

**PRESS RELEASE**

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**Wind Power Study Reveals Hidden Cost and Reliability Issues**

The publication of a major independent study by James Oswald, Mike Raine and Hezlin Ashraf-Ball in *Energy Policy* and funded by the Renewable Energy Foundation (REF) has confirmed fears that there are hidden costs and reliability issues from wind power.

In the wake of the Government's issue of the Renewable Energy Strategy last week this study could not be more timely.

Because the UK is a large economy in a small land area it has limited access to cheap biomass for heat, and in order to meet the EU assigned target of 15% of Final Energy Consumption the UK would have to rely very heavily on electricity. Government estimates that some 30% of UK electricity would have to be renewable by 2020, but it also assumes very dramatic energy conservation which seems improbable given our rising population. On more realistic assumptions the level could be as high as 45 to 50%.

On the basis of its optimistic view Government estimates that some 28 GW of wind would be necessary, a quantity greater than that modelled in the new study (25 GW).

The study casts doubt on the feasibility of such large wind fleets. Using wind data supplied by the Met Office, and corroborated with empirical data from the wind fleets of Ireland and Germany, together with information about times of peak electricity demand for the past six years, the researchers calculated that in January, the coldest month of the year when energy demand is highest, the wind farms can produce very little energy, frequently as little as 4% of their rated output.

Additionally, the authors argue that conventional fossil fuel plants would need to be switched on and off as many as 23 times a month to make up the shortfall in supplies. They conclude that this would impair efficiency, and reduce emissions savings.

The new study therefore confirms doubts as to the wisdom of a large wind fleet, and supports REF's long-standing recommendation that the contribution of wind should be limited for technical and economic reasons, to about 10 GW, mostly offshore where winds are stronger and more reliable.

“Wind energy is fine on a small scale, but it works less well on a large scale because British weather and wind is too variable”, says James Oswald, an engineering consultant and former head of research and development at Rolls Royce Turbines who led the research.

“Wind power does not obviate the need for fossil fuel plants, which will continue to be indispensable. The problem is that wind power volatility requires fossil fuel plant to be switched on and off, which damages them and means that even more plants will have to be built. Carbon savings will be less than expected, because cheaper, less efficient plant will be used to support these wind power fluctuations. Neither these extra costs nor the increased carbon production are being taken into account in the government figures for windpower.”

**“The British Wind Energy Association sometimes claims that wind produces power for 80 to 95% of the time, but the number of hours wind produces some power is irrelevant, what matters is how much power for these hours and how much it fluctuates hour to hour.”**

“Times of zero wind output are rare, but can be significant. In fact new data shows that wind output was zero at the moment of peak demand in 2006. This was when a high pressure system sat squarely over Britain for ten consecutive days which lead to high demand and very little wind.”

John Constable, Director of Policy and Research for REF, said: “Poorly thought-out political enthusiasm for windpower has propelled us towards levels of deployment which are irrational and very expensive; this study is a helpful corrective, and will enable us to plan how to get the best from wind technology at reasonable cost.”

**END**

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Notes for Editors

1. Renewable Energy Foundation is a UK registered charity supporting research into renewable and alternative energy. The Foundation is supported by private donation, and has no corporate membership or political affiliation. It publishes monthly performance data for all 900 renewable generators under the RO subsidy system.

2. Pdfs of the study are now available for online purchase; paper publication will follow shortly.

[http://www.sciencedirect.com/science?\\_ob=PublicationURL&\\_tockey=%23TOC%235713%239999%23999999999%2399999%23FLA%23&\\_cdi=5713&\\_pubType=J&\\_auth=y&\\_acct=C000050221&\\_version=1&\\_urlVersion=0&\\_userid=7096700&md5=bdceaafd035c6e31b162b4be3e75120a](http://www.sciencedirect.com/science?_ob=PublicationURL&_tockey=%23TOC%235713%239999%23999999999%2399999%23FLA%23&_cdi=5713&_pubType=J&_auth=y&_acct=C000050221&_version=1&_urlVersion=0&_userid=7096700&md5=bdceaafd035c6e31b162b4be3e75120a)

2. The author's abstract reads: "There has been much academic debate on the ability of wind to provide a reliable electricity supply. The model presented here calculates the hourly power delivery of 25 GW of wind turbines distributed across Britain's grid, and assesses power delivery volatility and the implications for individual generators on the system."

"Met Office hourly wind speed data are used to determine power output and are calibrated using Ofgem's published wind output records. There are two main results. First, the model suggests that power swings of 70% within 12 hours are to be expected in winter, and will require individual generators to go on or off line frequently, thereby reducing the utilisation and reliability of large centralised plants. These reductions will lead to increases in the cost of electricity and reductions in potential carbon savings."

"Secondly, it is shown that electricity demand in Britain can reach its annual peak with a simultaneous demise of wind power in Britain and neighbouring countries to very low levels. This significantly undermines the case for connecting the UK transmission grid to neighbouring grids. Recommendations are made for improving 'cost of wind' calculations."