

If Not Natural Gas, THEN WHAT ?

The Alternative Truth

By Cris Pasto

Engineering Director

Res-Q-Jack, Inc.

BSME Clarkson University

MSME Binghamton University

Where's PLAN B ?

We've heard all the rhetoric and speculation with regards to the 'potential' impacts of gas drilling. I've heard nothing about PLAN B or an alternative. As an engineer, I can't accept a simple conclusion that says that a proposed solution is bad. I need a solution to the problem at hand. I have to fulfill a need. The need here is energy. We need a comparative analysis to form an action plan.

We've all heard the Pros & Cons of natural gas development.

We are constantly told that wind & solar energy are just there FREE for the taking.

I like FREE stuff, so let's see if there is anything we aren't being told.

I've been told to beware of FREE offers.

Full Disclosure

- I use natural gas. I enjoy the price. I enjoy the cleanliness of NG in my commercial & residential heating systems.
- I buy many products produced using natural gas like clothing, plastics, and much more – how about you?
- I own land in ‘shale country’ !
- One more thing - I love my land !

LAND USE

- Wind farms: 30-60 acres per MW
- PV Solar plants: 15.53 acres per MW (based on actual output data for SEGS in CA)
- Thermal Solar: 33 acres per MW (Ivanpah Plant)
- Natural Gas: 0.85 acres per MW (1mmcf/d per 5 acre well)
0.17 acres per MW (5mmcf/d per 5 acre well)

A state-of-the-art, combined-cycle, gas-fired power plant will consume about 17 mmcfd for each 100 MW of power generated. Thus, 1mmcf/d=5.9 MW

http://www.beg.utexas.edu/energyecon/new-era/case_studies/Brazil_Power_Market_Crisis.pdf

A MW is a MEGAWATT or 1 million watts. Wikipedia definition of a watt: One watt is the rate at which work is done when an object's [velocity](#) is held constant at one meter per second against constant opposing force of one [newton](#).

Looks like a gas field or an oil “patch”



Think again – it’s a Wind Farm.

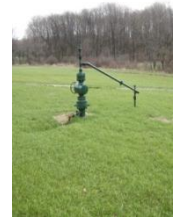
Capricorn Ridge wind farm – Sterling City, TX

<http://www.eric siegmund.com/fireant/2012/01/120131-flightsoffancy.html>

GREEN-LAND vs. GAS-LAND

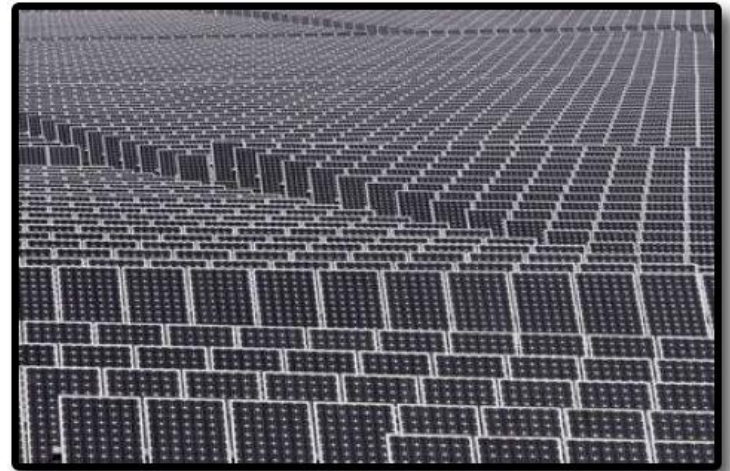


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Assuming 25% efficiency and a 1MW wind turbine giving 0.25 MW actual output power from a wind turbine, it takes 30 to 60 acres per MW. A typical Marcellus Shale gas well produces about 4mmcf/d. That's less than 1 acre per MW.

Gas well picture: http://knappap.blogspot.com/2011_06_01_archive.html



***GREEN ACRES* isn't just an old TV show !**

Each of the turbines at Dunmaglass will require servicing, which means a network of new and improved roads 20 miles long being built across the hills. They also need 1,500 tons of concrete foundations to keep them upright in a strong wind, which will scar the area.

Read more: <http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html#ixzz1tD6T2LcO>

The minimum suggested setback from the nearest residences or public buildings is 1,000 feet, though 1,500 feet was recommended. Setbacks from adjacent property lines will be no less than the tower height plus the length of an extended blade. Minimum distance between turbines will never be less than 800 feet. <http://www.aweo.org/windlincoln.html>

**NOTE THAT'S 37 ACRES OF LAND WITH A 1,000' SETBACK,
55 ACRES FOR A 1500' SETBACK.**

Wind farm construction in UK

<http://www.users.globalnet.co.uk/~hills/cc/gallery/index.htm>



Ivanpah – NATURAL GAS fired Thermal Solar Plant.

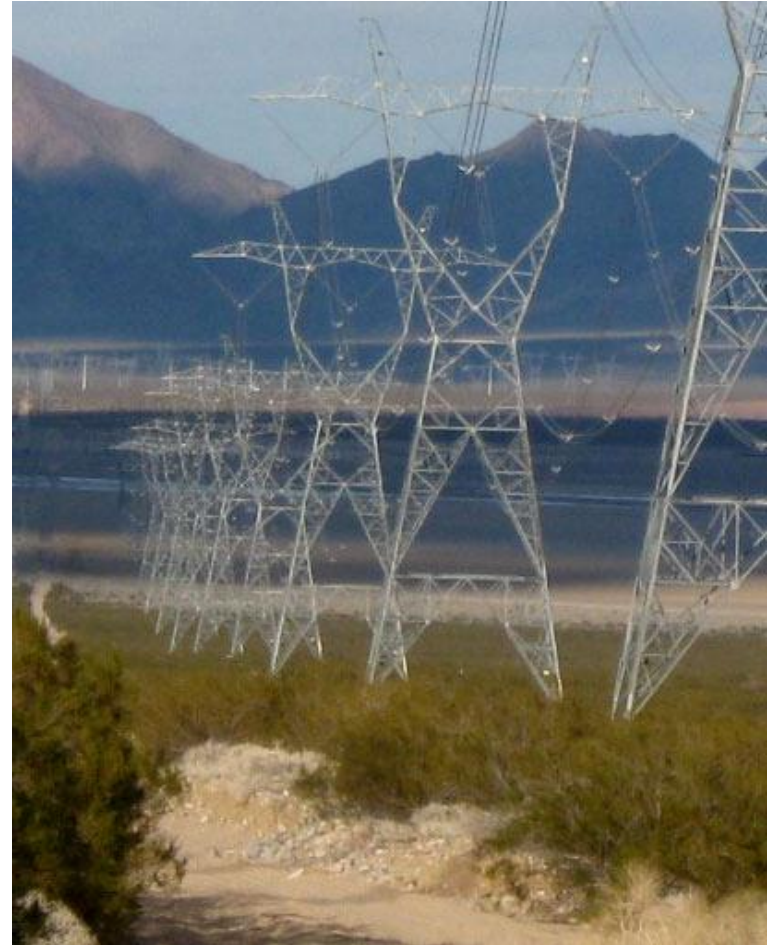
- 3500 acres, not including tortoise “translocation” land which said to be 1:1 ratio?
- 370 MW capacity at 29% efficiency = 107 MW
- That’s 33 acres per MW not including tortoise reserve.
- NATURAL GAS heats the water tower at night and on cloudy days. 35% gas-steam power efficiency would take 52 mmcf/d to produce same electricity so they might be feeding this baby with some serious gas.

36 miles of wire “RIGS”

- Looks like a line of Permanent drill rigs
- “Calm Earth” group suggests Health risks associated with power lines:

EMFs interfere with cell functioning, break DNA strands, and erode the immune system.

<http://www.earthcalm.com/emf-dangers/health-risks-power-lines/>



THE SOLAR DESERT - The power compromise

<http://articles.latimes.com/2012/feb/05/local/la-me-solar-desert-20120205>

- "power tower" emerges, wrapped in scaffolding and looking like a multistage rocket.
- chain mail of fencing that will enclose more than 3,500 acres of public land. Moorings for 173,500 mirrors -- each the size of a garage door
- a humming city with 24-hour lighting, a wastewater processing facility and a gas-fired power plant. To make room, BrightSource has mowed down a swath of desert plants, displaced dozens of animal species and relocated scores of imperiled desert tortoises, a move that some experts say could kill up to a third of them.
- The federal government has furnished more public property to this cause than it has for oil and gas exploration over the last decade – 21 million acres
- The desert will be scarred well beyond a human life span... no amount of mitigation will repair it
- Capturing a free and clean ..energy is not cheap.
- Solar is the Cadillac of energy.....
three times more expensive than natural gas

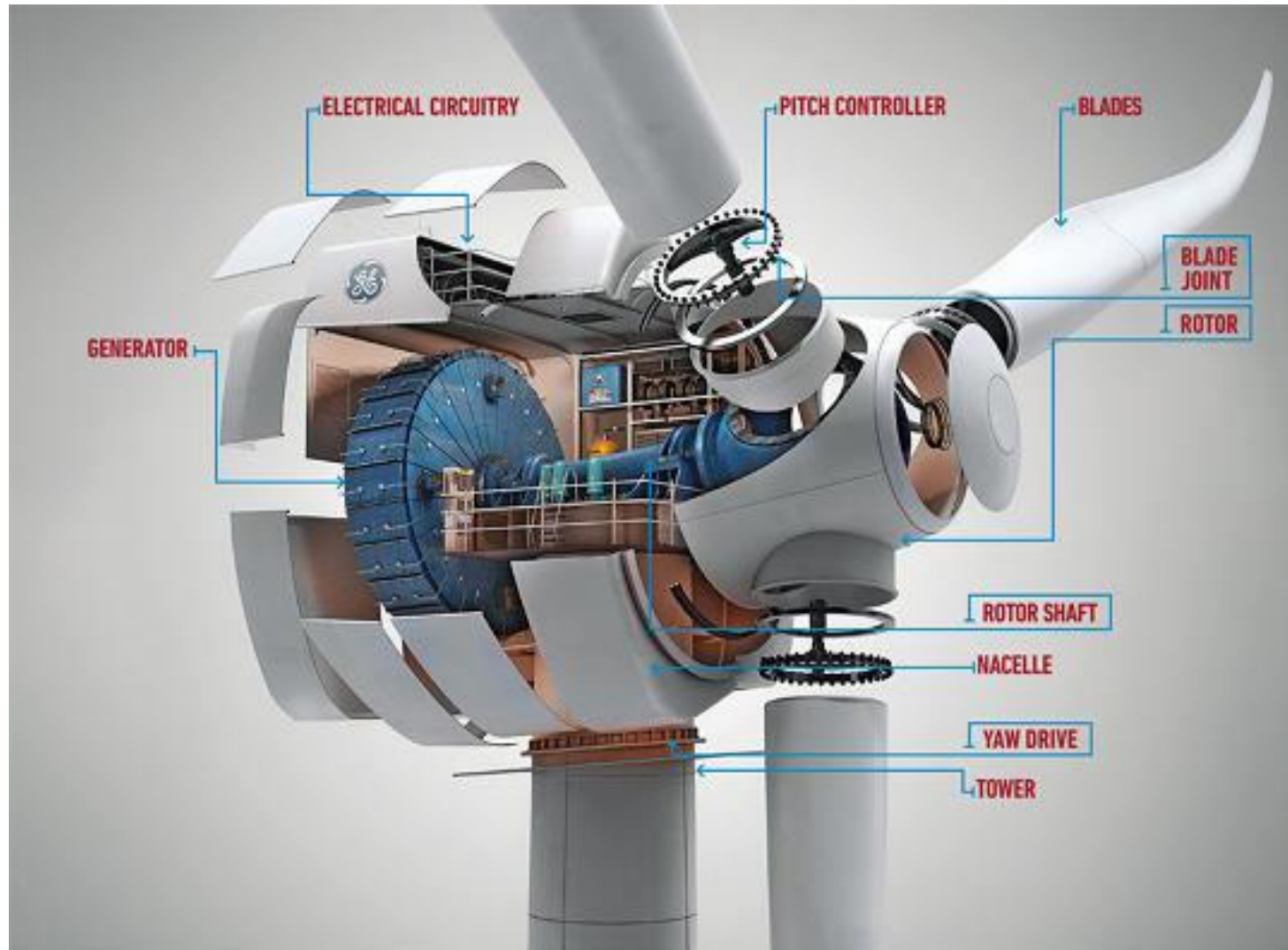


RENEWABLE?

- Turbines have lifespan (~ 20 years)
- Solar panels have lifespan (~ 20 years)
- Raw materials mined
- Turbines use about 200 gals. of oil that leaks.
May drip off blades when idle or blow as mist when blades turning.
- NG often powers a mining operation

What's in a wind turbine?

<http://www.popsci.com/technology/article/2010-03/next-gen-wind-turbine>

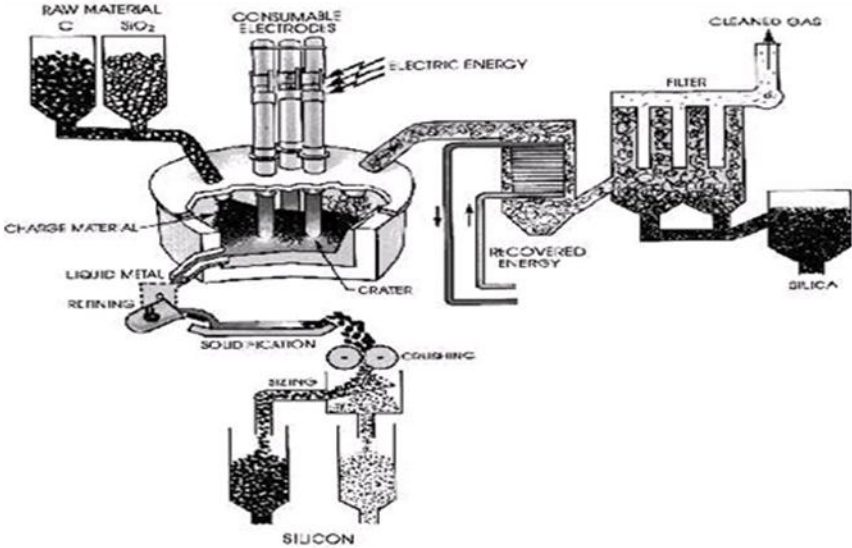


Rare Earth Elements – renewable?

Magnets don't grow on your refrigerator



Quartz Mining/Silicon Mfg. – renewable?



What else is in a PV solar panel?

- Doping – adds impurities like boron & phosphorus (near ‘peak’ supply)
- Electrical contacts – vacuum evaporated palladium/silver, nickel, or copper
- Tin-coated copper strips between cells
- Anti-reflect coating – titanium dioxide
- Cell encapsulation – ethylene vinyl acetate
- Aluminum frame, mylar backsheet, glass or plastic cover

DOMESTIC ENERGY?

- “renewables” shift dependency on OPEC to what I refer to as O.R.E.C. or Organization of Rare Earth Countries – China, India, Brazil, Malaysia...
- Lithium – Chile, Bolivia, China, Argentina...
- China is the big winner on PV solar panels.
- The GREEN movement has pretty much put the U.S. in the RED when it comes to raw materials.

GREEN energy is RARE energy

- 97% of the world supply of REE's comes from China, and in the last two years, China has begun to restrict exports.
- The deposit closest to [domestic] production is an existing REE mine that stopped production in 2002, due to a combination of environmental problems and competition from China.
- The time to develop an unexplored deposit to a working mine could be over a decade.

<http://www.groundtruthtrekking.org/Issues/MetalsMining/RareEarths.html>

RADIOACTIVE MATERIALS?

- Strip mining for rare earth elements uncovers NORMs (Normally Occurring Radioactive Materials)
- Rare earths present a difficult environmental conundrum. They are required for a variety of "green" technologies, including wind turbines and hybrid/electric cars. Production of an electric car is currently not possible without neodymium and dysprosium, which are both important components of the magnets used in the engine. However, the extraction and processing of rare earths has significant environmental risks in its potential for spread of radioactive material and toxic chemicals, and the acidification of watersheds.

<http://www.groundtruthtrekking.org/Issues/MetalsMining/RareEarths.html>



Rusting pipelines meander for miles from factories processing rare earths in Baotou out to the man-made lake where, mixed with water, the foul-smelling **radioactive waste** from this industrial process is pumped day after day. No signposts and no paved roads lead here, and as we approach security guards shoo us away and tail us. When we finally break through the cordon and climb sand dunes to reach its brim, an apocalyptic sight greets us: a giant, secret toxic dump, made bigger by every wind turbine we build.

<http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html#ixzz1tCwVMcUW>

WILDLIFE/LIVESTOCK IMPACT

- With wind turbines, the keyword is IMPACT. They have a license to kill birds. Bats will die due to pressure change near a blade exploding its lungs – no need for impact
- Desert tortoise disaster w/ IVANPAH solar. (surface count indicated only 25 tortoises until the dozers dug in & then they realized these desert creatures live underground – hah!)
- Study indicates NG compressors deter a certain bird from area. Suggest positioning NG compressors near wind turbines to deter birds from death.

DEAD COWS FOUND ON THE FARM (Wind farm, that is...)

Even if a wind developer may claim that the wind factories, substations and power grids will not contribute to stray voltage or electrical pollution because (1) insulated cable will be used, (2) all cable will be buried several feet beneath the surface, and (3) cables are laid in thick beds of sand -- these statements should be viewed with suspicion because of poor project track records, according to Larry Neubauer, a master electrician with Concept Electric in Appleton, Wisconsin. Mr. Neubauer, who has customers who are dairy producers, homeowners with stray voltage problems, and farmers with turbines on their property, said that currents from each ground on the cables and project substations, as well as the regional transmission lines that receive electrical energy and that are electrically tied together, do not harmlessly dissipate into the soil. Energy disperses in all directions through the soil and these currents seek out other grounded facilities, such as barns, mobile homes and nearby residences. Only in California is it illegal to use the ground as an electricity conductor. In the rest of the country, including Wisconsin and Illinois, power companies are allowed to dump currents into the ground, according to Mr. Neubauer.

Residential properties that are in a direct line between substations and the ground conduits are particularly at high risk since electricity takes the path of least resistance. Mr. Neubauer said that burying the cables, as the Illinois Wind Energy project intends to do, makes it worse, citing the short lifespans of buried cables, frosts that wreak havoc on the cables, and the problems of locating trouble spots that cannot be seen without digging up the cables.

Two of Mr. Neubauer's clients, who were interviewed in October, are dairy farmers who have spent over \$250,000 and \$300,000 trying to rewire their farms to reduce stray voltage. That cost does not include herd loss or losses from diminished milk production. Mr. Russ Allen owns 550 dairy cows in DePere, Wisconsin. His farm is in a direct line between nearby WPSC turbines and a substation. Mr. Russ said he was losing one or two cows a day during the three years prior to his installing electrical equipment to help reduce currents on his farm. About **600 cows died**, he said. Mr. Russ said he has so much electrical current on his farm that **he laid a No. 4 copper wire around his farm for 5,000 feet. The wire is not attached to any building or additional wires; yet it can light up a lightbulb from contact with the soil alone.** Mr. Russ has scheduled a media day on October 24 to draw awareness to the problems of stray voltage and he said to encourage everyone in Bureau County to attend.

What scares me more is that I know ... **they're pumping current through people.** They're pumping current **through kids**, Mr. Allen said.

It is important to note that Mr. Noe and his electrical engineer, Mr. Pasley, deny that there will ever be EMFs or stray voltage resulting from the proposed Indiantown/Milo turbines. Just as WPSC has dismissed any problems in the face of mounting evidence, Mr. Noe testified that he will never implement electrical pollution studies and that he thinks they would be a waste of money. <http://www.aweo.org/windlincoln.html>

Old McDonald *HAD* a farm..... until the wind turbines came to town

- herd decline due to diseases that were not present in the herds prior to turbine construction
- Farms with turbines affected as well, as evidenced by the trucks, which have grown more and more frequent, hauling away animal carcasses
- ...traced the decline of milk production and increase of cancer and deformities in his formerly award-winning herd to an increase of electrical pollution on his farm after turbine construction....has seen the same chronic symptoms that are in his herd in his family.
- In the past his cows consumed 30 gallons of water a day, but that figure declined to 18 to 22 gallons of water a day after turbine construction. As a result, cows became dehydrated and terminally ill.
- Dr. Pettegrew, testifying before the Bureau County Zoning Board of Appeals, said he would be remiss as a doctor if he didn't tell the board that he thought the weaknesses and illness he saw in the cows in the video were most likely caused by EMFs or electrical pollution.

<http://www.aweo.org/windlincoln.html>

Wind Farm Kills Goats

by [Sarah Dowdey](#) | May 21, 2009



Power company Taipower built the wind farm four years ago on the blustery Penghu archipelago in the Taiwan Strait. Shortly after the turbines started spinning, the farmer in question, Kuo Jing-shan, said he began losing goats: going from 700 to 250. He said the animals looked skinny, didn't eat and would stand up all night, not sleeping; he only later connected the start of the deaths to the construction of the wind farm. The Ministry of Agriculture is backing him up, saying it's quite possible the goats died from the noise. The power company is a bit more skeptical, though they have offered to help pay to relocate the farm.

<http://blogs.howstuffworks.com/2009/05/21/wind-farm-kills-goats/>

Bye, Bye Birdie(s), bats, eagles...



The American Bird Conservancy estimates wind turbines kill between 75,000 and 275,000 birds each year.

<http://www.dailymail.co.uk/news/article-2116877/Is-future-Britains-wind-rush.html#ixzz1qCFN24dC>

Bird lovers in Scotland refer to green wind energy in as “**RED ENERGY**” because of the blood spilled.

<http://www.iberica2000.org/Es/Articulo.asp?Id=1170>

Rise & SHINE or is it DROP DEAD?

- Larry LaPre, the Bureau of Land Management's wildlife biologist for much of the Mojave, said some aspects of the project "complete nonsense" among them BrightSource's experimental approach of shearing the tops of desert plants so they fit under elevated solar mirrors. The company calls it "gentle mowing."
- "To get another barrel cactus, even a small one, takes 100 years,"
- "The birds are already gone. They're outta there," he said. The site "will have plants, short plants, and it will have mice and kangaroo rats and some lizards. That's it. Maybe some more common birds. The insects are an unknown, because you could have massive losses of pollinators because you have all these insects getting burned in the mirrors."
- Jeffrey Lovich studies desert tortoises for the U.S. Geological Survey. In preparing a recent paper, he and a colleague scoured published research analyzing impacts from large solar farms on wildlife. They found one paper. Essentially, Lovich said, no one knows what will happen to wildlife in the Mojave.

Above excerpts from: <http://articles.latimes.com/2012/feb/05/local/la-me-solar-desert-20120205/2>

More on Wind Turbines and Wildlife

Wind turbines are still a relatively new technology assessments on the impact upon wildlife ...ongoing. The movement of the rotor blades, general vibration in the environment and potential damage such as to peat bogs are all cause for concern....There is very little information regarding the effect of wind turbines upon wildlife as yet, though, as reported in New Scientist, scientists in the US have been studying squirrels. The scientists compared squirrels living near wind turbines to those in other habitats. It was found that the squirrels near to wind farms were more likely to be jumpy, alert and to run for cover on hearing an alarm call than the squirrels that were not near turbines. NOTE: article goes on to state that impact of sub-sea noise & vibrations on marine life unknown – must be there are problems?

<http://www.earthpeace.com/Wind/WildlifeWind.htm>

Should we be more concerned about the insects or what their little bodies do to the blades?



- Insect collisions foul the leading edge of wind turbine blade (M.D. Burns/Oak Creek Energy Sys.). <http://www.sciencedirect.com/science/article/pii/S1364032107001554>

GROUNDWATER CONTAMINATION

- Toxic rivers near chinese solar panel mfg plants.
- Leachate from landfills – solar panel components, mine cuttings
- Turbine pads are 40'x40'x40' deep concrete pads that may interrupt aquifer.
- Mr. Srnka also detected a change in well water on his property, and there has been a definite change in taste, he said, which has contributed to the decrease in water consumption by his herd.
<http://www.aweo.org/windlincoln.html>
- Residents' wells are protected against damage from any type of foundation construction, not only blasting, within a 1-mile radius of each turbine. This includes the requirement that wind developers will pay for independent testing of wells within 1 mile of the project for flow rate and water quality. Developers also must pay for remediation and fix problems within 30 days of complaints.
<http://www.aweo.org/windlincoln.html>

In China, the true cost of Britain's clean, green wind power experiment: Pollution on a disastrous scale

By SIMON PARRY in China and ED DOUGLAS in Scotland

This toxic lake poisons Chinese farmers, their children and their land. It is what's left behind after making the magnets for Britain's latest wind turbines... and, as a special Live investigation reveals, is merely one of a multitude of environmental sins committed in the name of our new green Jerusalem



Live has uncovered the distinctly dirty truth about the process used to extract neodymium: it has an appalling environmental impact that raises serious questions over the credibility of so-called green technology.

<http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html>

- Concrete slurry at wind farm



- Chemical container at wind farm construction site



- Chinese Solar Panel Plant



- Metals Mining Runoff

Sidebar: Hybrid Car Batteries

Just thought these colorful pictures of the mining operation that supplies Toyota with nickel for their Prius Hybrid NiMH batteries might interest you.



Run-off from a nickel mine in Sudbury, Ontario

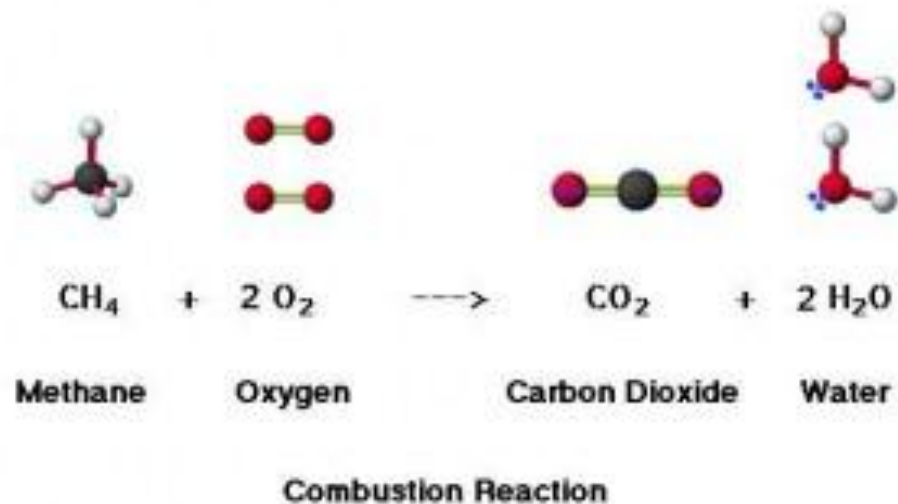
<http://thesocietypages.org/socimages/2008/12/21/burtynsky-resource-extraction/>

WATER USAGE

- Solar panel manufacturing process
- Cleaning of mirrors/panels – call it “irrigation”
- Strip Mining Operations – water jet mining, waste slurry pumping
- Thermal solar plant Ivanpah refers to 200 AFY usage – acre foot per year...90% less water than traditional?? <http://www.basinandrangewatch.org/IvanpahValley.html> AFY sounds better than gallons. That's ~60,500,000 gallons for 107MW or 565,400 gals per MW. NG=4,000,000 gal frack per 2 mmcf/d or 11.8MW = 339,000 gals per MW.
- Burning 1 bcf of natural gas produces 11 million gallons of water. Frack job ~ 4 million gallons.
NET GAIN!

BURNING NG PRODUCES FRESH WATER?

As an engineer, I can't believe I never investigated this, particularly after experience I had with vent-free gas heaters dumping gallons of water in my house that I had to combat with a dehumidifier until I went with a vent. I borrowed this simple reaction formula from the Elmhurst College website that represents the burning (or oxidation) of natural gas (methane).



Dirty detail: Solar panels need water

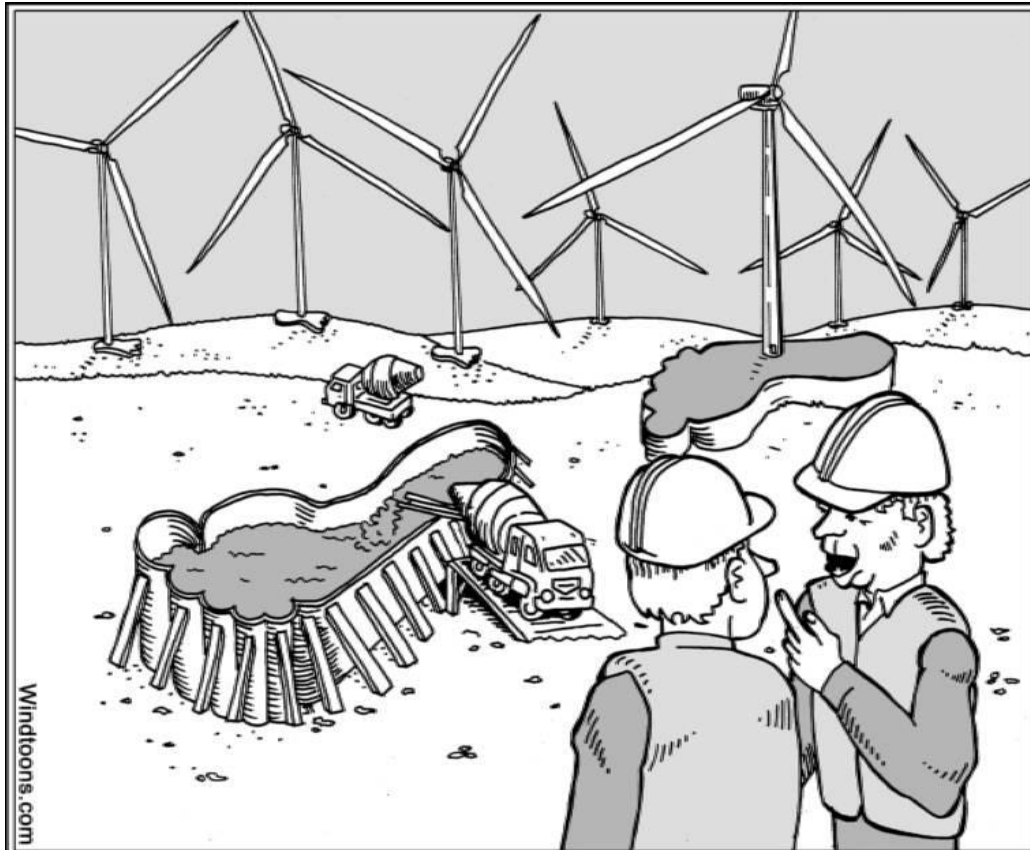
How much is the question, as developers downplay frequency of cleanings

By [Stephanie Tavares](#) Friday, Sept. 18, 2009 | 2 a.m

...Dust on solar panels can decrease their efficiency by about 3 percent, solar photovoltaic experts said..... solar array managers have to add in the cost of labor, truck rental and gasoline. In a water-starved desert, the additional consideration is how much of the region's most critical natural resource will wind up evaporating or dripping into the desert.... True, they use a fraction of what a water-cooled solar thermal power plant consumes annually — about a 16,689 gallons per megawatt for photovoltaics compared with 2.61 million gallons per megawatt for wet-cooled solar thermal — but a large photovoltaic array can still easily use more water in a year than an entire residential block.... NexLight North and NexLight South....would need to truck in about 6.8 million gallons of water a year, developers reported in planning documents. That's enough, they say, to clean the thousands of acres of solar panels about twice a year

CONCRETE USAGE

- My estimate of concrete & grouting materials used in a horizontal wellbore: 10,000' of 8" hole filled at plugging = 130 yards concrete = about 13 trucks.
- Windmill foundation = 40'x40'x40' concrete = 2,370 yards = 237 trucks per turbine.



**Those are "Carbon Footprints".
Environmental Protection made 'em do it.**

Large quantities of concrete are used to keep wind turbines from tipping over. The manufacture of portland cement used for concrete creates 7% to 10% of global CO₂ emissions.

MINING WASTE

- 130 yards of Natural Gas drill cuttings for 10,000' long bore at 8" diameter.
- "each ton of rare earths produces 2,000 tons of mine tailings, which often contain radioactive thorium..... Every ton of rare earth produced (in China) generates approximately 8.5 kilograms of fluorine and 13 kg of dust; and using concentrated sulfuric acid high temperature calcination techniques to produce approximately one ton of calcined rare earth ore generates 9,600 to 12,000 cubic meters of waste gas containing dust concentrate, hydrofluoric acid, sulfur dioxide, and sulfuric acid, approximately 75 cubic meters of acidic wastewater plus about one ton of radioactive waste residue (containing water)." http://www.asiasentinel.com/index.php?option=com_content&task=view&id=3263&Itemid=422

GREEN HOUSE GASES (GHGs)

- Solar panel cleaners
- Turbine blade cleaners
- Burning turbines
- Mfg. processes
- 90 employees at IVANPAH to commute 1 hour each way. <http://www.basinandrangewatch.org/IvanpahValley.html>
- Rare earth mining operations.
- Still need fossil fuel fired electric plants running.

Nobody is really sure how much carbon is being released by the renewable energy construction boom. Peat moors lock up huge amounts of carbon, which gets released when it's drained to put up a turbine.

Read more: <http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html#ixzz1tD7oeWaE>

Workers could asphyxiate inside turbine enclosures or inhale harmful gases and vapors when buffing and resurfacing blades, the Department of Labor cautions.

<http://articles.latimes.com/2011/aug/03/business/la-fi-green-safety-20110803>

Shocker: Solar panel manufacturing creates potent GHG's

<http://wattsupwiththat.com/2008/10/27/shocker-solar-panel-manufacturing-creates-potent-ghgs/> There's a new boogeyman in the world of global

warming: Nitrogen Trifluoride....On Lubos Motls [The Reference Frame](#) he has as pointed out that a greenhouse gas emitted during the production of solar panels and [HDTVs](#), [nitrogen trifluoride](#) (NF₃) that is used for cleaning the electronics, is about 17,000 times more potent a greenhouse gas than carbon dioxide.....According to Lubos, given the fact that the solar panels produce about the same percentage of the global energy as Finland, it is reasonable to guess that the state-of-the-art solar panels that would replace fossil fuels would cause a comparable amount of warming per Joule as fossil fuels.

QUALITY OF LIFE ISSUES

- People near turbines live in misery due to health issues
- Fear of ice launching
- Viewshed interruption
- Life is “spinning”
- The Srnkas are so concerned with health effects that they aren't going to have kids anymore because they're so afraid.

<http://www.aweo.org/windlincoln.html>

Turbines as SONIC WARFARE weapon?

- Sweden: One day in 1998 mine and my neighbours' lives changed dramatically. The noise is a torture.“ ~ 2000' from home
- UK: ...8 turbines of 100m became operational in the summer 2006. By May 2007 we were forced to abandon our home as a place to sleep and live... ~ 3000' from home
- Canada: How could a company be permitted to enter our community and turn our pristine area into a noise-ravaged battleground? ...It is a noise that the human body cannot adapt to even after more than a year of exposure.

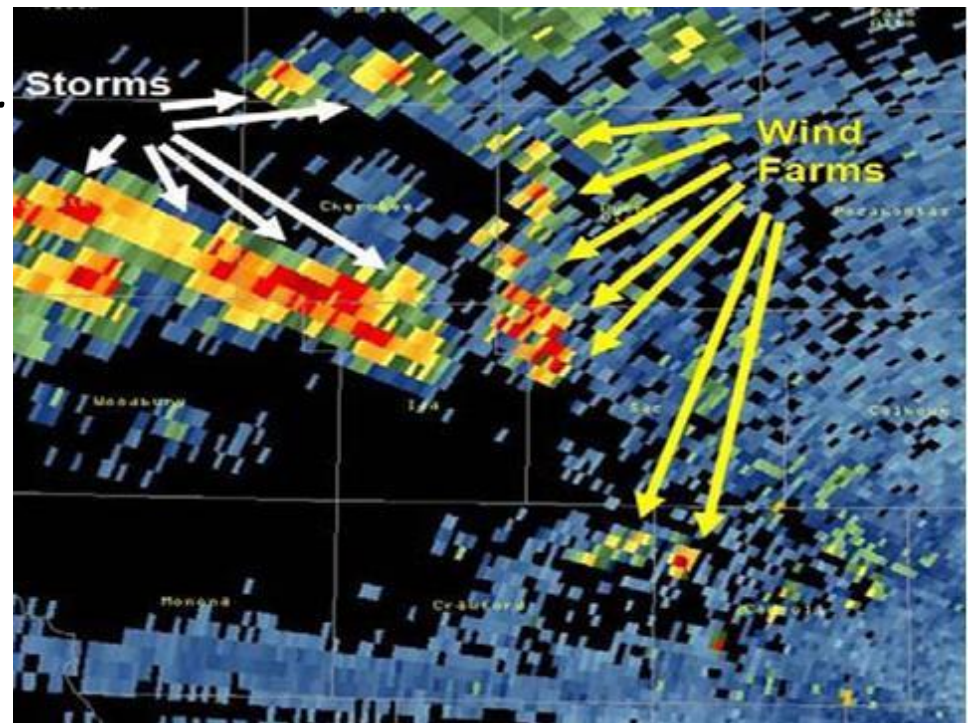
<http://www.nhwag.co.uk/health.htm>

HUMAN HEALTH & SAFETY

- Wind turbines: seizure risk, vertigo, diarrhea, headache, “wind turbine syndrome”
- Wind farms interfere with weather forecasting.
- Solar Panel Mfg. plants not quite so healthy – just ask the Chinese residents living around them, but I don’t believe in speaking with the dead.
- Rooftop panel installations dangerous
- PLUS same potential impacts as NG as NG powers manufacturing plants and strip mines for rare earth elements.
- Traffic danger near mirrors & turbines (flicker/shadow)

Is that a Tornado, Wind Farm, or both?

Wind Energy Creating A Problem With Military And Weather Radar. This is (increasingly) an issue: turbulence around wind farms showing up on Doppler radar - which can be a real problem when strong/severe storm cells are passing over these areas - making it difficult, if not impossible, to distinguish the wake effect from wind turbines from actual severe storms. [Physorg.com](http://www.physorg.com) has the story: "*With the push for creating green energy, giant windmill farms are becoming more and more common for electricity production. However, the National Weather Service and the United States Air Force say these wind farms are creating much more than energy, and are making their jobs more difficult when it comes to detecting storms*"



What happens when ICE hits the fan?



Consider a blade tip speed of about 200 mph.

But they say ice won't build up so don't worry, be happy, or just be quiet & take one for the green team.

WEAR A HELMET!

ENDOCRINE BLOCKERS?

Don't know much about them, but they could use a few bodily fluid flow blockers around these baby blocking wind farms...

Mr. Srnka and neighbors report serious health effects on not just dairy cows. Health problems in residents include

- sleep loss
- diarrhea
- headaches
- frequent urination
- 4 to 5 menstrual periods per month
- bloody noses: Mr. Srnka had cows bleed to death from uncontrollable bleeding from the nostrils
- inability to conceive

Sometimes even short-term visitors to the farms or homes contract the symptoms, including construction workers on the Srnka property who broke out in nosebleeds after only a few hours. One of the workers left and refused to return.

<http://www.aweo.org/windlincoln.html>

Neodymium is commonly used as part of a Neodymium-Iron-Boron alloy (Nd₂Fe₁₄B) which, thanks to its tetragonal crystal structure, is used to make the most powerful magnets in the world. Electric motors and generators rely on the basic principles of electromagnetism, and the stronger the magnets they use, the more efficient they can be. It's been used in small quantities in common technologies for quite a long time – hi-fi speakers, hard drives and lasers, for example. But only with the rise of alternative energy solutions has neodymium really come to prominence, for use in hybrid cars and wind turbines. A direct-drive permanent-magnet generator for a top capacity wind turbine would use 4,400lb of neodymium-based permanent magnet material.



Villagers Su Bairen, 69, and Yan Man Jia Hong, 74, stand on the edge of the six-mile-wide toxic lake in Baotou, China that has devastated their farmland and ruined the health of the people in their community

....'When it dried in the winter and summer, it turned into a black crust and **children** would play on it. Then one or two of them fell through and **drowned** in the sludge below. Since then, children have stayed away.'.....the lake grew larger and the stench and **fumes grew more overwhelming**.....'Anything we planted just withered, then our **animals started to sicken** and die.'...People too began to suffer. Dalahai villagers say their **teeth began to fall out**, their **hair turned white** at unusually young ages, and they suffered from **severe skin and respiratory diseases**. Children were born with **soft bones** and **cancer** rates rocketed....Official studies carried out five years ago in Dalahai village confirmed there were unusually **high rates of cancer** along with high rates of **osteoporosis and skin and respiratory diseases**. The lake's **radiation levels** are ten times higher than in the surrounding countryside, the studies found.

Read more: <http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html#ixzz1tCxXRwx8>

WOW, did you catch that?

- “A direct-drive permanent-magnet generator for a top capacity wind turbine would use 4,400lb of neodymium-based permanent magnet material.”
- RECALL FROM DISCUSSION ON MINING WASTE: “each ton of rare earths produces 2,000 tons of mine tailings, which often contain radioactive thorium.....”
- SO EACH TURBINE MAY PRODUCE 8,800,000 LBS OF THORIUM LACED WASTE THAT’S INTENTIONALLY PUMPED IN A SLURRY TO OPEN PITS (LAKES IN THIS CASE).

WIND TURBINE SYNDROME & THE BRAIN

Nina Pierpont, MD, PhD

November 15, 2010

*The following is the text of Pierpont's keynote address before the "First International Symposium on the Global Wind Industry and Adverse Health Effects: Loss of Social Justice?" in Picton, Ontario, Canada, October 30, 2010. It is followed by a discussion of several other relevant talks at the symposium by Drs. Alec Salt, Michael Nissenbaum, Christopher Hanning, and Mr. Richard James.



Abstract

The latest research, as discussed below, suggests the following mechanism for Wind Turbine Syndrome: air-borne or body-borne **low-frequency sound directly stimulates the inner ear**, with physiologic responses of both cochlea (hearing organ) and otolith organs (sacculle and utricle—organs of balance and motion detection).

Research has now proved conclusively that physiologic responses in the cochlea suppress the hearing response to low-frequency sound but still send signals to the brain, signals whose function is, at present, mostly unknown. The physiologic response of the cochlea to turbine noise is also a **trigger for tinnitus** and the brain-cell-level reorganization that tinnitus represents—reorganization that can have an **impact on language processing and the profound learning processes** related to language processing.

New research also demonstrates that the **“motion-detecting” otolith organs of mammals also respond** to air-borne low-frequency sound. Physiologic responses and signals from the otolith organs are known to generate a wide range of brain responses, **including dizziness and nausea (seasickness, even without the movement), fear and alerting (startle, wakefulness), and difficulties with visually-based problem-solving.**

Increased alerting in the presence of wind turbine noise disturbs sleep, even when people do not recall being awakened. A population-level survey in Maine now **shows clear disturbances of sleep and mental well-being out to 1400 m (4600 ft) from turbines, with diminishing effects out to 5 km (3 miles).**

Link: www.windturbinesyndrome.com/news/2010/wind-turbine-syndrome-and-the-brain-pierpont

NEED FOR BASELINE TESTING

not just water, but TV reception too!

“Wind developers will pay for testing of television reception prior to construction and pay to correct degradation of TV signals. Wind developers will expand the potential problem area to a 1-mile radius for all complaints -- period.

Despite claims that television reception would not be affected, the wind factory developers in Lincoln Township had to pay for power boosters and reception equipment to counteract the effects of the turbines. The residents also had to fight with the utilities when an additional local station was added and the utilities refused to pay for any more TV reception improvements for the duration of the 30-year turbine contract. Residents had to fight to get the power company to add the station. Three years later, residents are still unhappy about how the turbines continue to interfere with their reception, in many cases observable in unclear stations and in the color flashes that coincide with the turning of the blades, according to Mrs. Heling.”

<http://www.aweo.org/windlincoln.html>

AIR QUALITY

- Blade cleaning solutions toxic
- Burning wind turbines
- Solar panel cleaning agents
- The Chinese authorities have suspended production at a solar panel factory after protests by residents who blame the plant for fouling the air and water, a government Web site said Monday. <http://www.nytimes.com/2011/09/20/world/asia/china-shuts-solar-panel-factory-after-anti-pollution-protests.html>
- The largest REE mine in the world, near Baotou in China, has significant problems with water and air pollution. <http://www.groundtruthtrekking.org/Issues/MetalsMining/RareEarths.html>

HOME PROPERTY VALUES, INSURANCE

- Houses near wind farms have severely depressed values. Homes too close unmarketable and bulldozed.
- Sales within 1 mile of the windmills prior to their construction were 104 percent of the assessed values, and properties selling in the same area after construction were at 78 percent, a decrease of 26 points. <http://www.aweo.org/windlincoln.html>
- Added risk due to rooftop panels.
- Liability issues with turbines – consider bankrupt company and abandoned turbine.

FIRE RISKS

- Turbines typically hold 200 gals of oil. Fire typically left to burn due to complexity.
- Turbines present wild fire risk.
- Solar panel fires dangerous and difficult to fight. Typically left to burn.
- Wind turbines attract lightning.

Solar Energy Biz is EXPLODING, literally!

Storage Tank at Solar Power Plant in Desert Explodes; Immediate Area Is Evacuated

February 27, 1999 | Associated Press <http://articles.latimes.com/1999/feb/27/news/mn-12205>

DAGGETT, Calif. — A storage tank exploded at a solar power plant Friday, sending flames and billows of smoke into the sky for hours and forcing authorities to evacuate the immediate area.

The fire, which broke out about 6 p.m., was still burning four hours later at the SEGS II power plant near Interstate 40 about seven miles east of Barstow, said San Bernardino County Fire Battalion Chief David McLees.

Firefighters "tried to put water on it and said it was like putting out a house fire with a garden hose," he said.

The 900,000-gallon tank was holding a heat-transfer fluid called therminol, McLees said. Therminol is a hydraulic fluid that is heated to about 850 degrees and run through pipes to solar panels to help generate electricity, McLees said.

The fluid can be mildly toxic. Authorities were also trying to keep flames from leaping to two adjacent containers that held sulfuric acid and caustic soda, both toxic substances, he said.

An unspecified number of employees at the plant were evacuated. All known employees were accounted for, he said.

The cause of the blast was not known, McLees said.

Police and fire officials evacuated a half-square-mile area around the facility, said sheriff's spokeswoman Sue Santana.

CLEAN Earth, Wind, & FIRE !



TOO MUCH WIND?



Avoid Hurricane prone areas.



Lightning attracted to turbines, but turbines not so fond of lightning ...

http://www.lightningsafety.com/nlsi_info/damage_photos.html



<http://yes2renewables.org/2012/03/23/wind-turbine-thunderstruck-at-wonthaggi/>

<http://www.windbyte.co.uk/safety.html>

NATIONAL SECURITY

- Rely on China for rare earth elements for turbines & batteries
- Rely on China for affordable panels as labor and regulations allow for cost effective production.
- Wind farms interrupt radar systems.
- Thermal solar impact on radar unknown
- Many of our national defense systems require REE's. Green demand straining supply

REPORT TO THE CONGRESSIONAL DEFENSE COMMITTEES

The Effect of Windmill Farms On Military Readiness 2006



Office of the Director of Defense Research and Engineering

<http://www.defense.gov/pubs/pdfs/windfarmreport.pdf>

- wind turbines located in radar line of sight of air defense radars can adversely impact the ability of those units to detect and track, by primary radar return, any aircraft or other aerial object, the magnitude of the impact will depend upon the number and locations of the wind turbines. Should the impact prove sufficient to degrade the ability of the radar to unambiguously detect and track objects of interest by primary radar alone this will negatively impact the readiness of U.S. forces to perform the air defense mission.
- A more comprehensive analysis followed by development of appropriate offset criteria for fixed-site missile early warning radars should be performed on an expedited basis.
- Wind turbines in close proximity to military training, testing, and development sites and ranges can adversely impact the “train and equip” mission of the Department.
- Wind turbines located in close proximity to Comprehensive Test Ban Treaty monitoring sites can adversely impact their ability to perform this mission by increasing ambient seismic noise levels. Appropriate offset distance criteria should be developed to mitigate such potential impacts.
- The Federal Aviation Administration (FAA) has the responsibility to promote and maintain the safe and efficient use of U.S. airspace for all users. The Department defers to the FAA regarding possible impacts wind farms may have on the Air Traffic Control (ATC) radars employed for management of the U.S. air traffic control system. The Department stands prepared to assist and support the FAA in any efforts the FAA may decide to undertake in that regard.
- The National Weather Service (NWS) has the primary responsibility to provide accurate weather forecasting services for the nation. The Department defers to the NWS regarding identification of impacts wind farms may have on weather radars and development of appropriate mitigation measures. The Department stands prepared to work with the NWS in this area on NWS identified mitigation measures that have the potential to benefit Department systems.

<http://www.defense.gov/pubs/pdfs/windfarmreport.pdf>

More CHEMICALS, heavy metals, etc.

There's not one step of the rare earth mining process that is not disastrous for the environment. Ores are being extracted by pumping acid into the ground, and then they are processed using more acid and chemicals.

Read more: <http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html#ixzz1tD1k2K7Q>

One estimate from China concluded that for each ton of rare earth brought to the surface, 200 square meters of vegetation and 300 square meters of soil were sterilized by acid treatment.

<http://www.groundtruthtrekking.org/Issues/MetalsMining/RareEarths.html>

No worries, its just solar panels.

Solyndra Not Dealing With Toxic Waste

- liquidation is under way. It involves getting rid of all the heavy metals left inside the building that were used to make the panels.
- Fremont Fire Department's Jay Swardenski oversees the cleanup. He said some materials, such as **cadmium**, are toxic, and hard to dispose of.
- tools will need to be decontaminated, cleaned up, handled correctly as they are taken apart
- discarded buckets half filled with liquids and barrels labeled "hazardous waste"
- "there may be serious environmental, health and safety issues" at the premises. According to the documents, they include, "numerous containers of solvents and chemicals...and processing equipment contaminated with lead."

<http://sanfrancisco.cbslocal.com/2012/04/28/solyndra-not-dealing-with-toxic-waste-at-milpitas-facility/>

What's the problem with a little Cadmium?

- Cadmium is an extremely toxic metal commonly found in industrial workplaces. Due to its low permissible exposure limit, overexposures may occur even in situations where trace quantities of cadmium are found.
- Cadmium used extensively in electroplating & batteries.
- Acute exposure to cadmium fumes may cause flu like symptoms including chills, fever, and muscle ache sometimes referred to as "the cadmium blues."
- Inhaling cadmium-laden dust quickly leads to respiratory tract and kidney problems which can be fatal
- The bones become soft (osteomalacia), lose bone mineral density (osteoporosis) and become weaker.
- The kidneys lose their function to remove acids from the blood in proximal renal tubular dysfunction.
- Other patients lose their sense of smell (anosmia).

http://en.wikipedia.org/wiki/Cadmium_poisoning

Should renewables be called GreenIUMS ?

- There just seems to be so many “iums” in free, green, safe, & renewable energy, I thought it might be nice to give them a bit of credit.
- Neodymium
- Lithium
- Cadmium
- Titanium
- Uranium, thorium, etc....

CLIMATE CHANGE?

- Residents of Lincoln Township, WI, near a wind installation noticed an increase in lightning strikes in their area after the turbines went on-line in June 1999. <http://www.aweo.org/windlincoln.html>
- Joseph Yunk, whose television set was also fried that same evening, reported seeing lightning move from one of the turbines along the power grid to the nearby homes, which is a common occurrence with wind factories since nearby strikes to either turbines, external power systems, or the ground can send several tens of kilovolts along telephone and power lines. <http://www.aweo.org/windlincoln.html>
- Rising thermal plumes near thermal solar towers. (FAA also concerned) <http://articles.latimes.com/2012/feb/05/local/la-me-solar-desert-20120205/3>
- Large wind farms might have a warming effect on the local climate,casting a shadow over the long-term sustainability of wind power. <http://www.reuters.com/article/2012/04/29/us-wind-farms-climate-idUSBRE83S0BG20120429>

CUMULATIVE IMPACT

- Wind energy = all dead birds + impacts of strip mining + turbine syndrome + seizure + same potential impacts as NG as NG powers manufacturing plants and strip mines for rare earth elements.
- Solar = all potential solar impacts + PLUS same potential impacts as NG as NG powers manufacturing plants and strip mines for rare earth elements.

TRUCK TRAFFIC

- Massive heavy truck traffic w/ install of turbines and solar farms



<http://www.portlaw.info/2011/01/072-wind-turbine-convoy-arrives.html>



<http://www.dailymail.co.uk/>



<http://www.kenworth.com/>

ROAD DAMAGE

“**Wind developers** will pay for the total cost to return the towns' roads to town standards, not just pay for damaged areas. Any road damage caused by the wind developers during the repair, replacement, or decommissioning of any wind turbines will be paid for by the wind developers. An independent third party will be paid by the wind developers to pre-inspect roadways prior to construction.

Township Chairperson Monfils said that it's not a matter of if there will be road damage. **There will be road damage.** The wind factory developers in Lincoln Township said originally that they would fix the roads if there were damage. But when it came time to fix the roads, the township had to scrap with them to get it done, according to Mr. Monfils. He said the **developers disputed the costs and he had to battle with them two or three times to get repairs paid.** “ <http://www.aweo.org/windlincoln.html>

LANDFILLS & WASTE

- Solar panels
- Mined waste products
- **Solar Panel Production Generates High Levels of Pollution**

<http://mailman.anu.edu.au/pipermail/enviro-vlc/2009-January/001286.html> Everybody loves solar, the shiny superstar of renewable energy. But scratch the surface of the manufacturing process and the green sheen disappears. Vast amounts of fossil fuels are used to produce and transport panels. Solar cells contain toxic materials. Some components can't be easily recycled.....That has some environmentalists worried about a new tidal wave of hazardous waste headed for the nation's landfills when panels eventually wear out. ... "You can't just call your product green and close your eyes to what's happening in the supply chain," said Sheila Davis, executive director of the San Jose nonprofit group that pushes for green practices ... "The solar energy industry is running into some of the same problems ... we've seen in the electronics industry," whose waste is polluting U.S. landfills and contaminating groundwater with harmful substances such as mercury and chromium, Davis said.

DEPENDABILITY

- Wind doesn't always blow
- Sun doesn't always shine
- High wind damage, hail damage, snow cover
- Dirty blades, mirrors, panels

ECONOMICS

- Must maintain coal fired or other fossil fuel powered plants at capacity due to unreliability of 'free' energy.
- NG is actually best current fuel to allow for any chance of efficient use of solar & wind energy due to ease of 'ramp-up'

Germany is cutting solar-power subsidies because they are expensive and inefficient.

By Bjorn Lomborg | Posted Saturday, Feb. 18, 2012, at 7:30 AM ET

Germany once prided itself on being the "photovoltaic world champion", doling out generous subsidies totaling more than \$130 billion, according to research from Germany's Ruhr University to citizens to invest in solar energy. But now the German government is vowing to cut the subsidies sooner than planned and to phase out support over the next five years..... Germans installed 7.5 gigawatts of photovoltaic capacity last year.... this increase alone will lead to a \$260 hike in the average consumer's annual power bill..... Chancellor Angela Merkel's staff are now describing the policy as a **massive money pit**..... spiraling solar subsidies a "threat to the economy." **while sunlight is free, panels and installation are not.** Solar power is at least four times more costly than energy produced by fossil fuels. It also has the distinct disadvantage of not working at night, when much electricity is consumed..... In the words of the German Association of Physicists, "solar energy cannot replace any additional power plants." On short, overcast winter days, Germany's 1.1 million solar-power systems can generate no electricity at all. The country is then forced to import considerable amounts of electricity from nuclear power plants in France and the Czech Republic.

http://www.slate.com/articles/news_and_politics/project_syndicate/2012/02/why_germany_is_phasing_out_its_solar_power_subsidies_.html?wpisrc=twitter_socialflow

Blowing our money on WIND

INTERESTING EMAIL I RECEIVED: Subject: Windpower problems in Sweden

Hi I found this on a site for political discussions, it is written by an anti wind power group but interesting as it shows what is happening, an ore as they talk about in the text is a Swedish currency unit that equals 0,0014 US cents. This is translated by google translate and then somewhat improved by me.

Wind power industry and LRF (national farmers organisation) do everything you can to with murderous advertising to sell shares or the entire wind turbine to municipalities, cooperatives, farmers and unsuspecting individuals. Lobby organization of Swedish Wind Energy supports to bribe politicians and the media while the LRF's consultants obediently repeats dogmas. Who takes responsibility for the advice they give?

Wind industry has in recent months in several media confirmed that wind energy is not profitable in spite of all subsidies. With today's electricity and certificate prices reimburses only 40-45 ore / kWh. It requires at least 60-65 ore in compensation per kWh to break even, ie a loss of 20-25 ore per kWh. A situation that has existed since early summer 2011. The market's future assessment provides the same projection in prices for the coming years. It is now a very difficult position for the wind mill operators who can not live on the old supply agreements with much higher prices.

When the wind mill owners are no longer able to pay their expenses, they are forced into bankruptcy. Then a new market to be opened which may lead to changing conditions throughout the industry. It will probably be a lot of dealing for the attorneys in bankruptcies in the future. Their job is to try to save as much as possible of the bankruptcy estate of any value to the creditors, mainly by trying to find new owners for the works.

There are certainly some major players that can make deals when "cash is king", but those who know the market can also evaluate the risks. They will therefore make sure that they have very wide margins of safety for their potential investment which heavily pushes the opportunity to get some more value out of the bankruptcy. Neither electricity prices in the market or wind power plant efficiency will be higher by the crisis but the "breakeven" get better for the new owners after a bankruptcy when the previous owners and the banks have been forced to take the big blows in bankruptcies.

A new price level for land leases will be established when the new owners of the mills restart. The old agreements terminated in the bankruptcy and competition on buildable land that had previously pushed leasing prices skywise will probably not continue. Lease compensation will probably be closer to the "normal" rate of return on land which should dampen interest in leasing land to wind power. Land owners will simultaneously achieve to greater understanding of their own exposure to financial risks. This will involve a larger and more realistic requirements for compensations for the joint liability for the very high decommissioning costs for wind turbines.

Wind turbines and approvals for wind mill constructions will decrease in value when the low electricity prices and more than halved the value of certificates (a certificate is a deal to sell electricity for a certain price) will forcing many to try to sell assets in order to show black numbers in the reports.

Local politicians favoring wind energy will no longer be able to justify their "green" investment to increasingly skeptical voters, when there are clear examples of that wind power is a real high-risk market

Sweden's electricity surplus is expected to increase to 25 TWh with no wind power, which will keep electricity prices low. New wind turbines will continue to be unprofitable and almost impossible to finance through the banking system. Probably will also power grid operators continue to further delay making the costly investments in local, regional and backbone networks such as those that the Wind Mill companies require but they can not or will not pay themselves. 2012 is likely to be a very traumatic year for many in the subsidy powered Swedish wind power industry.

ENVIRONOMICS

- My 'environomics' definition: when something does not make any economic sense and actually has a negative impact on something one hopes to have made a positive impact on yet gives one a sense of euphoria or life purpose, it is environomical.
- I thought I made this word up, but see there are a few google hits. Note: it is not yet a valid scrabble word.

WINDLAND

This kind of sounds like the mocked-up flaming faucets film we've all seen:

“Despite the ordinance prohibiting promotion of the wind turbine project, WPSC was caught red-handed by Township Supervisor Yunk last month in August filming a promotional video with **child actors riding bicycles in front of the turbines**. Mr. Yunk ordered the film crew to leave, but they refused and continued filming. The township has found that once the turbines were constructed, it has been practically impossible to enforce the ordinance or gain cooperation from WPSC or MG&E.”

<http://www.aweo.org/windlincoln.html>

Video Clips:

Theme song:

<http://www.youtube.com/watch?v=aU9MHNL9AQk&feature=related>

electrical pollution – people/livestock impact

http://www.youtube.com/watch?v=M4NE8sWBoaQ&feature=results_main&playnext=1&list=PLAA6C173FC09A8A1B

<http://www.youtube.com/watch?v=tLGAjHtHCKc&feature=related>

<http://www.youtube.com/watch?v=SqHn6flcTtQ&feature=relmfu>

wind turbine syndrome:

<http://www.youtube.com/watch?v=SRCekFYWsPo&feature=related>

<http://www.youtube.com/watch?v=lm0Oe8J6qT8&feature=related>

<http://www.youtube.com/watch?v=wYnNQoTcsHY&feature=related>

<http://www.youtube.com/watch?v=kyAsHFgPLVY&feature=related>

<http://www.youtube.com/watch?v=e71h0ptDBdI&feature=relmfu>

<http://www.youtube.com/watch?v=Y1xi5KuqtMQ&feature=related>

Birds:

Short version: <http://www.youtube.com/watch?v=jwVz5hdAMGU>

Long version: <http://www.youtube.com/watch?v=1RcTjdY1aN4&feature=fvsr>

Catastrophic failure:

<http://www.youtube.com/watch?v=gUghw-LQu-0>

<http://www.youtube.com/watch?v=-YJuFvjtM0s&feature=related>

fire

<http://www.youtube.com/watch?v=l2NscsOj2AY&feature=related>

<http://www.youtube.com/watch?v=p5KvJjI21i0>

<http://www.youtube.com/watch?v=5sNDjjsbtnM&feature=related>

Wind Turbine Shadow Flicker and Noise, Byron Wisconsin

<http://www.youtube.com/watch?v=iyOImGHytQ&feature=relmfu>

<http://www.youtube.com/watch?v=He41cWGAVr4&feature=related>

like an EARTHQUAKE?

<http://www.youtube.com/watch?v=ZbMO7ufATBc&feature=relmfu>

not enough concrete:

<http://www.youtube.com/watch?NR=1&v=q5PPBGsoQMM&feature=fvwp>

ice

<http://www.youtube.com/watch?NR=1&v=4EmYe2u6J6g&feature=endscreen>

rare earths crisis:

<http://www.youtube.com/watch?v=as7-8wLAtdA&feature=related>

http://www.youtube.com/watch?v=E_ch_Q6ZQvM

tug hill, NY windfarm. I'd swear you could replace the references in this video to wind with gas and it sounds like the speculation in the anti gas speeches.

Interesting no deer, no turkeys, & fish kill stories? Also silt runoff into ponds – sounds familiar.

<http://www.youtube.com/watch?v=ePZO76z2iBY&feature=relmfu>

<http://www.youtube.com/watch?v=ugmxuYQvjv4&feature=related>

<http://www.youtube.com/watch?v=ZgeQjtuwxuE&feature=relmfu>

mentions these mills were owned by ENRON. Is that EOG? Decline in real estate values, trespassing, jobs?,intimidation,

<http://www.youtube.com/watch?v=SNxvkrgoPLo&feature=related>

<http://www.youtube.com/watch?v=utFV2ukOtU&feature=relmfu>

<http://www.youtube.com/watch?v=A0d5tSZF3A4&feature=relmfu>

these turbines in Hawaii not looking too healthy:

<http://www.youtube.com/watch?v=rMH0F2D9SZE&feature=related>

<http://www.youtube.com/watch?v=xiX7Bn0IKRg>

<http://www.youtube.com/watch?v=QOzHbb9zzXs&feature=endscreen&NR=1>

a little landscaping

<http://www.youtube.com/watch?v=Yldo0dR8Fs8>

wow: <http://www.youtube.com/watch?v=CrxxB8amBMY&feature=related>

more doctor stuff:

<http://www.youtube.com/watch?v=0xNo7tOImKA&feature=related>

<http://www.youtube.com/watch?v=gb2ghWOpCLU&feature=related>

<http://www.youtube.com/watch?v=XSuikeCttlw&feature=related>

<http://www.youtube.com/watch?v=RpTefgJL-Sw&list=UULudFNLAw8HnD5b6mzb4ZEq&index=67&feature=plcp>

<http://www.youtube.com/watch?v=EkNrixag1A&feature=relmfu>

<http://www.youtube.com/watch?v=B0R9v4y0tRM&feature=relmfu>

<http://www.youtube.com/watch?v=PRukcLaZ3Ps&feature=relmfu>

<http://www.youtube.com/watch?v=XSuikeCttlw&feature=relmfu>

Interesting: Chevron converts refinery site to solar farm. They just want us to tell them which energy source they will get paid for. They are laughing all the way to the bank at our debate. It's a win-win

<http://www.youtube.com/watch?v=dAE8Q-nckzc>

I Still Like The Concepts....

I chose engineering because I like structures, machines, and gadgets. That includes wind turbines and solar power generation concepts among others. However, I like them from the standpoint that they are neat ideas, not that they perform as desired or efficiently with current technology.

I actually purchased several properties with wind leasing in mind. I spend a good deal of time hunting, so I would be a bit wary of leasing my good hunting areas in light of residents' claims at the tug hill, NY wind farm complaining about decline in deer & turkey populations since the turbines were installed.

I do not want to pay an electric bill for solar or wind energy that's 3x what it should be. After going through this research, I certainly don't want a wind turbine near my house.

Everyone must recognize that there is a benefit & a cost in every option and you must look at everything in a relative fashion. Otherwise, each option by itself looks the best and the worst at the same time.

Why Aren't The Gas Co's Complaining?

- Because they are probably laughing.
- Chevron owned the Mountain Pass rare earth mine until 2005.
- New NG pipelines are heading for the strip mines.
- New NG pipelines are heading to the thermal solar plants
- Who leases/owns the mineral (including rare earth metals) rights?
- BP owns gas, oil, & wind farms. Wind provides them with tax subsidized revenue while they bank their gas/oil reserves until we smarten up. Its a WIN-WIND situation!

So now I've heard all the pros & cons of NG, I've heard the wondrous claims of the green movement, and now I've done my research to see if there was anything under the rug. My conclusion, we need to pull the rugs out & expose the toxic dirt. I had a pre-conceived notion that the economics behind the green movement were the primary problem. I didn't realize they were literally killing the planet and everything on it.

Natural Gas is the natural answer for now! However, I do hope someone will develop a free source of energy for me someday. As I said, I like free.

NOTE: I've heard some recent developments in thorium based nuclear energy without the problems with current safety controls, but I don't know both sides of the story yet to draw a conclusion. Maybe NG is a bridge to safe nuclear?? Of course it involves some digging, but what doesn't?