Marine Renewable Energy

The UK Government's Energy White Paper which sets a long-term aim of a low carbon economy by 2050, along with the Welsh Assembly Government's (WAG) review of energy policy and recent publication of Draft Technical Advice Note (TAN) 8 on renewable energy, has stimulated consideration of marine renewable energy resources. The WAG has set a target of 4 TWh to be produced by renewable energy in order to meet the UK national target of producing 15% of electricity from renewables by 2015.

Wales has a potentially large renewable energy resource base, due to its climate and geography, and there are commercial and rural development opportunities associated with the development of several marine renewable technologies, such as tidal streams, constructed tidal lagoons, and shore-based and offshore wave energy devices. However, offshore wind provides the greatest potential for marine renewable energy generation in the short-term. The first tranche of UK offshore wind development included three proposed sites in Wales: Rhyl Flats, off Abergele (100 MW); North Hoyle, off Prestatyn (60 MW); and Scarweather Sands, off Porthcawl (90 MW). North Hoyle, the UK's first major offshore wind-farm, was granted final consent in early October 2002 for a project comprising 30 wind turbines 4-5 miles offshore, and started generating electricity in November 2003. Rhyl Flats was consented in December 2002, and Scarweather Sands received the final go-ahead by the Welsh Assembly on 5th October 2004 for a 30 turbine wind-farm situated between 3½ and 4½ miles offshore.

Although significant development and experimental work is underway to improve the commercial and technological viability of other marine renewable technologies using tidal currents and waves, these devices have not yet been deployed commercially. The following discussion therefore relates to the regulatory controls associated with wind power generation in the marine environment, although the same consents and permissions could conceivably apply to other marine renewable energy technologies.

International Obligations

Energy generation is a significant contributor to greenhouse gas emissions and climate change. The 1992 United Nations Convention on Climate Change sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change.

The 1997 Kyoto Protocol shares the Convention's objective, principles and institutions, but significantly strengthens the Convention by committing Annex I Parties to individual, legally-binding targets to limit or reduce their greenhouse gas emissions. The UK is committed under the Protocol to reduce greenhouse gas emissions by 12.5% below 1990 levels by 2008-12, as part of the burden sharing agreement between EU Member States. Subsequently, the UK Government set a more challenging domestic goal to reduce carbon dioxide (CO_2) emissions to 20% below their 1990 levels by 2010.

The UK Climate Change Programme, published in November 2000, details how the UK plans to deliver on its Kyoto commitment. A review of the Programme was launched on 15 September 2004, with a formal consultation and revised programme to be published in the first half of 2005.

European Policy on Renewables

The European Commission's (EC) White Paper on renewable energy sources sets out the Commission's Strategy and Action Plan for developing renewables and sets the objective of doubling the renewables' share of the EU's total energy supply, from 6% to 12% by 2010

In order to reach this target a series of legislative proposals have been made, most notably Directive 2001/77/EC on the promotion of electricity from renewable energy sources in the internal electricity market. The purpose of the Directive is to create a Community framework that will facilitate a significant increase in renewable generated electricity in the medium term in order to comply with commitments made by the EU under the Kyoto Protocol. Member States are required to adopt national targets for renewables that are consistent with reaching the Commission's overall target of 12% of energy (and 22.1% of electricity) from renewables by 2010. The indicative target that the Directive states for the UK is 10% of electricity by 2010

Consenting Legislation for England & Wales

It is notable that the consents and permissions required for the first three offshore wind-farms in Wales have been pursued via different routes. Since none of the legislation governing construction in the marine environment was developed specifically in relation to offshore renewable energy, these projects have been 'caught' by a variety of different legislation, and developers have a choice of two recognised procedural consenting routes (box 1). An Environmental Impact Assessment (EIA) will normally be required in support of all applications.

Box 1 Consent routes for offshore wind-farms

Route 1	**Electricity Act 1989**, s.36 (as amended by the Energy Act 2004) **Food and Environment Protection Act (FEPA) 1985**, s.5 **Coast Protection Act (CPA) 1949**, s.34 (except where exempt by virtue of s.36A of the Electricity Act 1989 as amended) *Other possible consents, e.g.* **Town and Country Planning Act 1990**, s.57 or 90 (e.g. for onshore substations) **Electricity Act 1989**, s.37 (for onshore overhead power lines) **Water Resources Act (WRA) 1991**, s.109 (if erecting structures in a watercourse)
Route 2	**Transport and Works Act (TWA) 1992** **Food and Environment Protection Act (FEPA) 1985** *Other possible consents*

Following the first route, a s.36 consent under the Electricity Act 1989 is required from the Secretary of State for Trade and Industry for the construction and operation of an offshore generating station of over 1 MW capacity. This threshold was reduced from the normal 50 MW capacity by the Electricity Act 1989 (Requirement of Consent for Offshore Wind and Water Driven Generating Stations) (England and Wales) Order 2001 with effect from 1 December 2001 in order to bring smaller renewable energy devices and wind-farms within the remit of the Electricity Act and EIA Regulations.

Separate consent may be required under s.37 of the Electricity Act 1989 for construction of new onshore overhead power lines. In applying for s.37 consent a developer may also apply to the Secretary of State for deemed planning permission under s.90 of the Town & Country Planning Act 1990 for associated onshore works (such as electrical sub-stations). Alternatively, a separate application can be made directly to the local planning authority under s.57 of the 1990 Act for planning permission for any onshore structures. Both routes are likely to generate planning conditions.

A licence is required under s.5 of the FEPA 1985 from the Secretary of State for the Environment, Food and Rural Affairs or the WAG for the placing of materials in the marine environment during construction, and related actions. The FEPA provisions extend beyond the limit of the UK territorial sea to the UK Continental Shelf. Although the WAG holds statutory responsibility for control of works within Welsh waters, applications are co-ordinated by the Marine Consents and Environment Unit (MCEU), who administer any applications on behalf of the Assembly.

Additionally, consent is required from the Secretary of State for Transport under s.34 of the CPA 1949 for the construction, deposit, or removal of any objects or materials below mean high water springs (MHWS) in

order to allow consideration of any threats to navigation. As subsection (2) of s.36B of the Energy Act 2004 provides the same safeguards as a consent under s.34 of the CPA, generating stations which are granted a s.36 consent under the amended Electricity Act 1989 after the commencement of the new provisions do not require a CPA consent.

The alternative route, *within territorial waters only*, is to apply under the Transport and Works Act (TWA) 1992 for an Order authorising the development[i]. In Wales applications for TWA Orders are made to the WAG, and in England to the Secretary of State for Trade and Industry. An Order made under s.3(1)(b) of the TWA provides a statutory means by which public rights of navigation may be extinguished or changed to accommodate the scheme. A TWA Order can also authorise any ancillary onshore works, although the making of an Order does not confer planning permission for any development. Nevertheless, a developer can, when applying for an Order, request deemed planning permission under s.90 of the Town & Country Planning Act.

The procedure under the TWA obviates the need for separate consent under the CPA 1949 and the Electricity Act 1989, but developers are still required to apply for a FEPA licence.

Depending upon the nature and location of the proposed development, there are other consents that may be required. For example, under s.109 of the Water Resources Act 1991, a consent is required from the Environment Agency (EA) to erect a structure (e.g. cabling) in, over or under a watercourse that is part of a main river.

Changes Introduced by the Energy Act 2004

Part II of the Energy Act 2004, which entered into force in July 2004, introduces a number of powers in respect of renewable energy. Most notably, the Act establishes a regulatory regime for offshore renewable energy installations beyond territorial waters, in the UK's Renewable Energy Zone (REZ), in accordance with rights set out in the United Nations Convention on the Law of the Sea. The offshore regime largely mirrors that already in existence within territorial waters, with the exception that the TWA 1992 will not extend to the REZ. Of the fifteen wind-farms proposed in the second round of licensing, three of the sites are fully outside territorial waters.

Section 99 of the Act deals specifically with navigation and introduces two new sections, 36A and 36B into s.36 of the Electricity Act. The first enables a declaration to be made (only at the same time as s.36 consent is being granted) which extinguishes public rights of navigation which pass through the place where the station will be established. This power extends only to generating stations within territorial waters. Under the new s.36B(1) consent cannot be granted for a generating station which is likely to interfere with the use of recognised sea lanes essential to international navigation. This term is married at 36B(7) to Art.60(7) of UNCLOS.

Other provisions relate to the establishment of safety zones up to 500m around installations, and decommissioning, which will apply to all Round 2 installations.

Box 2 TAN 8 and Offshore Renewables

Technical Advice Note (TAN 8) on Renewable Energy, currently in draft form, provides technical guidance which supplements the policy set out in Planning Policy Wales (PPW) and the draft Ministerial Interim Planning Policy Statement (MIPPS) D/01/04 on Renewable Energy.

As offshore renewables lie outside the land-use planning system, the TAN does not provide detailed guidance for them. Nevertheless, local planning authorities (LPAs) are consultees in the offshore decision-making process, and planning permission may be required for ancillary onshore installations. LPAs are instructed to plan positively for such installations and minimise their environmental impact.

The TAN also recognises the potentially significant long-term energy and economic prospects for Wales presented by other marine renewables such as tidal and wave energy, and recommends that LPAs should accommodate any associated onshore developments in appropriate locations.

Environmental Impact Assessment

The Environmental Impact Assessment (EIA) Directive (97/11/EC) requires an EIA to be carried out in support of an application for development consent for projects that are likely to have a significant effect on the environment. Offshore wind-farms are listed in Annex II of the Directive and, as such, require an Environmental Statement (ES) in relation to the development to be submitted with the various consent applications. A separate ES does not need to be prepared for each consent application – a single document should suffice provided that its scope is sufficient to embrace the range of environmental issues considered by each consenting authority.

The EIA Directive has been transposed into UK law through a number of regulations. The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000[ii] implement the Directive insofar as it relates to consent under sections 36 and 37 of the Electricity Act 1989. With regard to the CPA 1949, an EIA is also required to satisfy the Harbour Works (Environmental Impact Assessment) Regulations 1999[iii], which covers developments sited in or partly within a port or harbour. The EIA Directive has also been applied to applications for a TWA Order partly through the Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2000[iv]. Although new Regulations are under consideration to amend FEPA, the EIA Directive has not yet been applied to this Act. Nevertheless, there are existing provisions within FEPA to require licence applications to provide such information equivalent to that of a formal ES. Further guidance on EIA in respect of FEPA and CPA

requirements is set out in a guidance note on offshore wind-farms prepared by CEFAS[v].

Nature Conservation Legislation

An EIA should not be confused with the appropriate assessment required under the Habitats (92/43/EEC) and Birds (79/409/EEC) Directives, which establish a European-wide network of protected sites known as Natura 2000 (see Briefing 8). Where a proposed wind-farm is located within, or would be likely to significantly affect (either alone or in combination with other projects), a designated, proposed, or candidate Natura 2000 site (Special Area of Conservation (SAC) and / or Special Protection Area (SPA)), consenting authorities must ensure an appropriate assessment is carried out under the Habitats Directive.

Advice on whether an appropriate assessment may be required (and the scope of such an assessment) should be sought during the Scoping stage for the EIA by the developer and consenting authority from the Countryside Council for Wales (CCW), English Nature (EN) and from the Joint Nature Conservation Committee (JNCC) for projects beyond territorial waters. The EIA does not obviate the need for an appropriate assessment, although it is likely to inform the assessment and it may be decided to incorporate the assessment within the EIA.

Where the proposal will, or is likely, to adversely effect the integrity of the European site, consent cannot be granted unless there is an imperative over-riding reason in the public interest to grant consent and that there is no alternative site available.

New guidance from the Joint Nature Conservation Agencies (CCW, EN and JNCC) relating to offshore wind-farm development will be available shortly[vi].

Strategic Environmental Assessment

The Strategic Environmental Assessment (SEA) Directive (2001/42/EU) came into force on 21st July 2001 and is implemented in the UK by the Environmental Assessment of Plans and Programmes Regulations 2004[vii], which came into force on 20th July 2004. The purpose of the Directive is to ensure that the likely significant effects of certain plans and programmes are identified and taken into account before they are implemented. Under the Directive, an environmental assessment (including public consultation) becomes compulsory for plans and programmes in specific sectors (including energy), that set frameworks for development consents for projects listed in the EIA Directive and for those requiring assessment under the Habitats Directive[viii].

The Second Round of site leases for offshore wind-farms was informed by SEA (completed in July 2003). As a result of the SEA, DTI announced that a coastal strip (8-13 km width) would be excluded from the three strategic areas identified in recognition of the potentially higher sensitivity of shallow waters to wind-farm development. Since the completion of the offshore wind SEA the Department of Trade and Industry (DTI) have decided to merge the SEA programme for oil and gas and marine renewables.

Administration

The Crown Estate (CE), as owner of the territorial seabed, pre-qualifies potential developers of offshore wind-farms, in terms of their financial standing and onshore development expertise, to apply for licences to develop on the Marine Estate. For the First Round of development, potential developers were free to propose the sites they sought to develop, on the basis of a range of relevant factors, including water depth, wind resource and grid connection[ix]. The Second Round focused on three strategic areas of shallow water proposed by the CE and DTI as appropriate for development. The CE does not function as a regulator, but as a landlord charged with seeking the maximum return from its Estate. Leases are granted subject to the developer gaining all the necessary permissions and consents.

Following discussions with the Department for the Environment, Food and Rural Affairs (Defra), the Department for Transport (DfT), the WAG and the CE, the DTI has agreed to act as the lead government department for the co-ordination and processing of applications for offshore wind-farm developments around England and Wales (except in the case of the TWA Order applications where ORCU (see below) and MCEU will receive the TWA and FEPA documentation separately). In an attempt to streamline and simplify the existing procedure, the DTI established the Offshore Renewables Consents Unit (ORCU), which is intended to serve as a focal point for offshore wind-farm applications. ORCU is specifically responsible for handling applications for consent under the Electricity Act 1989 and the TWA 1992. This administrative arrangement does not replace the statutory role of Defra and the DfT (and the WAG in respect of FEPA) in the consideration and granting of FEPA and CPA consents (responsibility for CPA consents has passed from DfT to Defra since 1 October 2004).

ORCU works closely with the MCEU, which was jointly established by Defra and the DfT to co-ordinate consents for the full range of marine works for which each department has responsibility. Although the WAG holds statutory responsibility for control of works within Welsh waters, the MCEU will still receive and co-ordinate applications with respect to Wales as well as England.

Issues Arising

The law relating to this sector has developed piecemeal, and not with renewable energy technologies specifically in mind[x]. As a result, different government departments, charged under different pieces of legislation, have different responsibilities. Despite clarifying guidance and the setting up of units within different Government departments to assist developers,

the licensing and consents procedure for offshore wind-farms remains complex and convoluted. The number of consents / licences developers will need will vary on a case-by-case basis, differing according to the specific nature of individual sites, the particular preferences of developers and also, to some extent, the demands of financial institutions providing the necessary project funding[xi].

The decision on which consent route to follow must be weighed up by the developer, balancing the length and cost of the process against the project requirement for obtaining consents in a cost-effective and timely manner. Whilst the TWA route obviates the need for separate applications and statutory consents (apart from that required under FEPA 1985), the procedure is arguably slower and more cumbersome than the route taken under the Electricity Act 1989, and will usually be more expensive as it will inevitably require a public inquiry to be held to consider the grant of the Order. The costs of the Inquiry into the Scarweather Sands development are estimated to exceed £1 million, and these have to be met in full under the TWA rules by the developers[xii].

A number of developers nevertheless pursued the TWA route (*Route 2*) in the first round because the TWA Order provides a statutory means by which public rights of navigation may be extinguished or changed to accommodate the scheme. Although similar protection may have been available under the CPA 1949 for *Route 1* developers, it was perceived to be less robust. This loophole has subsequently been removed by the amendments to the Electricity Act 1989 introduced by the Energy Act 2004.

The lengthy consents process has proved frustrating for many developers. For First Round wind-farms, the average processing time for Electricity Act, FEPA and CPA applications was 9 months from the date of application. This however, does not take account of the need for pre-application studies by the developer to establish site-specific baseline data, preparation of an ES, or the requirement for a period of public consultation. Where extensive survey work is necessary, or if the ES raises important issues for further examination, the decision timetable may be extended significantly.

It is evident from the FEPA applications for the First Round of licensing that the project proposals were at a less advanced stage than would normally be the case for any other licence request, with many uncertainties on project design[xiii]. These uncertainties made an objective scientific assessment of the environmental impacts very difficult. Consequently, a range of FEPA licence conditions were attached to the consents that enable information gaps to be filled in parallel to the research and construction programme.

In this respect, the cumulative impacts of not only other wind-farm developments, but also other types of projects taking place in the marine environment, is a key consideration. Round 2 developments differ from Round 1 developments in several important areas, primarily spatial extent, increased proximity to each other and potential for broader scale impacts. This makes assessment of cumulative impacts a key requirement in Round 2. The DTI recommend that developers should co-operate with one another and share information so that their respective EIAs can take into account the potential cumulative impacts of other developments. The revised regulations amending FEPA will also require consideration of the cumulative impacts[xiv].

The Energy Act enables development outside territorial waters by extending the existing relevant legislation (except for the TWA) beyond the 12nm limit. The EIA Directive and Habitats Directive already apply beyond territorial waters, but amending legislation will be required at a national level to implement their provisions in relation to offshore wind-farm developments beyond territorial waters.

Despite recent amendments to the consents regime, this is not the thorough overhaul of legislation that some stakeholders believe necessary to make the system more efficient and cost-effective. Further rationalisation and streamlining of the regulatory framework is required if increased investment is to be attracted to develop the offshore renewable energy sector.

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[i] Offshore generating stations fall within the definition of "offshore installation" in the Transport and Works (Descriptions of Works Interfering with Navigation) Order 1992 (SI 1992/3230) for England and Wales.
[ii] SI 2000/1927
[iii] SI 1999/3445
[iv] SI 2000/2190
[v] CEFAS (2004) *Offshore wind-farms: guidance notes for EIA in respect of FEPA and CPA requirements*. Prepared by the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) on behalf of the Marine Consents and Environment Unit (MCEU).
[vi] Countryside Council for Wales, English Nature, Joint Nature Conservation Committee (in prep) Joint nature conservation agency guidance on offshore wind-farm development (2004) will be available from http://www.jncc.gov.uk
[vii] SI 2004/1633
[viii] DTI (2004) *Guidance notes: offshore wind-farm consents process*. Department of Trade and Industry, Offshore Renewables Consents Unit. March 2004, updated August 2004, p.18.
[ix] The Crown Estate website. *Offshore windfarms – putting energy into the UK*. Available at: www.thecrownestate.co.uk/
[x] Linley-Adams, G. (2003) All at sea: Welsh case study on marine renewable energy. Report to WWF-Cymru, November 2003.
[xi] *op cit*. ref. ix, p.19
[xii] *op cit*. ref. xi, p.4
[xiii] *op cit*. ref. vi, p.2
[xiv] *op cit.* ref. ix, p.34

This briefing is one of twelve which forms part three of *Legislative reform for the Welsh marine environment*. The full report can be downloaded from www.wwf.org.uk/cymru

WWF is calling for a **UK Marine Act** with complementary devolved legislation. This Act would set a strategic legislative framework, and rationalise existing marine legislation concerned with management of the sea. It would also address specific concerns relating to the plethora of existing consents procedures in the marine environment.