

How DOE + AWEA = DOA

Comments on DOE's "20% Wind Energy by 2030" Report (May 2008)
(<http://www1.eere.energy.gov/windandhydro/pdfs/41869.pdf>) [PDF]

When we see a new report released by a government agency, like the Department of Energy (DOE), our first reaction is to think that these people are working on citizens' behalf, and their work is some new, scientific, objective information concerning an important topic.

Unfortunately, sometimes (like this) what we receive is similar to a good actor performing in a contract movie: someone just going through the motions to satisfy their employer.

This DOE report is a classic example of what has way too frequently become a malignant partnership between lobbyists and government agencies beholden to industry. This Enronesque corporate spin is made possible by a gullible press, and the cocaine like addiction of some guilt ridden "environmentalists" who are desperate for a fix — ANY fix — for global warming. Who cares if this fix may kill them: they want it *now*.

This report falls under the category of "manufactured science," which is in reality, nonsense, or non-science. As a physicist I can categorically say that REAL science has a skeptical bent that would eschew *a priori* any claim made by those who would profit from it. Such a hypothesis could certainly be tendered, but would only be given consideration if it was thoroughly supported by *comprehensive, independent* proof of its validity.

This polemic was not burdened by any such restraints.

It's hard to know where to start the discussion of the faults of this 250 page advertisement. My main concern would be that to adequately identify and then disprove the hundreds of false statements, assumptions, conclusions, etc. would result in a **very** long document, that few would take the time to read, much less adequately understand.

To avoid this, I will focus on just **one element** of this report: the one that is at the heart of the matter. [I will leave it to other more qualified individuals to address the economic errors and other scientifically inadequate material found throughout this promotional piece.] Let's start with this understanding: wind power exists for **one reason**: *that it has been marketed as a meaningful partial solution to global warming*.

Reading the sections about projected CO2 emission savings, the report appears to be a rehashing of prior material, with little (if any) new information or data provided. It is further diminished by technical errors, conflicting information, and a frequent lack of citations to independent sources supporting the aggressive recommendations.

This is likely due to the fact that the only non-governmental partners in this project are AWEA (American Wind Energy Association), and consultants Black & Veatch (who proudly proclaim on their website "We helped launch the modern wind power industry in 1975" <http://www.bv.com/markets/energy/renewables/energyServices.aspx#wind>).

The other secondary "contributors" listed in the report appear to be persons that AWEA carefully hand picked as wind power supporters. It's like AWEA was throwing a *by invitation only* party.

Based on the potentially profound implications of the report's recommendations, it would seem that if it was intended to be taken seriously, that a balanced representation of the scientific community would have prominently participated. But no, objectivity and scientifically supported conclusions are apparently not the purposes of this report — and the publication shows it.

Why would ANY government agency participate in a situation where such people were the ONLY primary participants? Clearly this says from the get-go that this incestuous relationship has become so blatant there is no longer even an attempt to try to disguise it. Consider this a formal coming out-of-the-closet party for AWEA and their government paramours. They not only don't care if you know about their liaison, they're flaunting it.

The end result is a slick AWEA promotion piece. It's similar to Mr. Swisher (AWEA CEO) having a large picture on the wall of his office shaking hands with President Bush. The not so subtle message is that he must *really* be connected! Yes, President Bush must be.

That is what AWEA is attempting to sell us: *credibility by association* (with DOE). What we have here are the basic ingredients of a con: the superficial appearance of one thing, where something else quite different actually exists.

Where is the third estate in all this? Where are *investigative* journalists? Where are scientifically educated environmentalists? You would think with the fate of the planet purportedly hanging in the balance that they would want to make SURE that treatises like this would be 100% accurate. No, it seems like they *just can't wait* for the fix.

Hey, the urls on my document (which I got from the DOE website) weren't even clickable — sending the not so subtle message that they really didn't want me looking too deeply.

Speaking of actors in movies, this reminds me of a masterpiece many years ago “Ma & Pa Kettle at Home” which was about them trying to fix up their rundown house to be more attractive. The problem was that they were perpetually short on cash. Their clever solution was to do the remodeling job (inside and out) with cardboard. And when they finished the house DID look good. Then reality set in: it rained, and the **wind** blew.

Sounds exactly like the wind business. AWEA wants their product to look good, but they are perpetually short on scientific facts. So they cobble together fancy reports and hope you don't look too closely. Reality will set in, but in this case it will be at **our** expense.

From the start, when I recognized the real authors of this piece, my antenna went up. But being a scientist I said: *I'll give these people the benefit of the doubt*. Maybe they have “matured” (as the press occasionally says of the wind power business), and have actually produced a document with some genuine, scientific substance.

So back to my looking at the **core** of the report. As I said, the most important part of ANY report dealing with proposed energy solutions, is **thorough** and **independent** documentation of the impact the proposals will have on “greenhouse gas emissions.”

Just so we're clear, the ONLY reason for the existence of industrial wind power is that it has been marketed as playing an important roll in reducing CO2 and related gasses.

When reading the report you might as well look at it as if you are sitting down in a darkened theater and the curtain has just been drawn back. The smooth talking announcer says: “*Please sit back and relax. You are about to take a journey through never-never-land.*”

It's tempting to do just that — and probably 99% of the readers of this document will succumb to the siren's call and forget reality. It's certainly less work to just go with the flow.

But, if you are *genuinely* concerned with the fate of the planet, it is critical that you do NOT suspend disbelief. I'm going to assume that you are such an exception, so let's take a closer look at what this report says about emission savings, since this is the foundation that the rest of Ma & Pa Kettle's proposal is built on. *Is it just cardboard?*

On page 1 AWEA appropriately lists the “Key Issues To Examine”. Is *Prove CO2 Savings* (or anything like it) among those issues? **No, sorry.**

Well, why not? Because — despite some 50,000 wind turbines in operation world-wide — *they don't have the proof.* AWEA wants you to *assume* that this is a given. It's not, and since this is the fundamental reason for wind power's existence, any scientific study would start by *proving* this, using independent accurate data.

Section 1.3.1: Greenhouse Gas Reductions (pages 13-16):

[Note the page numbers referred to are the *report* page numbers, not PDF page numbers.]

Page 13: *AWEA says that the huge amount of wind power they are projecting for 2030 will “replace 825 million metric tons of CO2 emissions.”*

What they make light of are the numerous and questionable assumptions that this is based on. For instance, AWEA is *assuming* that the capacity factor of wind power will increase from a supposed 30±% today to 45±% in 2030. They deceptively call this a 15% increase (e.g. page 24), and say that the report “assumes that plant capacity factors will increase *modestly*” (page 65). The reality is that this is a **HUGE 50%** increase. And AWEA acknowledges it won't be possible without much **higher** towers and much **larger** blades.

Page 13: *“Today, wind energy represents approximately 30% of new capacity additions (AWEA 2008). Greater use of wind energy, therefore, presents an opportunity for reducing emissions...”*

The second sentence is a *non-sequitor*. No connection is proven between new wind power additions and emission reductions. For “proof” AWEA is essentially referencing itself.

Page 13: *“AWEA 2008”*

This is a bit puzzling since it is in contrast to the initial remarks about this document stating that it was as of 2007. [1.1: *“At the time this report was written (2007),”*]

Page 14: *“Although the cost of reducing emissions is **uncertain...**”* (My emphasis.)

Why is the cost of reducing emissions “uncertain”? Shouldn't a significant goal of any serious study on the future of wind power be: *what is the cost of emissions saved?* What I have seen says that the trivial amount of CO2 saved will be extremely expensive. When AWEA says the cost is “uncertain,” they appear to be acknowledging this. And isn't this statement contradicted in other sections of this report that make definitive statements about the cost of implementing wind power? Since emission reduction is the **sole reason** industrial wind power exists, this cost is not an ancillary consideration.

Page 14: *“Wind power is one of the potential supply-side solutions to the climate change problem (Socolow and Pacala 2006).”*

In their *Wedges Theory* (<<<http://tinyurl.com/26lftt>>>) Socolow and Pacala state that for wind power to provide a meaningful contribution towards reducing emissions that **practical and affordable** storage of industrial wind power must be developed. That is a **BIG** deal, as it does **not** currently exist. Where is that mentioned?

There is some discussion of storage in Section 4 (pages 79 & 80), but again profoundly important conclusions are drawn without **any** independent and objective supporting scientific data. Additionally, what is stated there (e.g. “pooling of resources” negates the need for storage) appears to contradict the Socolow and Pacala report cited.

Page 14: *“As shown in Figure 1-11, based on the analysis completed for this report, generating 20% of U.S. electricity from wind could avoid approximately 825 million metric tons of CO in the electric sector in 2030.”*

Firstly, Figure 1-11 shows no such thing, but rather is “Annual and Cumulative Wind Installations by 2030.” Secondly, where are the specifics of this “analysis”? Again it does not appear to have a reference, particularly of an *independent* examination of this issue.

Page 14: “GHG Reduction” sidebar.

Again, no reference is provided here as to where this **significant** assertion comes from.

Page 15: “In general, CO2 emission reductions are not only a wind energy benefit but could be achieved under other energy mix scenarios.”

What other “energy mix scenarios”, and where are these options compared to wind?

Page 15: “As a result, cumulative climate change impacts could grow to more than 15,000 million tons of CO2 avoided by mid-century (4,182 million metric tons of carbon equivalent).”

Another bold statement without **any** citations or the least bit of scientific support.

Page 15: “The 20% Wind Scenario constructed here would displace a significant amount of fossil fuel generation...”

Nowhere in this section is any backup or spinning reserves by conventional sources necessitated by wind power mentioned. Wouldn't that affect the CO2 savings?

Subsequently, this is briefly discussed on page 190. It appears that “option 2” has been chosen, which is described as the option: “to allow the dispersion of new wind installations to reduce the correlation of the outputs from different wind sites.”

Where is this independently and scientifically proven that this will work? And how much nameplate MW of wind power will be needed to produce, let's say, the **effective capacity** of a single 500 MW coal facility? This is a biggie, that I do **not** see specifically addressed.

Page 16: *Graphs 1-12 and 1-13.*

Not only are these figures on the wrong page (they should be page 15) and in the wrong section, where did the data for these come from? There are no citations for the critical information shown. [Same thing for the related Figure A-8, on page 154.]

Section 5.2.1 Global Climate Change and Carbon Reductions (pages 107-108)

Sidebar: “A single 1.5 MW wind turbine displaces 2,700 tons of CO2 per year compared with the current U.S. average utility fuel mix ... (AWEA 2007).”

This is important stuff so a heavy weight independent source would be expected here, but no, AWEA again references itself. Then it doesn't even give a specific document, as if “AWEA 2007” would be sufficient enough. Actually, it is.

Although they have cleverly made it impossible to dispute what “AWEA 2007” says, let's go to AWEA's website to see what we find. OK, there's a page represented to be “fact sheets”: <<<http://www.awea.org/pubs/factsheets.html>>>.

Looking through these we choose the title that is the closest to what we are looking for “Wind Energy: The Difference Wind Makes” (PDF: <<<http://tinyurl.com/69ka74>>>).

Reading that document, under the subtitle “Wind energy offers REAL ENVIRONMENTAL BENEFITS (AWEA's emphasis), it says “When wind projects generate electricity, **fuel at other power plants is not consumed.**” (My emphasis.)

As written, this is false. It does not say “some” fuel is not consumed, it says that fuel, period, is not consumed.

That error is no small matter, since it apparently is the basis for their subsequently inaccurate calculation of CO2 saved: i.e. a one-to-one savings on fossil fuel. These types of unsound assumptions are found throughout the entire AWEA report.

Further, it is another contradiction. See page 75 which says (accurately): "To accommodate a nondispatchable variable source such as wind, operators must ensure that sufficient reserves from other power sources are available to keep the system in balance."

Page 107: "A primary benefit of using wind-generated electricity is that it can play an important role in reducing the levels of carbon dioxide (CO2) emitted into the atmosphere."

Again, no scientific citation to support this important assertion.

Page 108: "In addition, manufacturing wind turbines and building wind plants generate only minimal amounts of CO2 emissions ... about 1% of those from coal,"

Its citation for this was a ten year old report by "White and Kulsinski" (no other information other than that: no title, no url, etc.). Turns out there is *no such report*.

I found a report by "White and Kulcinski" in 1998, which we'll assume is what they meant. That report (<<<http://fti.neep.wisc.edu/pdf/fdm1063.pdf>>>) states on page 15:

"Perhaps the most important result of this analysis is the tabulation of CO2 emission rates for the non-coal facilities. This leads to the realization that in contrast to popular belief, **wind facilities are not zero-emission energy sources**, and that when a proper accounting method is used, values of about 15 tonnes of CO2/GWh are calculated."

And this analysis did **not** take into account the much larger amount of concrete used in today's turbines (a very high source of CO2 emissions), or oil used in the generators, or fossil fuel electricity used to start or de-ice the blades, the environmental (CO2) impact from many trees being taken down, etc., so increase that amount considerably.

Page 108: "In other words, using wind instead of coal reduces CO2 emissions by 99%,"

Again, this appears to assume a one-to-one replacement of coal when wind power is being produced, which we know is factually inaccurate. Further, when the other omissions (e.g. per prior item) are factored in, the CO2 emissions saved become very small. The National Academies of Sciences NRC report on wind power says that their most optimistic guess is that CO2 might be reduced in the US by **1.8%**. *By 2020!* (<<<http://tinyurl.com/5s3xqa>>>) Notice how it's always mañana with wind power?

Page 108: "Switching to a zero-emissions energy-generation technology like wind power"

Note how this is in complete contradiction to the White and Kulcinski study that AWEA cites (above), which states that "wind facilities are **not zero-emission energy sources**."

The bottom line is that this treatise offers no scientific substantiation that wind power will **consequentially** reduce CO2 emissions. And clearly what little CO2 is saved will be extraordinarily expensive. So **any** integration — much less 20% — is simply harebrained.

If you want to read a more realistic analysis of the energy market in 2030, please look at the Electric Power Research Institute's (EPRI) "The Power to Reduce CO2 Emissions" (PDF, August 2007) <<<http://www.wind-watch.org/documents/uploads/EPRI-PRISM.pdf>>>.

EPRI's research is not without it's flaws, but compared to the AWEA report it is of Einstein quality. It projects an aggressive goal of 6.7% for ALL non-hydro renewables (as vs 20% just for wind by the AWEA report). And there are some renewables that have much promise, like geothermal. But they won't go anywhere when most of the money is being grabbed by AWEA.

As a citizen you should be quite concerned when a lobbying group like AWEA gets a government agency to put its name on, and then you to pay for, their advertising material.