

Wind farm off the radar and powering ahead

After 10 years of planning and three of construction, Whitelee is about to become fully operational.

By Garry White

Last Updated: 9:06AM BST 18 May 2009

The tips of the blades on a wind turbine can move at more than 160 miles per hour, making them a major hazard to aircraft in flight. It's not the height of the turbines that causes the problem, although they tower 110m above the landscape, but the fact that this movement can interfere with radar from local airports – causing blind spots for air traffic controllers trying to land a plane.

This means that the biggest challenge facing the construction of Europe's largest onshore wind farm at Whitelee near Glasgow was not distance to the national grid or local opposition but radar "clouding" at Glasgow Airport.



White heat of technology: the last of Whitelee wind farm turbines are to be connected to the National Grid this week

Related Articles

[Red Arrows narrowly avoided disaster with passenger plane](#)

[Wind power's late arrival shows we've blown chance to plug energy gap](#)

[Two dead after cargo plane crashes in Japan](#)

[Luxor balloon accident: on the spot](#)

[Latin American drug smugglers trafficking cocaine to UK jailed](#)

Whitelee was built by the now Iberdrola-owned Scottish Power and is expected to have its final turbines connected to the national grid later this week, marking the end of 10 years of planning and three years of construction.

Many solutions were looked at to overcome the radar problem - including software algorithms to reduce clouding on radar screens and even something called "stealth paint".

Alan Mortimer, head of renewable policy at Scottish Power, explains: "Stealth paint has a molecular structure that absorbs radar frequencies, which means the waves do not bounce back to radar stations and cause interference for air traffic controllers. The problem is that it is not 100pc reliable, so we had to find another solution that was completely effective."

This involved building a new radar station at a cost of £5m. The transmitter was sited where a hill kept the wind farm out of the radar's sweep.

This demonstrates the difficulties of siting onshore wind farms in the UK. Not only is there the radar issue to contend with but there are also environmental and local concerns.

Whitelee is one of the few areas in the UK that fits the bill perfectly as a wind farm. It is only 10 miles from Glasgow, so it is easy to connect to the national grid, and it is located in desolate moor land. Because of its isolated location there were only 32 letters

of opposition during the public consultation, despite it being right next door to Scotland's largest city. And it is certainly very windy. Your correspondent had earache within 15 minutes of stepping out of the car.

The Whitelee area, which is about the size of the city of Glasgow itself, consists of peat bogs and areas of commercial conifer planting. In order to construct the turbines, 90 kilometres of road were built floating on top of the peat. This consists of layers of mesh which had stone from quarries on the site compacted on top. The alternative would have involved digging up the peat – and all the environmental damage that would incur.

Areas of commercially planted conifers are now being removed to allow the area to return to bog land. This has a dual environmental effect, says David MacArthur, Whitelee's ecologist.

"Removing the conifers and returning the area around the site to bog land is not only good for wildlife, such as birds, but blanket bogs are the world's third best store of carbon, keeping it out of the atmosphere," he says.

About 20pc of the world's terrestrial carbon is stored in bogs in the northern hemisphere, according to Earthwatch.

A visitor centre will be opened later this year, when the road network is expected to be made available to hikers, cyclists and horse riders so they can move around the peat bogs and take in the impressive views, which not only encompass Glasgow but also the Isle of Arran on a clear day.

The surprisingly-quiet Siemens turbines are also impressive to behold. When the final array is connected to the grid later this week, there will be 140 turbines generating 322 megawatts of electricity. This is enough to power 180,000 homes.

The total area covers 55 square kilometres making it one of the largest construction sites in the world. A total of 940 kilometres of cable have been laid connecting the turbines, which each weigh about 100 tonnes.

There are plans to increase the generation capacity of Whitelee, with planning applications for a further 81 turbines submitted.

Britain is facing an unprecedented energy crunch over the next 10 years as older power stations come to the end of their natural lives and output at existing capacity is restricted due to European emissions rules. This is happening at the same time as oil and gas production in the North Sea is in rapid decline. Britain became a net oil importer in 2004.

The UK needs an economic and clean solution to its energy problem before it becomes an energy crisis. Wind energy, along with nuclear, clean coal and even tidal power will all play their part in bridging this gap. Whitelee is one bold step in solving this problem but the UK needs to continue with a diverse and integrated energy policy if we really are going to stop the lights from eventually going out.

RELATED PARTNERS

[10% gas price drop at British Gas](#)

[Save on your gas and electricity bills](#)

[Trade UK energy equities with E*TRADE](#)

© Copyright of Telegraph Media Group Limited 2009