



WIND TURBINES ARE VITAL FOR THE FUTURE OF OUR PLANET

By Ian Watson and Robert Hall

Most scientists predict dire consequences if we do not reduce carbon dioxide emissions. The resulting global warming will upset the delicate climate equilibrium and cause havoc during this century. Oil and gas supplies have a finite life. Our previous Governments made a drastic mistake in not investing the profits from our oil and gas wells in developing renewable sources of energy. We will now be faced with having to buy oil and gas when supplies diminish and prices rise.

The Governments of China, India and other developing countries have decided to compete in the global market to bring prosperity to billions of people. They need huge supplies of oil, and gas and coal which is a double whammy rocketing prices and more pollution. Soon the supply of these fossil fuels may not be able to meet the demand.

Golf Clubs, farmers and other land owners could make a real contribution

to reducing our carbon footprint by harnessing the power of the wind. This clean and plentiful source of energy could be our salvation. Scotland is very fortunate in having the highest average wind speed in Europe. Wind turbines are the most reliable and certain ways of reducing carbon dioxide emissions. When the wind blows above 4 m/s the wind turbines start generating electricity. That allows fossil fuel power stations to reduce their output and hence the amount of carbon dioxide emitted to the atmosphere is reduced. If 50 percent of relatively small land owners (golf clubs, farmers, quarries, landfill sites, estates, crofts, etc) installed two 800kW wind turbines in Scotland we would be well on the way to meeting our targets of 10 % of generated energy from renewable sources within the next three years and 20% by 2020. With on shore and off shore wind farms, hydro power, solar energy, wave and tidal power we could integrate with other European countries to form a grid. According to Airtricity Director Chris Veal "If the wind's blowing

strongly in Scotland it may not be blowing strongly in Germany but by linking wind turbine generators into the same grid we hope to achieve a more reliable, predictable source of power “.

We have helped one farmer obtain planning permission for an 800 kW horizontal axis wind turbine in the central belt. It was a prolonged struggle. Environmental Health Officers and Planning Officials work to protocol. The noise rules for large single wind turbines are based on the revised Planning Advice Note PAN45 which is a copy of ETSU R 96. It is 11 decibels more stringent than the PAN56 rules for industrial noise! PAN45 base the noise assessment on back ground sound levels, which as everyone knows, varies from minute to minute, hour to hour, week to week, month to month and season to season. Ten minute recordings of back ground noise could vary by 25 decibels in a 24 hour day. The graphical method of correlating actual sound measurements with wind speed and the specific noise of the wind turbine for wind farms is far too elaborate and expensive for a small number of large wind turbines.

We have submitted a new methodology for wind turbine noise testing and evaluation to Mr. Richard Lochhead MSP, The Scottish Government Minister for the Environment. A much better and more consistent and reliable way of preventing noise nuisance would be to eliminate the need for background sound measurements by zoning all areas into say five noise categories from NC 1 to NC5. NC 1 would be an area of outstanding natural environment with virtually no human made noise. NC5 would be a very industrialised area, or near airfields, motorways or railways. We believe this rational method will be fair for both developers and citizens who wish reasonable and strict control of noise pollution. We are confident that we can convince civil servants and elected representatives that our proposed methodology is infinitely better than the revised PAN45. This will make it possible for golf clubs, farmers and others to obtain planning permission for one, two or three large wind turbines provided the wind turbine noise complies with the NC category. The surplus electricity could be sold to the grid giving golf clubs an additional source of income while making a valuable contribution to saving our planet from a disaster.

There have been planning applications for small wind farms near where we live. There is a very active minority who campaigned against these planning applications. Their spurious statements include the effect of low frequency sound energy on health, noise nuisance, threat to birds of prey and so on. These campaigners were silent while living in relative luxury when most of our electricity was generated by coal fired power stations which spewed out sulphur dioxide and other poisonous gases, killing and making ill children and adults and causing acid rain which blighted vegetation and lowered the PH value of our reservoirs, lochs and rivers with disastrous consequences to angling and the tourist industry. Their real reasons for opposition to wind turbines are because they do not like the look of them and they fail to understand the desperate need for increasing reliance on renewable sources of energy. Beauty is in the eye of the beholder. When we see these majestic machines we are filled with admiration at the ingenuity of the Engineers who have devised and developed a means of converting wind power into electrical energy without polluting the environment and without causing the death of children. They have also made a significant contribution to reducing carbon dioxide and global warming.

We have had a sympathetic response from a well known Scottish bank which may consider favourable rates for lending money for such a worthy cause as installing wind turbines. Grants and subsidies may be available to help meet our national targets to reduce carbon dioxide emissions.

The main requirements for installing wind turbines are:

- Reasonably high average wind speeds
- Conveniently situated for connection to the grid
- A location such that noise and flicker would not disturb the neighbours

- Visual impact would not be detrimental to the tourist industry

There are four main ways that golf clubs, farmers and other land owners could benefit financially from installing a small number of large wind turbines:

- Greatly reduced electricity bills
 - By selling surplus electricity to the grid
 - When there is no oil you will still have electrical power
 - Possibly in the future by selling your carbon credits (Refer to “What’s your quota?”)
- OR
- Leasing some land to a wind turbine developer

We need to know how many golf clubs, farmers and small land owners are interested in finding out more about the installation of a small number of large wind turbines. If there is a sufficient number we would have more power to convince the Scottish Government to change the flawed noise rules. This first step is essential to make it possible to obtain planning permission at a reasonable cost and within an acceptable time.

Ian Watson is Proprietor of and Robert Hall Engineer/Acoustician of SNV Consultants. If you are interested in wind turbines and want to help to rectify the noise rules write or email SNV Consultants, 4 Kirkland Avenue, Blanefield, Glasgow G63 9BZ. snvconsultants@btconnect.com

WHAT'S YOUR QUOTA?

Fred Pearce in the New Scientist 17th November 2007

“Much of the carbon dioxide that is warming us today has been in the atmosphere for decades, even centuries. While developed countries only contribute about 50 per cent of emissions today, they are responsible for 80 per cent of the human made £0, that is already there.

“Cutting emissions needs to be done in as fair a way as possible, and since Earth has a limited capacity to absorb CO2, one equitable solution would be to divide the remaining capacity among the world’s population. Many see an idea known as “contraction and convergence” as the best way forward. This idea has been kicking around for more than a decade, but is currently most associated with a British MOO called the Global Commons Institute. If implemented, it will mean that global emissions have to contract overall, while converging on a single per capita figure. Current emissions for a global citizen are about four tonnes of CO2 per year, on average. This figure will ultimately have to drop to below 1 tonne.

“The formula was initially dismissed as hopelessly idealistic, but it is now gaining new credibility. Most recently, the German chancellor Angela Merkel backed the idea of national targets based on per capita emissions. Earlier this year, the UK’s then environment secretary, David Miliband, took the debate one step further. He said that within a decade we could all carry a card that recorded our annual carbon emissions entitlement. Every time we filled up our cars with fuel, booked a flight or made an energy intensive purchase, our card would be debited.

“Sure, the rich would be able to buy their way out of the limits. But they would have to buy the extra carbon credits they needed for that flight to the Maldives or to light their 20 bedroom mansions. The more energy efficient among us could make money by selling spare credits to them. At the end of the day, there would only be a certain volume of emissions allowed. And the smaller that volume, the better for all of us.”

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