oversaw Vermont’s new energy plan. Miller says the wind projects that have already won state permits may be the right balance for the state’s energy mix. “Should all those projects be developed it will be about 7 or 8 percent of our load, which is actually significant when you compare other in-state renewable resources, such as biomass, which is about 10, and hydro, in-state, which is about 10 or 11 percent. I heard last week up in the Northeast Kingdom the concern by some there that the Northeast Kingdom has perhaps a greater share of large wind projects than some feel is appropriate. And I’m sensitive to that concern.” Such statements do not increase investor confidence in grid scale wind projects in Vermont. In Maine, every wind project has been appealed or is involved in some sort of litigation with residents. Massachusetts has so far failed to impose a wind turbine siting law, keeping control in the local communities where it should be, but making it more difficult for wind developers to overcome legitimate concerns about the look, feel and sound of their projects.

11. Decommissioning language in permits issued is not in compliance with the statute, that specifically states that decommissioning must be planned without regard to the applicant’s future financial condition. The DEP’s wind project application form does not require,

as the statute states, that an applicant demonstrate how decommissioning will be funded in a way that is not dependent on future financial condition, only that a decommissioning plan is submitted. The statute intends that the risks of decommissioning remain with the applicant. The only way to insure this is to require the establishment of a creditor and bankruptcy remote fund at the beginning. The Vermont Public Service Board, in the Deerfield Wind decision, Docket 7250, included conditions for decommissioning which should be a model for Maine:

VI. DECOMMISSIONING FUND

We require Deerfield to file a Decommissioning Plan with the Board and parties prior to commencement of construction. The Plan shall include a revised estimate of the costs of decommissioning, covering all of the activities specified in the Decommissioning Plan, and shall contain certification that the cost estimate has been prepared by a person(s) with appropriate knowledge and experience in wind generation projects and cost estimating. Also, the Plan may allow the Decommissioning Fund to grow as the construction process proceeds such that the funding level is commensurate with the costs of removing infrastructure in place. The amount of the Fund may not net out the projected salvage value of the infrastructure. In addition, we require that the Decommissioning Plan include a copy of the Letter of Credit to be posted by Deerfield to secure the full amount of the Fund, and demonstrate how the Fund will be creditor and bankruptcy remote in the event of Deerfield’s insolvency or business failure. We further require that the Letter of Credit be issued by an A-rated financial institution and that it name the Vermont Public Service Board as the designated beneficiary. The Letter of Credit shall be an “irrevocable standby” letter of credit and shall include an auto-extension provision (i.e. “evergreen clause”).

Similar to the approach we approved in the UPC Ver-

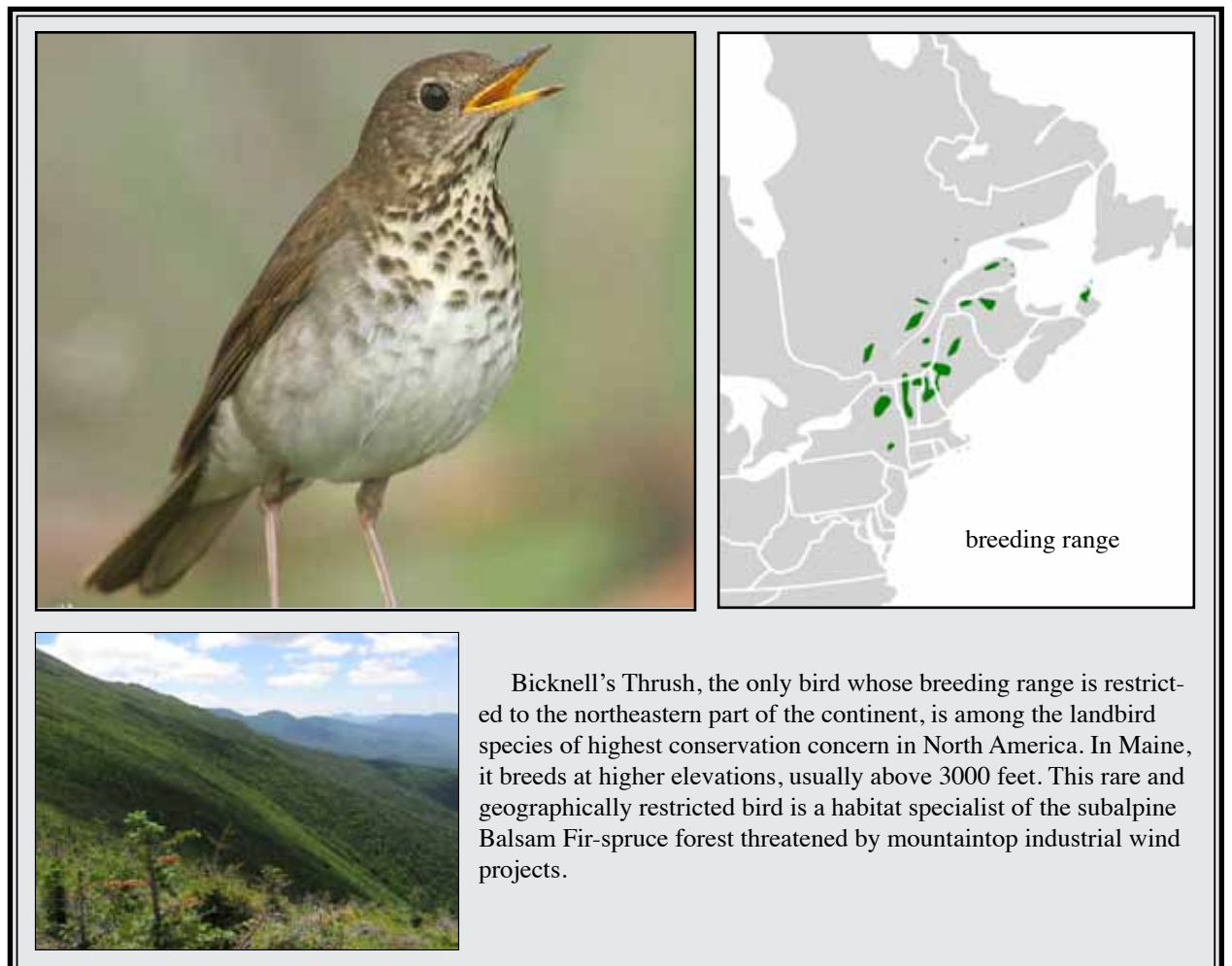
mont Wind Docket102 we adopt the Department’s recommendation that a trigger be set for decommissioning review. Therefore, if actual production falls below 65% of projected production during any consecutive two-year period, a decommissioning review will be initiated.103 However, in the event that Deerfield can show that it has entered into stably-priced power contracts with Vermont utilities through which a substantial amount of power is to be sold to Vermont utilities at stable prices, we may reduce the decommissioning trigger to as low as 50% if we find that those contracts provide sufficient benefit to Vermont ratepayers. In any case, Deerfield would have the opportunity to demonstrate during this review that there are reasons for the decline in production such that the project should not be removed.

In conclusion, we believe the laws enabling Maine’s mountain tops to be sacrificed to the wind industry have created many serious problems, while solving none. The idea that wind power is inherently beneficial and therefore its impacts must be tolerated is not supported by an objective analysis of the facts. Cheap domestic natural gas generation makes wind power non-viable without a continuation of subsidies that account for more than half the cost of production, and taxpayers are telling Congress that they are fed up with the waste and fraud involved in the greenwashing of America. Jobs building wind projects should be shifted to repairing and improving Maine’s transportation infrastructure, something that will benefit all Mainers.

Respectfully submitted,

Monique Aniel MD and Steve Thurston, co-chairs

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Bicknell’s Thrush, the only bird whose breeding range is restricted to the northeastern part of the continent, is among the landbird species of highest conservation concern in North America. In Maine, it breeds at higher elevations, usually above 3000 feet. This rare and geographically restricted bird is a habitat specialist of the subalpine Balsam Fir-spruce forest threatened by mountaintop industrial wind projects.

Flaws in the Expedited Wind Permitting Process

by Bob Weingarten

INTRODUCTION

The following are my concerns about the major flaws of the LURC permitting process, both conceptually and procedurally, for industrial wind energy development. My knowledge and experience with the LURC permitting process is informed by the past six years of participation as an intervenor in two major wind energy permitting proceedings in front of LURC (Kibby I and the Sisk-Kibby expansion), and as an activist in following and engaging in other wind power cases at LURC and DEP, as well as attempting to impact state wind energy policies through legislative and regulatory advocacy and generating public awareness of the issues at stake.

During the past six years I have attended a significant number of LURC meetings and hearings, and have studied and analyzed LURC's land use standards, permitting criteria, the current and prior Comprehensive Land Use Plans (CLUPs), and LURC's legislative and regulatory framework. I have worked closely with several attorneys during this period as well as been Friends of the Boundary Mountains' pro se attorney during the Sisk proceedings.

1. LURC Commissioners are confused and unsure of their role under the Expedited Wind Energy Act

The LURC Commissioners in general are very confused about their role under the Expedited Wind Energy Act (Chapter 661) and have repeatedly expressed their confusion in public (see transcripts of LURC meetings on Sisk and Bangor Daily News Jan. 05, 2011). Some Commissioners aren't even sure that they are "allowed" to vote to deny a wind power permit in the expedited area, which certainly calls into question the objectivity of the entire process and the rationality of having any proceedings whatsoever. This misperception that the Legislature has decided that LURC must approve all wind projects in an expedited area has severely tainted the process.

A major cause of this confusion and insecurity in doing their jobs is their misconstruing of the Act and their inability to integrate the existing body of LURC land use standards and criteria with the language of the Act. Over the years LURC has adopted and codified a body of environmental principles, standards, and criteria that bring balance to decisions the Commissioners need to make on proposals for developments in the UT. Some of the Commissioners have been under the mistaken belief that the Wind Energy Act negates all these existing environmental standards and land use criteria when it comes to siting wind power projects in an expedited area.

The Legislature has clearly provided in the statute that the Commission should only approve those wind projects that conform to all of the applicable LURC regulatory requirements on the books and that meet the goals

of Maine's Comprehensive Land Use Plan (CLUP). The only "new" environmental test is for scenic impacts. It specifically states in the Act that: "Nothing in this section is meant to diminish the importance of addressing as appropriate site-specific impacts on natural values including, but not limited to, wildlife, wildlife habitats and other environmental values, including "harmonious fit".

It should be noted that the broad goals and policies of the CLUP are: (1) to "support and promote the management of all resources, based on principles of sound planning and multiple uses," the "separation of incompatible uses" and the preservation of "outstanding ... natural resource values of the jurisdiction" (2) to "[c]onserve, protect and enhance the natural resources of the



The Stetson industrial wind project.

jurisdiction" and (3) to "[m]aintain the natural character" of areas "having significant natural values and primitive recreational opportunities."

The way the Commission is supposed to determine which wind proposals should be granted a permit and which should be denied is by applying the applicable standards to the proposed project so the Commission can adjudicate whether or not the proposed project is conforming. This is generally called applying the "standard of review" to the evidence submitted to the Commission during the hearings.

This standard of review was completely abandoned by the majority of the Commissioners in the Sisk proceedings because it got in their way of making a decision favorable to TransCanada Corporation. Abandoning the standard of review compromised the mission of LURC in the Unorganized Territories, as prescribed by its own enabling Statute, its own rules and body of standards, and Maine's Comprehensive Land Use Plan (CLUP).

In particular, the Commission compromised the special values inherent in the Mountain Protection subdistrict designation, bestowed by LURC on mountains above 2700 feet in elevation. The 2010 CLUP, in its "Mountain and Soil Resources", confirms that one of the great-

est threats to the fragile environment above 2700 feet is the impact of erosion from road construction and a reduction in the capacity of the land to absorb and hold water. These concerns have been consistently ignored by LURC under pressure to fast-track and approve wind energy projects.

The unmistakable conclusion is that LURC bowed to political pressure by granting a permit for the Kibby expansion project despite its unsuitability under LURC's existing environmental standards and the CLUP, which had been previously acknowledged by LURC in their first vote on the proposal. This was strongly expressed by Commissioner Kurtz in her stated objections to the project at the second vote and her disagreement with the other Commissioners over their forsaking of their obligation to apply the very standards that LURC is charged with enforcing.

2. LURC staff have been manipulative and biased in performing their duties in wind energy applications before the Commission

Another source of the Commission's misconstruing of the Wind Energy statute and their confusion in going through the permitting process is the dishonorable role that the LURC staff have played in the permitting process. To say that LURC staff have been extremely biased and unbalanced in managing wind power permitting cases would be the understatement of this young century.

As an example, at the Sept. 2010 LURC meeting, Asst. AG Jerry Reid presented a consultation to the Commissioners and staff on issues that had arisen in the processing of wind power applications. One major piece of advice to LURC from Reid was that LURC staff should not be offering their own set of recommendations to the

Commissioners in the lead-up to deliberations on a wind power decision. Rather, Mr. Reid opined that it would be a cleaner, more transparent, and a more objective process if the staff compiled background information and summaries of the relevant evidence for the Commissioners in a "Deliberative Notebook," but refrained from including their own recommendations, as had been done in both the Redington-Black Nubble and Kibby applications. The actions of the LURC staff pushing their own recommendations in those cases had led to much public consternation and questioning.

Yet within 3 months of Reid's consultation, at the 11th hour in the Sisk/Kibby expansion proceedings, Marcia Spencer Famous, LURC senior planner, unveiled her own recommendations as part of the "Deliberative Notebook." What made this action particularly egregious is that the 3rd Procedural Order in this proceeding had explicitly stated that the staff would not issue its own recommendation. So not only did LURC violate its own Procedural Order but did so within only 3 business days of the Commissioners' deliberations and vote on the project, thereby handicapping FBM's grassroots, all-volunteer group with an absolutely impossible short time-frame to respond. This violation of our due process by LURC is among many others that are now before the Maine Supreme Court in the case of Friends of the

photo by Gary Snyder

Boundary Mountains v. LURC.

3. The playing field is far from level in wind energy cases before the Commission

The above example of bias on the part of the LURC is just one of many instances that demonstrate how far from level the playing field is for citizen intervenors during wind power application proceedings. Rulings on objections to submitting evidence, requests for more time, or permission to introduce new evidence or witnesses, etc. are consistently approved for corporate applicants and denied to grassroots groups like Friends of the Boundary Mountains.

After voting 5-2 on July 7, 2010 to deny a permit to TransCanada for expanding the Kibby project onto Sisk Mt., the Commissioners, at their August meeting, over the strenuous objections of FBM, voted to table that vote and allow TransCanada to re-open the record to introduce a revised proposal, which ultimately was approved. At the same time, the Commissioners denied FBM's request to continue the public hearing so that it could cross-examine TransCanada's witnesses on this revised proposal and present FBM's case on why the revised proposal was as environmentally destructive as the original proposal.

During LURC or DEP proceedings under the Act, the time element has been placed under the complete control of the applicant. The Act specifies that if a hearing is held, LURC or DEP must come to a decision within 270 days of when the application is deemed complete. This provision has been used by the applicant/LURC to fast-track without allowing grassroots intervenors time to prepare/present their case. Then, on the other hand, after the vote went against the applicant, they (TransCanada) generously waived the 270 day limit so as to enable LURC to re-open the record so TransCanada could submit its sham amendment. LURC accepted this ploy despite the fact that the 270-day limit should be treated as equally applicable for the benefit of the intervenors as well as the developer. But that is not how LURC plays its role... fairness never enters the picture under LURC. This same scenario is now playing out in the current Bowers Mountain proceedings.

What makes the LURC permitting process even more corrupt is that grassroots intervenors, such as Friends of the Boundary Mountains, do not have anywhere near the resources to counter the massive spending by applicants like TransCanada in employing expert witnesses or a team of high powered attorneys and public relations flacks. By TransCanada's own admissions, it spent \$5 million in pre-approval activities for the Kibby hearing whereas FBM raised and spent \$25,000. With such a disparity in resources LURC and other state agencies should be leaning over backwards to create as level a playing field as possible to assure that full scrutiny from all sides of the issues will be presented to the Commissioners for their deliberation. Instead, the entire process is weighed so heavily in favor of the corporate applicant that it becomes a very one-sided farce. While in some states funds are made available to intervenors so the proceedings can be more balanced, Maine apparently hasn't reached that level of common sense.

4. State review agencies are either incapable or unwilling to provide objective and forthright analysis to LURC in wind energy permitting applications

The pro-wind bias of the permitting process extends to the reviews of windpower applications submitted by staffs of the state agencies that LURC draws upon in

making permitting decisions. LURC is very dependent on the technical "expertise" of various state agencies in evaluating windpower applications because it seldom hires its own expert consultants.

It is common knowledge that state agencies were instructed by the Baldacci Administration to accommodate windpower applicants as much as possible. Any technical experts presented by windpower opponents (usually pro-bono volunteers) have been consistently ignored by LURC in preference to the state agency skills for the wind industry.

When any state agency reviewer is critical of any portion of a wind energy proposal, even mildly so, it becomes big news because it happens so rarely. And in every one of those rare cases, when the agency reviewer presents their final testimony at a hearing they invariably have backed away from their initial criticism, presumably because of political pressure.

The records of windpower cases are replete with examples of state reviewers' biases and dishonest testimonies. In the case of Kibby, the State Soil Scientist (Dept. of Agriculture) strongly opposed the building of new roads in the fragile and thin soils above 2700 feet elevation and said it couldn't be done without unacceptable risk of erosion. However, he eventually caved into pressure from TransCanada and began downplaying his concerns. The massive erosion "event" in Oct. 2008 on Kibby Mountain clearly proved the accuracy of his initial opposition.

In the Sisk Mt. case the Deputy Director of the Bureau of Parks and Lands initially was irate over TransCanada's visual assessment, which misconstrued the adverse impacts of the proposed Kibby expansion on the public lands running along the shoreline of Chain of Ponds, lakes of high statewide significance. Once again, by the time of the public hearing he backed down from his initial irate opposition.

Probably the most egregious examples of bias and dishonesty (or perhaps incompetence) can be found in the reviews of the Department of Inland Fisheries and Wildlife. This goes back to even the mid-1990s when IF&W presented incredulous testimony during the hearings on the Kenetech windpower proposal that none of the proposed 600 wind turbines on 25 miles of ridgelines in the Boundary Mountains would harm any avian species! IF&W's favoritism towards the wind industry continued in the Kibby case where they dismissed the dangers to various threatened animal species found on Kibby Mountain although these same species found on Redington and Black Nubble Mts. led to a denial of Endless Energy's windpower application for Redington - Black Nubble.

During the Sisk proceedings IF&W consistently overlooked or covered-up the severe adverse impacts that will result from TransCanada's proposal. They defended and exonerated TransCanada's overt violation of scientific protocols, and IF&W's own rules, in supporting the mapping of significant vernal pools during the dry season when vernal pools had already dried up. IF&W completely ignored impacts of TransCanada's proposal on Golden Eagles, although an historic Golden Eagle nest sits on Sisk Mt. and two others can be found within two miles of the project site.

5. Assuming that wind energy is good-to-go everywhere

The Expedited Wind Energy Act makes an overall as-

sumption that wind energy is a viable and feasible form of energy, both technically and economically, which will produce a positive impact on reducing global warming and addressing Maine's oil dependency. This assumption was made in crafting the Act without any scientific documented proof and has created a process that presumes without evidence or independent evaluation that one form of energy is superior in all cases regardless of different site-by-site circumstances and environment.

This assumption is so taken for granted in the permitting process that LURC has disallowed the submission of any evidence to the contrary, even with regard to particular windpower sites that have been proposed. Due to this assumption, LURC and DEP are accepting at face value the energy production estimates submitted by applicants, without any critical due diligence examination.

Even if the overall technical and economic feasibility of wind energy in Maine was scientifically valid, it does not necessarily follow that it would be valid for all proposed specific windpower sites. Just as adverse impacts and benefits need to be weighted in the permitting process on a site-specific basis, so does the production capability and economics of any individual site need to be weighed in making a valid determination for rendering a permit decision.

The Sisk application was a perfect example of this conceptual flaw as it constituted an expansion of an existing and fully operational wind project site (Kibby). Thus, it presented the opportunity for the LURC commissioners to judge the efficacy of expanding the existing project site through an in-depth analysis of actual production data. Yet the commissioners rejected FBM's attempt to introduce such evidence and ignored the deficient production at Kibby, relying on the unchallenged energy assumption contained in the Expedited Act and the estimates of the developer.

Data from Kibby demonstrates that LURC's decision on Sisk was flawed in large part due to acceptance of this mistaken assumption. Phase 1 of the facility has now been in operation for a full two years and Phase 2 for one full year. Comparing Kibby's actual production with its rated capacity of 132 MW for the first 3 quarters of 2011 produces a capacity factor of only 22.5%. When the facility produced abysmal results in year 1, TransCanada claimed "typical start-up difficulties" but now after 2 years of operation TransCanada's atrocious results continue unabated. In other words, TransCanada is producing a pittance of electricity after having destroyed one of the most spectacular mountains and wildlife and plant communities in Maine. Yet data on Kibby's actual production of electricity data was deliberately withheld from the Sisk record by LURC.

6. Designation of the expedited zone was done neither scientifically nor democratically

The process of designating the geographic areas of the State that were to be an "expedite zone" by the Governor's Wind Energy Task Force was a backroom, politically and commercially driven process, devoid of objective scientific data and without any public input. It was, and is, one of the most disgraceful anti-democratic and anti-scientific legacies of the Baldacci administration.

In contrast, when the State was faced with a similar situation regarding hydropower on rivers, Governor Brennan released his Energy Policy for the State of Maine, which directed that the State base its determination on where to site hydroelectric dams by using scientific objective

criteria. Consequently, the Dept. of Conservation was charged with conducting a Rivers Study.

The purpose of the study was two-fold. The first was to define a list of unique natural and recreation rivers identifying and documenting important river related resource values as well as ranking the State's rivers into categories of significance based on composite river resource value. The second purpose of the study was to identify a variety of actions that the State could initiate to manage, conserve, and, where necessary, enhance the State's river resources in order to protect those qualities that had been identified as important.

The Department of Conservation, working with environmental, economic, energy and other appropriate interests, identified river stretches in the State that provided unique recreational opportunities or natural values and developed strategy for the protection of these areas for submission to the Governor.

At a public meeting of the Task Force in 2007 I suggested the Rivers Study would be a good model to apply to wind power. The Task Force, to its immense shame and disgrace, comprised solely of pro-wind advocates, was only inclined to scurry to a smoke-filled backroom with the wind industry's chief attorney and lobbyist (who, unbelievably, were Task Force members) to carve up the State as the Pope did with the New World.

7. Cumulative impacts have not been defined nor evaluated

A grave failing of the permitting process has been the lack of consideration of cumulative impacts as monstrous turbines and their accompanying infrastructure desecrate more and more mountains. Although LURC has expressed at least lip service to the problems caused by the cumulative impacts of incremental development (see, e.g., goal 2 in the 2010 CLUP, which vows to "(p)revent the degradation of natural and cultural values resulting from cumulative impacts of incremental development."), it has not been able to apply this standard to wind power projects in general nor to any project in particular.

It will be too late when the balance is tipped too far and we begin to see our mountains converted into industrial clusters whose cumulative adverse impacts cannot meet the applicable standards. LURC only perceives these impacts when viewed in isolation, as if the project were the sole development or potential development in the area.

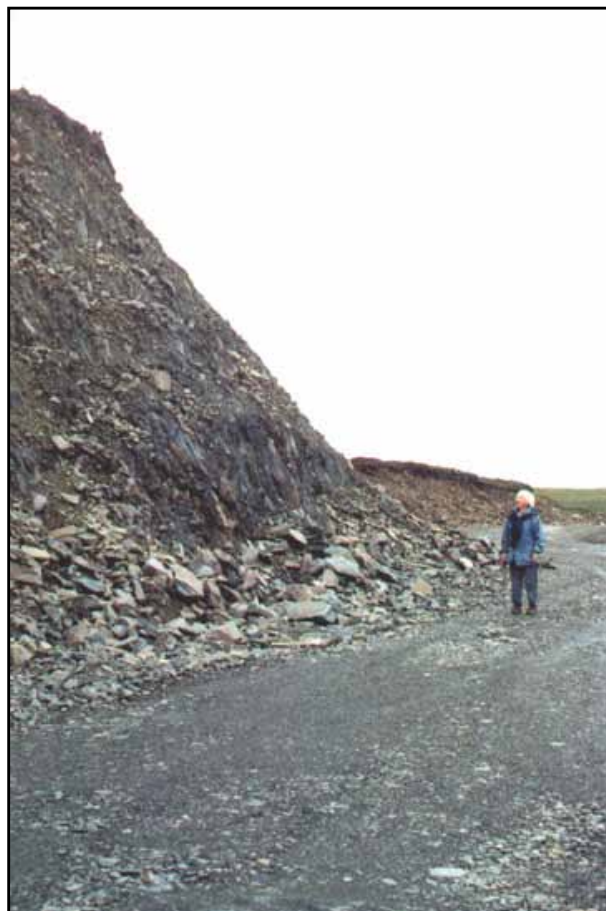
When presented with applications for new or expanded projects, LURC and DEP should be questioning whether the proposed outcome as a whole could fit harmoniously into the natural environment of any given region, such as the Boundary Mountains or the Oxford Hills. This should be a critical component of the review process since, as we have seen, developers like to site projects near one another for maximizing their profits, regardless of habitat or other long-term considerations. But LURC and DEP, while putting on a pretense of examining adverse impacts of individual projects, have no criteria or process to address cumulative adverse impacts. Yet, creeping incremental expansion will become the "straw that breaks the camel's back" of an already tenuous balance and tips the scales forever so as to preclude any hope of preserving the natural environment.

The Expedited Wind Act is missing this holistic approach to the permitting process because the aggregation of impacts would call into question the entire goal of converting rural Maine into becoming the "Saudi Arabia

of wind." Much better for the developers and their government lackeys to stick to the individual silo approach to the permitting process so as to not reveal to the public where we are headed. Without addressing cumulative impacts in the Statute or in the permitting process there is "death by a thousand cuts," as stated by the only contrarian LURC Commissioner.

8. The tangible benefits test has been misconstrued and misapplied

The Expedited Wind Act requires that the applicant demonstrate that its proposed project will provide significant tangible benefits, as defined in the Act, i.e., "tangible benefits" means environmental or economic improvements attributable to the construction, operation and maintenance of an expedited wind energy development. These tangible benefits are to be in addition to the generation of electricity.



Road construction at the Kibby industrial wind project

There has been a great deal of misunderstanding and misapplying of the statutory definition of "tangible benefits" on the part of LURC and DEP. These authorities have allowed applicants to use cash gifts (in his questioning during oral arguments Justice Alexander referred to them as "payoffs") to satisfy the tangible benefits test. The statute's plain language, however, requires that the tangible benefits be "attributable to the construction, operation and maintenance" of the expedited wind project. The benefits must come from the wind project itself, not from the wealth of the applicant.

Misconstruing the definition has led to various unethical behaviors on the part of wind power applicants (with the full knowledge and support of LURC). Applicants like TransCanada run around local communities or near proposed projects with open checkbooks begging local groups to take their money. These payoffs have influenced groups to adopt a position more favorable to the applicant, even after having initially opposed the project. This occurred during the Sisk application proceedings with the Arnold Historical Expedition Society. More-

over, the race to line up "tangible benefits" through the financial largesse of the applicant has led to winners and losers in local communities, the consequence of which is disruption in the social fabric of small towns. Because of these underhanded practices, the tangible benefits test only demonstrates the susceptibility of local people to legalized bribery, not the efficacy of wind energy.

Moreover, any rational determination of tangible benefits should require that the permitting authority calculate whether the project provides a net benefit to the community. In other words, the Commission should take into account the public costs of the project as well as its supposed benefits. Wind energy projects enable applicants to receive public subsidies from taxpayers at the federal, state and the county level. Wind power projects have been documented to lower real estate values. Wind power projects can adversely impact the local tourism industry, etc. These and similar costs can be quantified and should be included in the permitting decision. If these public costs exceed the public benefits provided by the project, the public receives a net loss, not a net benefit from the project. To date LURC has refused to seriously consider this side of the equation.

9. The Expedited Act grants LURC unconstitutional authority to add areas to the expedited zone created by the Legislature and provides no specific criteria for doing so

Despite the fact that nearly 2/3 of the State has been declared as an expedited zone for processing of wind power applications, Chapter 661 gives LURC and DEP additional authority to expand the statutorily-defined expedited zone, while not providing specific criteria for such expansion.

The first concern is serious doubt as to whether the Legislature can make such a delegation of what is essentially a raw legislative power to a state agency consistent with the separation of powers provisions of the Maine Constitution.

In addition, if this overly broad legislative delegation is constitutional, it must be accompanied by specific criteria on how this delegation of power is to be applied, which was not done in the case of the Expedited Wind Act. The Act has only vague and general references to guide the permitting agencies.

The first instance of an attempt to expand an expedited area occurred in the Sisk proceedings. For unknown reasons, not conforming to any boundaries or geographic logic, Sisk Mountain encompasses both expedited and non-expedited areas.

TransCanada filed a petition to expand the expedited area to cover the entire mountain. Because of a lack of specific criteria in the Act, LURC was forced into an extensive rule-making process to define criteria for this expansion. The process was lengthy and unwieldy and very unsatisfactory to all involved parties. Ultimately TransCanada withdrew its petition after much opposition and subsequently attempted to squeeze its project's footprint into the remaining expedited area.

10. The Expedited Act makes no provision for removing areas from the expedited zone

The Expedited Wind statute lacks any authority for removing areas from the expedited zone if they are found to be inappropriate by LURC or DEP. Had the Expedited Wind Act been drafted properly and thoughtfully, Sisk would never have been even partially expedited. This

situation exists in several other mountain areas as well. It is extremely unfortunate that inappropriate areas are included in the expedited zone and that the controlling authorities (LURC and DEP) have not been given the means to withdraw these areas once they have been studied and found to have been inappropriately included.

11. The inadequacy of decommissioning planning

There has been considerable debate as to the adequacy of what LURC and DEP have been requiring of applicants for their decommissioning proposals. While Friends of the Boundary Mountains did not contest LURC's requirements for decommissioning in either the Kibby or Sisk proceedings, it was not due to the adequacy of the proposals but rather lack of time and resources for it to raise the issue among the many other negative features and impacts needed to be addressed.

We can, however, offer some facts on LURC's inattention to concerns about decommissioning. In both the Kenetech and Redington cases LURC did not provide any financial security or planning for decommissioning with regard to the meteorological test towers that were constructed and then abandoned in Mountain Protection subdistrict by both developers. This has been typical LURC practice.

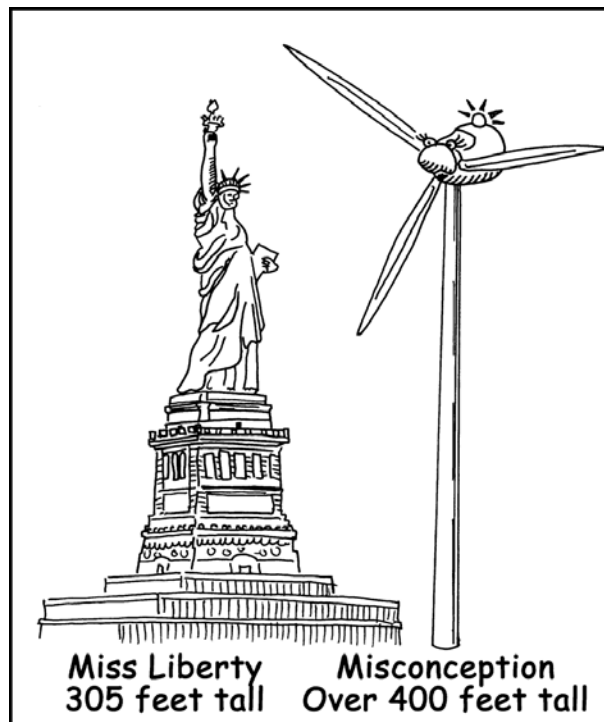
In the case of Kenetech, lead-acid batteries, propane tanks, and other highly toxic materials were left in the fragile mountain environment after Kenetech's bankruptcy. It took over a year of pressure from FBM to get LURC to hire a salvage firm that needed to use helicopters to clean up the top of Kibby Mountain from Kenetech's junk. Because LURC hadn't required any bond or other security, the State had to pay for this cleanup. Similarly, the abandonment of a met tower (that had collapsed) occurred on Redington Mt. after Endless Energy's application for a wind power facility was denied. This history calls into question LURC's and DEP's assumptions for decommissioning of entire wind power facilities built in fragile environments.

The final development permit for the Kibby expansion project only requires a "Parental Guarantee" from TransCanada Corporation to fund the necessary decommissioning activities. If TransCanada Corporation's credit rating falls below investment grade, the applicant would then be required to provide a Letter of Credit (LOC) from a financial institution of investment grade standing. The amount of the Parental Guarantee or LOC would be 50% of the estimated decommissioning costs, submitted by December 31st of the first year of commercial operation. No later than year 15 of operation, the applicant would be required to reassess the decommissioning costs and put in place a financial assurance for 100% of the then estimated decommissioning costs, less salvage value.

However, TransCanada submitted estimated cost of only \$2,458,281 (based on 2009 US dollars) for removal of the collector system and substation; the turbines and foundations, minus the salvage credits per turbine; and the cost of transportation and disposal. To our knowledge this estimate has not been validated by any third party and should be questioned in light of the \$120 million cost of the project.

Furthermore, a detailed decommissioning plan including a description of the work to be performed to remove the turbines and foundations down to a depth of 24 inches below final grade; to remove all buildings, cables, electrical components, and associated facilities (unless they are to be otherwise placed into productive use); and

how the site will be restored, including any landowner requests, will not be submitted until 60 days after the date the project ceases to generate electricity as set forth in a written notice from the applicant to LURC. Thus, it becomes difficult for intervenors or LURC to judge the merits of the decommissioning protocol until after the fact.



An issue that FBM did raise about decommissioning, which LURC dismissed-out-of-hand, was our concern about TransCanada's ability to re-vegetate native plant communities above 2700'. This concern has been validated by LURC's post-construction inspection reports on the re-vegetation attempts made in the Kibby I project. These reports, which FBM obtained from LURC, document a total failure to re-vegetate.

The Expedited Wind Act needs to be made much more stringent regarding what is an acceptable plan for decommissioning since LURC and DEP have not done so.

12. Visual standards and tourism-related issues

Complaints and concerns about visual impacts in Maine from wind power projects generally go beyond the typical NIMBY syndrome. Maine's tourism industry, outdoor recreational activities, and second home economy all are intertwined with the importance of scenery and view sheds. In making their permitting determinations, LURC and DEP have consistently ignored public testimony on visual impacts and have instead relied on the so-called "visual expert," i.e., a paid-for corporate parasite who claims to be able to speak definitively on behalf of thousands of individuals on how they would react to viewing a string of turbines and "associated facilities" placed on a heretofore pristine mountain ridgeline. These parasites have shown that they will represent either side for the right price, which in reality can only be afforded by the developers.

So the developers hire these "experts" who proceed to Photoshop pictures purporting to represent "visual simulations" of what the "average" viewer will see at various vantage points. They then do their dishonest best to doctor these simulations so that the permanent scars inflicted on the earth are all greened over in lush lawns (@ 2700 and above feet, no less). Then they contort a fantasy methodology to evaluate how the "average" viewer will

react to such desecration. Meanwhile, LURC and DEP ignore testimony upon testimony from real people who live in, or frequent, the proposed area and who know what their response will be to such desecration without paid-for "expert" methodology. What an absurd and rigged process.

To make matters worse, the Expedited Wind Energy Act limits the measuring of visual impact to an arbitrary 8 miles. But real life circumstances demonstrate the absurdity of this geographic limitation. For example, the turbines on Kibby can be seen day and night from multiple points in the Bigelow Preserve. The Preserve, saved from industrial exploitation by a referendum vote in 1976, is considered a "gem" among public lands in Maine and is now subjected to this pollution by TransCanada's monstrosity on Kibby. Even the parasitic visual expert who testified on behalf of TransCanada now expresses surprise concerning the impact on the Bigelow Range.

The entire weighing of visual impact in permitting decisions is rife with conjecture and corruption and needs to be thrown out completely.

Conclusions

Regardless of one's view of wind power as a source of clean energy, converting Maine into the "Saudi Arabia of wind," as intended by former Governor Baldacci, has to be viewed in the context of a major paradigm change for the State. Installing 2700 MWs of on-land wind power, as envisioned by the Expedited Wind Energy Act, entailing the permanent adverse impacting of 350 miles of mountain ridgelines, clear-cutting of 50,000 acres of forestland, building of hundreds of miles of new roads and high-power transmission lines and substations, and permanently impacting rural livelihoods and lifestyles, constitutes a major environmental, social, and economic dislocation that forever will change the character of Maine.

The Expedited Wind Act was the product of the infamous Governor's Task Force on Wind Power Development. In proclaiming the Task Force's mission, Baldacci stated its purpose was to: "review the regulations that affect the development of wind power projects in the state and recommend any changes that would assure that Maine has a balanced, efficient and appropriate regulatory framework for evaluating proposed projects. The Task Force will also monitor advances in wind power technology, identify benefits and incentives that might be available to communities considering wind power projects, help developers find the most appropriate locations for their projects and propose goals for wind power in Maine for 2010 and 2020."

Lofty goals indeed but how have they worked out in practice? Has there been public acceptance and support? Framers of the Act had expected to eliminate or reduce the controversial nature of the permitting process while providing developers with predictability and assurance for the timeliness of the permitting process. There was the expectation that the Act would provide clear guidance to developers about the type of sites that would face lower risk through the permitting process and would clarify siting criteria and the standards of review.

To successfully meet these challenges, policy makers and politicians needed the Act and its implementation to be exemplary and the resulting consequences to be fully embraced and found acceptable by the public. It is, how-

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Bats Worth Billions to Agriculture: Pest-Control Services at Risk

by J. G. Boyles, P. Cryan, G. McCracken, and T. Kunz

Thomas Kunz, Warren Distinguished Professor in Boston University's Department of Biology, has coauthored an analysis published this week in the journal *Science* that shows how declines of bat populations caused by a new wildlife disease and fatalities at industrial-scale wind turbines could lead to substantial economic losses on the farm.

so the loss of bats is likely to have long-term effects on agricultural and ecological systems," said Justin Boyles, a researcher with the University of Pretoria and the lead author of the study. "Consequently, not only is the conservation of bats important for the well-being of ecosystems, but it is also in the best interest of national and international economies."



photo by Arlene Ripley

The insectivorous Big Brown Bat is common in Maine

Pest-control services provided by insect-eating bats in the United States likely save the U.S. agricultural industry at least \$3 billion a year, and yet insectivorous bats are among the most overlooked economically important, non-domesticated animals in North America, noted the study's authors, scientists from the University of Pretoria (South Africa), the U.S. Geological Survey (USGS), the University of Tennessee, and Boston University.

"People often ask why we should care about bats," said Paul Cryan, a USGS research scientist at the Fort Collins Science Center and one of the study's authors. "This analysis suggests that bats are saving us big bucks by gobbling up insects that eat or damage our crops. It is obviously beneficial that insectivorous bats are patrolling the skies at night above our fields and forests— these bats deserve help."

The value of the pest-control services to agriculture provided by bats in the U.S. alone range from a low of \$3.7 billion to a high of \$53 billion a year, the authors estimated. They also warned that noticeable economic losses to North American agriculture could well occur in the next 4 to 5 years because of the double-whammy effect of bat losses due to the emerging disease white-nose syndrome and fatalities of certain migratory bats at wind-energy facilities. In the Northeast, however, where white-nose syndrome has killed more than one million bats in the past few years, the effects could be evident sooner.

"Bats eat tremendous quantities of flying pest insects,

A single little brown bat, which has a body no bigger than an adult human thumb, can eat 4 to 8 grams (the weight of about a grape or two) of insects each night, the authors note. Although this may not sound like much, it adds up—the loss of one million bats in the Northeast has probably resulted in between 660 and 1320 metric tons of insects no longer being eaten each year by bats in the region.

"Additionally, because the agricultural value of bats in the Northeast is small compared with other parts of the country, such losses could be even more substantial in the extensive agricultural regions in the Midwest and the Great Plains, where wind-energy development is booming and the fungus responsible for white-nose syndrome was recently detected," said Kunz.

Although these estimates include the costs of pesticide applications that are not needed because of the pest-control services bats provide, Boyles and his colleagues said they did not account for the detrimental effects of pesticides on ecosystems or the economic benefits of bats suppressing pest insects in forests, both of which may be considerable.

The loss of bats to white-nose syndrome has largely occurred during the past 4 years, after the disease first appeared in upstate New York. Since then, the fungus thought to cause white-nose syndrome has spread southward and westward and has now been found in 15 states and in eastern Canada. Bat declines in the Northeast, the most severely affected region in the U.S. thus far, have exceeded 70 percent. Populations of at least one species, the little brown bat, have declined so precipitously that scientists expect the species to disappear from the region within the next 20 years.

The losses of bats at wind-power facilities, however, pose a different kind of problem, according to the authors. Although several species of migratory tree-dwelling bats are particularly susceptible to wind turbines, continental-scale monitoring programs are not in place and reasons for the particular susceptibility of some bat species to turbines remain a mystery, Cryan said.

By one estimate, published by Kunz and colleagues in 2007, about 33,000 to 111,000 bats will die each year by 2020 just in the mountainous region of the Mid-Atlantic Highlands from direct collisions with wind turbines as well from lung damage caused by pressure changes bats experience when flying near moving turbine blades. In addition, surprisingly large numbers of bats are dying at wind-energy facilities in other regions of North America.

"We hope that our analysis gets people thinking more about the value of bats and why their conservation is important," said Gary McCracken, a University of Tennessee professor and co-author of the analysis. "The bottom line is that the natural pest-control services provided by bats save farmers a lot of money."

The authors conclude that solutions to reduce the impacts of white-nose syndrome and fatalities from wind turbines may be possible in the coming years, but that such work is most likely to be driven by public support that will require a wider awareness of the benefits of insectivorous bats.

The article, "Economic importance of bats in agriculture," appears in the April 1 edition of *Science*. Authors are J.G. Boyles, P. Cryan, G. McCracken and T. Kunz.

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ever, undeniable that Maine's Expedited Wind Energy Act has not lived up to the expectations of its framers and proponents and this misguided Statute brings public scorn on a daily basis.

Grassroots opposition has grown to include local groups in every corner of the State, a statewide coalition and a state level opposition group. Each month more and more towns are enacting ordinances to deter windpower projects in their jurisdictions. Perhaps this recent (Dec. 15, 2011) news item from the town of Paris, ME best expresses the widespread frustration towards windpower and determination of local citizens to stop it:

"After much debate, we unanimously agreed that the intense controversy which always seems to be generated by wind farming was not something we felt was good for the town," said Creaser (of Paris' land use planning committee). "Since we didn't have the authority to ban them altogether, we designated the [Route 26] corridor as the wind farming zone, hoping that the technology will have to improve dramatically for anyone to build one there."

"Proposed wind farms have been the subjects of fierce debate in neighboring communities, including Sumner and Buckfield."

Certainly this is not the kind of reaction proponents expected when the Wind Energy Act was rammed through the Legislature in 2008. This short-sighted legislation was based on political gamesmanship, not science or a thorough understanding of the havoc about to be wrought on rural Maine. Did these scheming politicians and their knee-jerk followers once consider how foolish and counter-productive it was to try to save the environment by wrecking that same environment, while simultaneously wasting vast amounts of taxpayer dollars? The only beneficiaries of this scheme have been the greedy and destructive corporate developers who will stop at nothing in their drive for profits.

Maine people will not rest until this terrible subterfuge is removed from our midst.

Bob Weingarten is the President of Friends of the Boundary Mountains

Wind Turbines and Forest Fires

by Clyde McDonald

Despite all that has been written about wind power, one of the most important issues has barely been mentioned. When turbines fail, a frequent occurrence, their blades sometimes fall to the ground and/or send flying bits and pieces that land up to a mile away. Turbines also frequently catch fire. Some of those flying blade fragments cause forest fires at considerable distances from

80,000 hectares to burn; in Spain, 80 hectares. In Germany, “burning debris (was) reported to travel several hundred meters.” In Holland three blades from a mere 270 foot tower exploded and one 50 pound shard landed 220 feet away. The most dramatic notice was printed in the Wales Cambrian News when it referred to “great balls of fire” that threw flaming debris more than 150 yards, setting a hillside ablaze, Fearing more such fires, an Australian province enacted a law forbidding placing wind turbines in or near forested areas. Yet, in the State of Maine numerous wind farm sites have been approved without any regard to for-

It does not take much imagination to foresee that turbines hundreds of feet tall, located on steep mountain slopes in heavy wind corridors, when they catch fire, can easily shoot flaming debris into woods and surrounding areas. Worse yet, flaming turbines are located mostly in remote areas, far from sophisticated fire fighting equipment.

Mere fire engines are not the answer. In every account, fire fighters reported they could merely watch as their equipment could not reach the flaming nacelles. In every case, the strategy was to let the tower fires burn themselves out.

Damage to forests in many cases was contained because in Germany, California, and Australia, massive firefighting equipment was located not as far away. That is not the case in Maine and many other states. The 68 acres that were burned in one of the California fires had been contained with the assistance of 15 fire engines, 4 hand crews, and 4 aircraft. The 220 acre California fire had been contained by 45 firefighters, 2 helicopters, and 2 bulldozers. Also in that state, a five acre fire was contained by 6 fire engines, 3 water trucks, 2 helicopters, 2 air tanker planes, a bulldozer, and 3 hand crews.

If, or when, there are fires on mountain tops in northeastern rural forested areas, one wonders where the personnel and equipment will come from, how long it will take them to get there, and who will pay the costs. It is doubtful that these questions have been asked or answered in states that are now hurrying to install hundreds of turbines before the federal and state subsidies expire.

There should be a moratorium on further placements until these questions have been answered satisfactorily. General Electric allegedly has told a private developer that unlike the older models, their modern turbines do not catch fire except in very rare cases. This claim should be investigated. Foresters and others should insist that the entire subject of the incidence of forest fires caused by blazing turbines should be explored by institutions with the resources to do a thorough and unbiased investigation. Until then, a moratorium should be imposed.



the launching sites. Much has been made of the value of the temporary construction jobs associated with clearing land and erecting 400 foot plus towers on mountain sides, but it appears there has been no consideration of job losses from wind power-caused forest fires in paper, lumber, and other wood dependent industries.

Official information on the number and severity of forest fires caused by wind turbines is unavailable largely because wind power companies are allowed to keep all pertinent data secret. Nonetheless there have been scattered press reports from many states and nations. And it appears that an outside organization put together an accounting of the Caithness Wind USA's experience with turbine fires in the northwest. That firm experienced 110 serious turbine fires over a 20 year period but there is no mention of whether some of those fires may have spread to forested areas.

Similarly, most of the 43 media citations of turbine fires in the US and Europe are followed with the words “no details.” Other references contain brief statements such as that 22 were caused by lightning strikes. The reports do mention that 25 turbine fires spread to fields and forests. California has experienced a large number of forest fires over the past few years and one wonders how many were caused by wind farms.

A modest number of the accounts do refer to turbines that have caused forest fires. One turbine caused fire in California was contained after burning 68 acres; another 220 acres; a Palm Springs incident created a number of “small spot fires” over an extended area. In Maui, Hawaii, 95 acres burned. An Australian turbine fire caused

est fires and I presume the same is true of other states.

On occasion, when metal fatigue from various stresses cause towers to fall, another common occurrence, they cause fires after they hit the ground.



Thoughts on Climate Change, Energy, and Forests: The Way Ahead

by Jonathan Carter

Climate change is here to stay and will accelerate in the decades ahead. Greenhouse gas emissions will increase as the planet's fossil fuel consuming population continues to grow out of control and the western model of economic growth through increased consumption and materialism continues to be adopted by the rest of the world. A shift away from this model to **an ecological economics paradigm based on sustainability and carrying capacity is desperately needed.**

In addition, the breakdown of biosphere stabilization processes, such as ocean temperature and salinity changes, and the melting of the permafrost are leading to ever greater concentrations of carbon dioxide and methane in the atmosphere, exacerbating the crisis. Coastal population displacement, massive famine as food scarcity expands, and drought and water shortages will become epidemic in scale. Global conflicts - war - will become more prevalent as countries try to secure resources for their citizens. Not a pretty future and one that most people do not even want to contemplate.

Unless climate change efforts shift away from a focus on avoidance (which too date has been totally unsuccessful) toward on all out effort to devise strategies for adaptation, there is, in my opinion, virtually no hope for civilization as we know it to survive. We must adapt and try to mitigate. The way ahead will require shifting

gas junkies will do whatever it takes to keep the fossil fuel addiction going. Experts are now predicting that as a result of the new gas and oil finds in North America, the United States will become a major exporter of energy for the next hundred years. The environmental costs of this energy expansion are mind boggling and spell planetary disaster!

What about natural gas? There has been a tremendous discussion in recent years about the role of natural gas in our energy future. We all know that coal fired power plants are the largest emitters of greenhouse gases. A natural gas fired plant puts out 50 to 75% less carbon emissions. Shutting down coal-fired plants and replacing them with gas-fired makes sense on the surface. However, when the issue of gas leakage (natural gas is 25 times more damaging as a greenhouse gas than carbon dioxide) and the environmental damage from fracking are factored in, shifting to gas doesn't seem as great of an idea as some would like to have you believe.

What about nuclear? Recent events in Japan pretty much say it all. The long-term contamination from accidents and the lack of safe storage facilities for highly radioactive wastes make nuclear a dangerous choice for the future. In addition, uranium mining is an extractive process, not unlike mountaintop removal in the coal regions of Appalachia. The mining process results in the release of significant amounts of greenhouse gases.

So what is the solution? Is there a way ahead?

It is one thing to rant against fossil fuels and nuclear power, but without providing a solution or as I call it "the way ahead", ranting will do little more than make one feel good. There is a way ahead that could make a tremendous difference in helping Maine and the planet adapt to a changing climate as well as protecting biological diversity - and facilitating planetary survival.

The first, and the least costly step, is to **initiate conservation and efficiency measures.** The Rocky Mountain Institute has estimated that energy consumption could

be reduced by as much as 50% by utilizing existing technologies - more efficient motors or energy saving construction designs. Maine has the oldest housing stock in the country. Retrofitting existing structures and using the highest standards for energy efficiency for new structures would drastically reduce our consumption of oil and electricity. Spending billions on reducing energy consumption thereby reducing carbon emissions, is far more intelligent than spending billions on blowing up our mountaintops for industrial wind energy production in an effort to expand energy consumption with no concomitant reduction in carbon. There has never been an oil or coal-fired power plant shut down as a result of wind power.

At the same time we are implementing reduced consumption, we need to **mandate forest practices that maximize a forest's ability to sequester carbon.** This means significantly longer rotations, practicing selection cutting (not clearcutting), and promoting natural forests (not plantations). This sort of forestry would also protect forest biological diversity. On a per ton basis, building forest sequestration capacity is the cheapest way to reduce carbon in the atmosphere. If Maine forests were managed this way, it would be possible to double or triple the carbon sequestering capacity of the forests. If Maine implemented reduced consumption through conservation and efficiency while at the same time practicing carbon sequestering forestry practices, Maine could reduce its carbon footprint to zero and actually become an important carbon sink.

Maine's ability to become an important forest carbon sink will be severely compromised if energy from forest biomass is allowed to grow unchecked. There is no problem when waste products - sawdust and wood scraps, etc. - are fed into the energy stream. Unlike the burning of fossil fuels which releases carbon that had been sequestered for millions of years, the carbon-based cellulose in forest biomass has only recently been sequestered. However, when the biomass is burned, like coal or other fossil fuels, it does release large amounts of carbon. The forest products industry, which sees the conversion of forests to biomass factories as a lucrative future, likes to stress that forest biomass is carbon neutral since all the carbon released will eventually be sequestered by the re-growth of a cut down forest. When given enough time (it takes a clearcut 20 years of regeneration to become a net carbon sink), this is true, but there is a major catch-22.

By mowing down the forests at a young age, not only will two thirds of the carbon in the forest biomass be released within ten years, but the long term sequestering potential of the forest has been eliminated. Carbon sequestering potential in forests increases exponentially as a forest matures. Not only does a 150 year old forest store vast amounts of carbon, but it is sequestering carbon at a far greater rate than a regenerating clearcut, a plantation monoculture, or a young 40 year old forest.

Perhaps the greatest threat to forests is the push by the forest products industry to promote large scale forest biomass energy production - from jet fuel to pellet stoves to large scale industrial biomass boilers. If their plans are ever implemented, forest restoration will never occur and the opportunity for carbon mitigation through increasing forest sequestration capacity will be lost. Making forest biomass factories will only lead to greater climate disruption.

Conservation and forest sequestration enhancement are two immediate ways to reduce carbon. However, in the long run it is imperative we develop environmentally friendly renewables such as small scale wind (not mountaintop industrial wind, which is not small scale or environmentally friendly), solar, geothermal, tidal, and hydro power. Developing these renewables on a small scale through community-based energy co-ops for local consumption in Maine is the way to move forward. Like the movement to buy local organic food, we should be demanding locally produced and consumed energy.

Large industrial sized power generation is, almost without exception, ecologically damaging - no matter whether it is renewable or not. Quebec Hydro is a classic example. In northern Quebec and Labrador an area the size of New Hampshire has been flooded. The flow



Wood chips by a biomass power plant.

our energy production and consumption habits, while at the same time promoting forest restoration as a way to mitigate carbon emissions.

Reality Check

Unless civilization, as we know it, implodes, carbon producing fossil fuels will remain the primary energy source for the foreseeable future, and unfortunately, renewables will continue to play only a minor role. Why do you think that the corporate energy giants like Exxon, Shell, Chevron, Texaco, BP, etc. are all investing tens of billions of dollars into shale oil and gas? The oil and



Old-growth northern hardwood forest.

of numerous rivers has been redirected and completely altered - so much so that the once magnificent Churchill Falls no longer exists. It is a bone dry riverbed. The habitat destruction alone has decimated wildlife - from boreal songbirds to herds of caribou. Ironically, because of the flooding, vast amounts of stored carbon in the forest soil are being released - making the carbon footprint of Quebec Hydro nowhere near zero.

Wind and solar systems coupled with gas generators in the near term would work well in Maine. When the intermittency and storage problems of wind and solar are solved, then the gas back-up could be eliminated. There are currently some interesting solutions being explored, such as storing the power as heat energy in salt or as potential energy in water pumped uphill. Utilizing the electricity from wind and solar to split water molecules to create hydrogen fuel or utilizing it to charge exchangeable car battery packs also offers potential solutions to addressing the intermittency and storage problems.

Geothermal, tidal, and small scale hydro powers have greater reliability and could become important components of local energy sources.

Population control is the Achilles Heel. Last October, the world population reached 7 billion! Since 1950, it has almost tripled. At current growth rates there are 75,000,000 more energy consuming humans on the planet every year. In the U.S., since 1950, the population has more than doubled and currently stands at about 312,000,000. One U.S. citizen consumes 5.25 times more energy than the rest of humanity's per capita consumption. So the U.S. population alone consumes the equivalent of a population of about 1.6 billion. The human species has far outstripped the carrying capacity of the planet. The declining health of the biosphere is the direct result of cancerous population growth. Ultimately, unless measures are taken to check this growth, all of our efforts to adapt and mitigate climate change through conservation and efficiency, forest restoration, and a shift to small scale renewable will be completely ineffective.

When I Lay Down to Sleep

by David Corrigan

I lay down to sleep, but I seldom find rest
For every night while I slumber, I am put to the test

In my dreams I see things, awful and real
And I awake often wishing, that I could make people feel

Make them to realize, help them understand
Just what we are doing, to our children and land

For we are destroying, what we can never replace
And we seem able to do it, and still keep a straight face

Most people don't know, that what we're doing is wrong
For deep in their hearts, they don't carry the song

The song that our Grandfathers, held in their hearts
The song that made men, search out wild parts

I guess when your feet, are removed from the ground
Somehow your heart, is cut off from the sound

Now when I sleep, it seems that I dream
About the Indian caves, and the wild cat's scream

About the old farmsteads, on Rocky Dundee
And about Fletcher Mountain, here watching me

I see the destruction, up at Mars Hill
And the spirits on Vinalhaven, that can never be still

I see how Freedom, Danforth, and Dixfield are losing their way
Feel the pain coming from Roxbury, Carthage, and Woodstock, and those who can't stay

I see Mattawamkeag, and that sacred place
Where a future President went, to commune with The Grace

And the red lights up on Kibby, as seen from the cut
In the Sandy Stream Valley, are like a kick in the gut

I see all these things, and yet my eyes are shut tight
There is no longer peace, in the Maine Mountain night

And then I see Bowers Mountain, above Grand Lake Stream
And I realize that others, still share in the dream

For they came together, to stand and defend
So that one corner of Maine, could win, in the end

The battle is not over, and we must stay on guard
But those bent on destruction, are finding it hard

Finding it hard, because The People now know
That they have the power, to tell the looters to "GO"

We've had a big win, and that is a great thing
But The People in general, still don't know how to sing

They don't hear the song, it doesn't live in their hearts
They have no real respect, for the wilder parts

They don't understand, they really don't know
That the 'Green' they promote, means death, although slow

And so while we rejoice, that Bowers breaths free
There is still no escape, for those such as me

When I close my eyes, there will be no rest
Those things will still haunt me, and perhaps, that is best

For we must never forget, that if we sleep sound
Those bent on destruction, will keep gaining ground

Source:
<http://realwindinfoforme.com/blog/when-i-lay-down-to-sleep/>



The Mars Hill wind project.

THE LAST WORD



The Facts about Wind Energy Development in Maine

1. Wind generated electricity will not “get us off of oil.” Less than 2 % of the electricity in Maine and in the U.S. comes from oil-fired generators. We use oil for transportation and heating.
2. Maine has 4300 megawatts of electricity generation capacity, though we only use 1500 megawatts on average. There is no shortage of electricity.
3. Even without wind turbines, Maine is already one of the cleanest states in the nation with the highest renewable portfolio standard in the U.S..
4. Maine’s 2700 megawatt goal for land-based wind generating capacity will necessitate the construction of 1200-1700 wind turbines, on over 300 miles of rural Maine’s mountains and hills.
5. Wind generated electricity is high impact and low benefit. Maine’s 2700 megawatt goal could be supplanted by the construction a SINGLE conventionally gas fueled generator, at 10-15% of the cost.
6. Placing wind turbines on Maine’s mountains will not enhance our energy security. Virtually all of the fuels used to produce electricity in New England are sourced from North America.
7. Placing wind turbines on Maine’s mountains will not reduce coal consumption or stop mountaintop re-moval mining. Maine does not use coal to produce electricity.
8. Placing wind turbines on Maine’s mountains will not improve Maine’s air quality. EPA figures indicate that the burning of fossil fuels in Maine is a minor source of the state’s particulate pollution. Most fossil fuel pollutants blow into Maine from population centers many miles away.
9. CO2 is a problem, but wind power is not the solution. Several studies indicate industrial wind increase carbon emissions due the ramping up and down of fossil fuel plants to back up the intermittency of the wind.
10. Wind turbines require sources of NEW conventional generating capacity as back-up for when the wind isn’t blowing.
11. New wind power integration will require an unprecedented expansion of transmission capacity costing taxpayers an estimated 19 to 25 billion dollars.
12. Wind generated electricity will not guarantee lower electricity rates..
13. Wind projects are heavily subsidized by taxpayers at an exorbitant rate.

14. Wind developments create notoriously few permanent jobs.
15. Most of a wind project’s expenditures occur outside of Maine – primarily, overseas where turbines are manufactured.
16. EVERY operating, multi-turbine, wind facility in Maine, that has been sited around people, now has significant unresolved disputes over noise and shadow flicker.
17. Properties located within 2 miles of turbines lose 20 to 40% of their value.



Join the forest ecology network

The purpose of the Forest Ecology Network is to protect the native forest environment of Maine through public awareness, grassroots citizen activism, and education. Your contributions and involvement are essential to the success of our efforts. Membership benefits include a subscription to our newspaper, The Maine Woods and educational field trips and workshops. Contributions to FEN (a 501 [c] [3] non-profit organization) are tax-deductible.

Membership Categories: \$25 Seedling \$35 Sapling \$50 Tree
 \$100 Grove \$500 Forest Other \$_____ Please sign me up for
the FEN Action/Email Alert List. I can’t afford a donation but would like to be involved.

Name: _____

Address: _____

City, State, Zipcode: _____

Phone: _____ Fax: _____

Email address: _____

VISA/MC accepted as payment.

Charge my VISA/MC # _____ Exp. date _____

Make checks payable to the Forest Ecology Network or FEN. Please enclose payment and a note describing your interest in FEN. Let us know if you’d like to volunteer. Forest Ecology Network, 336 Back Road, Lexington Township, ME 04961. Phone: 207-628-6404. Email: fen@207me.com Website: <http://www.forestecologynetwork.org>