

Wind power

Your questions
answered



Sustainable
Development Commission

In 2008 there were over 180 wind farms operating in the UK, using more than 2,100 turbines, providing enough electricity for 1.5 million homes.

Wind power is one of many forms of renewable energy, other examples being solar, wave, tidal and biomass.

UK wind resources are more than enough to provide 20% of UK electricity by 2020.

Those residents closest to wind turbines often prove to be the most enthusiastic advocates of wind power.

Wind power reduces greenhouse gas emissions by displacing power generation from fossil fuels.

70-90% of people support wind power both in principle and in practice.

Did you know?

Noise levels from wind farms are on a par with rural background noise at night time.

The involvement of the local community at all stages of developing a site is the key to success.

Not all sites are right for wind power, and designated areas should continue to receive a high level of protection.

Early consultation with nature conservation organisations is essential to help developers and planners ensure appropriate siting, design and construction of a project.

The intermittency of wind power does not cause any technical problems. Wind turbines displace conventional power plants, and do not require dedicated backup capacity.

Foreword

by Jonathon Porritt, Chair, SDC 2000-2009



'Most people in the UK support the principle of harnessing wind to generate electricity. Wind is freely available and will never run out. It can help bring energy production, and security of power supply, closer to home.'

In practice, wind power generation is highly controversial, often provoking fierce grassroots opposition and high-profile campaigns against plans to build new developments. This presents considerable problems for planners and decision-makers at all levels of government as they seek to balance genuine local concerns with wider environmental and social needs.

Good decision-making requires reliable, up to date information – based on the best available scientific evidence. As the Government's advisors on sustainable development, we want to increase public awareness about the key facts and issues about wind power, so that people can make up their own minds, and respond accordingly.

Climate change – through the gradual warming of the planet – makes the development of cleaner sources of energy ever more urgent. Energy saving – reducing demand and our reliance on traditional fossil fuels that still provides most of our electricity generation – must go hand in hand with the shift towards renewable energy sourcing.

In this guide, we seek to provide authoritative answers to commonly asked questions about the potential of wind power. We have drawn on national and international scientific research, public opinion polls – and evidence about long-term public attitudes to wind farms. If you are opposed to wind power, we hope we can give you some facts to re-consider; if supportive, you may want to show copies of this booklet to your colleagues; if unsure, then this information will help you decide.

The booklet is structured around the range of questions most commonly asked about wind power. All of the issues dealt with here are explained in more detail in the SDC's comprehensive report on wind power: *'Wind Power in the UK'*. This can be downloaded from our website at www.sd-commission.org.uk. Your feedback and comments are welcome – please visit our online web forum.

A photograph of three children smiling and looking towards the camera. They are standing in front of a tall, white wind turbine tower. The child on the left is a girl with brown hair, wearing a dark jacket. The child in the middle is a boy with blonde hair, wearing a dark jacket. The child on the right is a girl wearing a pink hat with earflaps, glasses, and a purple jacket. They appear to be holding onto a red handle or part of the turbine's base. The background is a bright, overcast sky.

This booklet draws on our 166 page,
comprehensive report
'Wind Power in the UK'
– also available at
www.sd-commission.org.uk/wind

Brandon Clements, Rhona Earnshaw and Phoebe Brown
turn on the Isle of Gigha Dancing Ladies.

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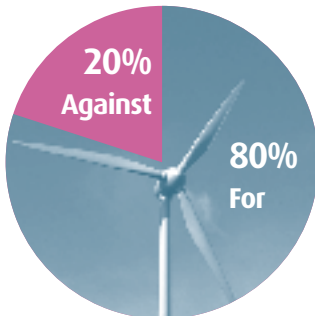
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1

People's views on wind power

Research shows that people's feelings about wind farms relate to their personal experience of them. They usually become more positive and supportive of them once they are up and running. More than 50 public opinion surveys have been carried out since the UK's first commercial wind farm opened in 1991. Some common features have emerged.

Those closest to wind turbines often prove to be among the most enthusiastic advocates of wind power. Interestingly, the closer they live to turbines, the more likely they are to support wind power. Consistently, a majority of survey respondents – often 70-90% – say they support wind power both in principle and in practice, locally and nationally. Many fears about wind developments tend to subside after the rotor blades start turning, as people's views are shaped by their actual experiences rather than any pre-conceptions they may have had. This process helps to generate a more positive overall attitude within communities, and often a sense of pride in what's been achieved as a result of public consultation and engagement.



WIND POWER ✓ ADVANTAGES

- ✓ Reduces carbon dioxide emissions and air pollution
- ✓ Free, available – it won't run out
- ✓ No need to dig underground, or drill for it
- ✓ Adds to our fuel security
- ✓ Flexible – can be generated on land and at sea
- ✓ Technology and design is improving all the time
- ✓ Becomes more cost-effective as more wind farms are built
- ✓ Low de-commissioning costs
- ✓ Can contribute to rural regeneration
- ✓ Minimal risks of serious accidents
- ✓ Quick to build and easy to remove

WIND POWER ✗ DISADVANTAGES

- ✗ Landscape and visual impact
- ✗ Wind generation is variable (or intermittent)
- ✗ May slightly increase consumers' electricity costs
- ✗ Older wind farms cause some concern over noise
- ✗ Potential wildlife and ecological impacts
- ✗ Potential conflict with radar and aviation needs
- ✗ Perceived impact on house prices and tourism

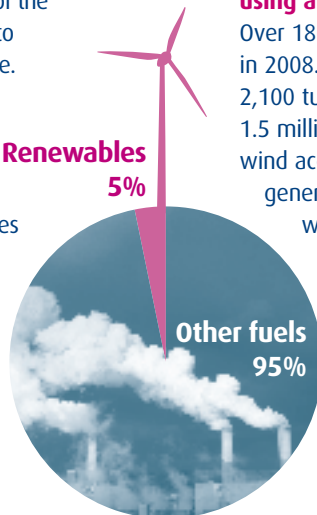
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Why wind power is being encouraged

Human activities are having an adverse impact on the global climate. The burning of fossil fuels, such as coal, oil and gas, for electricity generation and motor transport creates emissions of greenhouse gases. There is now an overwhelming international scientific consensus about the cumulative effect of these emissions – worldwide changes in temperature and rainfall, rises in sea level, and more frequent extreme weather conditions.

Unless action is taken to reduce these emissions, densely populated areas of the south and east of the UK are vulnerable to a rise in sea level and other parts of the country from extreme weather conditions. Large parts of the world – including low-lying developing countries throughout Asia – will suffer catastrophic consequences.

Some of the energy solutions needed to reduce carbon dioxide emissions lie in the very geographical features of the UK that make it vulnerable to the effects of climate change. Its exposed off-shore location in the north-east Atlantic Ocean, makes the UK ideally placed to harness wind, wave and tides to create clean energy.



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Delivering clean energy – The role of wind power

Wind power is one of many forms of renewable energy, other examples being solar, wave, tidal and biomass (energy from forestry or crops). What is distinctive about renewables is that they are inexhaustible, locally available and they produce no harmful greenhouse gas emissions.

Why do we need wind power?

Wind is one of the most cost-effective and technologically advanced renewables available in the UK. The Department of Energy and Climate Change (DECC) has indicated that onshore wind power is already economic. As other sources of clean energy demonstrate their practical value and become more commercially viable, onshore wind power generation may become less dominant in the broad range of renewables.

How much wind energy are we using already?

Over 180 wind farms are operating in the UK in 2008. Together they are using more than 2,100 turbines, providing enough electricity for 1.5 million homes. Renewable energy such as wind accounted for only about 5% of electricity generation in 2007. The areas with the most wind farms are Scotland, Wales, Cumbria and Northumberland, Northern Ireland and Cornwall. Not all wind farms are large-scale developments – some have just one or two turbines.

Why is the UK setting targets for increasing use of renewables?

Several factors are driving the shift towards renewable energy sourcing, and the setting of targets for increasing our use of them. Firstly, we have climate change and emissions reductions targets. Secondly, supplies of traditional fuels such as oil and gas are becoming more expensive, and the UK's reserves are in decline. We need to strengthen our energy security. The EU Emissions Trading Scheme will make the use of fossil fuels – especially carbon-intensive coal – less attractive in future. This is because a price is being placed on carbon emissions providing financial incentives to minimise these in all industrial processes, including electricity generation.

What are these renewable energy targets?

Under international targets agreed in the Kyoto Protocol, and adopted by the UK Parliament in 2002, the UK has pledged to cut its greenhouse gas emissions by 12.5% by 2012 – compared to 1990 levels. In 2008 the UK Government committed itself to cutting greenhouse gas emissions by 80%, on 1990 levels by 2050. It made the target binding in the 2008 Climate Change Act. Carbon dioxide is the largest single contributor to climate change.

In 2007 the UK agreed to an EU-wide target of 20% renewable energy by 2020. The UK's proposed contribution to this target is to achieve 15% of energy from renewables. In 2006 only 1.5% of final energy consumption came from renewable sources. Scotland, Wales and Northern Ireland have made their own arrangements for increasing their use of clean energy, with Scotland aiming for 50% renewables generation by 2020 and 31% by 2011.

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Alternatives to wind power for cutting greenhouse gases

Increasing our use of clean energy sources will make a vital contribution to reducing the impact of climate change. But other strategies must also be pursued, primarily boosting our energy-efficiency.

Shouldn't we focus on energy saving, rather than support new ways of producing it?

We need to do both. Reducing the nation's demand on the national grid – through energy saving, and changing our everyday behaviour – is not an optional extra in the drive to tackle climate change effectively. It's essential, and it represents perhaps the most cost-effective way of meeting our obligations to cut greenhouse gas emissions. But it also requires a big effort by everyone to do their bit – not just politicians, policy-makers and industry.

We waste an estimated 40% of our energy – through poorly insulated homes, inefficient appliances and by leaving on lights, computers, TVs, for example, when they're not needed.

Energy saving and renewable energy production must work in tandem if we are to achieve targets for reducing greenhouse gas emissions – in the UK and elsewhere.

How can householders and businesses find out more about energy efficiency?

A wealth of money-saving tips, advice and information on energy-efficiency is available for householders from the Energy Saving Trust (www.energysavingtrust.org.uk), and for businesses from the Carbon Trust (www.carbontrust.co.uk).

Energy saving and renewable energy production must work in tandem if we are to achieve targets for reducing greenhouse gas emissions – in the UK and elsewhere.

Why is the Government pushing wind power rather than other renewables?

Government doesn't push one technology above another. The reason that wind power has been popular is because of its cost effectiveness. In the short to medium term, alternatives are less attractive to developers.

Hydroelectric power using large dams was popular before the 1960s, particularly in Scotland. However, the social and environmental problems caused by the flooding of valleys and large areas of land means that future hydro schemes are likely to be smaller and river-based. Solar power is much more costly than wind today, though it is reducing rapidly in cost, and can be very effective when integrated into new buildings.

Tidal and wave power technologies are not as well developed as wind, although the long term future offers potential.

Biomass is likely to be the next most important source, used both for co-firing of conventional power plants and for smaller 'biomass only' plants. Chicken litter, straw or energy crops such as coppiced willow are examples of biomass materials. A significant portion of the renewable energy used today in the UK comes from the gas generated by landfill, a form of renewable energy.

Traditional fuels like coal, oil and gas have served us well – why change?

Fossil fuels such as oil and gas are becoming harder to access in some areas, and so we can expect prices to go on rising in the foreseeable future. The UK's production of both has 'peaked', and is on the way down. The UK has plenty of coal, but as a carbon intensive fuel it therefore has the biggest effect on climate change. Burning coal also produces 'acid rain', which has devastated forests in some parts of Europe. Action to tackle this pollution means that coal power stations will become more expensive to operate.

We have to take decisive action now to guarantee security of power supplies in future, reduce our dependence on imports, and improve both the local and global environment. We need to do this by embracing a range of energy production strategies that, when combined with increased efficiency and reduced waste, lead to a cleaner, greener, more secure electricity system for the UK.

Without new build capacity, nuclear power generation is set to make a declining contribution to electricity production as the current 14 power stations are taken out of service over the next 30 years. It is the SDC's view that nuclear power has far fewer

advantages to offer, in terms of combating climate change, than the combination of energy efficiency, renewables and combined heat and power (CHP) – as proposed in the Government’s own Energy White Paper. Moreover, the Government has stated that

an acceptable solution must be found to deal with the existing stockpile of nuclear waste before any new plans for nuclear power are considered. Such a solution is currently not available.

Wind energy technology is one of the most widely used, commercially developed and fastest growing of all the renewables in the UK.

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Costs and benefits of wind power

Does wind power really work?

Wind energy technology is one of the most widely used, commercially developed and fastest growing of all the renewables in the UK.

Modern turbines are more powerful and reliable than earlier prototypes, capturing more energy. They are also quicker to build, easier to maintain and quieter. A turbine in use in the UK is likely to be producing useful power for 70-85% of the year. Typically, its design lifespan is 20 years.

Wind power reduces greenhouse gas emissions by gradually displacing coal-fired and other conventional power generation. National Grid Company has estimated that 8,000 MW of wind power might displace about 3,000 MW of conventional plant.

Many people wonder what happens when the wind doesn’t blow. The truth is that the

national grid system is already designed to cope with large fluctuations in supply and demand. It must deal with rapid surges in demand – such as during the breakfast period or at the end of a televised football match when millions of kettles are used at the same time.

National Grid Company has confirmed that accommodating significant amounts of wind capacity on the electricity system is unlikely to pose any major operational challenges. Indeed there’s no technical limit on the amount of wind that can be absorbed by the system – the issue is simply one of cost.

Wind power is becoming easier to predict. As it becomes more dispersed around the country it is increasingly unlikely that all the UK’s wind farms will be out of action at the same time. To cover for any shortfall will require a small increase in the ‘balancing services’ that are routinely used by the network operator. This, and issues such as grid reinforcement, will add a small amount to the cost of electricity, which is explained below.

How will increased use of wind power affect my electricity bill?

Let's assume that by 2020, we are generating 20% of our electricity by renewable means – and this done solely via wind power. In this case, the extra cost to consumers of integrating wind power would be about 3.8% of the current domestic charge – around £13 on the average annual UK bill. If the environmental benefit of reduced carbon dioxide emissions is calculated and included, the additional 'social' cost of wind power will be less – possibly zero.

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Community and countryside

People have concerns about different aspects of wind power, particularly in areas where new wind projects have been proposed. In this section, we summarise the main objections and concerns expressed and describe how these are being addressed.

Aren't wind farms a real blot on the landscape?

Some people find wind farms unacceptably intrusive in our much loved countryside. Others see them as graceful structures, generating local civic pride – unlike electricity pylons, for example, which we have lived with for decades. It's a highly subjective judgement. Over 10,000 years, the landscape of the British Isles has evolved from post-glacial wilderness into a living landscape of remarkable diversity, shaped by human interventions and economic activity – not just natural forces.

Climate change – unless tackled effectively now – is far more likely to have a severe and widespread impact on the landscape in the longer term than wind plants. Our willingness

to save energy and reduce our dependence on traditional means of power generation will help to safeguard the landscape for the use and enjoyment of future generations.

We are a small country surrounded by water – why can't all wind farms be built at sea?

Some wind farms are already operating offshore and more will continue to be built there. Current installations are 5-10km away from the shore. The next Department of Energy and Climate Change allocation of new sites will be built further out to sea at distances of up to 25km from land. Offshore wind power generation is expected to make a major contribution to the achievement of the Government's renewables target.

It is currently cheaper to build and maintain wind farms on land, so a mix of land and sea-based operations is likely in future. However, the larger turbines sizes that are possible offshore could improve the longer-term attractiveness of sea-based developments.

What's being done to reduce the visual impact of wind farms?

Landscape and visual impacts comprise the single most common reason cited for the refusal of planning permission for new wind farms.

Wind farms that have fewer but larger turbines may be more visually acceptable than ones that have more but smaller turbines. The trend now in wind power technology is towards building larger more powerful turbines so that proportionately fewer of them will be needed.

The height and number of the turbines, the size of the rotor blades, how and where they are arranged, and the presence of associated structures, such as access tracks and transformers – all these factors contribute to the visual impact.

Obviously the quality of the surrounding landscape – and its national or regional importance – helps determine the way we perceive wind turbines and assess the level of visual intrusion in any given case.

It's been shown that good design, reflecting sensitivity to the surrounding landscape, can help to minimise visual impact. Scottish Natural Heritage has developed guidelines to help developers ensure that good design is integrated to their schemes. Planning authorities may turn down applications for new wind farms or turbines on grounds of poor design.

Is it true that wind farms are noisy?

Noise is frequently raised as a public concern at the development and planning stages of wind farms. Wind turbines have become quieter in recent years, and we can expect that trend to continue as the technology develops.

Noise means any unwanted sound, and to some extent, it will always depend on subjective judgements. However, it is possible to have a normal conversation with someone while standing underneath a turbine without

either of you having to raise your voice. Sheep and other livestock tend to carry on grazing near working turbines, not move away.

Noise levels from wind farms are on a par with rural background noise at night time. No rural area, however remote, is completely silent for very long, day or night. Passing aircraft, tractors and other agricultural activity, stormy weather, wind in trees, even barking dogs – they all create noise.

SILENT WORKHORSES OF ARDROSSAN

“The Ardrossan wind farm has been overwhelmingly accepted by local people – instead of spoiling the landscape, we believe it has been enhanced. The turbines are impressive looking, bring a calming effect to the town, and contrary to the belief that they would be noisy, we have found them to be silent workhorses.”

**Councillor Margaret Munn
of Ardrossan, Scotland**

It's possible to have a normal conversation with someone while standing underneath a turbine without either of you having to raise your voice.

Don't wind farms cause house prices to fall?

A planning application for a wind farm can affect local house prices, but the negative impact diminishes as time goes on. Some 60% of chartered surveyors with experience of house transactions near to wind farms report that they have an adverse effect on house prices, according to a study by the Royal Institute of Chartered Surveyors. But prices generally begin to recover, after the wind farm has been up and running for two years, according to the study. This suggests that wind farms become more accepted as communities get used to them.

Are birds and other wildlife at risk from wind farms?

Climate change is the biggest threat to bird populations and other wildlife through loss of habitat. As a renewable form of energy, wind power helps to offset the impact of climate change. In the first instance, wind power developers should try to avoid sensitive wildlife or ecological areas in favour of sites where the impacts will be minimal. And potential impacts on birds and other wildlife – and measures to mitigate these – should then be set out in the Environmental Impact Assessment that's required to inform local decision-making on

all major wind project plans. Early consultation with nature conservation organisations is essential to help developers and planners ensure appropriate siting, design and construction of a project.

Do wind turbines present hazards for aircraft?

Potentially, the impacts on radar, military aviation training, and telecommunications are significant and numerous. These concerns affect onshore and offshore proposals for wind development. In most cases, these concerns can be resolved, but the outcome of the various discussions and evaluations currently taking place will clearly affect the pace of wind power expansion in the UK.

How do wind farms affect tourism and rural regeneration?

Many wind projects help their local communities by providing jobs for site management, educational opportunities and visits for schoolchildren. Some operate local profit sharing schemes or are entirely community-owned. The Baywind Energy Co-operative in Cumbria is one of the most successful examples, with 1,300 shareholders and six turbines on two sites.

Wind farms have already proved themselves as tourist attractions. The UK's first commercial wind farm at Delabole, Cornwall received 350,000 visitors in its first eight years. There is no significant evidence that tourists are put off returning to an area by the presence of a wind development.

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Public involvement in planning and development

Experience has shown that wind farms are much more likely to be acceptable over the long term where the local community has been fully consulted and involved from an early stage.

Landscape and visual impact are by far the most common grounds given for refusal of planning permission. Planning policies for England and the Devolved Administrations lay down strict criteria for granting planning permission for wind farms in National Parks and other nationally designated areas of landscape. In these areas, permission should only be granted where the objectives of the designation will not be compromised and any significant adverse effects are outweighed by environmental, social and economic benefits.

How are planning decisions made?

For wind projects under 50 MW, the developer must apply for permission from the local planning authority (LPA). In most cases, planning applications will be considered first by local planning officials. They will check whether the proposals are in line with national, regional and local planning policies. Having further studied the developer's Environmental Statement, if appropriate, and responses to

the public consultation on the application, they will then make a recommendation – which the planning committee can accept or reject.

If the committee rejects the application, the developer may take their case to the relevant appeal body – which has the power to overrule the local decision in the wider national interest. On average, one in three appeals is successful.

Energy projects above 50 MW are automatically referred to the relevant national authority for a decision. The Department of Energy and Climate Change deals with projects in England and Wales, and the Scottish Government with those in Scotland. There are different arrangements in Northern Ireland.

If planning permission is given, what happens then?

The local planning authority can regulate the construction and operation of wind farms by setting planning conditions or obligations on the developer. Typically, these are designed to control noise and traffic going to and from the site, and ensure the site is restored when the turbines are taken out of service. An Environmental Management Plan may be implemented, depending on the size, nature and location of the project.

Community Engagement

Ashden Awards



Moel Moelogan wind farm officially opened on 31st January 2003 as the first 100% community owned project of its kind, run by a collective of three farmers in Conwy County, North Wales. Their aim was to develop wind power while retaining the economic benefit locally.



“You have to have local consultation.”

Geraint Davies

Co-founder Cwmni Gwynt Teg cooperative

In 1997, sheep and livestock farmers, Robin Williams with 700 acres, his brother Rheinallt Williams with 600 acres and neighbour Geraint Davies with 430 adjacent acres, faced a decline of up to 75% in their farming incomes following the BSE crisis. The three formed the Cwmni Gwynt Teg cooperative in 1998 to enter the wind energy industry while continuing to farm.

Around 1500 people attended an open day when the first turbine was erected in September 2002, and on January 31st 2003 some 500 locals attended a public exhibition of the extension giving a 100% positive response. Objections raised later led to significant changes, including reducing the turbine height from 60 metres to 50 metres and four major changes of position.

The finance model for the project was provided by a £1.7 million loan from Triodos Bank, an Objective One grant of £366,000 from the European Union and a commercial loan of £460,000. Turbine technology had advanced so rapidly between the time of writing the application and receiving planning permission that the farmers realised they only needed two turbines to fulfil their contract with the NFPA. Planning permission for the third turbine was sold to German company, Energie Kontor, to raise equity.

Cwmni Gwynt Teg won a prestigious Ashden Award for Sustainable Energy in June 2003, mainly for the sensitivity it demonstrated to community and environmental needs.

“You have to have local consultation. You get planning ups and downs and local opposition groups who will say that the main issue is visual and that turbines are spoiling the countryside. But I think the countryside evolves and has been constantly changed by the people who live and work on the land.”

Geraint Davies

Co-founder Cwmni Gwynt Teg cooperative

“In balancing sustainable energy production against landscape (and other factors) it is appropriate to follow a reasoned and logical approach... it is considered that the Moel Moelogan site provides a less sensitive development site for wind turbines than other potential prospects for a similar scale scheme.”

Conwy County Borough Council Planning Committee

Conclusion point 60

To find out more: www.ailwynt.co.uk
www.ashdenawards.org

Noise Concerns

'We can confirm that there are no serious noise issues from the wind turbine.'

A spokesperson for HMP Whitemoor

In August 2000, a local developer submitted plans to build 10 industrial units at Longhill Road, March, Cambridgeshire. A senior planning officer at Fenlands District Council suggested this site might also be suitable for the erection of this large rural district's first wind turbine.

The idea was included in an amended planning application, which triggered a series of objections from the Home Office on behalf of HM Prison Whitemoor housed some 300 metres from the proposed wind turbine site.

It was feared that noise from the turbine would disturb prisoners.

In response, the developer – Snowmountain Investments Ltd (now known as Snowmountain Enterprises Ltd) – took steps to assure objectors that they would have no cause to complain about noise. These included modified blade design. Since the turbine began operating in March 2005 some issues related to early morning shadow flicker have been resolved. There have been no complaints about noise.

To find out more: www.fenland.gov.uk

Consultation, Environmental Asses

“What has been achieved here is a combination of renewable energy generation, the restoration of abandoned opencast coal mining works and habitat enhancement.”

Stuart Housden
RSPB Scotland Director

ScottishPower Renewables (SPR) and RSPB Scotland have worked together for sometime now to ensure habitat management has a major part to play in all renewables developments.

Black Law wind farm, one of the largest in the UK, is a perfect example of what can be achieved when a developer and organisations such as RSPB combine efforts.

Located half way between Glasgow and Edinburgh, this brownfield site has 54 wind turbines, with a total capacity of 124MW, enough clean energy to power nearly 70,000 households.

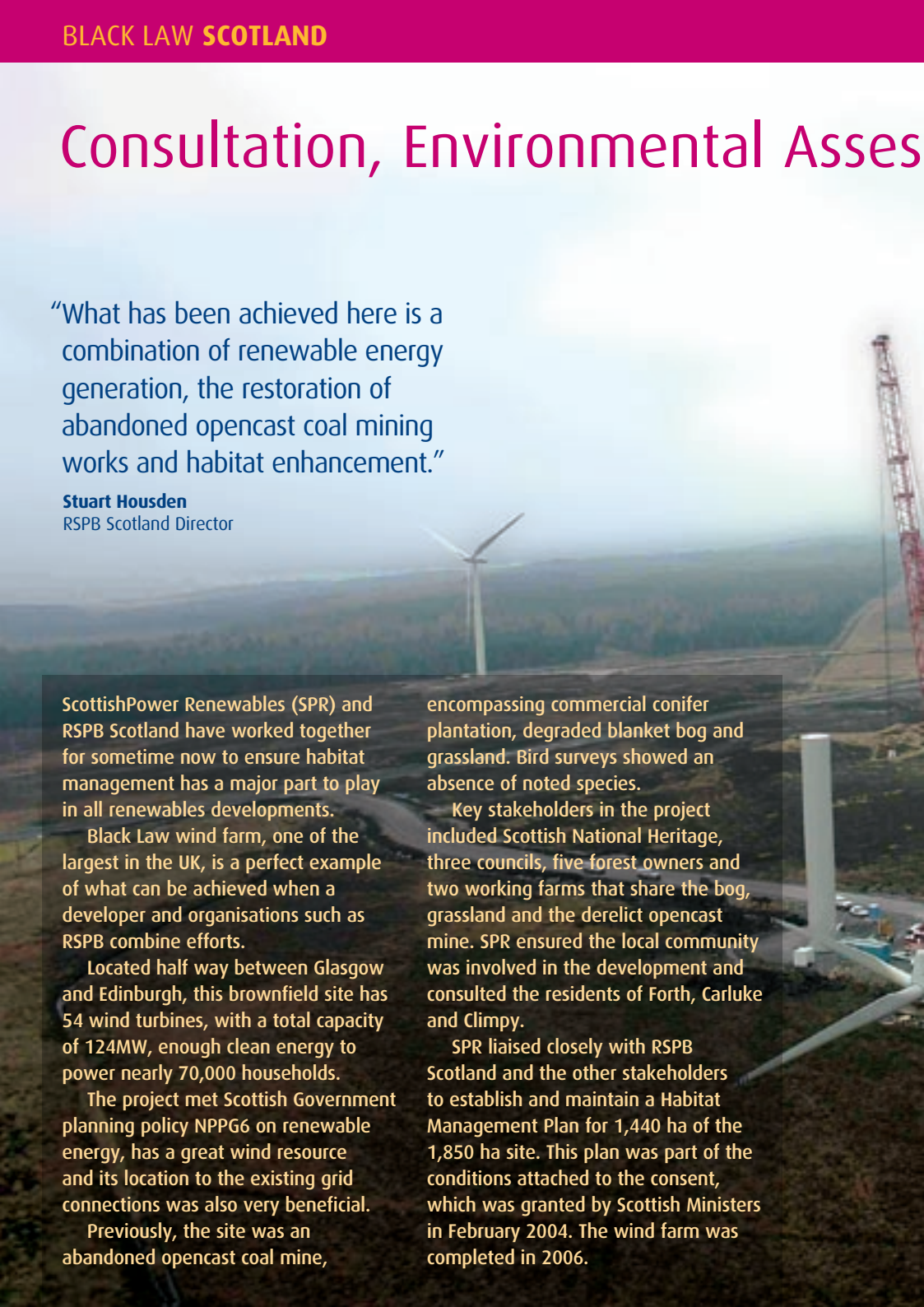
The project met Scottish Government planning policy NPPG6 on renewable energy, has a great wind resource and its location to the existing grid connections was also very beneficial.

Previously, the site was an abandoned opencast coal mine,

encompassing commercial conifer plantation, degraded blanket bog and grassland. Bird surveys showed an absence of noted species.

Key stakeholders in the project included Scottish National Heritage, three councils, five forest owners and two working farms that share the bog, grassland and the derelict opencast mine. SPR ensured the local community was involved in the development and consulted the residents of Forth, Carluke and Climpy.

SPR liaised closely with RSPB Scotland and the other stakeholders to establish and maintain a Habitat Management Plan for 1,440 ha of the 1,850 ha site. This plan was part of the conditions attached to the consent, which was granted by Scottish Ministers in February 2004. The wind farm was completed in 2006.



Conservation and Habitat Management

“Black Law highlights the benefits of finding wind farm sites where there are no conflicts with conservation interests. What has been achieved here is a combination of renewable energy generation, the restoration of abandoned opencast coal mining works and habitat enhancement. Given the wind farm did not present a significant threat to bird life, and following detailed negotiations between ourselves, ScottishPower, the Councils and Scottish Natural Heritage, we have together secured a really positive project that brings significant environmental benefits to the area.”

Stuart Housden
RSPB Scotland Director

“At Black Law wind farm a close working relationship with RSPB Scotland helped enormously in achieving significant benefits for a range of species including black grouse, curlew, lapwing, snipe, otter and water vole. Black Law wind farm demonstrates that wind farms can deliver significant biodiversity gains for a range of threatened habitats and species throughout the wider countryside.”

Alan Mortimer
Head of Renewables Policy
ScottishPower

To find out more:
www.scottishpowerrenewables.com
www.rspb.org.uk/scotland/

Community support

“The biggest objector to the erection of wind turbines in Norfolk was me... but now I support the use of wind energy in Breckland.”

Greg Britton

Principal Planning Officer of Breckland District Council
and former Area Planning Officer

Swaffham is one of Norfolk's most attractive market towns, featuring two of the most popular wind turbines in the UK. Over 60,000 local people and visitors have climbed the 300-step spiral staircase inside the Swaffham 1 turbine to reach the unique 65m high viewing platform designed by Foster & Partners, situated below the hub. There is similar enthusiasm

for Swaffham 2 in Sporle Road, Swaffham. Together the two turbines generate enough electricity to supply 75% of Swaffham's total domestic electricity requirements, boosting Norfolk's total wind power by 30%.

There was overwhelming local support when the installation of Swaffham 1 was mooted back in 1999 by Ecotricity. The District

Council received seven letters of official response – three for, three against and one saying it might be acceptable if the colour was right. One person who wasn't in favour was Greg Britton, then Area Planning Officer of Breckland District Council. He was converted to wind energy once he became aware of the amount of pollution generated by fossil fuels in the production of electricity.

Now Principal Planning Officer, Greg is looking forward to eight more turbines going up near North Pickenham, a small village four miles south east of Swaffham.



To find out more:
www.ecotech.org.uk
www.ecotricity.com

for wind power

"I love the wind farms we have in Norfolk, they add to the scenery. I love driving past the Eco-centre at Swaffham. I have to slow down and gawp... I would be very happy to live next to one no problem."

Ron Luton-Brown
Norwich on BBC Norfolk Talk

"I moved back to Swaffham after being away for 10 years and was delighted to see the generator in the skyline... much better than cooling towers or chimneys."

Paul Dowden
Swaffham on BBC Norfolk Talk

"I had never seen one other than in a photograph but I knew that they were wrong for Norfolk. In meetings with Ecotricity I was the one saying 'No'. However once the application had been submitted and I became aware of the amount of pollution generated by fossil fuels in the production of electricity I became convinced that turbines were an option. I watched the erection of Swaffham 1 and upon its completion I saw a graceful structure which contrary to my earlier views did not detract from the historic character of the town or the surrounding area. Subject to the assessments usual to this type of application, I now support the use of wind energy in Breckland for the production of electricity."

Greg Britton
Principal Planning Officer
of Breckland District Council
and former Area Planning Officer

“We received no objections to the scheme. I am aware that the response to the Dagenham turbines has been positive and they are seen as a beacon for the regeneration of the Thames Gateway.”

Martin Knowles
Principal Planner
London Borough of Havering

London's first wind park has been created at the Dagenham Diesel Centre – the first major new building on Ford's 500-acre Essex site for more than 30 years. Looking to demonstrate sustainable energy ideas, Ford realised there was a good business case for investing in a wind project that could also contribute to the regeneration of the area as part of a package of sustainable energy solutions.

The feasibility studies and environmental assessments

carried out by Ecotricity, Ford's project partners, included consultations with the local community, the local airport and the RSPB. After three years of detailed planning and assessment work, the super-quiet Enercon turbines – currently the largest in the UK – are now an integral part of the Dagenham landscape.

The success at Dagenham follows a similar partnership between Ecotricity and Sainsbury's at the supermarket chain's distribution centre in East Kilbride, Scotland.

Industrial wind projects

"This scheme has made an important contribution towards making London a more sustainable world city and will help us to achieve some of the key targets in my Energy Strategy. I hope it will encourage other large organisations to consider developing similar schemes on their premises."

Ken Livingstone

Mayor of London 2000-2008

"Green power from Ecotricity is fully competitive with our forecast energy prices and there are huge non-financial benefits too; thousands of tonnes of power station emissions are saved by switching our electricity source for the Dagenham Diesel Centre to wind power."

Roger Putnam

Ford of Britain Chairman



To find out more:
www.ecotricity.com
www.media.ford.com

This booklet draws on our 166 page, comprehensive report – *Wind Power in the UK* – also available at www.sd-commission.org.uk/wind

Further information

Sustainable Development Commission
www.sd-commission.org.uk

Department of Energy and Climate Change
www.decc.gov.uk

British Wind Energy Association
www.bwea.com

European Wind Energy Association
www.ewea.org

Natural England
www.naturalengland.org.uk

Scottish Natural Heritage
www.snh.org.uk

Royal Society for the Protection of Birds
www.rspb.org.uk

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This report is made entirely of that paper you put out every week for the council to recycle.

It was printed with inks made from vegetable oil and without using any water or alcohol (the main materials used by most printers), so it will all wash off nicely when you recycle it.

The report's production was powered by renewable energy and the whole process, including transportation, is carbon neutral.

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