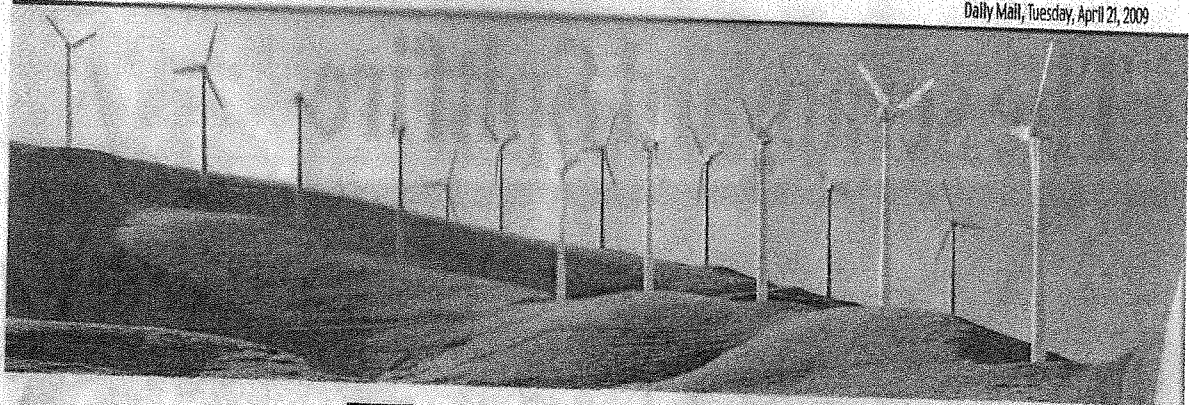


Langford Parish Council's response to the proposal for 16 turbines

Relevant press cuttings



THERE can be few more dramatic ways to create energy to boil a kettle. A few feet above my head, a giant blade scythes through the air. It is razor-sharp, travels at about 90mph, is 130ft long and weighs some nine tons. Moments later, a second blade does the same thing, followed by a third.

The three rotors are attached to a 210ft-tall white tower which looms to the same height as St Paul's Cathedral — although many would consider it considerably less beautiful — and



by Michael Hanlon

SCIENCE EDITOR

can be seen from miles around. I am standing in the middle of Black Law, one of Europe's largest wind farms, and the mill churning over my head is just one of dozens of giant turbines, some of the biggest in the world, which are plastered over an expanse of heath between Edinburgh

and Glasgow. It is an extraordinary, imposing sight — and one that is becoming commonplace across Britain.

To their supporters, these wind farms are the future. A carbon-free solution to the two great crises of our age — climate change and the energy gap.

But to others the spread of windpower is a catastrophe, threatening to despoil our beautiful countryside as an increasing number of hills and mountains succumb to regiments of giant white windmills.

Wind farms are, it is claimed, noisy and they allegedly shred flocks of birds as effectively as aircraft jet engines. Worst of all, say the anti's, wind technology simply doesn't work. It will neither solve the energy crisis nor halt climate change. Salvation, they say, lies elsewhere.

So who is right?

Wind power has certainly built up a head of steam. Environment Secretary Ed Miliband said last month that opposing wind farms is as 'socially irresponsible as not wearing a seat-belt'. Wind power tugs the emotional heartstrings of the greens because it is a clean technology.

What's more, Britain is the most reliably windy country in Europe.

To meet EU targets stipulating that we must get 20 per cent of our energy from renewable sources by 2020 — and wind is seen as the only mature technology able to deliver it.

There are already plans to build huge wind farms across some of Britain's most glorious landscapes — for example, the peaks of Skye, the lakes and fells of Cumbria and the

but this includes *all* the electricity we use, including in industry and farming. At the moment, about 20 per cent of our needs are provided by nuclear power, 40 per cent by gas-fired electricity generators and some 33 per cent by using coal. The remaining fraction is provided by a mixture of renewables (including existing wind farms), imported electricity from France and a small amount of oil-generated electricity.

However, in the future, that equation will look very different.

Demand will rise rapidly. In 30 years' time, there will be another eight to 12 million people living in the UK — the equivalent of another London — enough to push up electricity demand by the equivalent of at least 150 cups of tea per person per day.

Another factor that will have an effect is the big drive to switch road transport away from fossil fuels to some sort of electric power. By 2050 a significant proportion of our trucks and cars may be driven by battery power, putting a huge extra strain on Britain's generating capacity.

Cambridge University energy expert David MacKay has calculated that electricity demand will nearly triple by 2050.

ON TOP of this, two large nuclear reactors, Hartlepool and Heysham, will be closed within five years. By 2009 all our atomic plants

plans to build huge banks of turbines in the waters off our coast. These are expected to cover areas the size of small counties.

Tens of miles out to sea, they will churn away, harnessing the power of the endless Atlantic westerlies and North Sea gales.

There is no doubt that, in terms of global warming, wind power, superficially at least, makes a great deal of sense.

Wind turbines are not totally carbon-free; some CO₂ is created during their construction and maintenance. Building 10,000 giant metal and plastic turbines and installing them tens of miles offshore will be energy intensive and will create a sizeable carbon footprint — several tens of thousands of tonnes of CO₂ for a small wind farm.

But the same is true of building any form of power station and, as a result of the current energy crisis, we are going to have to build a lot of new power stations of one sort or another in the coming 20 years.

The best way of quantifying carbon dioxide pollution is to talk in terms of grams of carbon dioxide per kilowatt hour of electricity generated (one kilowatt hour is about enough to keep an electric kettle boiling for 20 minutes).

AND It is clear that wind does very well — simply because once the turbines are operating, they require no further fuel. Engineers calculate that coal-fired electricity 'costs' about 900 grams of CO₂ for 1kWh, compared to 445g/kWh for gas.

Wind, on the other hand, has a footprint of just 5g/kWh to make the same amount of electricity. The figure for nuclear power is very similar to that for wind.

So, one-nil to wind. But, from now on, the arguments get a lot muddier.

The first stems from the sheer scale of the energy gap.

Britain currently uses about 17 kilowatt hours per day of electricity per person. In simple terms, this equates to the amount of electricity needed to brew up about 1,000 cups of tea per day for each and every one of us.

This might sound like an awful lot,

closing down, too, as European regulations increasingly deem them too polluting to keep going.

So, within a decade, if no new power generators are built, we will have lost a third of our electricity generation. By the 2020s, a colossal 'energy gap' will have opened up, potentially leaving Britain in the dark.

But then, to make things worse, there is the issue of global warming. According to climate scientists, Britain, along with other industrialised nations, must slash its dependence on fossil fuels — not by a few per cent, but by half, maybe even 60 to 70 per cent. Effectively, that means closing all the coal- and gas-fired stations, which rely on 'dirty' fossil fuels.

So can wind power be our saviour? It is, as we have seen, pretty well carbon free (at least compared to most other forms of power generation). Surely, objectors are just guilty of nimbyism and, anyway, some people actually like the huge turbines?

The main problem with wind farms is that to fill the energy gap by harnessing the wind is hopelessly uneconomic. And trying to do so would ruin Britain's countryside.

To go fully 'green' — and keep the kettles boiling — Britain would effectively need to re-engineer the entire country, and the cost to our rural areas would be profound.

We would have to cover every mountain and fell in the land with more wind turbines than currently exist in the whole world (there are currently only 2,500 wind turbines on- and offshore in the UK) and, to cope with the inevitable fluctuations in wind power, we would need to dam dozens of our largest lakes, to provide hydroelectric power as a back-up.

Britain would need, in effect, to be turned into a gigantic power station.

Even if the Government persuaded the public that this was the answer, there are many more fundamental problems.

Overall, wind energy has a 'capacity factor' of just 30 per cent. Because the wind does not always blow, a given set of turbines will only, on average, be producing about a third of the electricity that they could in theory produce.

This is not the case with other forms of power generation. A nuclear plant, for example, runs at near 100 per cent capacity all the time that it is actually functioning. There are two solutions

Green energy is not such a breeze

David Wighton Business Editor's commentary

The Times

26/3/9



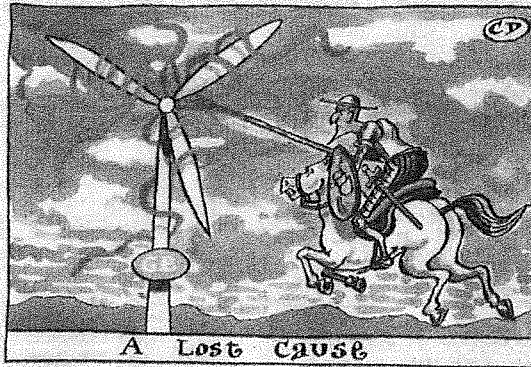
One by one, the energy giants that hoisted green flags and trumpeted their conversion to renewables are ducking and diving and hiding behind the curtains.

Iberdrola, a big investor in wind farms in Spain and the owner of ScottishPower, is slashing its spending on renewables by 40 per cent. Shell said recently it would no longer invest in wind turbines, preferring to focus its efforts on new biofuel technology, while BP has opted out of the UK renewables market, deeming it to be a poor bet.

It is tempting to see the great push for renewable energy in Europe as a fair-weather phenomenon. The performance of Britain's turbines is a case in point — for much of January they were operating at about 10 per cent of capacity. That should be no surprise, given that periods of severe cold (or heat) coincide with lack of wind, but it doesn't help when a utility is trying to deliver power into the grid, not to mention returns to its shareholders.

These issues are critical, because we need to begin building more power capacity today if we are to avoid blackouts by 2015 when we are committed to closing old coal-fired power stations.

People who can build these things are saying that they are not



convinced. Shell last year pulled out of the London Array, a £3 billion wind farm in the Thames Estuary capable of supplying 750,000 homes. The remaining investors are hinting heavily that without more government bungs, the mills won't spin. Without reforms of the tortuous British planning process, the prospects for development of onshore windfarm looks bleak.

Everyone is openly looking at gas, which gets cheaper by the day, and utilities drool at the thought of coal, where the price has fallen so far that mines are closing in Australia

'Investors are now hinting that without more bungs the mills won't spin'

and Russia. Gas is a short-term solution, but it cannot be the only option if we are to avoid a rising dependence on Russia for fuel.

All of this is embarrassing for a Government that likes to portray itself as the champion of green causes. But it is pointless for Ed Milliband, the Minister for Energy and Climate Change, to berate utilities for not building stuff that is uneconomic and, anyway, cannot be relied upon to deliver the power we need at the flick of a switch.

The Government needs to decide whether it is prepared to commit the nation to a very expensive energy future or whether it would rather hedge its bets and build a few coal-fired generators, just to keep the lights on.

From Daily Tegrath

Power overload

A rise in renewable power is pushing the "outdated" National Grid to breaking point, it was claimed yesterday. Experts at Inenco, the UK's largest energy analyst, said the network could not cope with extra electricity generated by small-scale wind turbines, wave turbines and solar sources.

News

CHRISTOPHER BOOKER



Britain has never concocted a crazier plan

LAST WEEK, amid the clouds of self-righteous fanning blowing out from Bali, Gordon Brown committed us to what I do not hesitate to call the maddest single decision ever made by British ministers. It was announced by John Hutton, Secretary of State for Business, Enterprise and Regulatory Reform, that we are to build 7,000 giant offshore wind turbines round Britain's coast by 2020, to meet our EU target of renewable energy. It will be the largest concentration of such industrial monsters in the world, enough, claimed Mr Hutton, to power every home in the country.

No matter that Mr Hutton's officials warned him in August it was not conceivable that we could achieve even a much lower target. So keen was Mr Brown that Britain should "lead Europe on climate change" that Mr Hutton was told to ignore his officials and the media reported his claims without questioning whether such a megalomaniac project was remotely feasible.

For a start, no one mentioned costs. Mr Hutton spoke of his turbines, equivalent to our every half mile of coastline, as having a capacity of 33 gigawatts (GW), a hefty chunk of the 75GW of power we need at peak demand. But with the cost of giant offshore turbines, as tall as 850 feet, estimated at £1.6 billion per GW of capacity, this represents a bit of more than £50 billion - equivalent to the colossal sum earmarked last week by central banks to shore up the world banking system.

But of course the point about offshore turbines is that, because wind blows intermittently, they only generate on average at a third

or less of capacity. So Mr Hutton's 33GW figure comes down to 11GW. To generate this much power from "carbon-free" nuclear energy would require six or seven nuclear power stations and cost, at something under £20 billion, less than half as much as the turbines.

This, however, is only the start of the madness. Because those turbines would generate on average only a third of the time, back-up would be needed to provide power for the remaining two thirds - say, another 12 nuclear power stations costing an additional £30 billion, putting the real cost of Mr Hutton's fantasy at nearer £80 billion - more than doubling our electricity bills.

We are committed to raising two turbines every working day for the next 12 years

But we must then ask whether it would be technically possible to carry out the most ambitious engineering project ever proposed in Britain. As pointed out by energy expert Professor Ian Fells, this would require us to raise from the seabed two of these 2,000 ton structures every working day between 2008 and 2020. Denmark, with the world's largest offshore wind resource, has never managed to build more than two a week, and marine conditions allow such work for only a third of the year.

It is not only on this count that Britain and Hutton's dream is unrealisable. The turbines' siting would mean that much of the

national grid would have to be restructured, costing further billions. And because wind power is so unpredictable and needs other sources available at a moment's notice, it is generally accepted that any contribution above 10 per cent made by wind to a grid dangerously destabilises it.

Two years ago, much of western Europe blacked out after a rush of German windpower into the continental grid forced other power stations to close down. The head of Austria's grid warned that the system was becoming so unbalanced by the "excessive" building of wind turbines that Europe would soon be "confronted with massive connector problems". Yet Mr Hutton's turbines would require a system capable of withstanding power swings of up to 33GW, when the only outside backup on which our island grid can depend is a 2GW connector to France (which derives 80 per cent of its electricity from nuclear power).

Nothing better illustrates the fatuity of windpower than the fact that Denmark, with the highest concentration of turbines in the world, must export more than 80 per cent of its wind-generated electricity to Norway, to prevent its grid being swamped when the wind is blowing, while remaining heavily reliant the rest of the time on power from Sweden and Germany.

The Danes, who decided in 2002 to build no more turbines, have learnt their lesson. We British have still to learn it. Every time we hear that over-used term "green" we should remember it has another meaning, someone who is naively foolish and dangerously gullible.

Denmark built thousands of turbines but decided in 2002 to build no more.

TODAY, a giant new wind turbine soars the height of a London tower block above the Mendip hills where I live in Somerset. A perfect symbol of what is arguably the greatest single political madness engulfing Britain today.

Although this 330ft monster will produce an income of £500,000 a year for the company that built it — nearly half of it in subsidies paid by all of us through higher electricity bills — the amount of power it contributes to our national grid will be so derisory as to scarcely register.

I know something about this turbine because I was the chairman of a group which was set up to campaign against it.

When we persuaded our local council unanimously to reject it, on the grounds that it broke all the normal planning rules, we thought we had won the argument.

But then a government inspector was sent to Somerset from London to rule that this decision had to be set aside. All that mattered was that we must meet a target set by the EU, which requires Britain within the next 12 years to generate 38 per cent of our electricity from 'renewable' energy sources.

Hopeless

At present, barely 1 per cent of this country's power comes from the 2,000 wind turbines already built — less than the output of a single conventional power station.

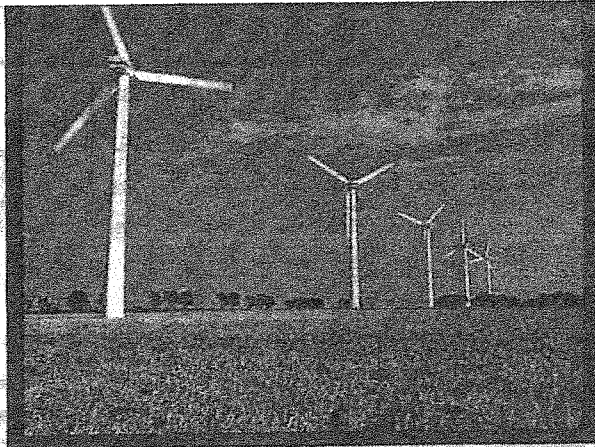
That is why, in response to the EU's requirements, the Government is today publishing its plans for a massive new drive to build thousands more turbines, at the staggering cost of £100 billion.

Here we are already into cloud-cuckoo land. To comply with the EU's wishes, we would actually need to build at least 30,000 turbines.

In fact, as the Government knows, there is not the remotest chance that we can meet that EU target, which is why it talks about building only 10,500 new turbines — 7,000 offshore, another 3,500 across our countryside.

On its own figures, the Government is already implicitly admitting that we shall hopelessly miss our target. Of course, ministers do not tell us that.

But this is only the start of the



by
Christopher Booker

meet even the Government's own much smaller target.

To build those turbines offshore alone would mean lowering 7,000 colossal steel structures into the seabed, each the size of Blackpool Tower, at a rate of more than two every working day between now and 2020.

In practical terms alone this is sheer pie-in-the-sky. The technical resources are simply not available to achieve more than a tiny fraction of this figure.

But there is another important point the Government is trying to conceal about this crackpot policy, as it always does when it is talking in Walter Mitty numbers about the supposed benefits of wind power.

This is the unavoidable fact that wind speeds around the British Isles are constantly varying, often providing no power at all — so that the electricity actually generated by these turbines represents only between a quarter and a third of their nominal 'capacity'.

What this means is that conventional coal, gas, oil or nuclear-fired power stations must be on permanent stand-by to provide all the electricity the turbines are not able to

produce when the wind is not blowing.

Earlier this month, Paul Golby, the chief executive of the German-owned E.ON (one of our largest electricity companies), came up with the shattering admission that the back-up needed for our new wind turbines would amount to 90 per cent of their capacity.

This alone would mean building scores more gas and coal-fired power plants, to guarantee continuous supply during those times when the wind is not blowing and therefore the turbines are not generating any electricity.

Madness

It is this which reveals the true enormity of the madness now confronting us — because Britain already faces an unprecedented crisis over its energy supplies, even before our infatuation with wind power is taken into account.

For the sum of £100 billion which the Government plans to spend on the new turbines, we could buy 37 'carbon-free' nuclear power stations at current prices, permanently supplying enough electricity to cover all our current needs.

And we need this new generating capacity right now.

Within seven years, due to the obsolescence of the existing nuclear plants (which still supply 20 per cent of our electricity) and the forced closure of nine more coal and oil-fired plants under new EU anti-pollution rules, we stand to lose well over a third of the capacity we need to meet peak demand.

This alone threatens disaster, since the Government still does not have any concrete plans in place to make up the shortfall.

Myth

We thus face the real prospect not just that our lights will go out, but that we should lose the use of the computers on which our offices, supermarkets, hospitals and transport system now depend to supply us with the necessities of life.

Yet, on top of this colossal policy failure, our Government is now babbling about a massive drive for wind power which could only make this disaster infinitely worse.

All this represents such a flight from reality that it is hard to think of any historical precedent.

The only beneficiaries from this madness are the handful of companies now looking forward to a massive bonanza, as the Government pulls out all the stops, such as further bending the planning rules, to enable them to build thousands more virtually useless wind turbines.

A great myth about wind power is that it is a 'free' source of energy. The wind itself may be free, but the cost of harnessing it (and providing the vital back-up) makes electricity from wind up to three times more expensive than that from the conventional power plants, which still provide 96 per cent of all our electricity.

The only reason why it pays developers to build turbines is the huge hidden subsidy we all give them through our electricity bills.

The electricity companies are compelled by law to buy the energy from these turbines at nearly twice the normal price — and then pass on the extra cost to us.

In years to come, we shall look back on 'the great wind scam' as having been one of the greatest blunders of our age. But right now it seems not the slightest think of reality is breaking in on this madness.

Our opposition parties seem just as much in its grip as those who rule us in Westminster and Brussels. Alas, Britain's energy policy is today blowing in the

For the same sum you
could buy 37 'carbon-free'
nuclear power stations

Britain steps on the gas as switch to wind stalls

The Times 26/3/09

Fears for 'green energy' after investment is slashed

Robin Pagnamenta
Energy and Environment Editor

Plans to build hundreds of wind farms were thrown into disarray last night after the world's biggest investor in wind power said that it was slashing its investment programme in Britain.

The decision comes less than two months after ministers backed a string of huge gas-fired power stations, prompting concern that the Government cannot deliver on its promise of a green energy revolution.

Iberdrola Renewables' decision to cut its investment here by more than 40 per cent, or £300 million — enough to build a wind farm powering 200,000 homes — is the latest blow to Gordon Brown's target of generating 35 per cent of Britain's electricity from renewable sources by 2020.

Lifting it to that level from the

current 5 per cent will cost an estimated £100 billion. But wind energy investments have collapsed as funding dries up in the credit crunch and the price of oil, gas and coal has fallen. Delays obtaining access to the national grid and planning permission have compounded the industry's woes.

"We are way off the pace," said Jonathan Porritt, the head of the Sustainable Development Commission. "The UK has talked about this for years but the Government now has very little time to get this together. People just do not consider the UK to be a good place to invest in renewables."

Shell said this month that it was pulling out of all new investments in wind and solar energy. Last year it withdrew from London Array, a £2 billion project to build 341 turbines in the Thames Estuary. Questions have also been raised over the future of

power's £2.2 billion Gwint y Mor farm off the Welsh coast. BP shelved plans in November for a wind farm on the Isle of Grain, in Kent, and said that it had no plans to invest in other renewable energy projects in Britain.

Duncan Ayling, of the British Wind Energy Association, said: "We need strategic leadership from the highest levels... We are only going to do this if the Government is brave enough to tackle these problems head on."

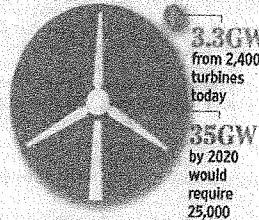
A recently approved gas-fired station in Pembroke will be the largest in Britain, producing 2,000 megawatts, two thirds of the total produced by all of Britain's wind turbines put together.

Xabier Viteri, chief executive of Iberdrola Renewables, whose Spanish parent owns ScottishPower, blamed the economic crisis for the cutback, but added that problems in Britain threatened to force his company to consider investing elsewhere.

Ed Miliband, the Energy Secretary, described opposition to wind farms this week as "socially unacceptable... like not wearing your seatbelt or driving past a zebra crossing".

David Wighton, page 43

Tilting at windmills



SOME have been at pains to tell us that Ed Miliband, younger brother of Foreign Secretary David, is really brainy. Nice to hear it.

But since he said that having doubts about the efficacy of wind turbines as power-producers is the same as driving through a zebra crossing, we shall have to revise our view.

Let me offer just three facts about these huge constructions — scientifically verified facts, not propaganda. First, even the pro-windmill fanatics admit they can only ever produce 30 per cent

THE TRUTH ABOUT TILTING AT WINDMILLS

of their absolute maximum yield. But records so far prove they are generating a small fraction of that 30 per cent. Second, every time the wind dies and they cease turning a conventional back-up generator has to cut in. (These are the gas/oil/coal devices we are trying to get rid of.) As with a car, if you keep stopping and starting you use lots more fuel, much more than the windmills are saving. There is a single windmill on the M25 near me

and every time I drive past it I check its rotation. One rev per 10 seconds, the time from first-sight until it passes behind me, is about right. That would power a Teasmade. Third, the enormous block of concrete in which it must be set, the excavation work, the underground pipe and cable network, linkage to the grid many miles way — all require energy use generating more CO2 than the windmill will save in its first 10 years of

operation. So who swallows the propaganda about them?

The dim, the politically correct, the gullible and the greedy. Why greedy? Because the subsidies attached to having one built are so huge that rapacious landowners with a piece of ground miles from the nearest breeze, let alone half-gale, are clamouring to have one built. Lord Thomson of Fleet once remarked that owning an ITV franchise in the early days was "a licence to print money".

Now we have a new one: windmill building.

FRANCIS FOLSHAM DAILY EXPRESS FROM 32 APRIL 2009.

Wind farm off the radar and powering ahead

Daily Telegraph
18.05.09

After 10 years of planning and three of construction, Whitelee is about to become fully operational, writes **Garry White**

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.

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

The long road to Whitelee

- The site was first identified approximately 10 years ago
- Planning application was first submitted at the end of January 2002
- Following concerns about potential interference with the radar at Glasgow Airport, a new radar tower was constructed at a disused power station in Kincardine. Glasgow Airport is now served by two radar stations.
- Construction began in October 2006
- The initial project has 140 turbines with a capacity of 322 MW (megawatts).
- Plans have been submitted for 36 more turbines. A possible second extension would add a further 45 turbines.
- If all these are built, Whitelee could power over 340,000 homes (Glasgow has about 290,000 households).
- As part of the wind farm construction 90km of roads and tracks have been built that, on completion of the project, will be opened up to cyclists and ramblers.
- 970 kilometres of cables have been laid at the site to connect the turbines.

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.

Input from an engineer

1 Report to M.P Alastair Burt on visit to developers showcase site

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[REDACTED]
[REDACTED]
Gamlingay,
Sandy,
Beds.
SG19 3LG

24th March 2009.

Alistair Burt MP,
C/o Biggleswade Conservative Club,
St. Andrews Street,
Biggleswade,
Beds. SG18 8BA

Dear Mr. Burt,

Proposed LANGFORD (/Biggleswade) Wind Farm.

I was pleased to accept the opportunity to visit the existing Co-operative Wind Farm located at Coldham on Saturday 21st March, in fact I reserved the last available seat on the Langford coach.

There was a great deal of discussion and speculation among the residents awaiting the arrival of the transport and these exchanges of view continued throughout the journey. I should explain that I have no opinion for or against the creation of wind farms since I consider we need to manage alternative forms of power generation, although windpower may not yet prove to be the best option in this island compared with the energy which might be harvested from wave/tide motion and barrages.

I am an engineer, now retired, but I have a particular interest in the current and similar proposals because of a considerable amount of work I undertook 35 years ago in the design and manufacture of small scale Aerogenerators of typically less than 1 kW output to maintain battery banks servicing GPO/AA/RAC telephone kiosks and Radio Relay facilities located away from mains power supplies. A specific requirement of these installations was to generate even low trickle charge rates in wind speed conditions as low as 3 mph while able to withstand storm conditions and gusting of 70 mph. There was a limited market for these devices once Solar Cell technology had been optimised and other competitors in the field relocated their efforts to yachting applications providing back-up to battery operated Bilge Pumps although we did offer a version which could be simply hauled up the mast cleat channel when the craft was moored or unattended.

I took 3 types of equipment to the Coldham visit expecting to obtain sound level measurements, photographic records of the installations and Video of any operational systems.

On site we were given an introduction by three representatives concerned with different aspects of the site and operation of the plant. This proved to be technically interesting as questions were mostly treated seriously. A particular point of interest was the modern introduction of asynchronous generation systems which now permits the blade hub rotation to operate at a range of speeds between 12 and 19 rpm taking advantage of variations of wind speed and gusting without the rotation having to be constant with direct coupling limited to an electrical output of strictly 50 hertz frequency.

We were transported to the base of No 5 turbine and there was general comment that under the light breeze conditions there was little or no sound other than a low level of mechanical gear-train noise.

I proceeded to shoot some video and soon realised because of the enormous scale of these structures it proved impossible to keep a complete turbine in frame and found the same situation with my wide angle still photographs.

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My attention then turned to Sound Levels and I found that typical readings on a dB“A” weighted scale produced results in the high 40s region but there seemed to be some confusion as to the direction from which higher values could be obtained. While I was investigating this directional property a slight increase in the wind was noticed accompanied by a whooshing sound as one or more of the turbines came on load causing the blades no longer being feathered. The hubs rotate in even the lightest breeze but only create audible sound when they start to generate a power output.

I was further confused with the sound readings and investigated using the dB“C” weighted scale which provides information including low frequency elements from a sound source. More confusingly the higher readings (peaking over 80dBC) seemed to be from another turbine located way over to the left of the area rather than from the unit we were grouped around. I had paced out my test location 15 metres from the base of the tower should this information later be required for any comparison.

My subjective observation suggested that it was impossible to determine the specific source of the sounds based on the assumption that only the nearest turbine was actually on load. I was joined by one of the representatives who was interested in my obvious attempts to evaluate sound levels. He advised that use of the dBC weighted scale was inappropriate as the manufacture’s specifications only measured “Noise” on the dBA scale, I thought this to be very interesting although it appears from this brief outing that measuring any sort of sound level under operational site conditions is difficult. On a couple of occasions it was mentioned that Wind Turbine performance specifications have been produced by both Denmark and Germany’s national standards organisations with which of course these turbines effectively comply.

I took the opportunity to ask the representative concerning conditions when several turbines might be operating under load at various rotational speeds within the permitted range, did the combination of blade tip generated sounds from different machines combine to create beat frequencies which might be concerning even if at sub-audible frequencies? The gentleman did not really seem to understand the basis of my question.

At another point in this conversation he had explained that the specific sound I was hearing derived from air (vortices?) spilling from the tips of the blades on the tower to which we were adjacent rather than the distant turbine I had been considering. Many observers were able to enter the access hatch in small groups at the base of this tower, but although I did not join the queue for this element of the visit I did get close enough to the entrance to note there appeared to be little if any sound conducted down to the base foundations.

On reviewing my limited Video sequences back home I was surprised to discover that I had unwittingly recorded various sounds including the blade sources after the breeze developed. Without any attempt to edit this footage I have transferred the 2 minute sequence to DVD.

The first scenes provide a view of the observers close to the tower with the coach intended to provide some measure of height reference and the audio includes the general low level of conversations.

A later scene briefly returning to the tower after the breeze had increased includes the soundtrack produced by the blades while under generating load. This unedited footage seems to have captured far more interesting information than my attempts at direct measurement. I am offering you the enclosed DVD which might be of interest to the organiser(s) of the meeting I understand you are chairing on March 28th at Langford. As the original video runs for only a short time I have recorded 8 copies of the same sequence on this disc which might be of interest if set up on a PC/laptop and allowed to free run with an audio system as a side presentation at the meeting.

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You will observe that I am not a Langford resident but I share many of the reservations concerning wind farms I have heard expressed. Having studied literature presented by the Co-operative and other authorities on the location of turbines and multiple sites there are various references concerning the proximity of installations to dwellings.

The location of the Wind Farm at Coldham would appear to adequately meet such specifications as probably does the neighbouring Eon facility. The representational views I have seen for the proposed Langford project seem to ignore the close proximity of the many homes, indeed where photographs have been used to predict the views of the proposed site it appears that viewpoints have been chosen which specifically avoid inclusion of any dwellings.

If necessary I apologise that this covering memo has turned into an essay but I would like to add one further point. I deliberately made contact with a genuine Langford resident who I had noticed was using a Sound Meter. I was able to meet up with him for the return journey. We discussed many aspects concerning the difficulty of making meaningful measurements on a windy active site, he provided me with his business card and if anybody should be in need of further empirical sources of information I am sure he would be prepared to be contacted. I expect that like me he will make the effort to attend next Saturday's Langford meeting.

Yours sincerely,





Report to Langford Planning Committee from an engineer

A copy of the DVD referred to is enclosed.



