

Wind farm development and **nature conservation**

A guidance document
for nature conservation
organisations and
developers when
consulting over wind farm
proposals in England



Wind farm development and nature conservation

*A guidance document for nature
conservation organisations and
developers when consulting over wind
farm proposals in England*

English Nature
RSPB
WWF-UK
BWEA

March 2001

All rights reserved. All material appearing in this publication is subject to copyright and may be reproduced with permission. Any reproduction in full or in part of this publication must credit WWF-UK as the copyright holder.

The authors have used all reasonable endeavours to ensure that the content of this report, the data compiled, and the methods of calculation and research are consistent with normally accepted standards and practices. However, no warranty is given to that effect nor any liability accepted by the authors for any loss or damage arising from the use of this report by WWF-UK or by any other party.

The material and geographical designations in this report do not imply the expression of any opinion whatsoever on the part of WWF concerning the legal status of any country, territory, or area or concerning the delimitation of its frontiers or boundaries.

Panda symbol © WWF 1986
® WWF Registered Trademark

WWF Registered Charity No 1081247
RSPB Registered Charity No 207076

Mike Harley, Allan Drewitt and Paul Gilliland
English Nature
Northminster House, Peterborough PE1 1UA
Tel: 01733 455000
www.english-nature.org.uk

Brian Cleary, Rowena Langston
and Mark Southgate
RSPB
The Lodge, Sandy, Bedfordshire SG19 2DL
Tel: 01767 680551.
www.rspb.org.uk

Russell Marsh and Dave Burges
WWF-UK
Panda House, Weyside Park, Godalming,
Surrey GU7 1XR
Tel: 01483 426444
www.wwf-uk.org

Martin Marais and Chris Shears
British Wind Energy Association
26 Spring Street, London W2 1JA
Tel: 020 7402 7102
www.britishwindenergy.com

Contents

Foreword	5
1. Background	6
2. Nature conservation sites and wind farms	7
International statutory sites	7
National statutory sites and non-statutory national sites	7
3. Other environmental sensitivities	9
4. Environmental impact assessment (EIA)	11
5. Survey, monitoring and research	12
6. Government support mechanisms and the planning process	13
Annex 1 - Guidance on possible impacts of relevance to nature conservation	14
The development: broad range of considerations	14
Range of nature conservation interests	14
Checklist of possible impacts of relevance to nature conservation	15
Annex 2 - Key publications	16

Foreword

The effects of climate change not only pose a severe threat to mankind but also to the natural environment. The substitution of fossil fuels with the increasing use of renewable energy sources, of which wind energy is a key technology, is now recognised by the UK Government as a fundamental cornerstone in reducing our emissions of greenhouse gases. Put simply, the question is no longer when we do it, but where, and how, we do it. However, all energy technologies have some negative effects on the natural environment. In developing and considering energy proposals, we must ensure that these effects are not such as to justify refusal of otherwise beneficial developments. It is essential to encourage the right development in the right location. By outlining the framework in which stakeholders should consider the effects of new schemes on the natural environment, this document will bring greater clarity to the issues whilst assisting detailed site specific consideration.

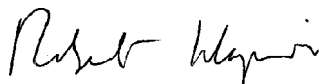
This will benefit both the wind energy industry and nature conservation organisations in facilitating the growth of good quality wind energy projects which work in harmony with our nature conservation objectives and commitments. It is encouraging to see key stakeholders working together towards this end.



David Arnold-Forster, Chief Executive, English Nature



Graham Wynne, Chief Executive, RSPB



Robert Napier, Chief Executive, WWF-UK



Nick Goodall, Chief Executive, BWEA

1. Background

As part of its strategy to reduce emissions of greenhouse gases (notably carbon dioxide) from burning fossil fuels, the Government has set a target to generate 10% of the UK's electricity from renewable sources of energy by 2010 and 5% by 2003. In addition to greenhouse gas (Kyoto) targets, renewable energy, together with energy efficiency and combined heat and power schemes, can make a vital contribution to sustainability and meeting acidifying gas targets. Both greenhouse gases and acidifying gases have damaging impacts on biodiversity; the development of wind farms is a key means of reducing emissions and should be supported as such, provided that individual proposals include appropriate measures for protecting and conserving wildlife and geological/geomorphological features.

Wind energy is now recognised as the fastest growing energy technology in the world. The yearly growth rate is estimated at 30%, with some 3000 megawatts (MW) of new capacity having been installed in 1999. There is, therefore, likely to be a significant increase in the number of wind farm proposals in the UK in years to come (compared to the 17 MW that were installed in 1999). Wind farms are sited in exposed areas to ensure high average wind speeds to maximise energy capture, a requirement commonly but not exclusively met in coastal, upland and offshore areas. Such locations often comprise some of the most important and sensitive habitats, so there is a need to ensure that potentially damaging effects are avoided or, if not possible, minimised or mitigated.

The aim of this document is to provide information to guide the responses of nature conservation organisations in England to wind farm proposals. Its contents are based on one of the key outcomes of a statutory agency/NGO workshop on wind farms and nature conservation. **The guidance should not be considered to be definitive, but more as an informal checklist to help in formulating detailed responses to approaches in respect of individual applications.** Any formal assessment of a wind farm proposal will be undertaken in the context of relevant statutory and national policy provisions, and on a case by case basis. A summary of possible impacts is given in Annex 1 and a list of key publications in Annex 2.

A second key outcome of the workshop was recognition of the need for clearer policy guidance from the Government on the location and funding of wind farm developments, and for better co-ordination between its different departments on these and related issues. These areas of concern are being addressed by the statutory agencies and NGOs in their policy advocacy work and this document can be used as a tool to assist in the process.

2. Nature conservation sites and wind farms

This section explains the significance of the different statutory and non-statutory designations and, in bold type, gives for each the locational sensitivities that should be highlighted when responding to wind farm applications. It does not represent a list of locations where all wind farm proposals should be refused. Rather, it identifies those areas and features that are sensitive to damage, deterioration or disturbance, and where a detailed assessment of potential impacts and/or appropriate mitigation measures is likely to be required.

INTERNATIONAL STATUTORY SITES

Special Areas of Conservation (SACs) arise from the Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) which requires Member States to set up a series of sites whose purpose is to contribute to the maintenance or restoration of favourable conservation status of habitats or species listed in Annexes I and II of the Directive.

Special Protection Areas (SPAs) arise from the Birds Directive (Council Directive 79/409/EEC on the Conservation of Wild Birds) which requires Member States to take special measures to conserve habitats for certain rare or vulnerable species and for regularly occurring migratory species of birds. A network of SPAs is seen as one of the means to achieve this. It is Government policy that any such site is first notified as a Site of Special Scientific Interest (SSSI).

SACs and SPAs are collectively referred to as Natura 2000 sites.

Under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention), the UK Government is committed to the conservation and wise use of wetlands, partly through the notification of wetlands of international importance as Ramsar sites. It is Government policy that any such site is first designated as an SSSI. The Convention allows for sites to extend down to 6 metres below mean low water mark.

Where wind farms are proposed, their development should not cause adverse effects on the integrity of statutory international sites (this includes indirect effects from outside the site).

NATIONAL STATUTORY SITES AND NON-STATUTORY NATIONAL SITES

Sites of Special Scientific Interest (SSSIs) are areas of land notified under the Wildlife and Countryside Act 1981 as being of national nature conservation interest. Most SSSIs do not extend below mean low water mark, with some exceptions, particularly in estuaries. SSSIs receive greater protection through the Countryside and Rights of Way Act 2000, which introduces new procedures for landowners and public bodies in relation to activities that may affect SSSIs.

National Nature Reserves (NNRs) are areas of national nature conservation importance designated under Section 19 of the National Parks and Access to the Countryside Act 1949, or Sections 34 or 35 of the Wildlife and Countryside Act 1981. NNRs are either managed by English Nature or by others, including RSPB and the National Trust.

Marine Nature Reserves (MNRs) are areas below mean water mark and up to 3 miles offshore designated under Section 36 of the Wildlife & Countryside Act 1981. Their purpose is to conserve marine flora, fauna, geological and geomorphological features of special interest, or to provide opportunities for study or research of such features. To date, only one such site has been designated in England (Lundy).

Areas of Special Protection are a statutory protection mechanism replacing Bird Sanctuary Orders made under the 1954 to 1967 Protection of Birds Acts which were repealed and amended under the Wildlife and Countryside Act 1981. Designation aims to prevent the disturbance and destruction of the birds for which the area is identified by making it unlawful to damage or destroy either the birds or their nests and, in some cases, by prohibiting or restricting access to the site.

Sensitive Marine Areas (SMAs) are non-statutory sites identified by English Nature as being nationally important for their marine plant and animal communities or because they provide ecological support to adjacent statutory sites such as SSSIs or MNRs, and which are also subject to some or appreciable human pressure.

Where wind farms are proposed, their development should not adversely affect the conservation objectives and/or reasons for identification and notification or designation of sites of national wildlife importance (this includes indirect effects from outside the site).

LOCAL/REGIONAL SITES

Local Nature Reserves (LNRs) are designated by local authorities under Section 21 of the National Parks and Access to the Countryside Act for the same purpose as NNRs, but because of their local rather than national interest.

There are a range of regionally and locally important non-statutory nature conservation sites, including Voluntary Marine Nature Reserves, Sites of Importance for Nature Conservation or County Wildlife Sites, Regionally Important Geological/Geomorphological Sites, and other nature reserves. Sites owned by the National Trust are afforded powerful protection (inalienable status) under the National Trust Acts.

Where a proposed wind farm development is likely to have a significant adverse (not trivial or inconsequential) effect on a site of regional or local nature conservation importance, it should only be permitted if it can be clearly demonstrated that there are reasons for the proposal which outweigh the need to safeguard the nature conservation value of the site. In all cases where development is permitted which would damage the nature conservation value of a site or feature, such damage will be kept to minimum and, where appropriate, conditions and/or planning obligations may be used to provide compensatory measures.

3. Other environmental sensitivities

In addition to the locational (site) constraints described above, a range of sensitivities relevant to both statutory designations and the wider nature conservation resource also need to be considered. Specific sensitivities should be identified by cross-referencing between this section and the list of potential impacts given in Appendix 1.

Migration routes, etc (Birds Directive)

Article 4 of the Birds Directive requires that, outside SPAs, Member States *strive to avoid pollution or deterioration of habitats* of all wild birds, including species listed in Annex 1 of the Directive and important concentrations of *regularly occurring migratory species*.

To minimise the potential for adverse effects on birds (ie on all wild birds, including species listed in Annex 1), including the risk of collisions, wind farm developers should be made aware of known bird migration routes, local flight paths, foraging areas, and coastal and inland wetland sites and upland sites of high ornithological importance, particularly those supporting large populations of migratory waterfowl. Developers should also be made aware of the potential sensitivities of ridges and valleys, and of cliff and headland locations where large numbers of birds may concentrate.

Habitats Directive

Articles 12 and 13 of the Habitats Directive require that Member States *take the requisite measures to establish a system of strict protection* for the plant and animal species listed in Annex IV of the Directive.

Where wind farms are proposed, their development should not cause significant disturbance to, or deterioration or destruction of, key habitats of species listed in Annex IV of the Habitats Directive.

Wildlife and Countryside Act 1981 and Countryside and Rights of Way Act 2000 (CROW Act)

Under the Wildlife and Countryside Act it is an offence to intentionally disturb any bird listed in Schedule 1 while it is nest building or is at (or near) a nest with eggs or young, or to disturb the dependent young of such a bird. It is also an offence to compromise the conservation of animals listed in Schedule 5 and plants listed in Schedule 8 of the same Act. The CROW Act strengthens this protection as further species protection measures have been introduced including, offences of reckless disturbance, reckless damage, destruction or obstruction to a place used by a protected species.

Where wind farms are proposed, their development should not contravene the protective measures that apply to Schedule 1 birds, Schedule 5 animals and Schedule 8 plants.

UK Biodiversity Action Plan

The overall goal of the UK Biodiversity Action Plan is to conserve and enhance biological diversity within the UK and to contribute to the conservation of global diversity. The objectives which underpin this goal are to conserve and, where practicable, to enhance the overall populations and ranges of native species and the quality and range of wildlife habitats and ecosystems. These objectives form the basis of action plans and targets produced for individual habitats and species. The CROW Act now adds a statutory weight to this process.

Where wind farms are proposed, their development should respect, and where possible further, the objectives and targets identified for priority habitats and species listed in the UK Biodiversity Action Plan (including areas identified as being able to make a positive contribution to meeting targets through, for example, re-creation/re-establishment schemes, and links, corridors and stepping stones required under Regulation 37 of the Habitats Regulations).

Physical processes

Physical (geological/geomorphological) processes are not only of fundamental importance in determining the spatial distribution of wildlife, but many are of conservation value in their own right and have attendant statutory and non-statutory designations in recognition of their significance.

Consideration must be given to the potential impacts of offshore wind farm developments on coastal processes which may have a significant adverse (not trivial or inconsequential) effect on adjacent coastal areas, including the conservation of wildlife and geological/geomorphological features, through increased erosion or accretion.

Consideration must be given to any significant adverse (not trivial or inconsequential) impacts of increased demand for coastal defences to protect land-based installations, cables and other linkages to shore associated with offshore wind farms and the long-term implications for shoreline management strategies.

Consideration must be given to the potential impact of onshore wind farm developments on hydrological processes which may have a significant adverse (not trivial or inconsequential) effect on the conservation of wildlife and/or geological/geomorphological features.

All these refer to general impacts; special provisions apply to statutory sites - see above.

Rare and Nationally Scarce species

The protection of rare and threatened plant and invertebrate species in the UK makes an important contribution to the delivery of biodiversity objectives. The status of these species is described in relevant Red Data Book lists.

Consideration must be given to the potential impacts of wind farm development on Rare and Nationally Scarce plant and invertebrate species, as identified by the relevant Red Data Book lists, and to rare and scarce species found in the marine environment.

4. Environmental impact assessment (EIA)

EIA is an important and powerful policy tool. It is designed to be open and impartial, and aims to identify environmental impacts of projects and potential measures to avoid harm to the environment. Proposed onshore wind farm developments may require formal EIA under Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. Schedule 2 includes indicative thresholds and criteria to help identify developments *likely to have significant effects on the environment by virtue of factors such as its nature, size and location*. For installations for harnessing wind power for energy production (*wind farms*), an EIA may be required if there are potential significant environmental impacts from the installation of more than two turbines, or if the hub height of any turbine or height of any other structure exceeds 15 metres.

DETR Circular 02/99 *Environmental Assessment* suggests that a formal EIA is more likely to be required if a wind farm has more than five turbines or if its generating capacity is greater than 5 MW. PPG 9 on Nature Conservation advises that *In practice the effect of a Schedule 2 development on an SSSI will often be such as to require EA. Whilst each case should be judged on its merits, EA would normally be required where a Ramsar site or a potential or classified SPA, or a candidate, agreed or designated SAC could be affected*. There are additional obligations for assessment under Article 6 of the Habitats Directive (and the UK Habitats Regulations), where a proposal may affect the integrity of a Natura 2000 site, and useful guidance has recently been published by the European Commission (see Annex 2).

Early consultation between wind farm developers and key national nature conservation organisations from the outset of the site selection process may enable avoidance or mitigation measures to be identified for sensitive locations.

Proposals for offshore developments are not subject to onshore planning regulations and controls. There is some discussion about the precise consents process for offshore wind farms, but they are likely to require a licence issued under the Food and Environmental Protection Act 1985 (FEPA), consents from the Crown Estates and, possibly, consents under the Coast Protection Act 1949 and Transport and Works Act 1992. An assessment of the likely adverse impacts of an offshore wind farm proposal will be required before a licence or consents are granted. Moreover, a recent court case strongly indicates that the EU Directives (such as Birds, Habitats and EIA Directives) apply at sea and in the area of the UK Continental Shelf and adjacent areas.

5. Survey, monitoring and research

Where wind farm developments in potentially sensitive locations receive consent, it may be necessary to monitor possible impacts on features of nature conservation importance. Monitoring programmes should cover a sufficient time-period to provide sound baseline and control data, should address the full range of relevant environmental impacts, and should include a process to review the results from the programme and implement immediate remedial action as required. Good baseline and control data from individual sites are essential to provide information against which the impacts of the proposal can be measured and avoidance measures, or if not possible, mitigation and monitoring proposals, developed. The need for, and scale of, any monitoring programme must be determined on a project by project basis and should be focused on the issues relevant to the particular wind farm project.

Research is urgently needed to improve understanding of the generic impacts of wind farms on the natural environment. The industry and regulators should seek every opportunity to promote a strategic approach towards addressing this issue. The cumulative impacts that may arise from adjacent wind farms, and other developments, should also be addressed.

The results of monitoring and research studies should be made public.

6. Government support mechanisms and the planning process

The introduction of the Utilities Act brought a change in the support mechanism for the development of renewable energy. Formerly, the Non Fossil Fuel Obligation (NFFO) provided support by guaranteeing a price for the electricity generated from renewable sources. Now the Utilities Act includes an obligation on licensed electricity suppliers to provide a specified proportion of their power from renewable sources (the Renewables Obligation). The Renewables Obligation will grant no special status to renewable projects under the planning system.

In addition to the Renewables Obligation, there are a number of outstanding NFFO contracts yet to be developed. These will continue to be valid under the new regime, although no new NFFO orders will be made. It is proposed that such NFFO contracts will be allowed some degree of portability, which means that a NFFO contract granted for a particular site could be used for a different site. This may have advantages and make existing NFFO contracts more favourable by, for example, allowing wind developers to look at alternative sites to those previously contracted in contentious areas. However, as with the Renewables Obligation, NFFO grants no special status to renewable projects under the planning system.

The Government is also initiating a process to develop regional targets for renewable energy through the Government Regional Offices in England. This initiative is welcomed as it will help to ensure early identification of areas where developments would be difficult to reconcile with environmental and other policy considerations. Such early identification should best be made through Regional Planning Guidance, drawing on the new Regional Sustainable Development Frameworks.

Annex 1 - Guidance on possible impacts of relevance to nature conservation

The following provides an outline of nature conservation impacts that may need to be considered in an environmental assessment of a wind farm development, and should be used in the context of broader considerations for the environmental statement. Any assessment should follow the standards and scope required by the relevant regulatory framework, in particular those outlined in section 4 (above).

THE DEVELOPMENT: BROAD RANGE OF CONSIDERATIONS

Temporal:

- Pre-installation
- Construction
- Operation
- Decommissioning

Spatial:

- On site/off site buffer area/area of influence
- Cable route
- Land-fall (offshore developments)
- Other (eg construction site, spoil disposal sites)

Cumulative:

- Over time
- In combination with other wind farms
- In combination with other projects/activities

RANGE OF NATURE CONSERVATION INTERESTS

There are likely to be a range of interests that could be affected both directly and indirectly by a wind farm development. The following example is for an offshore development:

Direct:

- Sediment transport
- Marine habitats
- Marine benthos
- Mobile aquatic species (fish, mammals)
- Birds
- Sedentary and reef-forming aquatic species

Indirect:

- Coastal processes
- Coastal habitats and associated species
- Birds

CHECKLIST OF POSSIBLE IMPACTS OF RELEVANCE TO NATURE CONSERVATION

NB - list is not exhaustive

Impact	On Shore	Offshore	Timing
Direct habitat loss (eg on site, cable route, moorings) and associated biological impacts (eg reduced species diversity, loss of feeding/breeding habitat)	–	–	c/o
Habitat damage (eg on site, access roads, cable route, anchoring) and associated biological impacts (eg reduced species diversity, loss of feeding/breeding habitat, changes in livestock management regimes)	–	–	p/c/o/d
Introduction of new substrate/habitat		–	c/o
Interference with geological/geomorphological processes (eg slope processes)	–	–	c/o
Interference with hydrological processes (eg increased run-off from upland sites, erosion of peatlands)	–		c/o
Interference with coastal processes (eg increased erosion)	–	–	c/o
Interference with sediment transport			c/o
Pollution (particularly toxic)	–	–	p/c/o/d
Sediment disturbance (turbidity, siltation)			p/c/d
Disturbance to mobile species (eg mammals, birds, fish, including migration, feeding, breeding)			
i) Shadow effects from blades	i) –	i) –	i) o
ii) Noise	ii) –	ii) –	ii) c/o/d
iii) Vibration	iii) –	iii) –	iii) c/o
iv) Lighting		iv) –	iv) c/o
Bird collision	–	–	o
Associated infrastructure including:			
i) Access (tracks/roads, moorings)	i) –		i) p/c/o/d
ii) Visitor centre (disturbance)	ii) –		ii) c/o/d
iii) Overhead power lines	iii) –		iii) c/o
iv) Coastal protection	iv) –	iv) –	iv) c/o/d
Vehicle/vessel movements (disturbance)	–	–	p/c/o/d

p = pre-construction, *c* = construction phase, *o* = operation phase, *d* = decommissioning

In addition to the above impacts, there are landscape/seascape and cultural impacts, and impacts of associated infrastructure, which could be indirectly linked to nature conservation (eg change in land use, restriction on sea use such as navigation or fisheries).

Annex 2 - Key publications

- British Wind Energy Association. 1994. *Best practice guidelines for wind energy development*. British Wind Energy Association, London.
- Crockford, N. J. 1992. *A review of the possible impacts of wind farms on birds and other wildlife*. Joint Nature Conservation Committee Report 27, Peterborough.
- European Commission. 2000. *Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC*. European Commission DGXI.
- Gill, J. P., Townsley, M. & Mudge, G. P. 1996. *Review of the impacts of wind farms and other aerial structures upon birds*. Scottish Natural Heritage Review 21, Edinburgh.
- Percival, S. M. 1998. Birds and wind turbines: managing potential planning issues. *Proc. of the 20th British Wind Energy Association Conference*.
- Percival, S. M., Band, B. & Leeming, T. 1999. Assessing the ornithological effects of wind farms: developing a standard methodology. *Proc. of the 21st British Wind Energy Association Conference*.
- SGS Environment. 1996. *A review of the impacts of wind farms on birds in the UK*. Report to ETSU (ETSU W/13/00426/REP/3).



Russell Marsh, Dave Burges

WWF-UK

Panda House, Weyside Park, Godalming,
Surrey GU7 1XR

Tel: 01483 426444

www.wwf-uk.org

Brian Cleary, Rowena Langston and Mark Southgate

RSPB

The Lodge, Sandy, Bedfordshire SG19 2DL

Tel: 01767 680551.

www.rspb.org.uk



Mike Harley, Allan Drewitt and Paul Gilliland

English Nature

Northminster House, Peterborough PE1 1UA

Tel: 01733 455000

www.english-nature.org.uk



Martin Marais and Chris Shears

British Wind Energy Association

26 Spring Street, London W2 1JA

Tel: 020 7402 7102

www.britishwindenergy.co.uk