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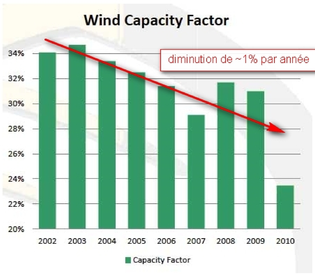
Wind Power

As about everywhere else, there is also a strong pro and contra debate going on in Luxembourg concerning wind turbines. The Greens put all their energy eggs into the wind and solar basket, so they can't readily accept any criticism. My personal opinion is that a reasonable and intelligent use of wind power should be a welcome contribution to the energy mix. But one should never forget the real production data, which are now available for many wind parks. These tell quite a different story than the usual green hype. I think that the visual aspect on the landscape never has been incorporated as a cost; depending on your sensibility and love of pristine nature, these costs could be extremely high.

I wrote a short paper with real numbers (in French: **Réflexions sur les éoliennes**, pdf). I heavily used Eirgrid's excellent website which holds a treasure of production and ancillary data. Ireland makes a good object for research into real wind power. The country has about 1425 MW wind power installed, and is geographically well delimited and wind friendly.

The most important factor in wind energy generation is the capacity factor, i.e. the percentage of the yearly power produced in respect to the installed power. For Ireland this is about 23% in 2010, a shocking low number for a country with such good wind conditions. More disturbing is the negative trend in this country wide capacity factor: (picture from Eirgrid, red arrow added)



I have calculated the linear trend since 2002: every year this factor falls by about 0.93 (slope of the regression line). Most certainly this negative trend is caused by lower wind velocities (in the adequate range for wind turbines). These numbers are not good news for the wind energy industry. Now 9 years do not yet define a climate change, and one really has to wait if this trend continues, reverses or shows up as part of a cycle. It will be interesting to look up other wind producing nations for a similar trend.

Update 01-Nov-2011:

There is a growing opposition to plans to install a great number of wind-turbines in the french speaking part of Belgium (Wallonny). Read here the open letter of Dr. Alain Marchandise. The home page of the organization "Vent de Raison" is here.

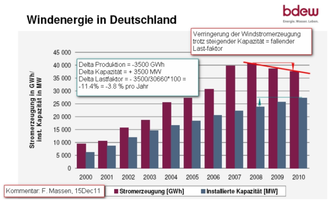
Update 07-Nov-2011:

There is a discussion in NatureNews on the diminishing wind velocities over much parts of the globe: Why winds are slowing and also an article from AWS True Power questioning the results of the Nature paper by Vautard et al.

The report for the second quarter Q2 of 2011 documents below normal wind velocities in many parts of Europe.

Update 15-Dec-2011:

Here a graph from the BDEW with my comments, showing yet another example of diminishing capacity factors during the last years. For Germany this would by a hefty -3.8% per year.



A similar negative trend can be found for 4 Luxembourg wind parks; these are unofficial approximate numbers, taken from graphs, so I will keep the sites anonymous (numbers are percent)

Site	2009	2010	2011 (up to Nov.)
site1	18	16	16
site2	19	17	17
site3	12	10	11 (outch!!!)
site4	14	13	12

These numbers show a grim picture of the efficiency of that green energy which should save the world!

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added 29 Mar 2012:

see some burning wind turbines **here**!

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3 Responses to "Wind Power"

Claide Lanners Says:
June 30, 2011 at 21:07 | Reply

Shocking no, as it is well known that the wind doesn't always blow, not even in Ireland. Are figures available on wind intensity during the examined period which should correlate with the output? Unless the decreasing capacity factor hides technical problems.I suspect strongly this being the case for 2010.
By the way, no power plant has a 100% capacity factor, but nukes and coal or gas plants should be rather in the 90s.
Should, but have a look at the, yes, shocking 70% 1971-2009 for US nuclear plants. http://en.wikipedia.org/wiki/Capacity_factor

Bad wind, lower wind power, exploding costs! « meteoLCD Weblog Says:
February 17, 2013 at 13:08 | Reply

[…] a previous blog I commented on the declining capacity factor of the Irish Eirgrid's wind turbines, taken as a […]

The dramatic decline in available wind power | meteoLCD Weblog Says:
September 19, 2013 at 09:06 | Reply

[…] two previous comments (here and here) I wrote about declining wind power and declining capacity factors of installed wind […]

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