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Wind energy endures a gale of hostility

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Aaron Patrick asks whether expensive wind farms are the solution to our power needs - or part of the problem

They were fortunate the weather was bad in Norfolk this week. When dignitaries gathered at Caister Lifeboat Station on Tuesday for the official opening of Britain's newest and largest wind farm, the organisers were not embarrassed. A strong wind ensured the giant turbines spun on cue.

Scroby Sands is located on a sand bank two miles off the coast of Great Yarmouth. Owned by Eon, a German power utility, the 30 turbines can produce enough electricity for 41,000 houses and should cut 75,000 tonnes of carbon dioxide emissions every year.

If there is such a thing as a morally pure form of energy, wind is it. Wind has been hailed as part of the solution to global warming, a way to reduce pollution, and an alternative to nuclear power.

There is another side to the story. Not only is wind more expensive than other forms of power, its advantages have been overstated, sceptics say. They are controversial views, but those who hold them are not to be dismissed lightly.

Those lined up against the wind industry include Professor John Ffowcs-Williams, an engineering professor at Cambridge for 30 years, Sir Martin Holdgate, president of the Zoological Society, and Professor Michael Laughton, who taught electrical engineering at the University of London.

All three have offered their expertise to the Renewable Energy Foundation, a private lobby group set up by former BBC presenter Noel Edmonds which is running a campaign against wind farming. The foundation's research director is John Constable, a Cambridge lecturer who devised a mathematical formula to tell verse from prose. He took up the cause when a wind farm was proposed near his Suffolk home.

"The benefits of wind power have been overstated and mistakenly described," he said. "The European experience has shown that it cannot be expected to carry the burden of the obligations placed upon it.

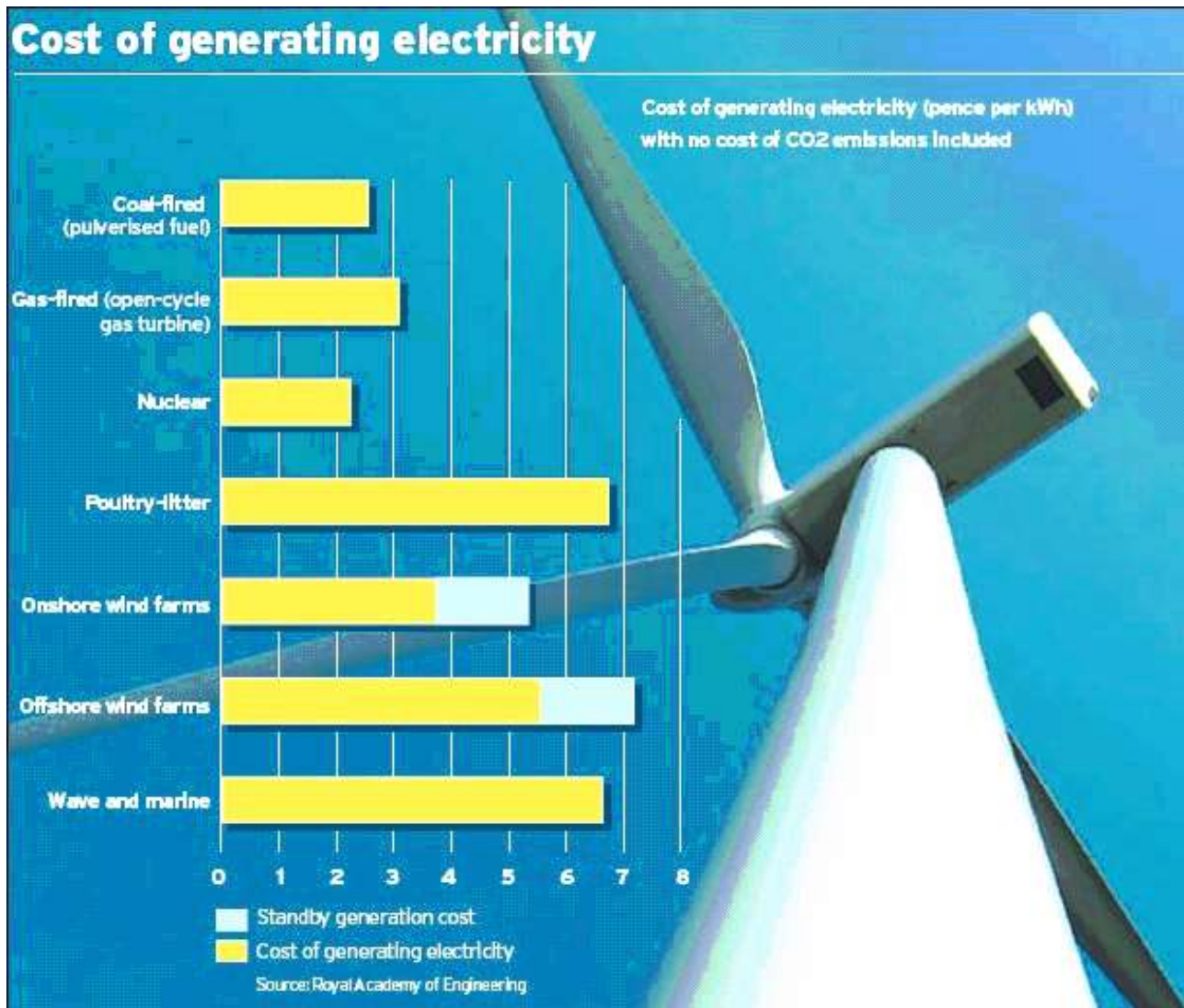
"There are about 20 buildings in London above 100m high and a developer will turn up in a Devon village and propose erecting 10 turbines taller than that near houses. Laid down, those turbines would be longer and wider than a football pitch. It is not surprising people are upset about it."

The foundation's opponent, the British Wind Energy Association, receives money from corporate memberships. Britain's wind power industry is in turn supported by cross-subsidies imposed on the power industry by the Government, which is promoting wind power to help fulfil its commitment to reduce carbon dioxide emissions.

Electricity generation is the single biggest cause of the emissions, largely because coal-fired power stations are terrifically pollutive. To promote wind farms and other forms of renewable energy, the Government created a clever scheme in 2003.

Under the "renewables obligation certificates" introduced by former energy ministers Brian Wilson and Stephen Timms, power utilities are required to generate part of their electricity through renewable sources. The present rate is 4.3pc, and will rise to 15pc by 2015. Utilities without wind farms and other clean sources of power can meet the obligation by buying credits from those who do.

The credit system has led to large payments to "green" operators from conventional power companies, which are also subject to a climate change tax. The research shows they are passing their higher costs on to consumers.



A report from the National Audit Office last month estimated that the total financial assistance for the renewable energy industry - which is made up mainly of wind farms - is £700m a year. By 2010 the figure will be £1billion, equivalent to a 5.7pc rise in electricity prices, a tax hike in all but name.

The credit scheme is the single most important force behind Britain's rapidly growing wind farms. According to trade magazine, Platts Power UK, the amount of renewable power capacity is planned to increase 21-fold over the next five years. In Scotland there are applications for 7,000 new turbines, according to the Renewable Energy Foundation, and in five years 7pc of the nation's electricity supply is expected to come from wind.

The Audit Office warns that Britain is over-investing in wind energy. Its consultants found that wind farms would continue to be built if subsidies were lowered, and estimated that one third of the money going to them would be wasted unless the policy was changed.

Paul Golby, the chief executive of Eon UK, said: "Without the renewable obligation certificates nobody would be building wind farms. This is the balance we are trying to strike: protecting the environment and the cost of building wind farms."

According to a study published by the Royal Academy of Engineering, the only forms of electricity more costly are wave power and chicken manure. (The world's first poultry-litter power plant was built at Eye, East Anglia, in 1992.)

The study estimated that wind power is 70pc more expensive than nuclear or gas. Offshore wind farms, like the one at Scroby Sands, are two and a half times as expensive because of higher construction costs.

Calculating the cost and benefits of wind power is difficult. What is usually left out is the blight of large turbines dotting the countryside and reductions in land values. Or the benefit of reducing carbon dioxide emissions and the damage to Britain's reputation if it were to opt out of the international climate change agreement.

There is also the possible benefit of replacing nuclear plants - which have the potential to leak or blow up - or the drawbacks of relying on natural gas, in which Great Britain is not self sufficient.

Apart from the cost, wind power's biggest problem is its lack of reliability. Wind turbines are inactive most of the time. According to the Department of Trade and Industry, even in the best "wind year", 1998, British wind farms operated at only 31pc of capacity.

Demand is more predictable. Every evening after Eastenders, electricity usage shoots up. Cold days require more power. Lights and appliances are switched off at night.

The supply and demand mismatch would be less of a problem if electricity could be stored. But there is no battery for the national power grid. Surplus power cannot be saved, and the single connection to France is of limited capacity. When it comes to electricity, Britain is an island.

The Renewable Energy Foundation says the German experience indicates that as wind farms become a larger part of Britain's power grid, 80pc to 100pc of their capacity will need to be replicated for windless days. If true, almost every unit of electricity generated through wind will need to be matched somewhere else by a gas or nuclear plant.

The wind power industry dismisses the idea as absurd, and argues that wind could comfortably generate 10pc of Britain's electricity with no back-up plants.

With Britain spending billions subsidising wind power, policymakers have a responsibility to ensure it is the most efficient way to protect the environment.

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