The Energy Review Team
Performance and Innovation Unit
Cabinet Office
Admiralty Arch
The Mall
LONDON
SW1A 2WH

THE BRITISH WIND ENERGY ASSOCIATION

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**PIU Energy Review**
**Submission by the British Wind Energy Association**

## Preface

The British Wind Energy Association welcomes the review of energy policy and provides the following note as a contribution towards the study.

BWEA is the trade association for companies involved in the UK wind energy market. Established in 1978, it now has 164 companies in membership, nearly four times its membership four years ago. Nine companies joined the Association in August 2001 alone; both facts in no small part a reflection of interest from the energy industries at large in renewable (and in particular, wind) energy. A list of companies currently in membership is appended for your reference.

BWEA is one of eight trade associations (comprising approximately 550 companies) in membership of the Confederation of Renewable Energy Associations (CREA), listed in Annexe B of the Project management plan of the PIU Energy Project as a 'Key Stakeholder'. BWEA's Chief Executive is currently its Chairman.

Wind energy is widely recognised as an abundant energy resource indigenous to the UK. In crude terms, the technical resource is sufficient to meet total current UK demand several times over. The economic resource is lower, but in any calculation, wind energy is clearly a significant resource and it would be surprising for it not to figure in any future scenario.

Elsewhere in Europe, wind turbines have already been successfully introduced into diverse systems. By way of example of successful introduction of wind energy, in the German and Danish systems, the contributions from wind energy levels are at 2.6% and 14% respectively.

Already, most commentators accept that wind is likely to represent at least half of the Government's '10% by 2010' target, given the 'here and now' maturity and costs of wind energy.

BWEA has calculated that the industry is capable of installing at least the ca 7000MW of wind energy suggested in the DTI's previous renewable energy consultation and will be able to install an additional 2000MW per year from offshore alone thereafter. The installation rate for onshore development may settle in the low hundreds of megawatts per annum, depending on land use policies.

BWEA is working towards a 'high-renewables' scenario, wherein the UK achieves a progressive reduction in fossil and nuclear generation. In this scenario, no new build of such technologies is envisaged and progress towards high renewables (and implicitly, high wind) is achieved by 'transitional' technologies, on present indications, mainly gas. We believe that the external costs of generation, including carbon emissions, waste management and decommissioning should be fully reflected in cost calculations and prices. This in itself will significantly determine the market.

In this submission, we focus largely on the key issues related to the integration of greater volumes of wind-generated electricity. Wider reference material regarding all aspects of wind energy is provided online at www.bwea.com and its related sites.

**Submission**

In moving towards a sustainable energy policy, wind energy (in addition to its attendant opportunities for economic growth and export potential) can provide as much output as is required within each of the indicated timescales (2010, 2020, 2050) without significant changes to present arrangements.

We have already observed, in the emerging offshore wind energy sector that, given the combination of an appropriate support mechanism (the new Renewables Obligation), an enlightened process (the Crown Estate, as landlord, together with the support of the DTI in working towards a streamlined consenting regime) that the private sector is very ready to invest in this technology.

No observer (including ourselves) accurately predicted the level of interest in the first announcement of an offshore wind farm process. All the evidence suggests that a much greater level of investment is ready to build even larger projects, as soon as the necessary processes are in place.

If just these eighteen projects alone come to fruition, the expected output will be equivalent to 1% of the UK's 2010 demand. Further sites, including much larger projects, together with a well-structured programme of regional development for onshore projects, should see wind energy achieving the majority of the Government's envisaged 2010 target, within the time-scale and without significant financial support.

Experience in other countries has demonstrated that rapid build-up of a wind generation base is achievable. Wind turbines themselves can be rapidly deployed. The actual build-rate of wind energy in Germany over the first six months of 2001 is equivalent to 4.5MW of wind energy installed per day, every day. Installations during the second half of the year are expected to be even higher. Lead times can be as short as months for even a large order of machines.

We assert that relatively few (and we believe, relatively painless) steps would need to be taken to replicate these achievements, but at the lowest prices anywhere in the EU.

A significant volume of wind-generated electricity can be introduced into the existing distribution system without threat to the security of supply and without cost penalty. At a conservative estimate, up to 20% of demand could be met from so-called 'non-firm' or intermittent generation sources. This is not an upper limit, however. A system with more embedded plant (as being examined in both the Foresight programme and the Embedded Generators Working Group and its successor, the Embedded Generation Co-ordinating Group) could accommodate considerably more. Already, German and Danish systems operate satisfactorily with high levels of wind generation.

The reduction in the cost of onshore wind energy can largely be attributed to the growth in other markets. The UK already enjoys the lowest prices in Europe and further significant downward movement in prices should not be expected, particularly as NETA risks may (especially for smaller, independent generators) artificially lift the delivered price. We do not, therefore, share the view that the average onshore price will fall to 2p.

Similarly, offshore is unlikely to see such dramatic falls in price as onshore did over its life, the additional cost of working offshore leading to an almost unavoidably higher price. This may be reduced by economies of scale and the evolution of new deployment technologies replacing existing jack-up barges.

As a trade association, we are aware of a number of emerging trends in wind energy, which may be of use in predicting generation and consumption. These include;

- The common experiences shared by companies involved in both offshore wind and wave/tidal technologies. The success of offshore wind may, therefore, play a role in reinforcing progress being made with wave and tidal power. This might include opportunities for port regeneration, technology transfer from the oil and gas industries and consideration of grid reinforcement and availability. It has also been suggested that offshore wind might successfully underpin the hydrogen economy.

- Onshore wind has a long history of association with agriculture and increasingly the farming community has shown interest in using land for projects both small and large. Any ongoing consideration of land-use issues would usefully bear this in mind.

- We have noticed considerable interest being shown by industrial companies who are recognising that their land assets (and in some cases, grid connections) can be utilised towards self-generation.

- Additionally, the interest shown by private individuals in using off-grid turbines to part-supply their own use is an area to which greater support can be afforded.

Although both of these latter examples may not fit with a 'large' generation model, both are potentially of significant value in considering how the system itself may change in future. 'Net metering' is essential to achieve this, particularly at a domestic level.

Early indications are that the effects of the RO are that the market is responding well in stimulating interest, if not actual growth in generation. It is our firm view that institutional and system constraints present greater obstacles than the absence (or nature) of direct support.

It is these artificial barriers on which we might usefully focus.

BWEA agrees with the analysis given in the renewable energy scoping note, viz. that the major obstacles to the growth of wind energy are

- The difficulties in obtaining planning permission;
- Constraints imposed by the regulation of networks, infrastructure and connections;
- The effect of the New Electricity Trading Arrangements (NETA)

To these we would add a fourth, which is 'resistance to change'. This occurs at all levels, from local populations wary of unfamiliar technology, to a generalised tendency to prefer the *status quo* in large institutions as diverse as MoD, NGC and Ofgem.

<u>Planning</u>
At all sub-national levels, there is not, as yet, an appreciation of the need to accept ownership (and alongside the advantages, any perceived disadvantage) for electricity generation, irrespective of technology. In the UK, wind turbines suffer the inconvenience of relative unfamiliarity and with it, an undeniable physical presence.

It is not the planning process *per se* that presents a problem, rather it is the output. Until such time that there is recognition of the need to develop wind energy projects, the success levels of development proposals (of equal quality) will vary between the extremes of Scotland (generally positive) and Wales (generally negative) with English regions varying according to local levels of commitment and awareness.

We do not accept that *"the nature of UK financial support mechanisms may have driven UK developers toward more visually sensitive sites than has been the case in countries that have experienced more limited levels of public opposition".* Developers are attracted to sites with good wind speeds and grid connections. Some are in recognised areas of landscape interest, but many are not. Indeed, projects within sight of nuclear power plants and industrialised harbours, as well as areas hitherto unappreciated for tourism value have all seen objections to turbines on visual grounds.

**We recommend that swift introduction of a programme of encouraging and supporting regional planning targets with all necessary incentives will be the single most effective action that should be taken to achieve the potential of wind energy.**

By way of illustration as to how a national target might cascade to a regional target, an equitable distribution (recognising demand as well as resource) of the Government's envisaged 'high wind' onshore target is shown in BWEA's publication "Planning for wind energy – a guide for regional targets" www.bwea.com/pdf/planning.pdf

We additionally recommend that rapid progress is made in ensuring that further offshore sites, including those beyond territorial waters.

Regulation of Networks

We agree, *"the current regulatory regime and commercial arrangements do not provide a level playing field for these renewable sources. The Embedded Generation Working Group was established specifically to address these issues. It is clearly important for renewable energy development that these recommendations are now taken forward quickly".*

NETA

We do not accept that the electricity trading arrangements are (nor do they show any sign of becoming) sensitive to the anticipated increase in 'non-firm' generation (notably, but not exclusively, wind). The disadvantages of NETA, now acknowledged by Ofgem, represent a significant disincentive to invest in wind energy. It remains our view that the operation of NETA, as it currently stands, undermines the Government's existing renewables policy and calls into question the prospects for growth beyond even these modest targets.

We believe that the only penalties incurred by intermittent generation should be those that reflect the actual costs to the system.

Resistance to change

All institutions are vulnerable to inertia, particularly faced with decisions that may affect their fundamental activities. These are not immovable, however, particularly when given a clear policy direction.

For example, the need to reconcile technical needs of air traffic with political imperatives for wind farms can (and we believe will) be resolved with the appropriate level of intervention and recognition by all parties of the concerns held. Constructive dialogue yields results. For example, we whole-heartedly concur with the observation made in the 'Note of Meeting between PIU Energy Review Team, the Scottish Executive and the Scotland Office', viz. *"Because Scotland operates on a more local scale than UK policy and the Scottish Executive is intergrated (sic) it is much easier for policy to be coherent. Useful lessons can be learnt about policy synergies from Scottish experiences".*

**Summary**

*The UK has the opportunity of meeting at least one fifth of projected electricity demand within existing frameworks by utilising wind energy technologies, already proven and in wide use across Europe and elsewhere.*

*Electricity from wind plant is already available at prices comparable to conventional sources, but does not produce wastes or emissions.*

*It is inherently secure and sustainable and can be quickly deployed.*

*Although we offer no comment on other technologies, we assert that most people, when faced with a choice of technology options to be introduced 'in their own back yard' would find wind energy the "least unpopular".*

Nick Goodall
Chief Executive

Appendix 'BWEA Membership at 12 September 2001'

Amec Wind
Bonus Energy A/S
Enron Wind
National Wind Power Ltd
PowerGen Renewables Ltd
Renewable Energy Systems Ltd
ScottishPower
Shell International Renewables Ltd
TXU Europe Power Ltd
ABB Zantingh Ltd
AEA Technology Environment
Aegis Rubber Engineering
B9 Energy (O&M) Ltd
Bond Pearce Solicitors
British Energy plc
Brodies W.S., Solicitors
Brown & Root Ltd
Clarke Energy Ltd
Conoco Global Power U.K. Ltd
Corus Bi-Steel Solutions
Corus Northern Engineering Services
D.N.V. Ltd
DERA
Dresdner Kleinwort Wasserstein
Edison Mission Energy Limited
ELSAM A/S
Energiekontor (AG)
ENERTRAG UK Ltd
Enron Europe Ltd
Ernst & Young
Fugro Limited
Garrad Hassan & Partners Ltd
Hydro Soil Services
Ingenco Ltd
John Mowlem & Company plc
Keliston Engineering Ltd
Kier Construction Limited
Kvaerner Oil & Gas Ltd
Lilley Grant Rush Ltd
London Power Company
M & N Wind Power Ltd
Masons
Mayflower Corporation plc
Met Office
Mitsui Babcock Energy Ltd
Mobil Oil Company Ltd
Natural Power Consultants Ltd
NEG Micon UK Ltd
Nordex UK Ltd
Northern Electric Generation Ltd
Norton Rose
Offshore Energy Resources Limited
Pirelli Cables Ltd
R.D.C. Ltd
Royal & SunAlliance
Scottish & Southern Energy plc
Seacore Ltd
SLP Engineering Ltd
Tomen Power Corporation UK Ltd
Triodos Bank
Umweltkontor Deutschland
Renewable
Energy AG
United Utilities Green Energy
Vestas - Danish Wind Technology
A/S
Warwick Energy Limited
Wind Prospect Ltd
Windelectric Ltd
Windforce Energy Development Ltd
Windjen Power Limited
Wragge & Co
Yorkshire Windpower Ltd
A2SEA A/S
ABP Research & Consultancy
Aileron Associates Limited
Airtricity Development Ltd
Ambient Energy Ltd
Andaray Engineering Ltd
Anderson Strathern WS
Anglesey Wind & Energy Ltd
Baywind Energy Co-operative

Bendalls Engineering
Bomel Limited
Bosch Rexroth Ltd
Brown McFarlane Ltd
Cambrian Engineering (Cymru) Ltd
Charles W. Taylor & Sons Ltd
Chris Blandford Associates
Collett Transport Ltd
Cornwall Light and Power Co Ltd
Coupe Foundry Ltd
Cumbria Windfarms Ltd
Cwmni Gwynt Teg Cyf
Dansteel Ltd
DM Energy
DP Energy Ltd
DSB Offshore Limited
Dulas Ltd
E4environment Limited
Eclipse Energy
EcoGen Ltd
Econnect Ltd
eeegr, East of England Energy Group
EMU Ltd
Energy for Sustainable Development
Energy Unlimited
Enviros Aspinwall
ESB Power Generation, Renewables
Fairfield Mabey Ltd
Farm Energy Ltd
Furness Energy Partnership
Galeforce Wind Turbines (N.I.) Ltd
Global Marine Systems Ltd
GPA Partnership
Halcrow Group Ltd
Hammond Suddards Edge
Harlequin Metal Supplies
Hedley Purvis
HR Wallingford
Impax Capital Corporation
IT Power Ltd
Landscape Design Associates
Marlec Engineering Co Ltd
Mersey Docks & Harbour Company
Metoc plc
National Engineering Laboratory
Nicholas Grimshaw & Partners
North Energy Associates Ltd
Oceans Engineering Ltd
ODE, Offshore Design Engineering Ltd
Orga Suisse S.a.r.l
PMSS Ltd
Proven Engineering Products Ltd
Renew North
ReSoft Ltd
Riomay Ltd
RMB Engineering Services
RSK Environment Limited
Seabed Scour Control Systems Ltd
Stephenson Halliday
Sustainable Energy Limited
Thales Geosolutions
Theodore Goddard
Titan Environmental Surveys Ltd
Titan Maritime (UK) Ltd
TLT Solicitors
TMEnvironmental Power
unit[e]
Vector Instruments
Wavegen
West Coast Energy Ltd
Western Windpower
Wichita Co. Ltd
Windfarm Construction & Maintenance
Ltd. (WCM)
WindGeneration Ltd
Wind-Ways Ltd
Wrigleys Solicitors
Centre for Economic Renewable Power
Delivery
Centre for Sustainable Energy
CLRC, Rutherford Appleton Laboratory
CREST
National Energy Foundation
Open University

UMIST
University of Durham
University of the West of England