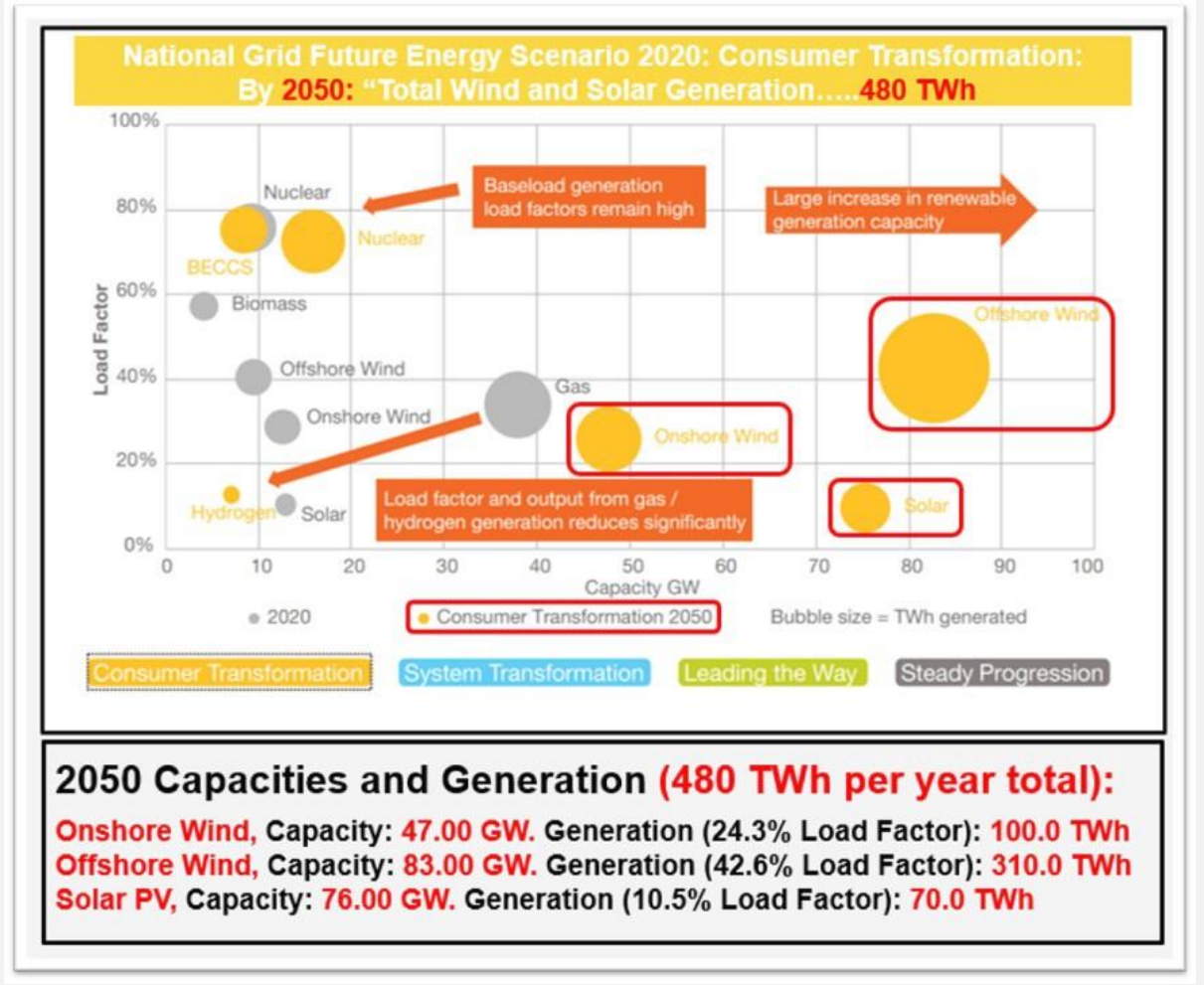
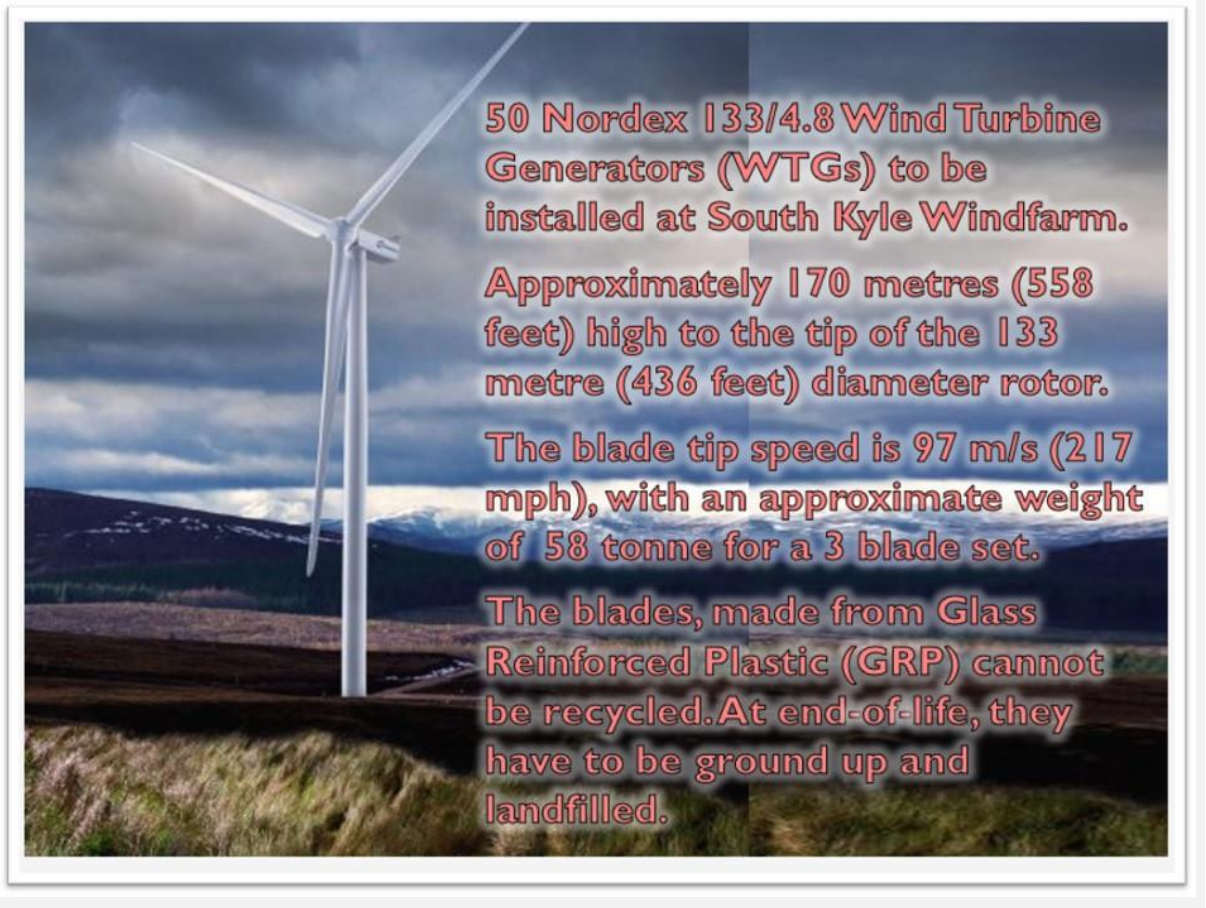
National Grid's FES 2020: What is the Environmental Impact of 480 TWh per year from WASPs?

What is the environmental impact of Onshore Wind Farms?



There are 47 GW of Onshore Wind required by 2050, equivalent to 196 wind farms the size of South Kyle Windfarm:



196 wind farms, with 50 x 4.8 MW WTGs means a total of 9,800 WTGs installed over the 30 years from 2020 to 2050; that's 327 per year. But the lifespan of WTGs is only 25 years, so decommissioning will have to start from 2045. For every 327 WTG decommissioned, 654 will have to be installed for the 5 years to 2050, to keep up the 327/year increase in capacity

Then it can settle back to 'just' 327 per year being built as 327 per year are decommissioned

— BUT: that is every year thereafter: Forever & Ever & Ever!

And of course, every year from 2045 onward, 327 sets of 3 blades — weighing 58 tonnes per set — require disposal. That's 18,966 tonnes of potentially toxic, groundwater contaminating GRP heading for local landfill sites.

18,966 tonnes, every year, Forever & Ever & Ever!

— — — — — — // — — — — — —

This is the construction of a 3 MW WTG foundation, so the foundation for a 4.5 MW WTG will be proportionately bigger.:

The most detailed description of the environmental impact of an onshore wind farm during construction was that described on the website of East Renfrewshire Council, in respect of Whitelee Windfarm.

This Blogpost, of February 2018, mentions:
"…Whitelee commenced operation, following the excavation and muck-spreading of 850,000 m³ of undegraded peatland (ancient — 6,000 to 9,000 years old — blanket peat bog) …….In addition, 2,500,000 tonne of stone was quarried for roads and turbine bases; 120,000 tonne of concrete was used; 2,250,000 non-native conifer trees [900 hectares] were removed; 300 hectares of spruce trees were removed…"

The link to the East Renfrewshire Council is given, as is the link to the data source (*www.variablepitch.co.uk)* for a graph showing the generation from Whitelee at that time, was down to almost half of that publicised even today, on the Whitelee Windfarm website.

Not too long after that, the 'variable pitch' website was shut down and the pages containing the Whitelee data were removed from the East Renfrewshire Council website:

Well worthy of the investigative talents of George Monbiot

— — — — — — // — — — — — —

This is what the USA's Institute For Energy Research had to say about decommissioning onshore wind farms, less than a year ago:

"…Restoration activities include the removal of all physical material and equipment related to the project to a depth of 48 inches. Most of the concrete foundations used to anchor the wind turbines, however, are as deep as 15 feet. *The concrete bases are hard to fully remove…"*

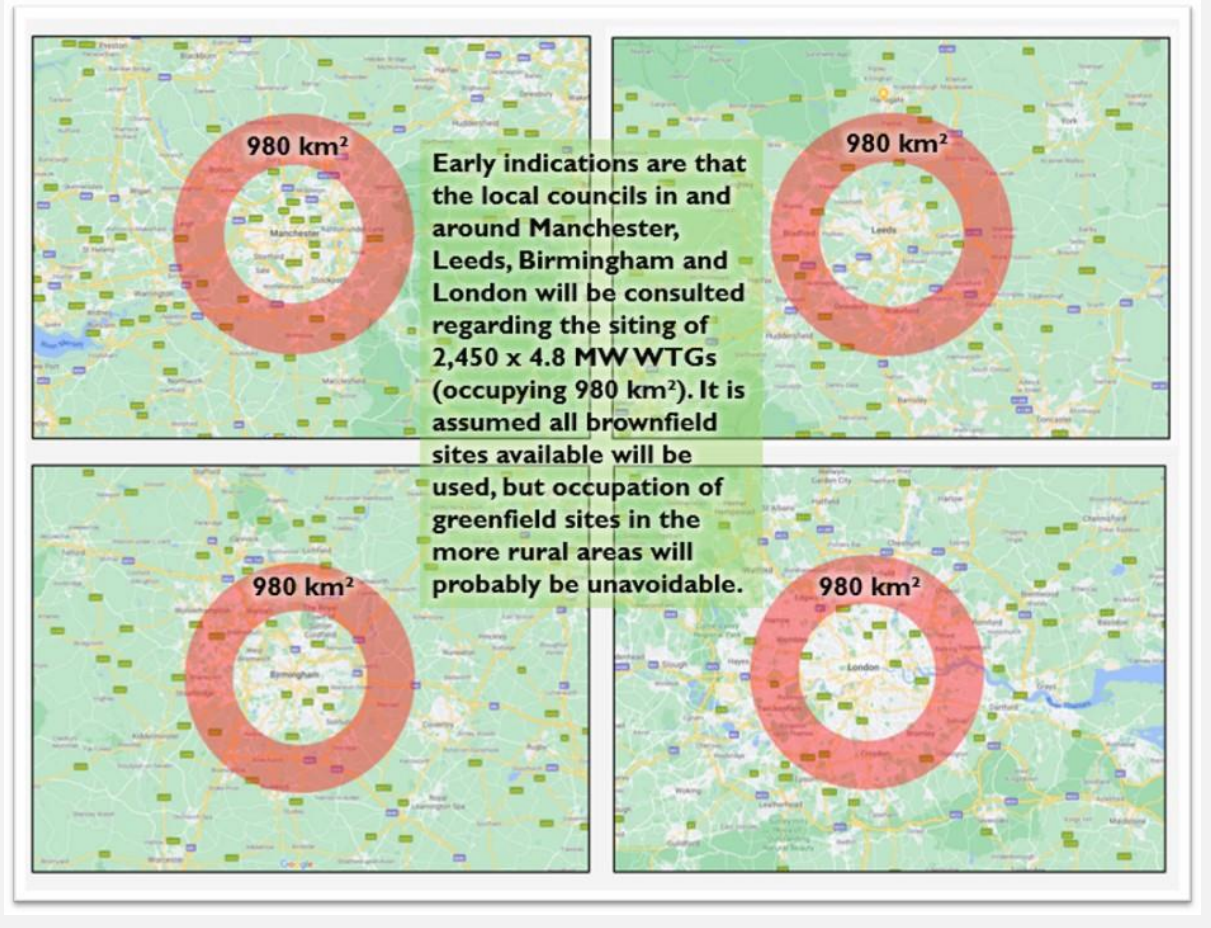
— — — — — — // — — — — — —

By 2050, the build-out of 196 wind farms the size of South Kyle Windfarm will occupy a land area of 3,920 km². Appreciating that such levels of expansion of onshore wind farms requires the occupation of sizeable land areas, the

Government undertook a survey of public opinion regarding the selection of sites.

Analysis of the outcome revealed that those most enthusiastic about wind power, tended to be urban dwellers, in and around major cities. For example, this cohort regarded WTGs as "…majestic monuments to technology…".

Early indications are that the local councils in and around Manchester, Leeds, Birmingham and London will be consulted regarding the siting of 2,450 x 4.8 MW WTGs (occupying 980 km²). It is assumed all brownfield sites available will be used, but occupation of greenfield sites in the more rural areas will probably be unavoidable.



In the years leading up to 2030 and thereafter, the Government will conduct ongoing consultations with councils of other cities and centres of population, regarding the yearly, perpetual build out of 327 x 4.8 MW WTGs.

It is believed to be the best way of the burden of impact being equitably distributed. Particular attention is needed, regarding the local landfill allocation for the disposal of 4,740 tonnes of GRP blades every year. Over their 30 years ‘stint’

of wind farm siting, the disposal of the 142,245 tonnes total, will be the responsibility of councils at each urban centre.

— — — — — — // — — — i— — —

[i] This article is taken from https://medium.com/@colinmegson/national-grids-fes-2020-what-is-the-environmental-impact-of-480-twh-per-year-from-wasps-c449f7e6b461