

**Wind Turbine Guidelines Advisory Committee  
Public Webcast  
June 12, 2009**

**Summary**

- Dave Stout, *USFWS FAC Chairman*, began the webcast. He provided an overview of the FAC's purpose and timeline, noting that the FAC is making progress but still has much to accomplish before their Recommendations are complete.
- Abby Arnold, *facilitator*, asked the webcast participants to introduce themselves. She reviewed the agenda for the webcast and announced that after the presentation (see website for PowerPoint) there would be time for questions both from the FAC members on the webcast and questions submitted online by the public participants.
- Ms. Arnold explained that the purpose of the webcast was to provide an overview of the Synthesis (Drafting) Workgroup's Draft v.3 of the Recommendations, which was made public on June 11, as well as help FAC Members and the public prepare to discuss the draft at the June 30 – July 2 in-person FAC Meeting.
- Ms. Arnold reviewed the direction given by the FAC to the Synthesis Workgroup at the March 24-26, 2009 meeting, and listed the significant changes in the draft that were made since then, based on that direction. She summarized the contents of the Recommendations, and noted in particular that Chapter Three is intended to help developers avoid and minimize impacts, and Chapter Four on compensatory mitigation is intended to be used only when these efforts are insufficient. Ms. Arnold emphasized, on behalf of the Synthesis Workgroup, how important it is that the draft clearly communicates to the reader the intentions of the drafters. If the language that is currently in the draft is confusing or there are multiple ways of interpreting it, the Synthesis Workgroup would like to rectify this.
- Ms. Arnold also reported that the Legal Subcommittee is continuing to work on developing incentives for developers to use the FAC's Guidelines. Ms. Arnold pointed out that the organization of the policy recommendations and of the draft Guidelines may change. The premises and principles are the only components of the draft that there is consensus on at this time. There are a number of technical and policy-related questions that the Synthesis Workgroup is continuing to work on, and they will ask the FAC for input on these at the June 30 – July 2 meeting. After this meeting, v.4 of the Recommendations will be drafted and then discussed at the fall FAC meeting.
- It was announced that Draft v.3 will be distributed to FAC Members, Alternates, and Technical Experts again the week of June 22<sup>nd</sup> for use at the June 30 – July 2 FAC meeting, and also handed out in hard copy at the meeting. The page and line numbers will be the same as the draft that was made public on June 11<sup>th</sup>.

- Several questions were sent in online by public participants. It was suggested that the methods and metrics could be separated from the tiered decision-making process, such that the methods are not necessarily tied to one particular stage of project development. D. Stout responded that this would be considered.
- Ed Arnett, FAC Member, *Bat Conservation International*, explained that because the FAC's Recommendations are going to become national guidelines, the goal is to provide the maximum amount of detail possible for methods and metrics appropriate for wind projects nationwide that encompass most if not all situations; specific details must be developed for each project to account for site conditions and specific issues.
- A member of the public asked why Draft v.3 focuses less on the Avian Bat Protection Plan (ABPP) than Draft v.2 did. Ms. Arnold explained that the FAC has not decided what type of conservation plan to recommend developers use to show that they are following the Guidelines. The ABPP is one of the options under consideration.
- In preparation for the June 30 – July 2 FAC meeting, Ms. Arnold asked that FAC Members review the policy items highlighted during the webcast and in the cover memo to Draft v.3, and bring proposed language changes to the meeting.
- The deadline for comments on Draft v.3 is July 21<sup>st</sup>. These comments will be reviewed after the June 30 – July 2 FAC Meeting and incorporated into Draft v.4. Please send comments to [ekimbrell@kearnswest.com](mailto:ekimbrell@kearnswest.com) and [Rachel.london@fws.gov](mailto:Rachel.london@fws.gov).
- Public comments received are attached.

## PUBLIC COMMENT

*From Michael Boyd, Californians for Renewable Energy (submitted via e-mail):*

### **B. Description of context and need for Recommendations**

As of the end of 2007, the United States has the second highest cumulative wind capacity globally. Wind development in the United States was expected to increase by 25-30% in 2007, but it increased by 46% (NREL 2008). This rate of development is expected to continue, and perhaps to accelerate, as United States energy policy emphasizes independence from foreign oil. USFWS recognizes that wind-generated electrical energy is renewable, and produces no direct emissions. [\[MB1\]](#) Wind energy does however produce indirect emissions of air pollution and greenhouse gas emissions due to the intermittent nature of wind combustion turbines (CT) will be required to follow the load to support intermittent wind resource energy. [\[MB2\]](#)

Wind energy is a clean, renewable energy source that produces electricity without air pollution, greenhouse gas emissions, water consumption, or the mining, drilling, refining, and waste storage problems associated with most traditional forms of energy generation. [In later years increasing loads and higher levels of wind penetration may increase the demand for regulation and load following services beyond the capability of the hydro system to provide these services. Fossil resources such as simple-cycle gas turbines may be called upon to provide regulation and load following, which would increase CO<sub>2</sub> production.](#)

Wind power has recently garnered increased attention because of two major advantages that it affords over other types: 1) it is a domestic source of energy and therefore not subject to geopolitical interference, and 2) carbon dioxide emissions from the combustion of fossil fuels is the leading cause of anthropogenic climate change that is likely to have serious negative impacts on ecosystems and wildlife (Intergovernmental Panel on Climate Change 2007). [\[MB3\]](#)

[A 400-megawatt combined-cycle plant fueled by natural gas of 7,000 Btu/kWh heat rate operating at 80 percent capacity will produce about 1.2 million tons per year of carbon dioxide<sup>\[1\]</sup> or 3,000 tons<sup>\[2\]</sup> of CO<sub>2</sub> per megawatt-year.](#)

Nevertheless, wind energy production [and its indirect impacts emissions](#) can negatively impact wildlife and their habitat. As the U.S. moves to expand wind energy production, it also must maintain and protect the Nation's wildlife and their habitat. With proper diligence to siting, operations and management, it is possible for facilities to avoid, minimize and mitigate these impacts. As with all responsible energy development, wind power facilities should be required to adhere to high standards for environmental protection. The Committee recommends that USFWS develop and implement its wind power siting and operation policies and guidelines with joint emphasis on minimizing wildlife impacts from wind energy development, [\[MB4\]](#) and mitigate climate change.

## Overview of members of FAC

FAC members are composed of a broad group of stakeholders carefully selected by the Secretary from a large pool of candidates.[\[MB5\]](#)

- 1 [Dr. Taber Allison, Mass Audubon](#)
- 2 Dr. Ed Arnett, Bat Conservation International
- 3 [Mr. Michael Azeka, AES Wind Generation](#)
- 4 [Ms. Kathy Boydston, Texas Parks & Wildlife Department](#)
- 5 [Ms. René Braud, Horizon Wind Energy](#)
- 6 [Mr. Scott Darling, Vermont Fish & Wildlife Department](#)
- 7 [Mr. Mike Daulton, National Audubon Society](#)[\[3\]](#)
- 8 Ms. Aimee Delach, Defenders of Wildlife
- 9 [Commissioner Karen Douglas, California Energy Commission](#)
- 10 [Mr. Greg Hueckel, Washington Department of Fish & Wildlife](#)
- 11 Ms. Jeri Lawrence, Blackfeet Nation
- 12 [Mr. Steve Lindenberg, U.S. Department of Energy](#)
- 13 [Mr. Andrew O. Linehan, PPM Energy](#)
- 14 Mr. Robert Manes, The Nature Conservancy
- 15 [Ms. Winifred Perkins, Florida Power and Light](#)
- 16 [Mr. Steven Quarles, Crowell & Moring, LLP](#)
- 17 [Mr. Rich Rayhill, Ridgeline Energy, LLC](#)
- 18 Dr. Robert Robel, Kansas State University
- 19 [Mr. Keith Sexson, Kansas Department of Wildlife and Parks](#)
- 20 Mr. Mark Sinclair, Clean Energy States Alliance
- 21 [Mr. David J. Stout, U.S. Fish and Wildlife Service](#)
- 22 [Mr. Patrick Traylor, Hogan & Hartson, LLP](#)

[1] Source see <http://www.nwcouncil.org/library/2007/2007-15.pdf>

[2] Carbon Dioxide Equivalent (CDE): A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "million metric tons of carbon dioxide equivalents (MMTCDE)" or "million short tons of carbon dioxide equivalents (MSTCDE)" The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP.  $MMTCDE = (\text{million metric tons of a gas}) * (\text{GWP of the gas})$  For example, the GWP for methane is 24.5. This means that emissions of one million metric tons of methane are equivalent to emissions of 24.5 million metric tons of carbon dioxide. Carbon may also be used as the reference and other greenhouse gases may be converted to carbon equivalents. In order to convert carbon to carbon dioxide, multiply the carbon by 44/12 (the ratio of the molecular weight of carbon dioxide to carbon). (EPA) Carbon dioxide has a GWP of exactly 1 (since it is the baseline unit to which all other greenhouse gases are compared). Unless otherwise noted, quantities expressed by CARE are as short tons (2,000 pounds) of carbon dioxide.

[3] See [http://www.wind-watch.org/documents/wp-content/uploads/testimony\\_daulton.pdf](http://www.wind-watch.org/documents/wp-content/uploads/testimony_daulton.pdf)

Global Warming is a Severe Threat to Birds, Wildlife, and Habitat

Global warming resulting from the burning of fossil fuels is a severe threat to birds, wildlife, and habitat, and we have a moral obligation to take action now to control the pollution that causes global warming before it is too late. Global warming already is impacting birds, their prey, and their habitat, and these impacts will become more severe if action is not taken to greatly reduce pollution from the burning of fossil fuels.

[MB1] Broad and conclusionary statements without any factual basis such as this are improper

[MB2] The guidelines should account for or attempt to quantify the environmental effects of hourly wind volatility on CO<sub>2</sub> production.

[MB3] Broad and conclusionary statements without any factual basis such as this are improper

[MB4] Broad and conclusionary statements without any factual basis such as this are improper

[MB5] The Service's Wind Turbine Guidelines Advisory Committee webpage list 22 members of the FAC. I count 7 wind industry representatives and 7 regulator reps on the Committee. The two Audubon members on the Committee have a pro wind industry bias. While purporting the biggest threat to birds is from global warming impacts is not wind power, they fail to identify any indirect impacts of wind power on global warming.

The guidelines as currently presented have no scientific basis in facts since no bonafide independent scientists appear to have been involved in development of the guidelines. This appears to be a Zombie Committee of the former Bush administration and a deceptive attempt to politicize policy guidelines for wind power development.

Michael E. Boyd - President (CARE)  
CALifornians for Renewable Energy, Inc.

**ATTACHMENT: RED-LINED VERSION OF SECTION B.**

**B. Description of context and need for Recommendations**

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*(Additional comments received during webcast):*

Will NEPA be performed on these Guidelines?

I had specific questions on how you deal with greenhouse gases induced by wind turbines who are intermittent resources that require gas turbines for backup?

The Supreme Court ruled that the Clean Air Act (CAA or Act) authorizes regulation of greenhouse gases (GHGs) because they meet the definition of air pollutant under the Act. My comments also constitute a Complaint to Office of the Administrator USEPA under 42 USC § 7604. This is the provision entitling CARE to commence a civil action against the Committee. Please accept this as my 60 day notice to bring an action if you fail to address greenhouse gases induced by wind turbines.

***From Matt Buffington, Indiana Dept. of Natural Resources (submitted via e-mail):***

One of the questions on chapter 3 was if the BMPs were sufficient. I think the current BMPs focus on turbine design and site layout. As I mentioned in my email response to the past draft, construction BMPs can be just as important to avoid and minimize impacts to fish and wildlife. Erosion/sedimentation is a major issue and poor BMPs can result in major problems with silt entering streams. I think a simple mention of proper erosion control measures and related BMPs would be beneficial. Mentioning Rule 5 and local permits may not be a bad idea but not sure how well that fits in with a document for all states.

***From Jenny Davenport, DeTect, Inc (submitted via e-mail):***

DeTect, Inc would like to announce that it has recently installed a radar-based mitigation system to prevent bird collisions at two wind energy developments on the gulf coast of Texas. This technology allows the DeTect's radar system to function as an "early warning" system at wind farms, providing advance detection of bird activity that presents mortality risk by automatically activating mitigation actions up to and including idling of wind turbines until the risk passes. The risk thresholds for this system were developed using pre-construction activity data and are based on the potential for collisions of nocturnally migrating songbirds during low visibility conditions at this site. However, this system is very flexible and can be adapted to address a variety of site-specific bird and bat issues at windfarms. Post-construction mortality monitoring will take place to



determine the effectiveness of this mitigation, and updates will be provided when available.

***From Miriam L. Davey, private citizen (submitted via e-mail):***

1) Include offshore platform-based and offshore wind turbine projects in this process, please.

The potential, and in the case of neotropical migratory songbirds, the likelihood for negative biological & ecological collateral damage is high. 2/3 of North America's neotrops pass across the Gulf of Mexico, and a large portion of them concentrate nighttime flights at very low altitude offshore from western Louisiana to eastern Texas, right where a big wind energy project is in the initial stages of construction. Under certain bad weather conditions all too familiar to sport birders (producing famous songbird springtime "fallouts"), turbine structures could be hugely detrimental to certain species already suffering significant population decline. Cerulean Warbler, for example, in the space of four hours of these conditions, combined with poorly sited, poorly designed, and poorly operated and poorly scienced offshore wind turbines, could go from a "watch list" bird to a candidate for the endangered species list.

2) Require private contractors the same adherence to open public records laws as applies to a public governmental body, please. It's quite hard if not impossible for the interested public to tell what's going on in regarding sustainable and wise stewardship of their commonly owned resources if the operations of private wind energy contractors are shrouded in secrecy and protective corporate proprietorship.

3) Require private contractors building offshore wind energy projects in ecologically crucial areas (and actually, they shouldn't be siting these things at all in places so sensitive but that's another topic) to incorporate and fund as intrinsic components of the projects, the best in MAINSTREAM ACADEMIC SCIENCE as initial & ongoing biological/ecological assessment, monitoring, & mitigation. Results should be produced in a regular and timely fashion, published in peer-reviewed science journals, and available to the public.

***From Pamela C. Dodds, Ph.D., private citizen (submitted via e-mail):***

Comments for the Wind Turbine Guidelines Advisory Committee Meeting, June 12, 2009:

In the "Wind Turbine Guidelines Advisory Committee's" 3<sup>rd</sup> draft, it is stated: "Wind energy produces electricity without air pollution, greenhouse gas emissions, water consumption, mining, drilling, refining, waste storage and other problems associated with many traditional forms of energy generation. Wind power has recently received increased attention because it is a domestic source of energy, and because carbon dioxide emissions from fossil fuel combustion is the leading cause of anthropogenic climate change, which is likely to have serious negative impacts on ecosystems and wildlife. The U.S. Department of Energy (DOE) estimates that a single 1.5 MW wind turbine displaces

2700 metric tons of CO<sub>2</sub> per year compared with the current U.S. average utility fuel mix. Due to these advantages, wind is expected to play an increasingly important role in meeting the Nation's energy goals in the coming years.” The FACA committee has consistently ignored the fact that wind generated electricity can ONLY be used by integrating it into coal-fired or nuclear power plants because the wind is not constant and because electricity produced by industrial-scale wind turbines cannot be stored in batteries and requires gas-fired or petroleum-fired peaking units to ramp up and down when wind energy is integrated into the coal-fired or nuclear plants. Coal-fired plants are the most common of power generating plants. I previously presented this information in my March 13, 2009 comments and this information is readily available on the internet. Here are some of the available documents:

<http://network.nationalpost.com/np/blogs/fpcomment/archive/2009/04/08/wind-power-is-a-complete-disaster.aspx>; <http://econ-www.mit.edu/files/3563>; <http://www.wind-watch.org/documents/denouncing-false-claims/>.

It is irresponsible for a FACA committee to simply state the politically popular view that industrial-scale wind turbines are “generally an environmentally-friendly technology” and that there are no emissions of carbon dioxide associated with wind generated power: by the integration of wind energy into coal-fired power plants and the need for peaking units, it is extremely clear that wind energy is part of the carbon dioxide emitting system. Wind energy cannot power even one home because wind is not stable enough to maintain the necessary 60 Hertz of electricity required for generators at electrical plants. The variability of wind makes it essential that coal-fired units are an absolute requirement to maintain consistent generation of electricity that can be used in homes.

The evidence is overwhelming that industrial-scale wind turbines are not “generally an environmentally-friendly technology”. Dr. Ed Arnett, a bat expert on the “Wind Turbine Guidelines Advisory Committee”, has conducted studies clearly concluding that wind turbines slaughter vast numbers of bats every year. In his most recent study at the Casselman Wind Project in Pennsylvania, Dr. Arnett reported that, “We have finalized the 2008 report on the curtailment experiment at Casselman, and... we found that bat kills were reduced from 53% to 87% on any given night, averaging 73%, at turbines that were partially curtailed during low wind nights compared to those that were fully operational.” (BWEC Quarterly E-Newsletter, v.5, April 2009). The obvious conclusion: where wind turbines operate, bats will be slaughtered.

Dr. Strickland (page 9 of the February 26-28, 2008 meeting summary) indicated the need for more avian fatality data. Dr. Cryan (page 12 of the February 26-28, 2008 meeting summary) indicated the need for more bat behavioral and fatality data. Florida Power & Light is represented on the FACA committee and should offer their Mountaineer site on Backbone Mountain in Tucker County, WV, for study. The study conducted there in 2004 indicated that approximately 3000 bats per year are being killed by the wind turbines at that site. Avian mortality is also occurring there. However, this site was closed to any additional studies after this information became available. It is important for the FACA committee members to understand that the USFWS has been proactive in requiring members of the caving community not to cave until the White Nose Syndrome

is better understood: White Nose Syndrome has killed only a fraction of the number of bats compared to vast number of bats killed by wind turbines.

Other than my public comment during the February 26-28, 2008 meeting, there is no other reference to protection of headwaters. These areas are critical habitats for aquatic organisms which are at the base of the food chain for all fish species downstream. The FISH and Wildlife Service should certainly be proactive in protecting aquatic organisms in areas where industrial-scale wind turbines are proposed, yet the “Wind Turbine Guidelines Advisory Committee” has made no reference to protecting aquatic organisms in the headwater areas that will be destroyed by construction of wind turbines and the associated access roads. Of particular concern are the Appalachian mountains, which provide the headwater areas for widespread watersheds. The U.S. Army Corps of Engineers even has a publication (“Functional Assessment Approach for High Gradient Streams, WV”, 2007) which offers a comprehensive site assessment approach. The “Save Our Streams” program, in widespread use by the U.S. Environmental Protection Agency, state agencies, and the Isaac Walton League, provides detailed instruction for evaluating the condition of streams based on the presence of critical aquatic organisms and on the physical assessment of the streams. The FACA committee seems to have totally ignored this extremely important issue in the siting considerations for industrial-scale wind turbines. Only two references are remotely related to this topic: 1) in the 3<sup>rd</sup> draft of the committee concerning decommissioning, it is stated that “Surface flows should be restored to pre-disturbance conditions, including removal of stream crossings, roads, and pads.”; and 2) Attachment M of the committee’s July 2008 meeting mentions the EPA’s stormwater program which “basically aims to reduce the quantity of stormwater and improve water quality...”. Road construction in the Appalachian mountains destroys vast amounts of headwater areas because there are stringent requirements for the gradient of the roads and for the allowable “dips” or “bumps” (only 6 inches for a dip or bump in any 50-foot interval of access road). Calculations for runoff from the relatively impervious roads, in contrast to the runoff from forested ridges demonstrate that there is a tremendous increase in stormwater runoff that will limit groundwater recharge, destroy headwater aquatic habitats, and cause erosion of stream banks where more aquatic organisms will be killed.

Respectfully submitted,

Pamela C. Dodds, Ph.D.  
Registered Professional Geologist

*From Andrew Farnsworth, Cornell Lab of Ornithology (submitted via e-mail):*



## Assessing Risks to Migratory Wildlife from Wind Energy Development

*A Workshop Convened by:  
Cornell Lab of Ornithology, The Johnson Foundation, American Bird Conservancy  
With additional support from the Leon Levy Foundation*

*17-19 June 2009  
Wingspread Conference Center, Racine, WI*

### Overview Statement

Wind offers an alternative energy solution that would appear to be environmentally friendly and sustainable, yet considerable uncertainty remains as to the risks and potential impacts on migratory and resident wildlife from construction and operation of wind facilities. Migratory birds and bats, and resident diurnal raptors, are three groups known to be vulnerable to lethal interactions with operating turbines. Preliminary data suggest that impacts to bird populations are not as great as once feared, whereas impacts on bats may have been underestimated. Regardless, the scale and landscape diversity of ongoing and contemplated wind developments worldwide outstrip both available data and our ability to forecast wildlife risks with confidence. Specifically, basic understandings of bird and bat distributions, densities, and movements in relation to a host of key environmental and topographic variables currently are insufficient for accurately estimating risk to individuals and populations across different landscapes, or for modeling and predicting cumulative impacts as wind installations proliferate.

### Action

We are convening a workshop to address the following central questions:

- What knowledge gaps constrain current ability to assess risk and predict impacts reliably at wind facilities?
- What primary scientific research (e.g., specific data, field experiments, etc.) must be accomplished to reduce the uncertainties and point to wildlife-compatible solutions?
- What steps are required to develop accurate predictive models to forecast migratory traffic and assess risk to birds and bats at active and potential wind turbine facilities in different settings?
- What complementary actions (e.g., follow-up research and monitoring and/or operational experiments and guidelines) will be critical for long-term success in developing wind energy as a large-scale solution that remains wildlife-compatible?

### Desired Outcome

The primary product will be a document outlining a consensus research agenda to be distributed for outside review by non-participating experts, followed by publication in a technical journal and/or trade publications. We hope that this document will help promote and direct new or expanded research, the results of which can be integrated into ongoing decision frameworks facing industry, regulatory agencies, and conservation advocates. The ultimate goal for such research is development of wildlife-compatible solutions that are realistic for industry adoption.

### **Preliminary Workshop Agenda and Scope**

This workshop will build on existing efforts to develop migration-risk maps based on archived data. The intent is to complement ongoing efforts to define research priorities for wind power and wildlife. An important first step will be to assemble the collective knowledge of experts in the fields of bird and bat migration biology and those with extensive experience in assessing risk at existing wind facilities. The goal is to identify as comprehensively as possible what primary scientific research must be accomplished to improve risk-forecasting.

Specifically, it is anticipated that participants will focus on the following topics:

- Specifying data requirements for developing and populating predictive, multi-dimensional models to forecast migration traffic near existing and potential wind turbine facilities in relation to season, time of day, wind speed, wind direction, and local topography;
- Documenting topographic, seasonal, and climatic variables that are most closely associated with potential hazards to wildlife and that could potentially be used to adjust operational procedures to minimize risk;
- Outlining the best approach for integrating predictive models for assessing risks and mitigating impacts;
- Specifying criteria for identifying wildlife-critical sites potentially to be avoided.

We do not envision this workshop as a forum for extensive presentation of research results, although some may be desirable for illustrative purposes. This workshop is not intended to cover the full range of wind-wildlife issues (e.g., habitat-related questions). Finally, this workshop is not focused on existing policy guidelines, but rather on the science necessary to improve such guidelines in the future.

Participants will stay two nights and work two half-days plus the intervening full day, all at the outstanding conference facilities provided by The Johnson Foundation at the world-renowned Wingspread Conference Center. A professional facilitator experienced in national and international environment and sustainability issues (Dr. John Ehrmann, Meridian Institute) will ensure that our workshop goals are met and that all stakeholders contribute to shared goals and outcomes.



Special thanks to the Leon Levy Foundation for additional support of this workshop.

***From Rick Greiner, Babcock & Brown (submitted via e-mail):***

I agree with commenter Steve U. Methods and metrics could/should be separated from the decision framework because M&M should be a spectrum of tools to be applied at any tier (sometimes in an overlapping manner). Sometimes the result of site investigation is that you need to drop back some in your methods spectrum and apply a more general screening tool to properly frame the question that has cropped up. Sometimes you can skip some more general tools and get right to very locale-specific tools for questions that can be recognized to require that level of investigation.

***From Michael Kujawa, Deepwater Wind LLC (message submitted via webcast was truncated; following was submitted via e-mail):***

I posted a comment regarding the importance of the GIS.

It was truncated. I'd like to try and hammer home the point.

What I was trying to get through was that developers do not ever in my experience examine environmental challenges when choosing a site.

Environmental permitters are usually an afterthought, after a developer has committed to a project.

The first thing is the resource, then the land availability, then the financial models, then the incentives, then the political issues, etc.

I strongly urge development of a red-zone GIS capability that is easily accessed and simple to understand so that developers will be encouraged to look early and consider the environmental implications at the beginning.

This will solve a LOT of problems up front, reduce the load on the regulatory community, and save a lot of angst, animosity and money within developer organizations.

It may be the most important function of the effort.

***From Sue Sliwinski, private citizen (submitted via e-mail):***

Viability, as elementary as it may seem, appears not to be part of the discussion when weighing alternatives for a greener, more secure energy future. The fact that the methods we adopt to generate essential power in the coming years must, at the very least, be viable has not entered into the equation and demonstrates that no one is really thinking that far ahead, not even the Obama administration. Though so far they've only alluded to change before a backdrop of symbolic images including giant wind turbines, the influence of those like Al Gore could see the nation's entire electrical infrastructure revamped based

on the whims of the breeze, regardless that unimpeded industrial wind energy development would wreak havoc on countless numbers of fragile eco-systems, natural landscapes, and rural communities overwhelmed in its aftermath. This irrational, misguided concept fails to acknowledge the inconvenient reality that commercial wind cannot generate vital capacity or be dispatched as needed, and simply is not viable.

Massive wind technology sacrifices huge swaths of countryside, diminishes and distorts local environments, and demeans the lives of those nearby. Still, President Obama touts it as a "prime source of renewable energy". But wind doesn't even begin to mitigate the environmental problems that justify its encroachment. There are far superior renewable energies, and none that are so intrusive or degrading. The costs of wind keep rising yet it still cannot produce dependably or independently and consistently fails to live up to even its own low expectations. Experience in the few countries with high penetrations of wind power demonstrates that balancing this fluctuating energy source within their own systems often reduces efficiency to the point of canceling out potential benefits altogether. Yet even as such evidence mounts, proponents insist that wind offers a 'choice' - that its development 'here' will prevent an oil rig 'there' or save our mountaintops from the ravages of coal mining. It won't. Industrial wind, it turns out, is incidental. No matter how many hundreds or even thousands of projects, it will have no impact on the increasing requirement for a predetermined and critically precise amount of reliable, dispatchable power that must and will continue to get generated in spite of any 'contributions' by wind. Not the electricity needs of the nation or the battle against global warming will benefit from industrial wind energy, but its proliferation will add significantly to the rape of the countryside in the relentless pursuit for power even as it delivers nothing truly tangible towards that end.

Surprisingly, renewable energy can have higher environmental costs than benefits, so rather than demanding its use, mandating efficiency and conservation would be a more realistic approach to reaching our lofty goals - without pillaging the environment we're trying so desperately to protect. But real world experience is being ignored as our government continues to pump billions into the coffers for sources like wind regardless that the existing federal program has been exploited in recent years by a tidal wave of industrial wind power developers, many backed by some of the planet's most 'un-green' corporations seeking to shelter huge profits. But if viability were the quantifying test, then no wind company would ever meet the standard or be allowed to take advantage of generous subsidies, credits, and now new grants ultimately paid for by hard-working American citizens and taxpayers.

Commercial wind power is pure folly and mocks environmentalism around the globe. It's an industry built on misconceptions and should be taken completely off the table when considering serious alternatives to invest our precious time and resources in, but instead, because of political pressure, it's at the top of the list. We've been misled by the contrived notion that wind is 'an important piece in the energy puzzle', however the truth is there's no place that it really fits. Grandiose ideas like the '*Pickens Plan*' would see thousands of massive wind towers cover much of the mid west and proclaim to be about the 'common good' - but it would be Mr. Pickens himself benefiting the most by far. Controversial

carbon-offset programs and tax avoidance schemes that are in large part a result of intense corporate lobbying, would substantially increase Pickens's already astounding wealth to the detriment of consumers, environmentalists, and outdoors men and women across the U.S.

Our decision-makers and their advisors must stop pandering to special interests and start making a genuine effort to understand the basics of the many options out there and the distinct differences between them. Wise choices will ensure sustainability and environmental stewardship, not degradation. Wind power will have no impact on foreign oil, won't stabilize soaring energy costs, or help cool a warming planet. It will more likely do exactly the opposite as it distracts us from our goal of finding legitimate solutions that will ultimately make a meaningful and honest difference.

*From Steve Ugoretz, Wisconsin Department of Natural Resources (submitted during webcast):*

Question for FAC: Would it be better to separate the methods and metrics elements from the decision process? M&M should be a pool of approaches that could be used at any tier where they would support the decision to be made at that stage. Process may need small or large amounts of information to reach a conclusion, and the stage (Tier) may not be the primary determinant of detail alone. Has the FAC addressed that question head-on?

I suggest the Science and Tools committee consider how to rank the degree of scientific credibility or validation for each of the decision-making tools and criteria. Some will be more "solid" than others, but decisions still have to be made in face of uncertainty - we need to acknowledge that.

*From Travis Brown, PacifiCorp (submitted during webcast):*

Why has there been a change of focus on using an ABPP from version 2 to version 3?