

Re: Research: Wind power pricier, emits more CO2 than thought

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- *From:* disgoftunwells <[disgoftunwells@xxxxxxxxxxx](mailto:disgoftunwells@xxxxxxxxxxx)>
  - *Date:* Thu, 10 Jul 2008 15:14:43 -0700 (PDT)
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On 8 Jul, 08:06, "rlbell.ns...@xxxxxxxxxx" <[rlbell.ns...@xxxxxxxxxx](mailto:rlbell.ns...@xxxxxxxxxx)> wrote:

On Jul 7, 2:44 am, disgoftunwells <[disgoftunwe...@xxxxxxxxxxx](mailto:disgoftunwe...@xxxxxxxxxxx)> wrote:

Wind Power is still not a mature technology – the largest wind farms in operation are only several hundred MW of capacity. That puts them with early PWR designs in terms of maturity.

How do you define mature?

It is not merely a matter of size. A mature technology is where all of the black art has been codified to the point that you can stick performance numbers and constraints into a formula and crank out a design. Wind power has more constraints, so the result is not particularly desirable, but that does not make it less mature.

More relevant is the production technology. I presume you can model a wind turbine in a CAD package, but what's equally important is how cheaply you can build it, erect it and maintain it. That's partly a matter of numbers – we won't see benefits till wind farms are 200 x 5MW.

Every component of wind power, taken in isolation, is mature. Towers are mature. Airfoils are mature. Generators are mature. Even power electronics are mature. I fail to see how you can consider wind power to be less than a mature technology. They have been building wind turbines for power production for seventy years, and then some. How can it not be mature?

Good question. Significant research has been going into wind turbines

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since about 1990 – less than 2 decades compared with six decades for nuclear power.

More importantly, when a set of technologies becomes mature, the performance gains tend to level off. Petrol engined cars haven't improved that much in the last five years, but watch what happens to electric cars in the next five years.

Wind energy is in the early stages of development so the economies of scale haven't yet been exploited and the learning curve is still steep.

And not all the technologies are mature. The aerofoils are pretty new stuff. Carbon fibre is being used extensively in airframes for the first time and turbine blades are longer, and more stressed, than aircraft wings.

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