

Inefficient, wasteful and wrong-headed

The precious Dorset landscape is currently under threat from two applications for lowland wind farms. Dr John Constable, Director of Policy and Research for the Renewable Energy Foundation, here takes issue with the Government's renewable energy policy, especially in relation to wind power.

The United Kingdom is as intensely concerned about climate change as any other nation. Press coverage of the issue is continuous, and almost all organisations, from primary schools to multi-national corporations, are now required to demonstrate that they are developing a strategy to reduce emissions of greenhouse gases. Individuals are placed under considerable moral and psychological pressure to reflect on their carbon footprint and to tread as lightly as they possibly can. The UK government, with general cross-party support, is trying to reduce UK emissions by 60% by 2050. A very broad range of policy initiatives have been put in place to achieve this target – including a renewable electricity policy and an extremely generous subsidy to support it.

However, nearly all of this intense planning is conducted without reference to the global context, or to the real world results of our climate change policy. It should be obvious that the UK has no simple quantitative role to play. We account, directly, for 2% of global emissions of carbon dioxide. As the

then Prime Minister Tony Blair wrote in an open letter to Stop Climate Chaos, a green lobby umbrella group backed by Greenpeace, Friends of the Earth, and others: 'Even the most extreme and unrealistic action taken in the UK will have only a tiny impact on global climate change...it would do nothing to protect us from its worst effects....Being virtuous alone will not bring much reward! This is indisputable, yet our national policy appears to break the cardinal rule that non-swimmers do not make good lifeguards. The fact is that after more than a decade of policy drift, we are now in an extremely tight corner with regard to electricity, with a pressing need to replace a large part of the plant currently serving the UK. The current emphasis on renewable energy will scarcely begin to address this problem and may even exacerbate it.

Europe overall generates at present nearly eight times as much electricity as the UK, China more than five times as much and the United States about ten times as much. Chinese and Indian expansion, however, is anticipated to be dramatic. It has been estimated by the International Energy Agency in Paris that China and India together will build in the next eight years new power stations equivalent to ten times the current total UK capacity – 98% of these being coal-fired.

Yet the UK government is subsidising the construction of renewable generators through the Renewables Obligation, a system which is costing the consumer about £1bn a year and will have cost £32bn in total by 2027, when the current scheme ends. This subsidy is complex and generous, accounting for around 50% to 60% of total income. It is one of the world's most generous support mechanisms and widely derided. Indeed, Ofgem, the electricity market regulator, has called for its abolition on the grounds of waste and inefficiency.

The Renewables Obligation is intended to help the UK to derive 10% of its electricity from renewables by 2010, and 15% by 2015. The system is simplistic and rewards the least capital-intensive technologies. Consequently, the market has invested without regard to the intrinsic merit of the various technologies. As it happens, the first to benefit, landfill gas (burning methane

The view from Creechbarrow if the proposed wind farm is built at East Stoke



from landfill waste sites), is controllable and of high value. Unfortunately the scale of deployment is limited and opportunities for further development are now more or less exhausted.

The technology providing the next largest margins of profit for investors happens to be a low-merit technology with a very significant environmental impact – wind power. The subsidy system is so generous that it is motivating private companies to attempt development in almost any location where a compliant landowner can be found, irrespective of wind resource or other considerations.

A typical wind turbine in an average location would earn some £235,000 a year from subsidy alone (closer to double that including electricity income). Yet the subsidising consumer would receive in return only about 0.001%, one-thousandth of one per cent, of UK electricity. To put this into a Dorset context, consider the currently emerging proposal for at least six 125-metre wind turbines at Silton, near Gillingham. This would earn about £1.5 million a year in subsidy and generate about 0.007%, seven-thousandths of one per cent, of UK electrical energy. The figures for the other site proposed in Dorset, at East Stoke, near Wareham, are similar.

It must be remembered that the UK's over-riding need is for controllable, 'firm' plant capable of meeting instantaneous demand. Yet windpower technology is inherently dependent on the weather and does not provide firm capacity to any significant degree, even if geographically distributed; the UK is a small area and large, windless weather systems often cover very large parts of our country. Regardless of how much wind power we build, it will contribute little to meeting the critical need for new reliable generating capacity to replace that necessarily retiring in the next decade. As Professor Michael Laughton of London University, one of the world's most eminent electrical engineers, put it in a recent study, 'Irrespective of the amount of wind capacity installed in the system, the conventional capacity required will never be less than the peak load.'

Still more disappointingly, the Renewables Obligation provides some of the most expensive carbon dioxide savings in Europe, according to both the National Audit Office and Ofgem. The Silton and East Stoke wind farms would each save about 11,000 tonnes a year, assuming the government's own slightly generous figures. This saving would cost over £100 a tonne in subsidy alone. This is a simply incredible price to pay (the EU Emissions Trading Scheme values a tonne of CO₂ at about £20) and implies a terrible opportunity lost; the money spent in this way cannot be spent on



other, probably more effective ways of reducing emissions. Indeed, in the view of many, the Renewables Obligation has not only provided excessive profits to developers but actually stunted innovation in the renewables sector overall: investors simply won't bother to be adventurous and support better emerging technologies if they can make more money from onshore wind.

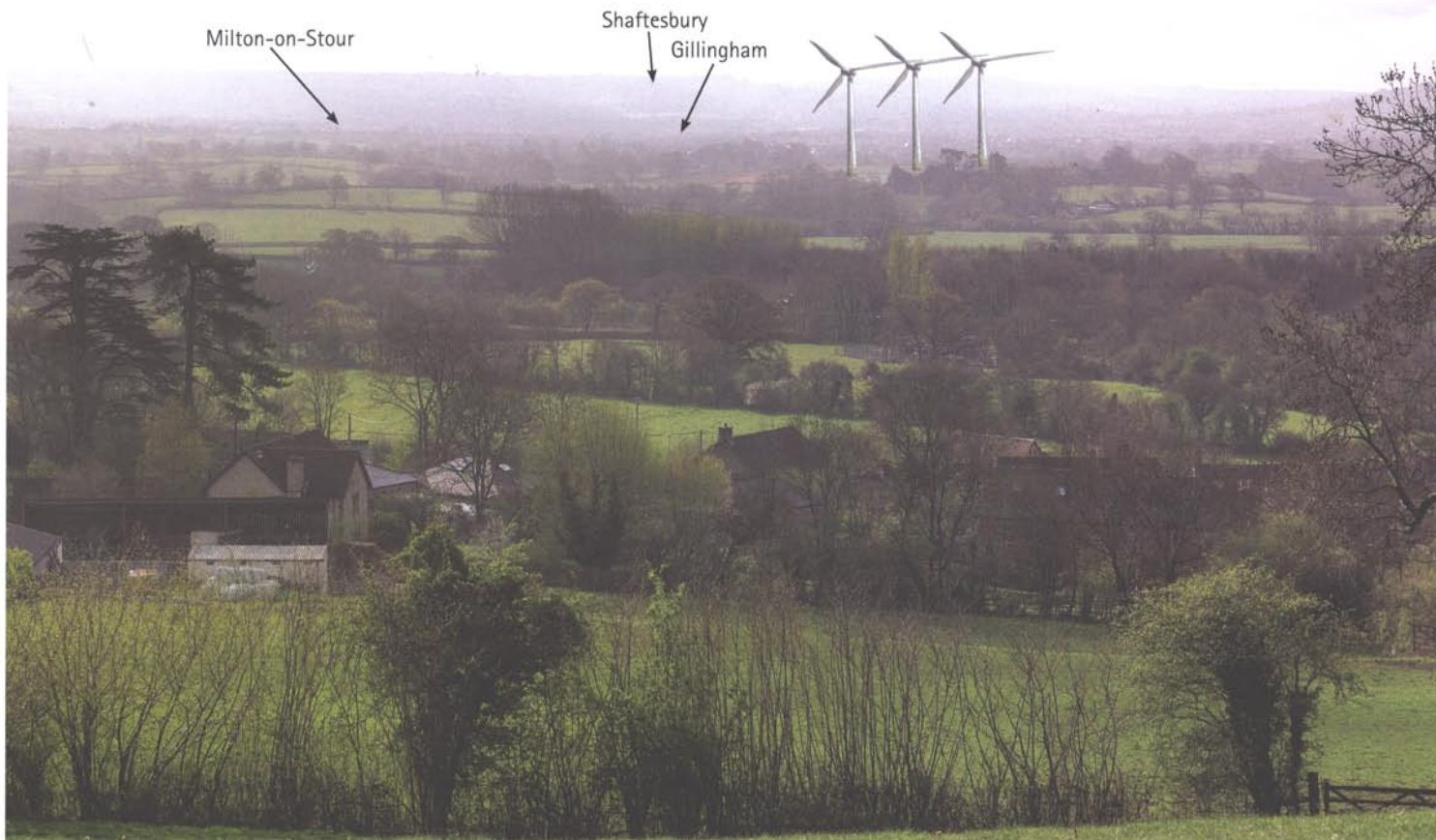
A further impact has to be considered. The Renewables Obligation has encouraged insensitive and ecologically damaging industrial development and is rapidly bringing the whole renewables sector into disrepute. Some weeks ago, I was interviewed by a Danish PhD student conducting research into the economic support mechanisms in various EU states. 'Why', she asked, 'is there such a NIMBY problem in the UK?' I explained that it wasn't, in fact, surprising, since developers are trying to build 400-foot-high wind turbines half a mile or less from people's houses, and often in places of great natural beauty. The tips of the turbine can be travelling at 150 mph and there are, in spite of industry denials, real noise problems. She was silent and, I think, a little shocked. 'That would never happen in Denmark,' she replied. 'Why would UK wind companies want to go so close to people?' So I described the Renewables Obligation, which explains this strange behaviour.

For these and many other reasons we badly need to

The East Stoke proposal, as seen from about 650 yards away. The thin mast in the middle, with two workmen visible near the top, is already erected. It is about 250 feet high and 27 inches in diameter. The turbines are over 400 feet high and 7 feet in diameter so will be even bigger than they appear here.



East Stoke church will be dominated by the turbines



re-think our position. We have a renewables policy that is uneconomic, unsustainable and ineffective. Security of supply and climate change policy should take priority over renewables policy, which is a means to an end, not an end in itself. Natural unpredictability, eg. variations in wind speeds, limits the scale and value of many renewables. Consequently, we should favour those renewables – tidal, biomass, for example – which work well alongside the rest of the electricity system; Dorset has interesting potential in this area. We should also be looking to organic energy for transport and heat, and into domestic renewables where they can be combined with energy efficiency measures. Here again, rural areas such as Dorset can make a national contribution by serving local needs in a truly sustainable way.

And yes, wind power will have a role, perhaps up to 17% of UK peak load, at which point the grid management costs will probably be tolerable. But this role will be almost exclusively in offshore locations which are windy, distributed around the coast to maximise power smoothing, and close to centres of consumption. That's the sort of well-engineered example that might just impress China.

The Renewable Energy Foundation is a UK registered charity which publishes data and research on renewable energy, including detailed performance statistics for all 900 renewable generators under the Renewables Obligation. For further information see www.ref.org.uk.

The scheme for a wind farm just to the west of Silton, on land at Manor Farm owned by the Harris family, was first made public at the end of January when the developers, Ecotricity, asked for an initial opinion from the planning authority, North Dorset DC. A full planning application is expected to be submitted in the early summer. Ecotricity were the developers behind the proposal for a

wind farm at Cucklington, not far over the county boundary, that was thrown out by South Somerset DC.

The planning application for the East Stoke project has already gone in, even though the developers, Infinergy, have only just erected a 250-foot mast which is supposed to gather data on wind speeds and frequency for a year. The planning authority, Purbeck DC, have started consultations and the matter is unlikely to be determined before the autumn. Four turbines would be erected near the Puddletown Road, on land owned by William Bond of East Holme.

Looking south-east from Bourton over the Silton site. People in Shaftesbury will actually be below the tops of the turbines.

A peaceful (?) afternoon in North Dorset

