

Dear Webmaster

I thought this email (below) that I received in answer to one of my questions to Ecotricity may be of interest to our readers. This is a very simplistic explanation, the fact is when the wind speed is low or nil, no electricity is produced. My research indicates that, one single wind turbine of the type proposed for this proposed development, generates enough power, AT PEAK CAPACITY, for 500 homes at the most. This equals 11000 homes, with 22 turbines, AT PEAK CAPACITY. That is very short of the figure of the equivalent to 40,000 homes energy being generated by this development.

A study some few years ago in the USA concluded that ONE large coal fired power station generates the equivalent to 10,000 wind turbines. This alone illustrates the gross inefficiency of these money generating developments, for that is what they are, Joe public is being lied to again,

Best regards Ken

---

Dear Ken,

Thank you for attending the public exhibitions recently for the proposed Heckington Fen wind park.

At the exhibitions you raised the question of the potential for a wind turbine without a gear box to produce electricity at the required 50Hz. I have copied some information from our standard Environmental statement which may shed some light on it:

The reasons for the differences in technology between the Enercon and conventional turbines relates to the nature of grid connections. Connections to the grid by generators (including wind turbines) can be at a range of voltages (depending on the location – i.e. 11kV, 33kV etc), though must be at a fixed frequency of approximately 50Hz. In order to maintain this frequency, wind turbines have generally employed a gearbox to maintain a high speed rotation in the generator to match the frequency of the grid connection across a range of wind speeds. In these machines, a two stage transformer will match the voltage to the grid at the frequency produced by the generator. However unlike a number of turbine types, Enercon turbines have a three stage transformer (AC-DC-AC) which allows the output frequency to be stabilized at 50Hz through a range of wind speeds without a gearbox.

Variable speed means that the speed of rotation of the blades (and therefore the generator) will depend on the wind speed, rotating slowly at times of low wind speed and speeding up with increases in wind velocity. An on-board computer varies the pitch of the blades depending on the wind speed, to optimise the surface area of the blades exposed to the wind and therefore the rotation speed. This process is called optimising the tip speed ratio [1] which is where maximum energy yield is achieved. The turbines contain a unique 3 stage transformer which allows variable generation to be fed into a range of local grid conditions without causing a local network ‘flicker’ as the turbines are engaged or disengaged (which occurs infrequently in any case).

I hope this in some way answers the question you raised. If you require any further information please don't hesitate to contact me.

Yours sincerely,

**Rob Miller**

Project Manager Telephone: 01453 769354

[1] Tip speed ratio is the ratio of wind speed to rotor tip speed. Optimal energy capture only occurs at a certain ratio.

---