

CLIMATE CHANGE and WIND ENERGY

Both Sheets in the Wind

In 1835 the story "The Emperor's New Clothes" was published in Copenhagen. In December 2009 the same Copenhagen welcomes the Climate-Emperor Obama dressed up in wind woven clothes, swearing to choke with them the Global Warming.

Is there still a child left who'll dare to say that the Emperor is naked?

INTRODUCTION

President Obama got the Nobel Prize *inter alia* because "the USA is now playing a more constructive role in meeting the great climatic challenges the world is confronting."

Brushing aside the smoke-screen of this highbrow verbiage we find that the "constructive role" boils down to President Obama's vow to limit the Global Warming to 2 degrees against \$150 billion of taxpayers' money.

Now, that's the utmost absurdity ever pledged by a chief of state, just as silly as would be the pledge to decrease gravity. We shall justify this assertion in the body of the present essay, which may be read as recommendation of President Obama for Guinness Absurdity Record, which would compensate his Nobel Prize.

The vow is just a bad joke, but the fraudulent extortion of taxpayers' \$150 billion is no joke at all.

We shall discuss the absurd vow and the deceptive techniques supposed to materialize it, respectively in the chapters "Global Warming" and "Wind Energy".

GLOBAL WARMING

Global Warming (GW) is doubtless one of the most important, critical problems the mankind is facing. It concerns science, sociology, economy and politics. Unfortunately, it became entirely embroiled in politics which discovered its panic generating quality. Now, panic is the strongest leverage in political campaigns, driving bandwagon sheep to jump like one yahoo into such precipices as may please the driver.

The discovery of GW as a form of panic generating political leverage has to be ascribed to Margaret Thatcher who did not care a button about climate, but searched a ruse to suppress the revolt of callously exploited coal miners. She suppressed it together with the miners and the mines, to the advantage of the nuclear industry which was her political pick.

Using GW leverage slickly and astutely in her wake, some Gore may get Noble Price, some politician may be elected as President.

With what impact on the GW and its sequels?
Rigorously, NONE.

They don't care a damn about it, else than as the political leverage and even if they cared, there is nothing, they could possibly do.

Let's try to examine the problem coolly and logically.

GW has two kinds of causes: human and natural, the latter earth bound and cosmic. Starting with natural, we observe that GW happened several times in history as one of two phases of a more general cyclic structure GW/GF (Global Freezing).

Historic cycles had clearly natural causes, most of which are as yet unknown. One, however, is rigorously, albeit only qualitatively known: melting and re-freezing of glaciers and other ice caps. We shall use it as a typical example of natural causes at work, sufficient by itself to account for the GW/GF cyclic structure.

Earth surface encompasses white ice areas reflecting heat radiated by the sun and other dark ones absorbing it. In the steady state of ice/not-ice distribution and a constant amount of radiated heat, the absorption to reflection ratio stays constant and the climate does not change. Yet, the smallest distortion may change this equilibrium.

Let's suppose that one year the sun emits more heat and then returns to the constant yearly rate. The triggering change warms up the earth more than usually, so that more ice melts. Then, next year less heat is reflected and more absorbed, so that still more ice melts and we enter the recursive chain of the GW phase. Nothing seems to stay in the way of earth losing all its ice caps and becoming a Sahara interspaced with hot seas. Yet, each GW was followed by a GF, in turn by a GW, etc.

Which natural mechanism may reverse GW into GF and vice versa?

There must be several, both earth bound and cosmic and mostly unknown, but for our ice driven cycle the answer is clear: the salt.

Oceans are salted and salt waters freeze at lower temperature than the fresh. Snows and ice melting copiously during the GW, flood oceans with fresh water decreasing their salinity and increasing their freezing temperature, so that over a threshold they start to freeze again over larger surfaces and the phase moves to GF and towards a new glacial period.

Pseudo-scientific committees commanded by politicians, proclaimed that GW is caused with 80% certainty by human actions, and reversible by their reversal.

Double lie:

1. "Caused" should be replaced with "triggered". It's possible that greenhouse triggered GW, as any tiny distortion could disarrange the fragile unstable equilibrium. However, once triggered and entered in the ice melting phase, GW is CAUSED by ice melting. Similarly, the power of pedals may push a bike over the summit and TRIGGER its descent whose CAUSE, however, is gravity, a natural agent.

2. Supposing that Greenhouse indeed triggered the GW, its triggering effect loses all avail upon entering the ice melting phase, which thrives by its own recursion and certainly cannot be "un-triggered" by reducing emissions nor even by eliminating them entirely. The pedals might have triggered the descent. Still, you may backpedal till you are blue in the face, but gravity will not notice it and the descent will continue undisturbed.

Just like the GW, unaffected by Kyoto Protocols, by green presidential campaigns and by the anti-American propaganda.

Until the bike has passed the valley and starts climbing the opposite slope, or the GW phase switches - always by natural causes - to the GF phase.

You may trigger an avalanche by pulling the trigger of your gun, but you won't stop it by pushing back the trigger.

Which actions seem advisable in this light?

1. Dissociate GW from Pollution, a distinct, equally critical problem, which should be investigated in its own context, unaffected by the political GW drive.

2. Consider GW as possibly inevitable and start to plan worst case actions to save millions endangered by famine, inundations, and other GW sequels.

3. In order to concretize and to finance these actions, stop subsidizing fraudulent and useless phantasms such as intermittent energy sources (photo-voltaic and mainly the wind mafia stealing heavy billions from the tax payers and sharing them with corrupted politicians.)

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Allegorically speaking, stop flagellating the sea with chains, in the wake of Xerxes, while fattening chain manufacturers.

WIND ENERGY

We restrict the discussion of the deceptive «green energy» plants to Wind Energy, as it is on the one hand typical of all intermittent sources and, on the other hand its volume exceeds by far all other «green energies».

Intermittency and Productivity

Intermittent energy requires reserves for inactive periods. One cannot expect households to stop their heating or refrigerators, nor industry to stop its operations, just because the wind stopped blowing.

Now, reserves must come from plants capable to start, stop, change the rate in matter of minutes, which practically restricts them to fossil plants (oil, gas, coal). Fossil plants are the most polluting even in permanent regime. In the irregular regime of reserves their pollution ratio is still increased by a large factor.

An intermittent source provides only that part of its installed capacity, which corresponds to the periods of activity.

Now, wind turbines shut down for:

- wind too weak,
- wind too strong (for security reasons),
- wind-blasts (for security reasons),
- ideal conditions, when all wind turbines work at full capacity, because it would heat white the high tension lines, which were not build to accommodate wind energy picks.

Their productive capacity, corresponding to the periods of activity has been evaluated in the 2005 report of E.On, the leading German electricity provider controlling about 15 000 wind turbines.

A quote from E.On report_2005

"In 2004 two major German studies investigated the size of contribution that wind farms make towards guaranteed capacity.

Both studies separately came to virtually identical conclusions, that wind energy currently contributes to the secure production capacity of the system, by providing 8% of its installed capacity.

That is, wind power construction must be accompanied by almost equal construction of new conventional power plants, which will be used very nearly as much as if the wind turbines were not there."

Translated to ordinary language, E.On considers wind power as mere window dressing behind which the real work is done by fossil reserves.

Internal energy consumption

Large wind turbines require a large amount of energy to operate. Other electricity plants generally use their own electricity, and the difference between the amount they generate and the amount delivered to the grid is readily determined. Wind plants, however, use electricity from the grid, which does not appear to be accounted for in their output figures.

The manufacturers of large turbines do not include electricity consumption in the specifications they provide.

In order not to overcharge the body of the essay, the details of the internal energy consumption are presented in Appendix. In their light it seems reasonable to assume that wind turbines consume more than 50% of energy they produce in their own operation.

With the internal consumption added to intermittency reducing the productive capacity to 8% of the installed, wind turbines may produce less energy than they draw - perhaps unpaid for - from the grid.

Adjusted PIR

E.On's PIR (Productive/Installed Ratio) of 8% does not account for the internal energy consumption (about 50% of produced energy). Accordingly adjusted PIR of 4% tallies with the study of the Deutsche-Energie Agentur, which concludes:

"while wind power capacity will reach 48 GW by 2020 in Germany, the source is so intermittent and unreliable that it is equivalent to only 2 GW of stable fossil fuel capacity."

Now, $2/48$ is indeed equal to 4%.

Wind share of electricity production

Media give the wind share of electricity production arbitrarily, without any justification, as 19% for Denmark, 11% for Spain and Portugal, and 7% for Germany and Ireland.

The German Wind Energy Association (BWE), which cannot be suspected of anti-wind bias claims only 5% for Germany. This claim is based upon an estimated PIR of 16%.

Corrected for the adjusted E.On's PIR of 4%, the wind share in German electricity production may be reasonably evaluated at 1.25% ($0.5\% * 4/16$).

Media overestimate the wind share of German production by the factor of 5.6 ($7 / 1.25$).

Applying this factor to media estimates quoted above, we get corrected estimations for:

Germany - 1.25% instead of 7%

Spain and Portugal - 2% instead of 11%

Denmark - 3.4% instead of the famous 19%.

Some usual cliches advertising wind power

CLICHE: Wind energy is a practical, efficient alternative.

COMMENT: 18 000 German wind turbines produce 1.25% of German electric energy. To have an idea of wind efficiency, imagine a train replacing electric or diesel engines with sails.

Wind energy is a NON-ALTERNATIVE.

CLICHE: Wind energy is clean.

COMMENT: True for 8% of time. For the rest, taken integrally with reserves it is the most polluting form of energy.

CLICHE: Wind energy is an alternative to Nuclear.

COMMENT: False. Shelving for the moment that Wind is a NON-ALTERNATIVE to anything: In order to replace French Nuclear one would have to cover all available places in France THREE TIMES with turbines, change France to 3 layers of turbines standing on top of one another. With fossil plants on top of them for 92% of the installed wind power.

Some additional characteristics

One does not get a full picture just by negating false cliches. Let's recall some characteristics of wind power less known to the public.

COST.

A wind KWH is 9 times more expensive (in France and Germany) than the traditional. That, for the operative 8%. For 92% of reserve use the ratio varies from 14 to 40 under normal reserves availability (see next paragraph). The extra cost is carried by the citizen in form of tax increase (state subventions of wind power), or electricity bills.

IMPACT ON RESERVES AND ON GRID.

Reserves control is one of most complex issues of electric grid management. Reserves are used, of course, not only to support wind power, but to compensate any unforeseen drop in supply, like failure of a transformer, etc. Reserves management is in hands of a central command unit of a provider. Once facing emergency (e.g. a meteo message warning of closing the turbines), the manager considers an internet site offering reserves by international auction. Offer and demand determine the price, which usually fluctuates between 14 and 40 times that of traditional supply. Occasionally it reached 500 and more.

But what if there are no available reserves?
Simply a black-out like that in the US, in Greece and in Italy. One or two wind turbines of course don't count. But thousands contribute seriously to disequilibrate the grids. A study concludes that if the increase trend continues, the wind power may cause a several months black-out for whole Europe, with devastation comparable to that of the WWII.

The only way to avoid it is to follow E.On's example and to build dedicated fossil reserve plants with capacity nearly equal to that of the new wind plants.

SUBSOIL.

Pictures from the energy companies show slim towers rising cleanly from the landscape or hovering faintly in the distant haze, their presence modulated by soft clouds behind them.

But a 200- to 300-foot tower supporting a turbine housing the size of a bus and three 100- to 150-foot rotor blades sweeping over an acre of air at more than 100 mph requires, for a start, a large and solid foundation. On a GE 1.5-MW tower, the turbine housing, or nacelle, weighs over 56 tons, the blade assembly weighs over 36 tons, and the whole tower assembly totals over 163 tons.

As FPL (Florida Power & Light) Energy says, "a typical turbine site takes about a 42×42-foot-square graveled area." Each tower (and a site needs at least 15-20 towers to make investment worthwhile) requires a huge hole filled with steel rebar–reinforced concrete (e.g., 1,250 tons in each foundation at the facility in Lamar, Colo.). According to Country Guardian, the hole is large enough to fit three double-decker buses.

At the 89-turbine Top of Iowa facility, the foundation of each 323-foot assembly is a 7-foot-deep 42-foot-diameter octagon filled with 25,713 pounds of reinforced steel and 181 cubic yards of concrete.

The foundations at the Wild Horse project in Washington are 30 feet deep. At Buffalo Mountain in Tennessee, too, each foundation is at least 30 feet deep and may contain more than 3,500 cubic yards of concrete (production of which is a major source of CO₂).

On Cefn Croes in Wales the developer built a complete concrete factory on the site, which is not unusual, as well as opened quarries to provide rock for new roads -- neither of which activities were part of the original planning application.

On many such mountain ridges as well as other locations, it would be necessary to blast into the bedrock, as Enxco's New England representative, John Zimmerman, has confirmed, possibly disrupting the water sources for wells downhill.

At the Waymart plant in Pennsylvania, the foundations extend 30-40 feet into the bedrock. At Romney Marsh in southern England, foundation pillars will be sunk 110 feet. For each 6-foot-deep foundation at the Crescent Ridge facility in Illinois, another 24 feet was dug out and filled with sand. Construction at a site on the Slieve Aughty range in Ireland in October 2003 caused a 2.5-mile-long bog slide.

ENVIRONMENT.

German League of Landscape Protection compares wind turbines devastation of environment with that of the 30 years war.

BIRDS.

The "Bird Grinders" kill millions of birds a year in Germany.

NUISANCES.

Noise, stroboscopic effects, disco effects, and infrasounds impact the health and the quality of life of close residents. These effects were used as tortures by Nazis and/or Gulag, more acutely of course, but qualitatively alike.

PROJECTIONS.

50 kg blocks of ice projected at 1 km. In several cases of brakes failure 30m long and 3 tons heavy blades were projected at 500m.

CHOKING REAL ALTERNATIVES

But we did not yet tell the worst: draining all money and resources, the Wind Monster chokes other really clean and sustainable alternatives.

In Brittany, traditionally competent in things of the sea, a company produced an efficient prototype of "hydrolienne", a sea current turbine. Now, that is clean, permanent (no reserves) and environment friendly.

The company is going broke for want of 500 thousand Euro. A small fraction of gifted billions could save it and its product.

ABS REPORT

Some of crucial assertions of the present essay are supported by the ABS report, as can be seen in the following excerpts:

****The most important findings of this report highlight studies that raise critical concerns challenging some of the claims made for wind power.**

These studies are the first real evidence showing how wind actually works, as opposed to what has been claimed, and come from some of the most authoritative voices on energy in the world. Reports from E.On Netz, the system operator with the largest wind power feed-in in the world, and Eltra of Denmark, which had the largest percentage wind power contribution, show disturbing results.

E.On cites a study from the Deutsche-Energie Agentur. The report was sponsored by the German government and all sides of the industry. Among bombshells contained inside, the study suggests that while wind power capacity will reach 48 GW by 2020 in Germany, the source is so intermittent and unreliable that it is equivalent to only 2 GW of stable fossil fuel capacity.

... because of this variability in wind, back-up fossil fuel plants must be operated at low load to maintain system reliability.

There is new evidence that shows that switching base load fossil fuel plants on and off to balance a system produces higher carbon emissions than continuous operation, certainly not a supposed benefit from switching to renewable energy sources.

Because wind installations tend to be concentrated in areas with high wind speeds, regional grids are heavily overloaded at times of maximum feed-in. Each country studied reported extreme difficulties in balancing the grid. A further 2,700 km of costly high voltage transmission lines will be required in Germany to accommodate new wind capacity.**

Real motivation

One may ask, why wind turbines are so progressing, if they are inefficient, polluting, depletable, costly, devastating environment, harmful to neighbors' health, life quality and life itself?

Money is the answer. Wind power is probably the biggest fraud of the century. The German wind lobby gifted in the present decade 50 billion Euros from the taxpayers in form of subventions, tax reductions, interest free credits and law obliging providers to buy Wind Energy at 9 times the current cost.

One estimates that 30% of this money goes to bribe involved politicians from ministers and lawmakers to village mayors.

Postface

Setting benefits of wind power against its drawbacks we find on the one hand nothing - wind power boils down to a political window dressing, concealing the fossil reserves doing practically all the work in the background;

and, on the other hand:

- highest pollution rate of the irregularly operating background reserves,
- economic disaster,
- environment devastation comparable with that of the 30 years war,
- choking of all pertinent renewable energy options,
- and last, but not least, effects used by the Nazis as tortures inflicted on neighboring populations.

We read in the ABS report: "ABS Energy Research's report does not relegate wind power to the dustbin... objective analysis is essential."

They had to cream their report with a bit of political cosmetics, but "objective analysis" seems, indeed, essential and clearly indicates that dustbin is the only suitable place for wind power and that the citizens are taken for ride by the fraudulent mafia and corrupted governance.

APPENDIX

Internal energy consumption

NOTE: The appendix is highly technical and may contain terms discordant with those used in the body of the essay. The complex technical details are kept undisclosed by wind turbine manufacturers and still request a lot of investigation.

The possibility of drawing from the grid unpaid for millions worth of electricity, if proved, would come in the province of public prosecutors.

Among the functions of wind turbines using electricity are the following:

- Yaw mechanism keeping the rotor perpendicular to the wind. (the nacelle (turbine housing) and blades together weigh 92 tons on a GE 1.5-MW turbine).

- Blade-pitch control keeping the rotors spinning regularly.

- Lights, controllers, communication, sensors, metering, data collection, etc.

-Heating the blades which may require 10%-20% of the nominal (rated) power

-Heating and dehumidifying the nacelle.

-Oil heater, pump, cooler, and filtering system in gearbox.

-Hydraulic brake locking the blades in very high wind.

-Thyristors graduating the connection and disconnection between generator and grid.

-Magnetizing the stator. The induction generators used in most large grid-connected turbines require a large amount of continuous electricity from the grid to actively power the magnetic coils around the asynchronous "cage rotor" that encloses the generator shaft; at the rated wind speeds, it helps keep the rotor speed constant, and as the wind starts blowing it helps start the rotor turning (see next item); in the rated wind speeds, the stator may use power equal to 10% of the turbine's rated capacity, in slower winds possibly much more.

-Using the generator as a motor (to help the blades start to turn when the wind speed is low or, as many suspect, to maintain the illusion that the facility is producing electricity when it is not, particularly during important site tours) it seems possible that the grid-magnetized stator must work to help keep the 40-ton blade assembly spinning, along with the gears that increase the blade rpm some 50 times for the generator, not just at cut-in (or for show in even less wind) but at least some of the way up towards the full rated wind speed; it may also be spinning the blades and rotor shaft to prevent warping when there is no wind, or - some cases have been reported - just to show that turbines are not idling.

-It may be that each turbine consumes more than 50% of its rated capacity in its own operation. If so, the plant as a whole, which may produce only a part of its rated capacity would be using (for free!) twice as much electricity as it produces and sells.

-Whatever the actual amount of consumption, it could seriously diminish any claim of providing a significant amount of energy. Instead, it looks like industrial wind power could turn out to be a laundering scheme: "Dirty" energy goes in, "clean" energy comes out.

That would explain why developers demand legislation to create a market for "green credits" -- tokens of "clean" energy like the indulgences sold by the medieval church. Ego te absolvo.

-In large rotating power trains such as this, if allowed to stand motionless for any period of time, the unit will experience "bowing" of shafts and rotors under the tremendous weight. Therefore, frequent rotating of the unit is necessary to prevent this. As an example, even in port Navy ships keep their propeller shafts and turbine power trains slowly rotating. It is referred to as "jacking the shaft" to prevent any tendency to bow. Any bowing would throw the whole train out of balance with potentially very serious damage when bringing the power train back on line.

-In addition to just protecting the gear box and generator shafts and bearings, the blades on a large wind turbine would offer a special challenge with respect to preventing warping and bowing when not in use. For example, on a sunny, windless day, idle wind turbine blades would experience uneven heating from the sun, something that would certainly cause bowing and warping. The only way to prevent this would be to keep the blades moving to even out the sun exposure to all parts of the blade.

-So, the point that major amounts of incoming electrical power is used to turn the power train and blades when the wind is not blowing is very accurate, and it is not something the operators of large wind turbines can avoid.

-In addition, there is the likely need for a hefty, forced-feed lubricating system for the shaft and turbine blade assembly bearings. This would be a major hotel load. One can't imagine passive lubrication (as for the wheel bearings on your car) for an application like this. Maybe so, but it would be very surprising.

Assuming they have to have a forced-feed lubrication system, given the weight on those bearings (40 tons on the bearing for the rotor and blades alone) a very robust (energy sucking) lubricating oil system would be required. It would also have to include cooling for the oil and an energy-sucking lube oil purification system too."

One need only ask utilities to show how much "dirty" electricity they purchase because of wind-generated power to see that something is amiss in the wind industry's claims. If wind worked and were not mere window dressing, the industry would trot out some real numbers. But they don't. One begins to suspect that they can't.

