"Wind Power and Renewable Energy"
Discussion in Edinburgh, 23rd July '04, a contribution by
Professor Ian Fells, Chairman New and Renewable Energy Centre (NaREC), Blyth, Northumberland.

Global Warming is a serious threat and is already destabilising the weather machine. The UK government has said that it will put measures in place to reduce carbon dioxide (a potent greenhouse gas) emissions by 20% over 1990 figures, by 2010. One of these measures is to generate increasing amounts of electricity from renewable sources rather than fossil fuels and the government is pinning its hopes on wind power as the most developed technology.

Wind Power currently provides 0.4% of UK electricity, hydro provides around 2% but there is little scope for increasing the hydro component. For wind, both on and offshore, to move up to 5 or 6% of electricity to meet the 10% renewable target, will take a Herculean effort and a lot of subsidy. The subsidy will amount to between £6 and £8 billion by 2010. There are additional costs, which have yet to be resolved. Who will pay to connect wind farms in remote places like Lewis or 40kms out to sea off the Wash, to the national grid? Also the load factor for wind is only 25% over the UK, that is a 4MW wind generator only produces, on average, 1MW over a year. This means that "back up" from some other reliable source must be provided for those days when the wind does not blow. These problems conspire to make wind generation expensive compared with other generation methods.

The Royal Academy of Engineering has recently (10th March) produced a study "The Cost of Generating Electricity". The results are:
Gas Fired plant CCGT 2.2p/unit
New build nuclear 2.3p
Coal fired PF plant 2.5p
On shore wind 3.7p (5.4 with back up)
Off shore wind 5.5p (7.2 with back up)
These figures do not include grid connections

Wind is expensive, intermittent, too much on the grid causes instability, Denmark and Ireland are restricting wind energy growth once it gets above 20% of total generation and it is seen as environmentally obtrusive in places like Ardnamurchan in Scotland and the Lake District.

It follows that wind can be effective in some places like islands not connected to the grid and on "brownfield" sites onshore. But it does provide carbon dioxide free power. Carbon emissions have been rising, not going down as planned, they are the same now as they were in1997 when the Labour Government came to power. There are other renewable sources of electricity which have been neglected and starved of support, in favour of wind power. They are wave power, tidal stream, biofuels and tidal barrages. The House of Lords Select committee looking into the practicalities of renewable energy. . . . . .

29 Rectory Terrace. Newcastle-upon-Tyne. NE3 1YB. Tel/Fax + 44 (0) 191 2855343

reported on 15th July and recommended "there should be a co-ordinated programme of capital grants to encourage the establishment of pre-commercial wave and tidal power demonstration projects".

There is no doubt that we need all the carbon dioxide free electricity we can get but predicating this almost entirely on wind when there are other, less obtrusive technologies seems simplistic, stubborn and perverse.

The government compounds the confusion over energy policy further by deciding to phase out nuclear power which currently supplies some 23% of carbon dioxide free, electricity.

If we are even to approach the 20% reduction in CO2, which the government is dedicated to, and a 60% reduction by 2050, refusing to include nuclear power in the mechanism seems inexplicable unless some sort of political correctness is responsible for this decision. Things may change however, according to a recent statement by the Prime Minister.

What is require is "CLEAN", carbon dioxide free, energy and that means as much renewable and nuclear energy as we can muster.

Ian Fells CBE FRSE FREng