

## **Wind webinar questions and answers**

“I am currently looking at the impact (or not) of wind farms on tourism in Scotland, and I wondered if there is any evidence on this? I have the Moffat report (the Economic Impacts of WFs on Tourism, 2008) and the more recent Visit Scotland report (Wind Farm Consumer Research, 2012), but I wondered if there is any further evidence of how wind farms may impact tourism. Many other reports talk about 'public attitudes' but not specifically tourism. “

Dr Elizabeth Dinnie - James Hutton Institute

### **Does wind farming affect tourism?**

There is no evidence to suggest this. The UK's first commercial wind farm at Delabole received 350,000 visitors in its first ten years of operation. A MORI poll in Scotland showed that 80% of tourists would be interested in visiting a wind farm. Furthermore, wind farm developers are often asked to provide a visitor centre, viewing platforms and rights of way to their sites. Find out more in an [overview of tourism and wind energy](#).

From the executive summary:

‘The results from (several surveys and reports by reputable poll companies) is that all these surveys demonstrate that the effect of wind farms on tourism is negligible at worst, with many respondents taking a positive view to wind farms, and saying it would not affect their likelihood of returning to an area.’

‘Whinash, near Tebay in Cumbria, was arguably one of the most controversial wind farm applications to date and subject to intense scrutiny at public inquiry, yet it was not refused on tourism grounds.’

‘Wind farms can themselves be tourism destinations, with the wind turbines at the Ecotech Centre and the Gaia Energy Centre proving to be very popular visitor attractions, despite difficulties encountered by the separate visitor centres.’

‘The type of tourist may be an important factor to consider e.g. fell walker, surfer, business visitor, golfer, mountaineer.’

‘For future wind farms, the judgment of acceptability based on landscape protection will provide ample protection for the protection of tourism. The threshold of landscape protection is more sensitive to wind farm development than tourism, therefore if there is deemed to be no damage to landscape at the planning stage, there will be no damage to tourism.’

One of the common myths about wind energy is that the presence of wind turbines in the landscape is a deterrent to tourists. What is true is that a diverse range of factors influence the UK tourist industry, unrelated to wind farm development, and that where studies have been carried out investigating the impact of wind farms on tourism, the results demonstrate that the effect is negligible at worst, with many respondents taking a positive view of wind

farms, and saying that it would not affect their likelihood of returning to an area, while a common finding of many other surveys is the public's desire to find out more about wind farms and renewable energy.

<http://www.bwea.com/pdf/tourism.pdf>

<http://www.bwea.com/media/news/tourism.html>

A peer-reviewed academic study looked into public perceptions of wind farms depending on whether they were privately or community owned. The research revealed an overwhelmingly positive outlook on windfarms in general, but this was amplified when it was known that the wind farm was community owned. Overall the study found that windfarms were more likely to have a positive effect on tourism than a negative one, but again, this was amplified if the tourists knew that the wind farm was community owned.

Warren, C, R and McFadyen, M. (2008). Does community ownership affect public attitudes to wind energy? A case study from south-west Scotland. *Land use policy*. 27. P.204-213.

“Last year a number of studies on renewable energy were produced. A [technical report](#) demonstrating potential capacity was produced in April 2011 and separate reports produced for each local authority including [Wyre](#). This study identified that Wyre has potential renewable capacity of 1,155 Mega Watts (MW), to 2020, which represents 11% of the total capacity for Lancashire, the main source being wind generation (74%). In July 2011 a [final report](#) translated the technical capacity to a more deployable capacity. This showed that the future capacity that is realistically capable of being deployed by 2020 in Wyre is 91MW representing 12% of the capacity for Lancashire (the second highest). Commercial wind is likely to provide a significant proportion with energy from waste and then micro-generation likely to be the next most significant renewables deployed.

However, since then there have been discussions with the Ministry of Defence (MOD), BAE systems and Blackpool Airport. It has emerged from these discussions that there are serious, if not grave, concerns regarding the cumulative effect of wind turbines on radar interpretation and aviation safety. Turbines appear as unidentified aircraft on radar and therefore have to be avoided. The airspace in Wyre is ‘uncontrolled’ and private aircraft, microlights etc. without radar transponders can be confused with turbines and vice versa. If changed by software (called a ‘gate’) to indicate that it is not a moving object, this will show a plane as blank when passing through the ‘gate’. If the number of turbines increases it will make the operation of radar and air traffic control more problematic. Currently, there is no acceptable proven mitigation technology that ‘gates’ turbines and allows planes to show up on the radar.

It is highly likely, therefore, that there will be a conflict between the studies, and the need for renewables in particular wind generation, and aviation safety.

I would be interested to know if this issue has arisen in other areas of the country.”

Phillipa Clarke – Planning Policy Manager Wyre Council

## **Response**

The issue of aviation interference arises often but the specifics are always different and the issue has to proceed on a case by case basis. The huge range of radar/satellite/etc technology means that every site is very case specific. For instance, a wind farm 3 miles from an airport on an island in Scotland has just been given planning approval.

The specifics of Wyre will no doubt be given all necessary consideration with regard to air safety.

The following links highlight how the MOD and aviation industry is constantly working to achieve solutions that maintain air safety and security but encourage wind farm development. Some key points:

- In a presentation by Head of Safeguarding Defence Estates (Julian Chafer), a trial of the impacts of one of the largest wind farms in the world on radar/aircraft was undertaken (2009)
  - Radar achieved ‘high probability of detection against all targets even in very close proximity to wind farm; [and further away] there was no discernible impact’
  - The MOD ‘are fully committed to working with developers, the BWEA, and others to finding solutions to any objections we raise’

- [http://www.all-energy.co.uk/userfiles/file/Julian\\_Chafer\\_210509.pdf](http://www.all-energy.co.uk/userfiles/file/Julian_Chafer_210509.pdf)
- From a Civil Aviation Authority – ‘Directorate of Airspace Policy’ – report:

‘CAP 764 – CAA Policy and Guidelines on Wind Turbines’ (2012)

*Both wind energy and aviation are important to UK national interests and both industries have legitimate interests that must be balanced carefully. Therefore it is important that the aviation community recognises the Government aspiration for wind turbine developments to play an increasing role in the national economy. As such, the aviation community must engage positively in the process of developing solutions to potential conflicts of interest between wind energy and aviation operations. In a similar vein, wind turbine developers must understand the potential impact of developments on aviation, both at a local and a national level, and to fully engage with the aviation industry to develop suitable mitigation solutions.*

- <http://www.caa.co.uk/docs/33/Cap764.pdf>
- As an example of how the aviation industry is working around the wind farm issue, an article in *Business Green* discusses a new Air Defence Radar that have allowed it to scrap objections to 5 offshore wind farms in the Greater Wash. The system can ignore the spinning blades of turbines that often confuse systems as planes or other objects. While this may not be directly relevant to the case in Wyre it shows how the industry is working with and around the wind farm issue and that solutions can be found.
  - <http://www.businessgreen.com/bg/news/2137514/mod-radar-breakthrough-promises-green-light-4gw-wind-farms>

## **Is there a theoretical maximum for incorporating wind into the grid? – Paul McIntosh**

In addition to the comments from Iain during the webinar, he had this extra information to add to the discussion:

“Regarding the theoretical maximum penetration of wind power on the grid, here is a statement from the UK National Grid from their 2011 Seven-Year Statement:

*"The output of some renewable technologies, such as wind, wave, solar and even some CHP, is naturally subject to fluctuation and, for some renewable technologies, unpredictable relative to the more traditional generation technologies. Analyses of the incidence and variation of wind speed, the expected intermittency of the national wind portfolio would not appear to pose a technical ceiling on the amount of wind generation that may be accommodated and adequately managed. However, increasing levels of such renewable generation on the system would increase the costs of balancing the system and managing system frequency."*

So it is a matter of the market accommodating the extra cost of balancing and managing fluctuating supply from certain renewables rather than any upper technical limit of penetration. Realistically, I don't think anyone has ever considered more than 30–40%, but don't forget in a system with that level of wind penetration days of high operating winds might result in net demand (i.e., supply shortfall once available wind has been taken into account) falling to almost zero. Ireland, which only has roughly 11% penetration, has seen days where wind power supplies over 40% of the electricity demand. Like the UK, Ireland has one of the best potential wind resources in Europe, better than Germany or Denmark.

The National Grid Seven-Year Statement is freely available from their website:

<http://www.nationalgrid.com/uk/Electricity/SYS/current/>”