

A row of offshore wind turbines in the ocean. The turbines are white with yellow bases, and their blades are pointing towards the right. The ocean is a deep blue, and the sky is a clear, light blue. The turbines are arranged in a line that recedes into the distance.

ACTIONS FOR 33 GW

**Actions to Facilitate the Delivery of Government's
Offshore Wind Ambition of 33 GW**

BWEA

The BWEA logo graphic consists of three white, curved lines that sweep upwards and to the right, positioned below the text 'BWEA'.

Introduction

The success of the off-shore wind industry is central to the UK's efforts to tackle climate change and to secure safe, indigenous energy supplies for the nation's future.

The UK faces a legally binding European target to source 15% of its energy (heat, transport and electricity) from renewable sources by 2020. Offshore wind energy in the UK is continuing to grow in terms of installed capacity as well as in national significance. The legally binding European target for the UK is now expected to be 15% of all energy (heat, transport and electricity) to be supplied by renewable sources by 2020. In order to meet the target, a lion's share of UK's electricity, perhaps as much as 45% will have to come from renewables. Government and industry agree that offshore wind is the most appropriate technology to supply the majority of the renewable energy target.

Offshore wind can and must make the most



significant contribution to this obligation.

The offshore wind industry is therefore united in welcoming the significant offshore wind targets set by the Government: In December 2007, in its "UK Offshore Energy SEA – Scoping for

Environmental Report" document, Government set out its ambition to expand offshore wind capacity, with up to 33GW of offshore wind by 2020: 8 GW from Rounds 1 & 2, plus a further 25GW of new sites that could be delivered in that timeframe.



Offshore wind can and must make the most significant contribution to this obligation



THE AIMS OF THIS REPORT

This document aims to help Government to ensure that every barrier to maximising delivery is identified and that a clear path is set out for overcoming these barriers.

In so doing, the document aims to ensure that the UK meets its legal obligations; fulfils its duty to tackle climate change; secures energy for the nation's future; and achieves these objectives in a way that maximises benefits for the nation's economy, society and environment

BWEA believes that clear plans to address the following are key to the delivery of the UK government offshore wind ambition:

- 1 Leadership, accountability and resourcing**
- 2 Constructive development of the supply chain**
- 3 Increase grid capacity and availability**
- 4 Optimise the planning system**
- 5 Enable economic feasibility**



North Hoyle Offshore Wind Farm

The offshore wind industry is committed to working with Government to overcome these barriers and, through the BWEA, has formed active working groups and other fora to discuss and address how industry can help to tackle key issues.

The report has been produced by BWEA with invaluable input from the following BWEA working groups which together comprise of over 90 industry experts:

- Future offshore group
- Offshore strategy group
- Consents and licensing group
- Offshore wind delivery group
- Offshore grid group
- Economics and markets group

The views expressed within the report are therefore based on a wide, experienced and expert knowledge base.

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1. Leadership, accountability and resourcing

Industry considers it essential to enhance strategic leadership and accountability for renewable energy, and to consider resourcing needs associated with delivery of the 33 GW ambition for offshore wind.

LEADERSHIP AND ACCOUNTABILITY

A request for a Cabinet Sub-Committee for Renewable Energy in the UK

Issue: The following pages indicate that increasing current installed offshore capacity from less than 1GW to 33GW will be challenging but essential. It will require commitment and significant cooperation from many government departments, a step change in the planning process, the mobilisation of an industry, development of a secure supply chain, significant infrastructure change and the co-ordination of a wide range of projects, all within very demanding timescales.

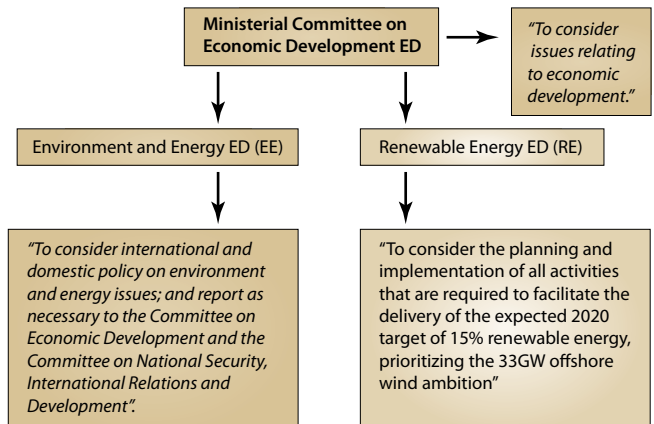
Currently, no Government working group or department is accountable for overall coordinated delivery of the Government's target and EU obligations. The Government's renewable energy targets may not be central consideration for all department and agencies involved in the planning process.

Solution: Delivering the offshore wind programme requires unprecedented strategic leadership and cross-departmental commitment. It demands significant

programme control and appropriate accountability.

Given the urgency with which the UK must make its large-scale transition to renewable energy, a cabinet sub-committee should be appointed with overall responsibility for planning and implementing all activities that are required to facilitate the delivery of the 15% renewable energy target, prioritizing the 33GW offshore wind ambition as the most significant contribution to meeting the targets.

New Cabinet sub-committee for Renewable Energy





Industry considers it essential to enhance strategic leadership and accountability for renewable energy



The sub-committee would consist of ministers and be chaired by the Secretary of State for BERR.

The sub-committee will have the authority to place demands on and ensure the outputs required by any government department (BERR, DEFRA, MOD, DfT, DIUS, HMT, DCLG) and act as a champion for renewable and the offshore wind sector in particular.

To assist them, a high level working group of senior civil servants from the government departments involved will be needed to carry out actions and deliver on the policy decisions.

Industry and stakeholder groups such as RAB, NOREL, OREEF, FLOWW should be given a remit to link into these new groups.

In recognition of the need for cross departmental support, it is also essential that delivery of the UK's renewable energy objectives is recognised and resourced appropriately by all government departments involved in the process. This target must cascade down into

working and performance objectives for individual case officers.

Timetable for solution:

The sub-committee should be appointed as soon as possible. At a time when the 25GW Round 3 programme is gathering momentum and when some 5GW of Round 2 projects are still to clear the planning system, it is proposed that this strategic appointment and the mechanism by which renewable energy targets cascade down into clear objectives for all Government departments are given urgent priority.

RESOURCING

Issue: Government's commitment to offshore wind must be supported by sufficient resourcing across its departments and advisors. This is particularly urgent in relation to planning: having consented approximately 3GW in the seven years since 2001, ten times that amount must pass through the system in ten years time for Government and the industry to

meet and construct its objective. There is an undoubted and urgent need to address human resource issues across Government.

Solution: Whether through internal appointment or external recruitment, scrutiny must be given to the scale of the task and the current skills gap. Industry would welcome the opportunity to work alongside Government to achieve this, for example by discussing current resourcing problems; planning for the future by identifying potential bottlenecks and opportunities for government involvement in the industry; and by considering associated recruitment and training needs and discussing practical ways in which the industry can help. It is proposed that, through the various BWEA working groups, industry works actively with government to address these fundamental issues.

Timetable for solution:

It is essential that human resource needs are addressed at this early stage.

2. Constructive development of the supply chain

Nacelle installation at Horns Rev



Constraints in the supply chain, particularly of wind turbines, are a challenge to the delivery of 33 GW of offshore wind farms in a timely and economically realistic fashion. Constructive development of the supply chain needs to include government supported activities to incentivise investment into the UK and to bring large UK corporate companies into the sector at a very early stage. Sustainability of investment and supply chain activity must be achieved for the long term. Without

this sustainable supply chain the delivery of the 33GW objective cannot be achieved.

TURBINE SUPPLY

Issue: The requirement is now predicted to equate to an additional 5,500 to 7,000 offshore turbines and all the other supporting elements that this entails. There is currently insufficient turbine manufacturing capacity to provide the volume of turbines that will be required for the worldwide offshore wind market and the UK must fully understand that it is

competing for turbines in a global market where the manufacturers will concentrate on the lower cost, lower risk onshore sector.

The UK is also competing for the cost of raw materials like steel and copper in a global market. In addition, within the UK there is insufficient competition between manufacturers to drive the price of turbines down. This threatens the economic case for building offshore wind projects.

Solution: There is a large opportunity to set up assembly plants for wind turbines in the UK using components from UK manufacturers. The UK Government needs to consider all options that are available to encourage global turbine manufacturers to the UK offshore wind market. In addition to providing an attractive, long term fiscal environment for offshore wind project development, the turbine manufacturers require:

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There is a large opportunity to set up assembly plants for wind turbines in the UK using components from UK manufacturers

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- **Simulation to develop dedicated offshore wind turbines rather than the adaptation of onshore technology.**
- **Facilitation of rigorous testing of new offshore wind products to minimise later operational issues**
- **Encouragement for manufacturers to invest in offshore turbine assembly lines. BWEA does not require that turbines are manufactured within the UK but there could be clear UK benefits if this were the case.**
- **Incentives to set up long term Operation and Maintenance support centres in the UK for their products.**

In order to ensure the delivery and support of sufficient turbines to meet the stated targets, a clear package of incentives must be developed and implemented which may include government assistance with inward investment through capital programmes, tax

incentives, development grants, etc. The full support of national government, local government and regional development agencies is required if the UK is to effectively compete for scarce turbines.

A growing market and the fiscal incentives will encourage existing manufacturers to invest in capacity and will also encourage new entrants.

Timetable for Solution:

The lead time for development and rigorous testing

of offshore turbines is significant, so in order to help bring reliable products to market in a timeframe that makes a material impact on UK delivery, the development of an incentive package must be progressed now.

TURBINE COMPONENTS

Issue: Turbine manufacturers cite the supply of components as key pinch points in the supply chain. Current areas of specific concern include bearings,



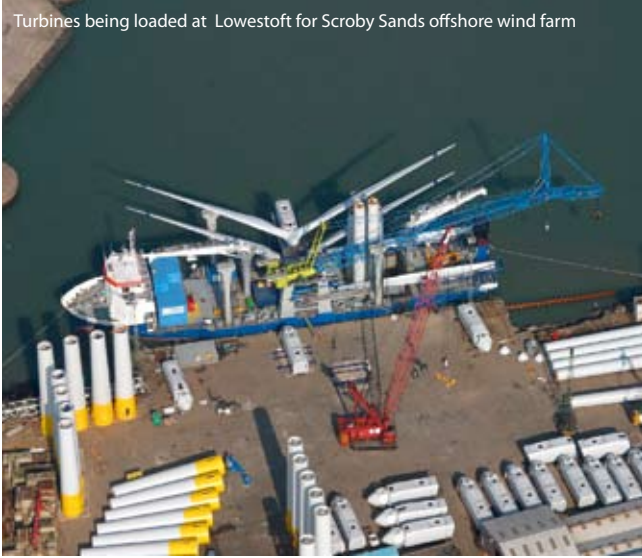
Turbine installation work

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Government needs to take an active role in ensuring the development of the supply chain

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Turbines being loaded at Lowestoft for Scroby Sands offshore wind farm



gearboxes, generators and transformers, but we need to ensure the sustainable supply of all components including blades, nacelles, hubs and towers. In addition, developers are experiencing difficulty in securing the supply of cables for inter-array and connection to shore.

The offshore wind industry requires scale in the supply chain and the necessary competition for reliable and cost effective offshore wind component supplies.

Solution: Government should consider every opportunity to encourage, support and nurture inward investment and innovation in UK component manufacturing capacity. As above, this could include capital grants, tax incentives, development and testing incentives and the support of national government, local government and regional development agencies.

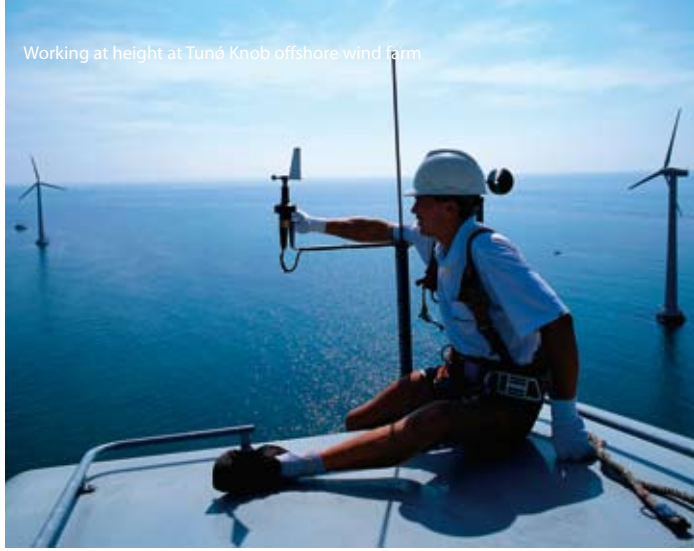
The need for major items such as blades, hubs, nacelles and foundations

will bring opportunities for large-scale fabrication companies strategically located at major ports.

The UK now has a once-in-a-lifetime opportunity to take a lead in this sector bringing significant benefits for UK companies and the UK economy. Government needs to take an active role in ensuring the development of the supply chain as allowing the market to respond to demand will inevitably lead to a stifling of offshore build as a result of component shortage.

Timetable for Solution:

An early start is required to overcome the existing supply chain bottleneck, establish the UK as a global leader and to prevent future stalling of turbine supply. On the evidence of the Engineering Employers' Federation report on opportunities for manufacturers in the low carbon economy¹, UK industry is getting ready to take advantage of this market, but it still needs persuasion and help.



VESSELS, PORTS AND HARBOURS

Issue: This expansion will require many more vessels for installation and maintenance and the harbour facilities to support them. The established European turbine manufacturers are already looking at where their next production expansion will be, focusing on suitable coastal/harbour locations.

New turbines specific to offshore are likely to be too large to transport by road so existing facilities may not be adequate and manufacturers will be forced to look for new facilities at harbours dedicated to large turbine manufacture.

Solution: Capital support for enhanced harbour facilities is something either government or Crown Estate could invest in assisting the offshore industry whilst providing general investment in facilities that could help UK plc in other ways. This would also incentivise the Department for Transport and the Chamber

of Shipping to support the activities of offshore wind.

Ports and harbours should be encouraged to advertise their facilities to companies involved in the offshore wind service and supply sectors both nationally and internationally. This is a clear opportunity for the UK to invest in facilities in a similar way as the German government has invested in Bremerhaven. The UK should capitalise on its historic and natural marine competence and revitalise and regenerate existing facilities.

Timetable for solution: As the lead time for major infrastructure and vessel construction is considerable, plans need to be put in place now.

SKILLS

Issue: A significant increase in the numbers of people with appropriate knowledge and experience will be required. The skills marked shortage is already causing the industry concern and this issue will very quickly become a major problem as the industry scales up.



Skilled personnel are required for all parts of the supply chain



North Hoyle

Solution: A growth in what is being termed as the *intellectual infrastructure* is required. This *intellectual infrastructure* can be broadly explained as the skills and knowledge of people and institutions vital to the success of an industry.

Increasing uptake of university courses relating to wind energy is needed to provide a valuable skills resource to the expanding

industry. Government should take a leading role, working with industry to identify the skills and coordinating programmes and initiatives at universities and other institutions.

This UK based offshore wind expansion will bring increased opportunities and many long-term jobs in both the service and supply sector; the aptly named 'Green Collar' workforce.

Timetable for solution:

A review of skills required in the sector should be started immediately. BWEA is proposing an independent survey on the type of skills that are required and the level of skilled people that are available.

Government and other agencies should provide immediate encouragement and support for development of university courses to bridge the skills shortage.

REFERENCES

- 1 www.eef.org.uk/UK/what-wedo/environment/features/uk/Delivering_the_low_carbon_economy.htm

3. Increase grid capacity and availability

OFFSHORE TRANSMISSION REGIME

Issue: The existing licensing regime was designed to cope with incremental change. The new offshore transmission regime must be adequate for 33GW of offshore wind energy by 2020. The industry needs economic and timely connections. Timely connections will not be possible without timely consenting for new systems including export cables, landfalls and onshore transmission.

Since the regime was first consulted on in 2005, one of the main supporting benefits and justifications for the price regulated approach, as opposed to the merchant approach, is the potential for a share of the costs of the onshore substation and offshore platforms to be socialised across the wider GB charging base, to a similar level as onshore substation assets. This aids the economics in support of the development of offshore generation. To potentially remove this

benefit at this late stage in the consultation process will have a further negative affect on the economics of offshore wind. At a time of increasing costs, this would potentially undermine a fundamental principle of support for the price regulated approach and the ability to achieve UK Government renewable electricity targets.

Solution: 'Blue Skies' thinking and swift action will be required to squeeze more out of the existing infrastructure and enable strategic planning, strategic investments and strategic grid development. Onshore and offshore grid need to be considered together with a strategic view to connecting all offshore renewables including wind, wave and tidal generation.

Government, the regulator, the Crown Estates and developers all know where future offshore wind, wave and tidal energy will come from. For this reason BWEA suggests that plans for

upgrades to strategic nodal infrastructure can be started now. The government can stand behind the costs until applications for new capacity are received.

Offshore Transmission Operator (OFTO) motivation needs to be aligned with the industry in delivering low cost, timely connections. It must be remembered that one of the principal reasons for introducing the Offshore Transmission Regime was to reduce the cost of offshore wind to the developer. This Regime cannot be allowed to take costs in the wrong direction.

Timetable for solution: 'Go-Active' is currently scheduled for April 2009. It is important that the design of the OFTO arrangements is correct to support the development of offshore wind.

STRATEGIC OFFSHORE GRID

Issue: A point to point connection system will be unwieldy for the scale of



The industry needs economic and timely connections



growth that the Government targets require. Connecting individual projects to shore could be very expensive and would require individual approval for cable routes, landfall and onshore connection; unnecessarily duplicating the efforts of other developers.

Solution: BWEA support the government's intention to initiate a significant system study setting out the necessary grid network to meet the 2020 target which will conclude by the end of 2008. It is important that this includes an assessment of the grid requirements offshore so that a more strategic approach can be taken. The new transmission regime will need to be flexible enough to allow for an offshore wind hub or offshore network.

Timetable for solution:

A considerable period of planning and consent would be needed to allow this to happen therefore this process would need to start now. The BERR grid

strategy study will be complete by around mid-2009 and must address this issue.

STRATEGIC ONSHORE REINFORCEMENT AND ACCESS

Issue: There must be onshore infrastructure in place to support growth offshore and transmission capacity must be made available in quantities that avoid delay or abandonment.

Solution: Ongoing engagement with BERR and Ofgem. The BERR/Ofgem Transmission Access Review will explore a range of issues associated with the technical, commercial and regulatory arrangements, with the chief aim being to support the delivery of the government's initial aspiration of 20 percent of electricity supplied by renewable generation by 2020. This review will now have to consider the heightened EU targets of between 32 and 37 percent electricity from renewables. The Transmission

Access Review must not deliver too little too late.

Ofgem announced on 6th March 2008 that they would be carrying out a 2-year review to examine their current approach. One reason for this review is to assess the regime in light of the opportunities faced by government's renewable targets.

The government is consulting on revised statutory social and environmental guidance for Ofgem. This is an opportunity to ensure that a strategic approach to onshore grid reinforcements is taken so that delays to projects are avoided.

Timetable for solution:

Ongoing, but the sooner a resolution is found the more confidence that industry will have that the Government is serious about delivering on targets. Where new overhead lines or substations are needed then the process must start now. The BERR grid study will address this and should report mid-2009.

4. Optimise the planning system

Sharing the seas with stakeholders



The sole aim of the UK planning system should be to deliver consistent and timely decisions. Current delays in consent are hindering progress with over 2000 MW of offshore wind awaiting decision on their submissions. The time to determination of consent is stifling development with times of between 1.5 and 4.5 years from application to determination.

The following issues need to be tackled to ensure that these times are brought down:

ADEQUATE RESOURCES

Issue: As mentioned in Section 1 a crucial factor that delays decisions on offshore renewables projects is a lack of resources within the consenting bodies, government and the statutory consultees. In order for the Government to deliver timely decisions on consents, these bodies must be adequately resourced so that bottle necks do not appear. This will become more apparent with the awarding of sites in Round 3.

Solution: The solution is to ensure that statutory

bodies and government have dedicated teams and individuals who are able to engage fully with the demands of Round 3; from providing scoping opinions to deciding on applications.

Timetable for solution:

Resource plans should be formed now so that resources can be identified and recruitment can start.

NEW LEGISLATION

The Planning Reform Bill is expected to be passed in 2008. A vital aim of this bill is to *streamline the planning process* for renewable



Working offshore

energy development. The Planning Reform Bill will bring in the establishment of the Infrastructure Planning Commission (IPC), which will have authority to grant consent for nationally important projects such as offshore wind.

The Marine Bill is expected to be passed in 2009 and as it currently stands projects less than 100 MW will be consented by the MMO.

Issue: BWEA hope that the new process of consenting through the IPC will ensure timelier consenting within the 9 month period as outlined in the Planning Reform Bill.

Solution: To ensure timelier consenting, Government needs to be aware of the following during the debating of the Planning Bill:

- Adequate resourcing (monetary and skills) of the IPC will be extremely important. BWEA expect that the IPC may face very high numbers of applications, especially in relation to Round 3.
- Delays will arise as the new system is tested. A Moratorium on decision making must be avoided and appropriate transition arrangements are required for projects that are already in the planning phase.

- The IPC needs to have the relevant renewable energy skills and experience. Inexperience will lead to an overly cautious response from the IPC.
- There needs to be consistency between the IPC and the MMO in relation to timetables and levels of evidence required for decision making
- The MMO will be a key consultee of the IPC for projects above 100MW. The principle of “sustainable development” must be maintained in the MMO as stated in the draft Marine Bill in order to ensure the appropriate balance between global benefits and local impacts.

Timetable for solution:

Over the course of the Bill’s consultations and implementation.

DEVOLVED ADMINISTRATIONS

Issue: Some mechanism must be set up to ensure that there is enough

“ All levels of government must be signed up to the Government’s commitment on renewables and take responsibility for enabling delivery ”

synchronisation between the devolved administrations and the Westminster Government to ensure the delivery of the objectives of the Marine Bill, for example on the marine management organisation.

Solution: Each of the administrations must work towards the same timescales and use complementary methods in order to work towards the ultimate goal of a UK wide Marine Bill: reversing the decline of biodiversity and promoting sustainable development.

Timetable for solution: Administrations are already working on this issue and it is acknowledged that the system is inevitably complex. Ongoing efforts need to be maintained to coordinate the implementation of the Marine Bill.

STAKEHOLDER CONFLICT

Issue: All involved recognise that there will be conflict between some marine stakeholders.

There is a strong danger that spatial conflict will lead to entrenched fighting for access to the sea. This cannot be allowed to happen and all sides, developers included, must compromise to ensure that offshore wind projects are delivered in an acceptable way.

Solution: All levels of government must be signed up to the Government’s commitment on renewables and take responsibility for enabling delivery.

Key departments are Department for Transport (DfT), Department for Environment, Fisheries and Rural Affairs (DEFRA), the Ministry of Defence (MOD) and the Department for Communities and Local Government (DCLG). There must be an overall mission to encourage offshore renewables which flows down from their Secretary of State, resulting in an enthusiasm to embrace compromise on issues such as shipping lanes, fishing, radar, etc.

At present individual project developers are required to take up such issues with Agencies under the respective Ministries and Departments. This adhoc activity must give way to a strategic conflict resolution led by government.

As mentioned, a cabinet sub-committee should be appointed with overall responsibility for planning and implementing all initiatives that are required to facilitate the delivery of renewable energy in the UK. Stakeholder conflict resolution will be a key responsibility for this person.

Timetable for solution: All departments are currently signed up to the government’s renewable energy policy. This policy will only be fulfilled with the full, large-scale delivery of offshore wind by 2020. This commitment now needs to be demonstrated.

A cabinet sub-committee should be appointed as soon as possible.

5. Enable economic feasibility

In order to maintain the confidence of investors in the offshore wind industry, a stable, long term, attractive support mechanism is vital. Continual adjustment of the renewables obligation leads to uncertainty and any move to replace the RO with for example a Feed-in-Tariff would create an investment hiatus that could seriously threaten the delivery of the offshore wind objective.

FUNDING FOR PROJECT SUPPORT

Issue: The Renewables Obligation (RO) targets only allow for the delivery of up to 20% renewable electricity. This is insufficient to meet our EU objectives and will not support the development of 33GW of offshore wind.

Solution: BWEA welcome the government's analysis on the importance of retaining the Renewables Obligation as our prime support mechanism and the need to extend the end-date of the RO to 2035 or beyond. Projects

typically require a minimum of 20 years support to be economic and so we favour a rolling approach to provide investor confidence.

BWEA also recommend that the RO target is increased to ensure that the EU targets can be met, with current projections for electricity ranging from 32-37%.

Issue: The ROC multiple for offshore wind will need to be sufficient to support projects that are further from shore and/or in deeper waters which are more expensive and therefore have marginal economics.

Solution: The Banded RO has a built in mechanism for periodic review of Banding levels and the emergency review of bands if delivery is threatened. This does not affect the economics of existing projects as their ROC entitlement is grandfathered at the level when the investment was made.

Timetable for Solutions: The above solutions should all be open to consultation

this summer through the Government's consultation on the Renewable Energy Strategy. Implementation can therefore take effect in April 2009 and will provide the certainty that investors and the supply chain need to deliver through to 2020.

FUNDING FOR TECHNOLOGY DEVELOPMENT

Issue: Key innovation is required in the design, installation and operation of offshore wind turbines to reduce costs and improve project economics. Technology development will be required to ensure the delivery of 33 GW.

Solution: Funding and support for the work of the Energy Technologies Institute, Environmental Transformation Fund, European Wind Technology Platform and Framework Programme 7 will be crucial in delivering the innovation required.

Timetable for

Solution: Ongoing engagement and support for these initiatives are required.



JOIN BWEA

BWEA is the leading business organisation for the UK wind, wave and tidal industries and welcomes closer participation with any individual or organisation interested in becoming more involved with industry, or simply in accessing the latest news and publications for this fast expanding sector.

To join BWEA, or find out more about the benefits of membership visit our website:
www.bwea.com/members



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