

## WINDBALL

Industrial wind technology is a meretricious commodity, attractive in a superficial way but without real value—seemingly plausible, even significant but actually false and nugatory. Those who would profit from it either economically or ideologically are engaged in wholesale deception. For in contrast to their alluring but empty promises of closed coal plants and reduced carbon emissions is this reality: Wind energy is impotent while its environmental footprint is massive and malignant.

A wind project with a rated capacity of 100MW, for example, with 40 skyscraper-sized turbines, would likely produce an annual average of only *27MW*, an imperceptible fraction of energy for most grid systems. More than 60% of the time, it would produce less than 27MW and, at peak demand times, often produce nothing. It would rarely achieve its rated capacity, producing most at times of least demand. Whatever it generated would be continuously skittering, intensifying, magnifying the destabilizing effects of demand fluctuations, for wind volatility is virtually indistinguishable from the phenomenon of people whimsically turning their appliances off and on.

Moreover, the project could *never* produce capacity value—specified amounts of energy on demand, something that should be anathema to regulatory agencies, with their task of ensuring reliable, secure, affordable electricity. The ability of machines to perform as expected on demand is the basis of modernity, underlying contemporary systems of economic growth, wealth creation and well-being. Machinery that doesn't do this is quickly discarded, although this wasn't the case for much of history (look at the early days of television or radio or even the automobile). Only in the last hundred years or so have we come to rely on machines with this standard. Capacity value allows society to go from pillar to post in accordance with its own schedule. Wind provides no capacity value and can pass no test for reliability; one can never be sure how much energy it will produce for any future time. And *generating units that don't provide capacity value cannot be reasonably—and favorably—compared with those that do.*

Adding wind instability to a grid may be an engineer's idea of job security. But for rate and taxpayers, and a better environment, it's criminal. For the grid is then forced to extend itself. As the wind bounces randomly around the system, operators must continuously balance it to match supply precisely with demand, compensating for the ebb and flow much in the way flippers keep the steel ball in play during a game of pinball. Windball expends a lot of energy. In real life on the most American grids, more than 70% of any wind project's rated capacity must come from the flippers of reliable, flexible, fossil-fired generation, constantly turned up and back inefficiently to compensate for wind fluctuations. These inefficiencies will result in substantial carbon emissions. And increased consumer costs.

Yes, engineers can make-work by adding wind flux to the system. They can lead a horse to water; but they *can't* make it change its spots.... By its nature, wind will require lots of whips and whistles, even at small levels of penetration, in ways that will negate the very reason for its being. This is why people quickly switched to steam 200 years ago.

Retrofitting modern technology to meet the needs of ancient wind flutter is monumentally backwards, a sure sign that pundits and politicians, not scientists, are now in charge. It would take more than a smart grid to incorporate such a dumb idea successfully.

Because of wind's unpredictable variability, it can never replace the capacity of conventional generation. Twenty-five hundred 450-foot wind turbines, spread over five hundred miles, *can mathematically* offset a large coal or nuclear plant; but they *cannot do so functionally*--for what must happen when 5000MW of volatile wind is only producing 100MW at peak demand times, a common occurrence?

This business is absurd. The whole point of modern power systems has been to move beyond the flickering flutter of variable energy sources. Prostituting modern power performance to enable subprime energy schemes on behalf of half-baked technology is immoral. As is implementing highly regressive tax avoidance "incentives" to make it appear that pigs can fly. No coal plants will be shuttered and little, if any, carbon emissions will be reduced as a result of *any* project—or thousands of them.

Indeed, wind technology mirrors the subprime mortgage scams that wreaked havoc with the economy. Both are enabled by wishful thinking; bogus projections; no accounting restraints, accountability, or transparency; no meaningful securitization; and regulatory agencies that looked the other way, allowing a few to make a great deal of money at everyone else's expense while providing no meaningful service.

Industrial wind projects will clearcut hundreds of acres, if placed on forested ridges. Even small 100MW wind facilities would hover for miles over sensitive terrain, threatening vulnerable species while mocking endangered species protections--and scenic highways strictures. They will cause unlawful noise for miles downrange. They will devalue properties in the area as much as 50%, if they could sell at all. Dynamiting will threaten wells and aquifers. Out-of-region workers would perform most of the temporary construction jobs and only one or two permanent jobs would result, at modest wages. There would be little value added revenue. Claims about local tax revenues would be typically unsubstantiated and unsecured.

There is little that is cognitively more dissonant than supporting the concept of minimizing the human footprint on the earth while cheerleading for the rude intrusiveness of physically massive/energy feckless wind projects. The slap and tickle of wind propaganda flatters the gullible, exploits the well intentioned, and nurtures the craven. It is made possible because there's no penalty for lying in the energy marketplace. The country has evidently arrived at a point in its legal culture where no negative consequences seem to exist for making false or misleading claims to sell wind energy—the stuff dreams are made of. But industrial wind is a bunco scheme of enormous consequence. And people who value intellectual honesty should not quietly be fleeced by such mendacity, even from their government.

Jon Boone  
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