

## Justin Good: What is Beauty? Or, On the Aesthetics of Wind Farms



Green Energy, [Michael Tyas](#), 2006

What is beauty and how does it relate to ecology? A look at [contrasting](#) aesthetic intuitions about wind farms reveals a paradigm shift in how we understand beauty. Our sense of the nature of beauty cannot be separated from our sense of the beauty of nature.

1. Modernism's understanding of nature is autistic, and so are its concepts of beauty. As our views of nature change, so do our ideas about beauty.
2. The "nimby" (not-in-my-back-yard) response to wind farms asserts that they are a) ugly, and b) are so because of their industrial look. The aesthetic response to wind farms asserts that they are a) beautiful, and b) are so due to their ecological rationality. These are not merely subjective preferences, but conflicting perceptions of the nature of form.
3. But isn't the perception of beauty inherently subjective? "Beauty is in the eye of the beholder," that mechanically-repeated [cliché](#), makes a false assumption about the metaphysics of modernism. Beauty is not in the eye, or the brain, of the beholder. Given our modernist understanding of matter and physical reality, we cannot make sense of values — aesthetic, ethical, epistemic — as something inherent in the world. As modernists, we are all crypto-materialists when it comes to value, no matter how "spiritual" we would like to think of ourselves. This is why our political-economic system functions as if nature lacked value. If something lacks inherent value, then it doesn't matter ethically if it is destroyed.
4. Beauty *is* a feeling, but feelings are objective and more precise than "thinking." Feelings are not irrational reactions, but highly evolved ways of gathering information, knowledge and meaning from the environment. What we call thinking — linguistically-mediated inferential reasoning or reflection — is cumbersome in comparison to the countless ways our mind/body reads, and is read, by the ecosystem. Information is everywhere and there are countless ways of picking it up. The feeling of being grounded and centered which people often experience when finally alone with nature is not "subjective" but rather a keen cognitive awareness of the geometry of life around us.
5. The modernist way to account for the objective basis of beauty — to the extent that it has any objectivity — is the design philosophy of functionalism. "[Form follows function](#)" means beauty is a quality that indicates a utility or efficiency of the form as a means to an end. Functionality is enhanced by maximizing efficiency. That is why the enemy of functionalism is ornamentation. Functionalism is the aesthetic of the tool and of the machine. For these reasons, functionalism cannot explain why the wind farm is beautiful for ecological reasons. It can only explain why it is beautiful as an industrial tool (or symbolically, as a modernist sculpture.)
6. "But the wind farm looks like [modernist sculpture](#)!" Exactly. And that's precisely why so many people are against it. They don't want the ideology of high modernism disrupting the very different order of the natural world. The metaphysical kernel of truth in the nimby response is: modernist functionalism is an anthropocentric aesthetic of the machine, because it equates value with human interests, and it is

mechanistic because it sees natural systems as mechanisms to be mastered, rather than as dynamic, non-linear systems which cannot be controlled. Functionalism is anthropocentrism.

7. The aesthetic response indicates a connection of beauty to ecology: something is beautiful due to its ecological rationality, not its mechanical functionality. Construed ecologically, beauty is the perception of wholeness. Wholeness is an objective property of nature and natural systems. The wholeness of a structure is the degree of life it has, where life is understood as a feature of structural geometry, not biology. The more life a thing has, the more wholeness it has, the more it is harmonized within itself and with its environment.

8. Modernist aesthetics cannot account for such an idea. Ornamentation can often increase the life of a structure, and hence contribute to its wholeness. In this sense, ornamentation is essential and 'functional'. But that just shows that modernist functionalism is wrong, or that it is only partially correct as a theory of beauty. In nature, there is no distinction between function and ornamentation. The opposite of wholeness is not ornamentation but fragmentation. Ugliness is the perception of fragmentation. Alienation is a form of fragmentation.

9. Form follows function actually is an ecological principle, but not the only one. A more coherent design philosophy must situate the functionalist principle within a larger set of principles. Some others are:

*Nature runs on (contemporary) sunlight.*

*Nature uses only the energy it needs.*

*Nature recycles everything.*

*Nature rewards cooperation.*

*Nature banks on diversity.*

*Nature demands local expertise.*

*Nature curbs excesses from within.*

*Nature taps the power of limits.*

10. To conclude, what at first looks like two subjective impressions of the same visual image turns out to be two different understandings of order in the world. Both perceptions have truth in them, but not because they are "subjectively valid." Rather, they are both sensitive to the structures of wholeness in the world and to ways that this wholeness can and has been ruptured by human intervention. Differences in aesthetic judgment here reflect different understandings of our current ecological situation and what to do to recuperate a living harmonization in the world. I would argue that the preponderance of evidence supports the deeper truth of the aesthetic response to wind farms. Although they can exhibit aspects of ugliness, wind farms are objectively beautiful.

Justin Good received a Ph.D. in Philosophy from Boston University and has taught at the University of Connecticut and Emerson College. His book *Wittgenstein and the Theory of Perception* will be published this fall.

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I am definitely of the view that windfarms as aesthetically pleasing in themselves, i.e. they are visually appealing even without the function, but that their greater appeal is as symbol of a positive future, of using technology to come full circle and operate in harmony with the natural world instead of against it.

Posted by: [Andy](#) on May 25, 2006 03:35 PM

*Our sense of the nature of beauty cannot be separated from our sense of the beauty of nature.*

I wonder how much of this is culturally prescribed. Western industrial society does everything possible to convince us of the need to stand against nature, as though we can somehow transcend ourselves through material means. Our relationship to technology belies a deeper relationship to the earth. Is it harmonious or in conflict? So much of modern industrial (and post-industrial) society is about separating from nature as though it were an enemy, rather than learning to live in organic harmony.

Posted by: [Lucas Krech](#) on May 26, 2006 02:02 AM

I think wind farms should be built in cities. Every supermarket or cinema car park should have three or four each

Posted by: Gordon McGregor on May 26, 2006 08:51 AM

If the idea of wind power becomes ubiquitous, my guess is these turbines will become this century's telephone polls. If you put up too many, people will tire of them, and see them as defiling nature and destroying views regardless of how functional they are.

I personally am torn. I visited a wind farm just west of Dodge City, KS and found this small grouping of giant metal windmills to be quite beautiful, mesmerizing and soothing in the gentle whooshing sound that they made.

But the question is, how much nature do we want to cover with these windmills? Do we as humans have some sort of inherent desire to cover empty land or empty spaces with "things"?

To me this issue will boil down to the same thing that many issues do: Moderation.

Posted by: Chris Murphy on May 26, 2006 11:11 AM

The great thing about wind farms is that they can easily be mixed use land. Yes some land gets covered over with them, so too does land get covered over with oil pumps. But these do not infect the land with crude oil and can be used and often are used as grazing land for animals. In the end they are fairly low impact, and if built with an eye towards harmony with the visual environment could prove a rather satisfactory solution for some of humanity's energy needs.

Posted by: [Lucas Krech](#) on May 26, 2006 11:31 AM

Here in California they put wind farms in the desert - with fairly little controversy, since it's really nobody's backyard, and the landscape is not the most aesthetically pleasing to begin with. I think this essay over-romanticizes what (or to what degree) the average person thinks about nature. They don't object to windmills on theoretical grounds. There's no thought given to artificially manipulating nature in general terms (how many nimbys live surrounded by artificial parkland?); the problem is doing it with tall, spiky metal things. It's not about disrupting the harmony of the natural world, it's usually about spoiling "my view".

Posted by: Neil on May 26, 2006 11:57 AM

My grandfather, whose boyhood home was torn down to make way for the Wide Track Drive around Pontiac, MI, was an unrelenting in his view that the built environment was inherently beautiful. That the constructions of mankind were evidence of all that was great in the world. He loved freeways, office buildings, malls, housing developments.

I had an architecture history professor (Richard Guy Wilson) who was from LA. He thought that the towering freeways of California (much higher and more intricate than what are built on the East Coast) were modern day cathedrals.

After living in California, I have to agree. They are sorta awesome.

As for utility poles, having grown up in Chicago, which has under-grounded or hidden them in alleys for over a hundred years, I've always found them to be a bit intrusive when I live in those cities that do have them right out there on the curb. And shocking. Like something not in tune with early 21st century streetscape. (Since they've been burying them in suburban Chicago since the 19th.)

Posted by: [DC1974](#) on May 26, 2006 12:06 PM

I'm from Hobart, Tasmania. The Australian Government is capping wind farms because they are interfering with endangered species (wind farms take up a lot of room).

Just thought I'd mention it for the conversational value.

The odd thing is the Tasmanian Government has given loggers the legal right to harvest old growth forests here for woodchips even if endangered species are going to be made extinct.

I'm not very proud of my government in this area at the moment...

Posted by: [nortypig](#) on May 26, 2006 09:11 PM

Here in Australia I haven't heard any Aboriginal voices on this issue; but from the perspective of a settler, the importance of the landscape has been in the construction of our mass identity cannot be stressed too much. I think massive guilt over colonial violence against the terrain has swung into a kind of overcompensation. Add to this equation the left-over presence of Romanticism in the dominant Australian consciousness...

I think that wind farms are a relatively harmless means of regaining some form of interaction with the natural environment. They're kind of incongruous, yes - but I like that, and I think that it's absolutely necessary to art.

Posted by: [antihebe](#) on May 26, 2006 10:58 PM

To call the beautiful seems to be rationalization, convincing oneself that they are not ugly since they are useful and could be so much worse.

But what if they are not useful? Many objective analyses have shown that they are more boondoggle than alternative energy source.

The conclusion that "although they can exhibit aspects of ugliness, wind farms are objectively beautiful" could therefore be "although they can exhibit aspects of elegant design, wind farms are objectively ugly.

If "NIMBY" aesthetics can be dismissed, so can "industrial" aesthetics. We first need to determine if the things are worth building as electricity producers.

Posted by: Rosa on May 27, 2006 03:15 PM

I'm not sure which is sillier, the tautological banalities like "Nature uses only the energy it needs" and "Nature recycles everything" or the romantic nonsense of "Nature rewards cooperation."

Posted by: [Gunnar Swanson](#) on May 27, 2006 06:58 PM

To me, windmills represent a gentle link between man and nature. We're not tearing material from the ground only to spit them back out as toxic fumes. We're not throwing up lifeless monuments to arrogance or dominance. We're extending our arms to nature and it's warming them gently in return.

Posted by: Levi on May 28, 2006 07:46 PM

The Coast of Spain has hundreds of poles, all beautiful.

Posted by: lisajud on May 29, 2006 05:28 AM

I recall that Thomas Mann wrote a novel (The Magic Mountain) on this adoration of artifice, tying it to the imperial decadence and self-satisfied arrogance that swept people into World War I.

Wind turbines are machines, folks. If they work, fine. If they don't, then forget it. All this obsession to "prove" they are attractive and compatible with nature (lovely jumbo-jet-sized blades turning at 150 mph at the top of 250-foot-high towers anchored in a huge cement and steel base, all of them connected by roads that fragment and degrade ecological systems, along with flashing lights and noise in rural and wild areas) seems to be one more way to avoid addressing the question of whether they actually work.

Posted by: Rosa on May 29, 2006 01:00 PM

Rosa, you do realize that the only reason we could hear what you just said was because of a long chain of machines? You do realize that those machines are largely powered by dirty means? And that wind power is a way of harnessing the almost infinite bounty provided by the sun, just like nature does?

Posted by: Levi on May 29, 2006 02:33 PM

I think Rosa did not get it / want to get it anyway (nimby alert?). The article does not state that it's alright to destroy nature with technology because technology is beautiful. She should read through the first paragraph again to realize that the machine being discussed is just an example used to prove something completely different. In a very eloquent way imho.

Posted by: Sam on May 29, 2006 02:50 PM

I'm probably banging my head against a wall here, but let me say it again. The premise of the wind turbine's beauty is its functionality. Many people question that functionality, and that is the real debate. I'm as much against fossil and nuclear fuels as anybody, but do Denmark and Germany, for example, use less of those fuels because of wind power on the grid? I have seen no evidence that they do.

Posted by: Rosa on May 29, 2006 06:49 PM

Any link between the amount of electricity consumed and the amount produced must hinge on the price of electricity (and will frankly be pretty tenuous anyway - have you ever bought an appliance because electricity got cheaper?). Wind farms are expensive, so the idea that they could drive down the price of electricity seems unlikely. Therefore, it seems sensible to me that the extra electricity generated by wind farms is replacing generation from conventional power stations, whose capacity (and therefore, presumably, fuel consumption) is ramped up or down according to demand. What's more, often a planning decision is between a wind farm or a conventional power plant, and therefore the choice of a wind farm must in the long term reduce fossil fuel consumption.

I think there's a good argument that they're functional.

Posted by: Matt on May 30, 2006 05:16 AM

That is the theory, of course. Real-world experience, however, shows that any such replacement of conventional power by wind power is in fact much less than the amount of wind power produced. In fact, nobody has been able to point to any replacement of conventional power at all.

Posted by: Rosa on May 30, 2006 07:16 AM

*Many objective analyses have shown that they are more boondoggle than alternative energy source.*

Could you cite one or two or at least explain?

*Many people question that functionality*

Who, specifically?

*nobody has been able to point to any replacement of conventional power at all.*

I'm curious what "any replacement of conventional power" means here. If people use x amount of power and y amount is "unconventional" then the "conventional" power use is x - y. Are you claiming that the people would have used x - y power but the extra power made them say "what the hell" and use extra or what? Could you describe what "any replacement of conventional power" would look like?

Posted by: [Gunnar Swanson](#) on May 30, 2006 11:27 AM

It's very simple what replacement of conventional power means.

For example, when natural gas-powered plants were built, use of natural gas replaced use of oil. Production from the new source translated to reduced use of the old source.

But wind-powered generators are not dispatchable. They respond to the wind instead of user demand. The old sources have to be kept on line because the production from the wind plant may or may not correspond to actual need. And that means that conventional fuels continue to be burned, even when wind power can be used.

Therefore, y wind does not mean x - y conventional power.

A good presentation of this shortcoming that I've found is ["The Low Benefit of Industrial Wind."](#) Before this paper is dismissed as anti-wind, it is in fact a straightforward collection from several studies by utilities in different countries.

It is the discovery of such information that is at the basis of much opposition. If, as appears to be the case, wind power is not capable of replacing conventional power sources to a degree that justifies its own environmental and social costs, then it is indeed more boondoggle than alternative energy source.

That can and should obviously be debated, but the claim that y wind replaces y (or even almost y) is not backed up by any evidence from the real world. In fact, experience appears to invalidate it. That shortcoming in the arguments in favor of large-scale wind power is a whopper.

Posted by: Rosa on May 30, 2006 01:20 PM

Some replies:

"I think this essay over-romanticizes what (or to what degree) the average person thinks about nature. They don't object to windmills on theoretical grounds."

I don't argue that the average person does object to windfarms on theoretical grounds. My suggestion is that aesthetic response is mediated by intuitions about order and the cultural traditions through which intuitions about order are expressed/articulated. The nimby of course does not object to the industrial domination of nature: their very nimbyism rests upon a hydrocarbon platform. The error with the nimby position is that they do not acknowledge the effect of their lifestyle on the environment. As industrial artifacts, large-scale wind farms have to be huge in order to make a significant contribution to a postcarbon economy. Ideally, renewable energy systems would be smaller, more decentralized and less conspicuous, but our bloated energy habits wouldn't permit that.

"To call them beautiful seems to be rationalization, convincing oneself that they are not ugly since they are useful and could be so much worse."

This sounds like a restatement of the nimby position. We certainly need to think about the costs of wind farms. All renewable energies have costs and there is no silver bullet. But to clarify: their beauty is not a rationalization of their utility - that would be a functionalist, and I would say anthropocentric, aesthetic. Eco-design sees beauty as a feature of stable natural systems, which have no hidden costs down the line, someplace else. They mimic the geometry of living processes, not the technological empowerment of the human will.

"I'm not sure which is sillier, the tautological banalities like 'Nature uses only the energy it needs' and 'Nature recycles everything' or the romantic nonsense of 'Nature rewards cooperation.'"

These statements need to be understood in the context of a critique of a hydrocarbon-based economy and centralized, privately-managed financial system that incentivizes greed, competition, and the perverse destruction of social and natural capital as the predictable effects of the generation of financial wealth. Industrial design and classical modern economics are based on ecological absurdities and insane accounting practices. What is idealistic and sentimental is the idea that by sacrificing the present coherence of natural systems and communities to corporate management and 'market forces', we'll all be better off sometime in the future. Nothing could be more romantic than the idea that we'll all be better off if we allow everything to be commodified and sold to the highest bidder and that we can force the biosphere to conform to human desires and purposes.

As for the issue of the intermittency of wind energy requiring hydrocarbon back-ups, the solution seems to lie in smart grids, distributed generation and fuel cell technology. Hydrocarbon energy is simply unacceptable, due to peak oil/gas and global warming, and as the fastest growing renewable energy in the world, wind is going to have to be a part of a sane response to our crisis.

Posted by: Justin Good on May 30, 2006 02:41 PM

They are beautiful, unless you are a bird, or someone that has to sleep right next to one LOL

Posted by: [logtar](#) on May 30, 2006 04:08 PM

I question the validity of attacking the functionality of wind farms based on their present state of technology and adoption. It's like attacking the early hybrid cars or early computers. There's more to it than an early and short sighted cost-benefits analysis.

Posted by: Levi on May 30, 2006 04:49 PM

The aesthetic of sustainability will be an acceptance and appreciation of visible infrastructure. Modernism hid our water heaters and furnaces in our basements, called them ugly, and encouraged us ignore how they work. This ignorance has proved to be problematic. We are awakening to the true costs of energy production and consumption and this awakening must be accompanied by a redefinition of beauty.

Posted by: ehtrax on May 31, 2006 06:57 AM

*"I'm not sure which is sillier, the tautological banalities like 'Nature uses only the energy it needs' and 'Nature recycles everything' or the romantic nonsense of 'Nature rewards cooperation.'"*

*These statements need to be understood in the context of a critique of a hydrocarbon-based economy and centralized, privately-managed financial system that incentivizes greed, competition, and the perverse destruction of social and natural capital as the predictable effects of the generation of financial wealth*

The failings of our current energy system do not make the slogans true. They seem to be the basis for thinking on the subject for many people and lies and banal slogans are, IMHO, a poor basis for thinking.

Posted by: [Gunnar Swanson](#) on May 31, 2006 08:27 AM

*We are awakening to the true costs of energy production and consumption and this awakening must be accompanied by a redefinition of beauty.*

I heartily agree with this statement, but...

*Modernism hid our water heaters and furnaces in our basements*

is inaccurate on two counts. First of all, the replacement of fireplaces and room-based stoves by central furnaces took place prior to the development of Modernism. (This can be confirmed by the lingering presence of ornate, iron radiators in pre-Modernist homes.) Second, the wood or coal burning furnaces found their way into the basement as an efficient way to make use of the basic principle of hot air rising, thereby supplying heat to the entire house via simple physics.

Posted by: Daniel Green on May 31, 2006 08:31 AM

A poor example. I apologize. Perhaps a better one would be an industrial furnace that is located off site purely for aesthetic reasons.

What I mean by a redefinition of beauty is that we should be proud of and want to look at our energy sources. If our energy sources are clean, they are beautiful. The author touches on this in clause #7, "...something is beautiful due to its ecological rationality..." Additionally, this aesthetic value promotes sustainable design-- if we want our energy sources to be beautiful, we must design them to be clean.

The ornate heating grates of Victorian homes strove to blend in with their architecture--to make invisible their function. The aesthetics of sustainability must celebrate its respect for environmental holism.

Posted by: ehtrax on May 31, 2006 11:51 AM

What we are really talking about here are the relative social costs of different types of pollution. There is air pollution generated by traditional coal-fired or petroleum-fueled energy sources. There is visual pollution -- electric plants, electric poles and wires, wind turbines and cell towers piercing the natural environment with cold metal and blinking lights. Finally -- something I hear, alas, all too infrequently -- there is noise pollution caused by the high-pitched whine of wind towers, the high-db rumble and growl of various kinds of engines, the raucous crashing of various mining technologies, and the wailing of those souls too disadvantaged, either politically or financially, to live in places where such can be avoided. All effects are as much an issue of socio-economic privilege as of aesthetic sensibility.

Posted by: Jean Hess on May 31, 2006 02:18 PM

"These statements need to be understood in the context of a critique of a hydrocarbon-based economy and centralized, privately-managed financial system that incentivizes greed, competition, and the perverse destruction of social and natural capital as the predictable effects of the generation of financial wealth. Industrial design and classical modern economics are based on ecological absurdities and insane accounting practices."

As a tax dodge and subsidy sponge, and with renewable energy credits allowing the product to be sold twice (green tags were invented by Enron), industrial wind power certainly fits there.

"... wind is going to have to be a part of a sane response to our crisis."

And as such, industrial wind is well within the terms of the crisis -- a symptom, not a solution.

Posted by: Rosa on May 31, 2006 03:46 PM

Wind turbines in my back yard give me a sense of pride, and driving home every evening I make a note to look to the horizon to see how fast they're spinning. When I have guests over, I take them to see the turbines up close, to bang on the shafts and listen to the light swooshing of the blades, and take photos.

There is no reason for this behavior that I can pinpoint, but I do know that I am awestruck at their presence.

Posted by: [Michael Tyas](#) on May 31, 2006 05:24 PM

ahh. swooshing. and the freeway overpass outside my apartment window sounds just like a babbling brook.

Posted by: noise to think by on May 31, 2006 05:32 PM

Rosa, thanks for the intriguing link. I had just recently been wondering about the unspoken environmental downsides of wind power, but the consequences of the unpredictability of it had never even crossed my mind. I'm sure it is worth discussing future technological solutions to that problem, but storage and/or transmission inefficiencies probably preclude any present day solution. Thanks for continuing to bang your head against this wall, I heard you and hopefully at least a few more people will grasp your message.

Posted by: Ben on May 31, 2006 09:55 PM

I haven't seen a real one. But on magazines, they all seem to set on rather bare landscape. It has a kind of abstract quality of beauty. It feels like the setting of a nuclear plant! It would really be nice if these wind farms can be set on green fields bloomed with flowers. Wouldn't it be a more appropriate setting?

Comparing to a power plant that delivers hundred pounds of plutonium waste annually, ( I heard something like a pound of it distributed evenly is enough to inflict lung cancer to the whole world!) the wind farms are so much more beautiful.

look fr studio LDA

Posted by: [look](#) on June 1, 2006 12:17 PM

Umm . . . has anyone seen those cellphone towers outside of Philadelphia? The ones they covered with plastic evergreen boughs in an attempt to disguise them? They've been there for a few years now. Also seen in North Jersey.

How can ANYONE call a wind generator ugly yet put up with the anti-aesthetics of a cellphone tower, disguised or otherwise?

I betcha they drive SUVs too . . .

Posted by: [bj](#) on June 1, 2006 10:03 PM

More replies:

"The failings of our current energy system do not make the slogans true. They seem to be the basis for thinking on the subject for many people and lies and banal slogans are, IMHO, a poor basis for thinking."

Lies and slogans are by definition poor bases for thinking. The phrase 'form follows function' can be used as an empty slogan or a style of visual culture, but it also expresses a design principle and names a modernist theory of value. Principles of biomimic design are surely not slogans, but highly compressed rules which indicate aspects of the endlessly complicated geometric structure of living systems, like ecosystems, cells, minds, cultures, solar systems. They are useful reminders of what to look for when studying what it is about stable natural systems which makes them so stable, so alive and sustainable, in the sense that they fit in seamlessly and harmoniously to the larger field of natural systems, and do not destroy and mame, now or sometime in the future, the fragile biogeochemical systems which support the possibility of life. Functionalism is a machine aesthetic because the modernists thought nature was a machine. Machines can be pretty darn complicated, but the new science of life reveals a much more profound geometry in living structure which unfolds out of itself. Industrial society is a whole series of design failures. These are not empty slogans, they are essential rules for reordering our economic system, our political system, our mind. Obviously, it is not sufficient to just mouth the words.

"As a tax dodge and subsidy sponge, and with renewable energy credits allowing the product to be sold twice (green tags were invented by Enron), industrial wind power certainly fits there... And as such, industrial wind is well within the terms of the crisis -- a symptom, not a solution."

You are probably right about this, and I allude to this fact when I mention that large scale industrial wind farms have aspects of ugliness in them. That General Electric, Brown Bros. Harriman, the Army Corp of Engineers, and other agents of economic centralization are involved with the Cape Wind project, for example, is indicative of the forces at play. But this isn't an issue for wind energy per se, only for the viability of a centralized electricity grid system. In order to rectify the fragmenting effects of centralized systems, the solution must come from below, at the communal level. A large part of the problem is our centralized, privately-owned and managed financial system, which gives the cheapest capital to the least socially productive - and downright destructive - players in the national and global economy, hence the existence of a military-petroleum complex and a prison-industrial complex.

A centralized power grid depends upon a constant, expanding stream of hydrocarbon energy, and hence intermittent wind and solar generating capacity need hydrocarbon backup, otherwise the grid goes down. A centralized, debt-based financial system depends upon a constant, expanding stream of finance capital, in order to service the interest on past investments and to develop economic productivity commensurate with the money supply, otherwise the economy goes down. The solution will require the decentralizing of both the power grid and the financial system at the same time. That sounds like a huge challenge, but it is easier than you might think. One answer is community energy cooperatives, which build their own, neighborhood-scale renewable energy systems and develop their own financing mechanisms, including community investment circles, local communally managed banks, and local currency systems. The more difficult part is the grid itself, but although the architecture for smart decentralized grids is currently politically nonviable, the technical vision of how to do it is being developed rapidly.

Posted by: Justin Good on June 5, 2006 10:02 AM

Not to veer too far off topic, but I'm intrigued by the comments about aesthetic relations to industrial noise.

I too find highway noise (though not stop-and-go street noise) quite soothing. Is it the consistency of the noise that makes it appealing?

Why is the whine of a cheap CRT annoying then? Is the "whiteness" of the noise a factor too; are more pure tones less desirable than tones with entropy?

Posted by: [Clayton](#) on June 16, 2006 02:18 PM

I was driving around rural Holland last summer and every once in a while you'd come across a grouping of three or so of those large modern windmills. Really quite beautiful in the landscape - like giant Albatrosses. Much more pleasing to the eye than our smaller, previous generation flocks of windmills found in say, the Altamont Pass (California).

About comparing wind costs to conventional power: The problem is that the true cost of fossil fuels isn't reflected in the retail price - we're just scooping up found energy, and not factoring in the cost of creating that energy (kill and bury Carbon lifeforms, let simmer for 65 million years). Sort of like in the late 1800s, when redwood was priced so low because lumbermen merely charged what it cost them to cut down the trees and transport them over, not the total cost of growing the trees in the first place. So the large wind turbines really can be economically viable.

Posted by: Kevin Perera on September 26, 2006 07:13 PM

Saw a wind farm flying over California back in July.

Neat!

Remembered a friend's street name from my teen years, "Raw Wind Drive." We always laughed at that one.

R/

Posted by: Joe Moran on November 1, 2006 10:20 PM

(1) People once thought giant belching smokestacks were a beautiful sign of progress, too.

(2) NIMBY is a formulaic term of abuse used to deter public participation. People have every right to be concerned about the places where they live.

Responsible commentators don't use it as both unfair and clichéd. Using industry buzzwords as if they added something meaningful to the discussion is reductive and cheap.

(As Pete Seeger says, if you must use the word, it should be spelled NIMBI: for Now I Must Be Involved.)

Another cheap shot is the notion that aesthetics are the sole reason to question wind power. There are reasonable questions about its technological ability to deliver as promised; economic issues; and (to my mind, most importantly) major threats to habitats from sitings on ridgelines, where great disturbance of acreage may occur.

(3) Finally, I share the concern of commentators such as James Howard Kunstler, who warns of the bad American habit of believing, Jiminy Cricket-like, in the steady march of progress in which technology will always come to our rescue.

I support R&D into alternative energy sources, but not when these are used as an excuse to not change our unsustainable habits and addictions. If the U.S. wishes to truly reduce its dependence on foreign oil and its contributions to global warming (as we should), we all are going to have to radically change our wasteful lifestyles.

But few want to talk about conservation and cutting back on travel, heating, air conditioning, or taking the time to buy your food and other products from local vendors (as opposed to having your dinner flown

thousands of miles from South Africa, Argentina, what have you). It is a lot easier to believe that we are going to solve the problem with a few windmills than to make any personal sacrifices.

Posted by: [Hudson](#) on November 29, 2006 03:15 PM

great discussion about wind farms!

recently learned about some urban limitations for wind power that is worth sharing. in the frozen north and south, windmills potentially shed large chunks of ice during the winter. so siting a windmill over a parking lot will result in lots of damaged cars and more (which may not be *that* bad)

Posted by: [treekiller](#) on June 3, 2007 07:22 PM

What of birds? A wind farm is proposed in my area on a coastal plane that is a crucial landing zone for migratory birds, especially during storms.

I think the most beautiful wind farm would be one that birds could easily see and avoid without losing crucial habitat. As with most technologies, we will proceed based on not knowing all that we don't know that we don't know. Working wind farms will be spinning winged memorials to all the birds that lost their lives to the prototypes. This optimistically assumes that we will even hold birds in consideration.

Posted by: linda on July 20, 2007 04:39 AM