

Natural England



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Title: **Natural England's Draft Policy on Wind Energy**

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1. Purpose

- 1.1. This paper presents Natural England's draft wind energy policy for the Board's approval. It builds on discussions with Board Outcome Group 3.
- 1.2. This draft policy is the second in a series of detailed energy policies (the other being bioenergy). It takes its lead from Natural England's overarching policy on sustainable energy, signed off by the Chair in May 2008.
- 1.3. The policy will provide the principles for Natural England's guidance for and appraisal of new wind energy infrastructure developments. This guidance will be produced later in 2008 and will also incorporate locational guidance maps, to help guide both our internal and external stakeholders.

2. Recommendations

- 2.1. It is recommended that the Board agree the draft policy prior to external stakeholder consultation (attached at Annex 1). A final draft of this policy will be circulated to all Board members for comment, prior to sign off by the Chair.

3. Summary of context for our wind energy policy

- 3.1. In the context of Natural England's sustainable energy and climate change policies, we believe that:
 - Climate change represents the most serious long term threat to the natural environment and that there is an urgent need to reduce global greenhouse gas pollution if we are to avoid potentially catastrophic impacts on the natural environment.
 - There is a need to move to a low carbon economy, which will require a significantly more efficient use of energy and a substantial investment in clean energy technologies both for electricity generation, heat and for transport fuels.
 - There is a need to support clean energy developments in appropriate locations to reduce greenhouse gas emissions and therefore the long term risk to the natural environment

- 3.2 On and offshore wind energy developments can have impacts upon the biodiversity, geodiversity, landscape and seascape character, historic features, soils, water resources, access and recreation and other components of the terrestrial and marine environment. Developments can also have effects not only as a result of the wind turbines themselves but also through their ancillary infrastructure requirements, such as grid connections, access roads, sub-stations and concrete foundations.
- 3.3 As new locations are sought by the industry, the scale and potential impacts of wind energy developments are growing, with the trend towards both larger turbines and larger wind farms particularly in the marine environment.
- 3.4 As part of its energy strategy and set out its White Paper in 2007, one of the Government's long-term key goals for energy policy is to cut CO₂ emissions by 60% by 2050, with real progress by 2020. Reductions in energy consumption, coupled with a real increase in renewable energy generation, are integral parts of the longer term aim of achieving this aim.
- 3.5 A number of key legislative and market based drivers will contribute towards moving towards this renewable energy goal and will drive the demand for increased renewable electricity generation from wind. These include the EU renewable energy target, the Climate Change, Energy and Planning Bills and the reform of the Renewables Obligation.

4. Natural England's wind energy policy

- 4.1 Within the context of our sustainable energy policy we believe that wind energy developments, appropriately sited, play an important part in a lower carbon, more efficient and sustainable energy system, that is required in the UK to address the impacts of climate change.
- 4.2 We believe that Government needs to undertake a strategic assessment of the United Kingdom's energy requirements and renewable energy generating potential, including that for wind energy, taking full account of the impacts on the natural environment and the spatial components of capacity and demand in different parts of the United Kingdom.
- 4.3 We believe that wind energy developments, both on and offshore, together with their ancillary infrastructure¹, can have impacts upon the biodiversity, geodiversity, landscape and seascape character, historic features, soils, water resources, access and recreation and other components of the terrestrial and marine environment. The potential reversibility and significance of those impacts will vary from place to place.
- 4.4 We believe that wind energy developments should be of an appropriate height, form and scale and should be guided towards locations that minimise irreversible impacts on the natural environment as a whole.
- 4.5 We believe that there is a need to improve the quality and consistency of environmental assessments for wind energy proposals and to improve assessments that inform regional targets for wind development.
- 4.6 We believe that wind energy proposals should be appraised on a case by case basis with thorough consideration of their individual and cumulative impacts on the natural

¹ This includes transmission lines, sub-stations and access roads.

environment, underpinned with sound evidence and appropriate monitoring to inform better decision making;

- 4.7 We believe that all scales of wind energy generation can contribute to mitigating the causes of climate change. Microgeneration has an important role to play, particularly in those areas where opportunities for larger scale development are more limited.

Annex 1

Wind Energy Draft Policy

This paper presents Natural England's draft policy for on and offshore wind energy. It builds on discussions with Board Outcome Group 3.

Context

It is generally accepted the United Kingdom has one of the best wind resources in Europe. Currently the UK has 169 on and offshore wind farms, totaling 1,968 turbines, generating 2.4 gigawatts (GW²) of generating capacity and saving 5.5 million tonnes of CO₂ each year. These contribute around 2.6% of the total electricity generating capacity.³

The largest contributor to greenhouse gas emissions is energy generation from fossil fuels. The UK is therefore committed to moving to a lower carbon and more efficient energy supply, in which the proportion of energy generated from renewable sources will increase. As part of this energy strategy and as set out in its White Paper in 2007, one of the long-term key goals for energy policy is to cut CO₂ emissions by 60% by 2050 with real progress by 2020. Reductions in energy consumption, coupled with a real increase in renewable energy generation are integral parts of the longer term aim of achieving this aim.

A number of key legislative and market based drivers will contribute towards this objective and will drive the demand for renewable electricity from wind power.

The Climate Change Bill is currently progressing through Parliament and if enacted will create a statutory target of a 22% reduction in carbon dioxide emissions from 1990 levels by 2020 and a 60% reduction by 2050.

Government main instrument for encouraging investment in renewable electricity generation is through the Renewables Obligation, which requires electricity suppliers to provide a proportion of their electricity from renewable sources. This has mainly supported those technologies that are currently commercially viable, such as on and offshore wind energy. The reform of the Renewables Obligation, however, from 2009 will increase the subsidies to the offshore wind sector, which struggles to compete with much cheaper onshore production, by 50% from 2009.

In November 2007, Government launched scoping for Round 3 of the offshore energy SEA, with the bold target of generating a further 25 GW of offshore wind energy by 2020 (around 5000 turbines). This would bring the UK offshore generating capacity to a maximum of 33 GW and would provide 25% of total UK energy demand and approximately equates to the electricity demand from households today. The Crown Estate in June 2008 announced the potential zones for offshore wind energy licenses, which open up new areas of England's coastal waters to development, particularly off the South West, North West and South East regions' coastline.

The Planning Bill, currently progressing through Parliament, aims to introduce national policy statements for major infrastructure proposals, covering major wind energy developments with a capacity of 50 megawatts (MW) onshore and 100 MW offshore. The statements may include policy in relation to the amount, type or size of

² One gigawatt (GW) = 1,000 megawatts (MW)

³ BWEA. 2007

development that is appropriate nationally, or for a specified area, as well as set out criteria (and weightings for those criteria) to be applied in deciding whether a location is suitable for a specified type of development.

In April 2007, the UK signed up to the new EU renewable energy target. This requires action from all member states to ensure that, by 2020, 20% of overall EU energy consumption is provided from renewable sources. The Government has now negotiated a 15% UK contribution to this target.

The Sustainable Development Commission (SDC)⁴ have concluded that on average on and offshore wind farms have a capacity (the ratio of actual electricity produced in comparison to a power station running at full capacity) of 35%, due to the intermittency of wind. Offshore capacity is generally higher than onshore due to the more regular flow of wind across the sea surface. The report also estimated the energy payback in terms of the electricity consumed during their lifecycle (construction through to decommissioning) for an average onshore windfarm. This was felt to be between 3 to 10 months.

Issues

As new locations are sought by the industry, the scale and potential impacts of wind energy developments are growing, with the trend towards both larger turbines and larger wind farms, especially in the marine environment.

The 2020 renewable energy target is likely to require an expected increase in the proportion of electricity from renewable sources, from 5% to around 35- 45%. This would entail an increase in generating capacity from 5 to 55 GW, as it is expected that progress against renewable transport fuels and heat generation are unlikely to contribute as significantly towards the overall target. Much of this increased renewable electricity capacity will be provided by wind energy and biomass generation, with the likely requirement for thousands more wind turbines both on and offshore.

Natural England is now proceeding with the selection and designation of a series of Special Areas for Conservation (SAC) and Special Protection Areas (SPA) around the English coast. The nature of some of these sites (shallow, sediment dominated) means that they are also likely to be favoured by windfarm developers and parts of these have already been identified as potential Round 3 development zones.

Our policy aim is to help facilitate the development of a sustainable wind energy sector in England, whilst ensuring that the full environmental impacts are assessed, avoided and reduced.

Policies

1. We believe that wind energy developments, appropriately sited, play an important part in a lower carbon, more efficient and sustainable energy system, that is required in the UK to address the impacts of climate change.

Natural England's Sustainable Energy Policy states that sustainable energy infrastructure, such as wind turbines, have a long term benefit for the natural environment through their contribution to reducing greenhouse pollution and therefore climate stabilisation. Other conventional energy infrastructure which produces higher levels of greenhouse gas pollution

⁴ Sustainable Development Commission. 2005. Wind power in the UK.

will have a negative impact on the natural environment in the long term, in addition to negative and potentially irreversible impacts on the natural environment.

Evidence

The Energy White Paper (2007) sets out renewable energy generation as an core part of its strategy for reducing carbon emissions: as renewable energy produce little carbon or other greenhouse gases.

Currently wind turbines in the United Kingdom prevent over 5.5 million tonnes of CO₂ emissions each year, with a standard 2 megawatt turbine producing the same amount of power as that of over 1,120 homes each year. The Sustainable Development Commission have calculated that, if wind energy made up 20% of total output in 2020, the CO₂ emissions savings of wind output could be around 28.4 million tonnes (7.8 million tonnes of carbon) of CO₂ per year.⁵

2. We believe that Government needs to undertake a strategic assessment of the UK's energy requirements and renewable energy generating potential, including that for wind energy, taking full account of the impacts on the natural environment and the spatial components of capacity and demand in different parts of the UK.

Our Sustainable Energy Policy has called for Government to undertake a strategic assessment of the relative environmental impact of different renewable and clean energy developments, in order to better inform long term decisions by policy makers and investors. We believe, that otherwise, it will be difficult to assess, determine and compare the wider environmental impacts of a marked increase in, for example, wind energy generation, against other renewable energy alternatives or mixes.

Evidence

The implementation of the 2020 Renewable Strategy will require a marked increase in both on and offshore wind energy generation. This could be to the magnitude of an additional 10 GW onshore and 25 GW offshore, a five fold and sixty fold increase from current operational generating capacity. This would witness the requirement for the construction of around an additional 5,000 onshore and 7,000 offshore wind turbines.

To date no such strategic assessment of the impacts of different options has been undertaken. It is also unlikely that such a strategic assessment will be undertaken as part of the Government's Renewable Energy Strategy. The evidence base to inform decisions on a project by project basis is therefore incomplete, particularly in relation to alternative options and cumulative impact.

3. We believe that wind energy developments, both on and offshore, together with their ancillary infrastructure⁶, can have impacts upon the biodiversity, geodiversity, landscape and seascape character, historic features, soils, water resources, access and recreation and other components of the terrestrial and marine environment. The potential reversibility and significance of those impacts will vary from place to place.

Wind energy developments can have effects not only as a result of the wind turbines themselves but also through their ancillary infrastructure requirements, such as grid connections, access roads, sub-stations and concrete foundations. From Natural England's

⁶ This includes transmission lines, sub-stations and access roads.

perspective the impacts on the natural environment fall into three categories: biodiversity and geodiversity; landscape and visual; and recreation and access impacts.

Evidence

Our State of the Natural England report (2008) summarises the potential impacts of both terrestrial and marine wind energy developments and their ancillary infrastructure, on the natural environment. These, though not inclusive, include:

- Impacts on bird and bat populations.
- Impacts on landscape and seascape character.
- Damage to marine benthos.
- The release of carbon to the atmosphere arising from disturbance of soils, estuarine, coastal or marine beds.
- The impact on the hydrology of peat-based soils causing release of sequestered carbon.
- Sub-sea noise during the construction and operation of offshore turbines on marine mammals.
- Impacts upon access and recreational interests, such as proximity to public rights of way.

4. We believe that wind energy developments should be of an appropriate height, form and scale and should be guided towards locations that minimise irreversible impacts on the natural environment as a whole.

The impacts of wind energy proposals that affect sites designated for landscape, nature conservation, or protected species purposes, need to be properly understood before a view is taken on their compatibility with designation objectives. This applies equally to sites which have yet to be designated, for example as Special Areas of Conservation or Special Protection Areas. These should not be damaged or altered in such a way that might affect the site's selection for designation.

The impact of wind energy proposals on peat soils need also to be assessed, where the impacts of turbines and particularly their ancillary infrastructure, on the hydrology and integrity of those systems and the losses of carbon; could potentially outweigh the climate change mitigation benefits.

Evidence

The Planning Policy Statement 22 on Renewable Energy states that renewable energy developments should be capable of being accommodated throughout England in locations where the technology is viable and environmental, economic and social impacts can be addressed satisfactorily. The wider environmental impacts of all proposals for renewable energy projects, whatever their scale, are material considerations that should be given significant weight in determining whether proposals should be granted planning permission.

5. We believe that that there is a need to improve the quality and consistency of environmental assessments for wind energy proposals and to improve assessments that inform regional targets for wind development.

Natural England is a statutory consultee involved at all stages of the on and offshore assessment process for wind energy proposals. The Government's Renewable Energy Strategy and the introduction of a third round of offshore development will see a marked increase in the number of wind energy proposals that we will need to engage with. Ensuring a high standard for these assessments will streamline the process for achieving Government targets and will also reduce the need for our input.

Evidence

Natural England's experience has through our involvement with offshore and onshore application and consent process, the quality of these assessments is variable. Many of our responses to proposals are 'holding objections' asking for more information or surveys to be carried out so that informed judgements can be made about the impacts of schemes. Key to ensuring that projects are approved or consented in a timely fashion include:

- pre-application discussions – this is key to setting out information and survey requirements at an early stage, as delays can occur where discussions do not happen at an early enough stage and surveys have to take place once the planning application has been submitted.
- survey requirements - the lead-in time and length of surveys can be long. Developers do not always account for this and commission surveys at an early stage. Limited or inappropriate surveys can result in ambiguous or unclear impacts unclear. In such cases, we will request further surveys in order to seek clarity and provide an evidence based response to the application.
- lack of data – this is especially true in the marine environment where there is a lack of evidence of impacts. There is a need to review and expand the evidence to compliment our existing evidence base on predictions on the short and long term impact on any development on the existing natural environment.

Regional renewable energy strategies also need to be based on sound evidence and reflect the full environmental impact of proposed areas for wind energy development and the capacity of these areas to accommodate renewable energy.

6. We believe that wind energy proposals should be appraised on a case by case basis with thorough consideration of their individual and cumulative impacts on the natural environment, underpinned with sound evidence and appropriate monitoring to inform better decision making.

Wind turbines are a relatively new and unconventional form of development; placing tall, moving, widely dispersed and visible structures in predominantly rural and marine settings. Their potential positive and negative impacts are often the most complex to assess, with judgements on the appropriate scale in any one situation dependent on the potential impacts on the natural environment , including impacts on complex interacting natural systems, landscapes and seascapes.

Evidence

The limited availability of opportunities for major onshore wind energy developments in England means that proposals tend to be concentrated in certain areas. As a result cumulative impacts on the natural environment and on Natural England's interests, will increasingly become a more significant issue.

The London Array offshore windfarm is a good example of Natural England working with developers to achieve an acceptable outcome which properly assesses the impact of the development on internationally important nature conservation features. The initial recommendation from Natural England was that consent for the project should be refused, due to the potential impact upon red-throated divers. However through consultation, a phased approach to the development, with an initial phase avoiding the area with the highest

concentration of these birds. Further phases will be subject to ornithological monitoring and review, before consent can be granted.

7. All scales of wind energy generation can contribute to mitigating the causes of climate change. Microgeneration has an important role to play, particularly in those areas where opportunities for larger scale development are more limited.

It is important that all sectors of the economy and society, including communities within our most valued landscapes and environments, are able to contribute to the mitigating the causes of climate change. We should, therefore, help to facilitate the most appropriate scale of generation for particular locations. Although Government guidance (PPS 22) states that large scale wind energy developments are inappropriate within National Parks and Areas of Outstanding Natural Beauty; smaller scale generation could and should have a role to play.

Evidence

A Department for Business, Enterprise and Regulatory report in 2008 has projected that microgeneration installations could by 2020 contribute to 0.1% of UK's total energy demand or 0.7% of the 2020 renewable target. The 'optimum' scenario within the report shows a potential of 1.1% of total energy supply by 2020 or 7.6% of the 2020 renewable target.⁷

A recent report, also by the Renewables Advisory Board⁸, highlights the importance of microgeneration, but also identifies that a lot of work is needed to build capacity in terms of manufacturing and installation if microgeneration is to play a significant role in helping the UK deliver its Zero Carbon Homes commitment.

⁷ BERR. 2008. The growth potential for microgeneration in England, Scotland and Wales

⁸ Renewables Advisory Board. 2008. The essential role of renewables generation in achieving zero carbon homes.

