

## **Regulation of Offshore Electricity Transmission A response by BWEA – 14 October 2005**

BWEA welcomes the opportunity to comment on this consultation document.

BWEA was established in 1978 and is the representative body for companies active in the UK wind energy market. Its membership has grown rapidly in recent years and now consists of over 320 companies including all grid-connected wind energy and every company with a lease to develop offshore.

This response has been written in collaboration with Scottish Renewables.

We encourage the Government to continue to support the development of offshore windfarms and see implementation of the appropriate regulatory framework for offshore transmission as a key part of this.

### **Summary**

Of the two options consulted upon for a regulatory regime for offshore transmission, BWEA supports the licensed price control approach. This is because we believe that this approach is the most appropriate and to be consistent with the existing arrangements onshore. Our views on both approaches are set out in this response.

BWEA believes that it may take some time to fully establish a regulated price control approach, which could introduce delays to the commissioning dates of early Round 2 projects. However, BWEA believes that it is not necessary to develop all details of the regulatory regime to provide the confidence for Round 2 projects to proceed provided the priority issues are addressed now.

We have set out our thoughts on these issues in this response but in summary: we would urge DTI and/or Ofgem to take the following actions in response to this consultation process. These actions should be initiated as a matter of priority and in any case before the end of December 2005.

- Announce a firm decision to adopt licensed price control approach
- Invoke Energy Act Power to extend role of GBSO
- Announce a commitment to a process of "Adoption with Equity"



- Initiate work to establish appropriate offshore technical standards and grid code requirements

## **Regulatory Options**

BWEA notes the conclusion of the consultation paper that there are two broad options for regulation of offshore transmission: a licensed price control approach or a licensed merchant approach. BWEA agrees with this conclusion. However, after consideration of both options BWEA considers that the licensed merchant approach is not appropriate for further development and we therefore support the development of the licensed price control approach. Our reasons for this conclusion are set out below.

BWEA further recognises that adoption of a licensed price control approach raises further issues and will require substantial further development work. Some of this work will need to be undertaken as a matter of priority. Our views on these issues are also set out below.

Whilst development of a licensed price control approach may take some time, it is important to avoid delays in commissioning of Round 2 windfarms as such delays would impact on government targets.

## **Merchant Price Control approach**

Whilst the merchant approach may hold the superficial attractions of simplicity and an ability to be implemented quickly, there are a number of other aspects of this approach that will make it unsuitable for regulation of offshore assets.

This approach introduces discrimination between onshore and offshore generation. This approach would introduce deep connection charging for offshore generation: a construct that has recently been removed from onshore transmission charging. BWEA supports the arguments made by Ofgem in support of the removal of deep connection charging in England and Wales, in particular the observation that deep connection charging is a barrier to entry for new generation.

It is important that any regulatory approach be robust to future developments. BWEA notes that many of the connections for round 2 projects may involve radial connections to shore. However, there is the option for sharing of cables between projects for a number of Round 2 projects. There is also potential for connections to multiple onshore points. These choices were demonstrated by the Econnect Report commissioned by the DTI last year. It is not yet possible to predict what cable arrangements may be appropriate for future offshore projects (wind, wave or tidal) beyond Round 2.

BWEA notes that this approach would be inconsistent with the recent developments for transmission licensing that were introduced with BETTA. The new licensing framework allows for transmission licensees that are either Transmission Owners and (in the case of NGET) system operators. Owners of offshore transmission connections would not fit into this framework. New licence conditions would need to be developed that allow for negotiated or regulated Third Party Access arrangements. Application of TPA arrangements will undoubtedly involve Ofgem resources (for example, adjudicating on appeals for rights to access an offshore cable). BWEA notes therefore that this approach will not in fact be a simple option and that it may not be able to be implemented quickly after all.

As noted above, some large Round 2 projects may connect to multiple points on the onshore transmission system. It is already clear that the Walney project requires such a connection. This creates a parallel path for electricity to flow from one part of the onshore system to another via the offshore cables. This effect is known as "wheeling" and the

difficulties this raises for regulation and system operation have been well documented. New arrangements would need to be developed between the onshore system operator (NGET) and the offshore asset owners to manage these issues and to develop appropriate compensation arrangements. This is only an issue for the merchant approach. The regulated price control approach would not be affected by wheeling since a single system operator would be responsible for the operation of the entire (on and offshore) transmission system.

The existence of a parallel path would create further difficulties in a merchant price control approach. The owner/operator of the offshore system will to all intents and purposes be a transmission system operator. The actions of the offshore system operator will affect the behaviour of the onshore system and equally the actions of NGET in operating the onshore network will affect the behaviour of the offshore system. The appropriate industry document to manage the interface between two system operators would be the System Operator Transmission Owner Code. However, this document was specifically written to accommodate a single system operator and would therefore require a substantial and lengthy redrafting. As a final observation, BWEA believes that in the event of wheeling, the offshore system owner/operator would be entitled to payments under the European Inter-TSO Compensation arrangements. Not only would this increase the regulatory burden of the merchant approach, it would require the UK to participate fully in this European scheme from which, to date, the UK has opted out.

BWEA believes that the merchant approach will be unworkable for shared connections and connections to multiple onshore points. To apply the merchant approach would therefore preclude such connections being developed for Round 2 or beyond. Connection design should be driven by cost effectiveness and technical innovation and not be constrained by a poor choice of regulatory regime. BWEA therefore believes that the merchant approach to regulation would introduce inefficiencies in developing the transmission system.

### **Regulated Price Control approach**

BWEA understands the regulated approach would essentially be an extension of the BETTA arrangements as applied to transmission ownership in Scotland. These arrangements were implemented onshore only 6 months ago after several years of development and they are directly applicable to offshore transmission.

In contrast to the merchant approach, the regulated approach avoids discrimination between onshore and offshore generators, and is consistent with the onshore arrangements. It allows for future developments of the offshore transmission assets and facilitates third party access.

BWEA would expect NGET (as the GB system operator) to be responsible for the operation of offshore transmission assets. BWEA notes that the Energy Act provides a power for the role of the GBSO to be extended offshore and we recommend that this power be exercised as a priority.

BWEA expects that new offshore transmission licensees would be given transmission licenses similar to those held by Scottish Power and Scottish and Southern. This means that the licences would have the transmission owner conditions applied but the transmission operation conditions disapplied. The new licences should allow for licensees to recover their allowed costs from NGET who in turn would be required to apply charges to users of the transmission system. The new licensees would sign up to the System Operator Transmission Owner Code (STC).

Adoption of the regulated approach will require further work on a number of issues of detail. We have set out thoughts on a number of these below. However it is important to recognize that not all of these detailed issues need be resolved straight away. Provided

that the time critical issues are treated as priority and that there is a clear route for adoption of assets by the eventual offshore transmission licensee, it will be feasible for developers to continue with the construction and commissioning of Round 2 projects. This can include the connections to shore if there is confidence in the adoption process.

### **Appointment of the GBSO**

The existing transmission licensing approach onshore requires the existence of a single GB system operator (GBSO). NGET is appointed as the GBSO. Adoption of the regulated price control model will require the roles and responsibilities of the GBSO to be extended to offshore areas. The new boundaries should match those set for the Renewable Energy Zone (set by Statutory Instrument SI 2004 No 2668)

BWEA notes that the DTI has been given a power under section 91 of the Energy Act to make such an extension of the GBSO boundaries. BWEA urges the DTI to exercise this power immediately. No purpose will be served by a delay whilst prompt action will provide a strong and timely signal to investors that the regulated price control approach is being applied.

### **Geographic boundaries of the offshore licences**

Transmission licences authorize the licensees to undertake transmission functions throughout GB and, with the introduction of the Energy Act, offshore as well. Specific license conditions then restrict the geographical areas within which the licensees are constrained to operate. In the case of the GBSO functions the geographical area is all onshore areas of GB. As BWEA notes above, this can be extended offshore by use of an Energy Act power. In the case of transmission owner functions these are currently set to match the previous boundaries of the transmission companies (i.e. England and Wales for NGET, South of Scotland for Scottish Power and Northern Scotland for SSE)

When licenses are granted for transmission ownership offshore, a decision will have to be taken on the geographic boundaries to apply. Whilst single licenses could be given for large geographic areas (for example one each for the three Round 2 strategic development areas) this would oblige a licensee to be responsible for future connections over a large area. Potential licensees may be unwilling to accept such wide ranging obligations at what is still an early stage of offshore development. Furthermore requirements to connect all future projects in a wider area are unnecessary given the limited options for piggybacking future projects onto existing cables. However, if appropriate in specific future instances, an ability to extend a geographic area (for example to incorporate additional cable routes) is always available.

BWEA therefore proposes that the geographic extent of the offshore transmission owner licences be restricted to the cable routes connecting the relevant projects to shore. BWEA further recommends that the licences should apply for the area which covers the entire circuit lengths up to, and including, the point of connection to the onshore transmission network. This, minor, overlap between the authorised areas of on and offshore licensees is allowable under the existing transmission licensing arrangements and will avoid the introduction of clumsy boundaries of rights and obligations at a point mid cable.

As with a decision to extend the role of the GBSO, an announcement that the geographic extent of the offshore licence conditions be limited to the relevant cable routes can be made at an early stage to provide confidence in the development of the regulatory regime. BWEA urges DTI/Ofgem to make such an announcement in their conclusions to this current consultation process.

## **Grid Codes and Standards**

In extending the transmission licensing regime offshore it will be necessary to review the application of the Grid Code and other technical standards such as the Security and Quality of Supply Standard. This work will be necessary before connections to shore can be procured – whatever the regulatory regime. It is therefore necessary to undertake these reviews now if offshore projects are to provide any significant contribution to the Governments 2010 targets. The importance of reviewing the application of existing standards to offshore networks has been recognised by the International Energy Agency where it is proposed that this work form an initial work stream under Annex XXIII - Offshore Wind Energy Technology Deployment.

## **Charging arrangements**

In extending the transmission licensing regime offshore, BWEA recognises that the charging methodology produced by NGET would also be applied offshore. From discussions with NGC and Ofgem, BWEA believes that the calculation of charges for offshore connections would differ slightly from the calculation of charges for onshore connections. For example, the offshore connections may not provide the same “n-2” level of security as is applied onshore and therefore the security factor used in setting charges may differ. NGC has previously indicated that a security factor of 1.0 may be applicable offshore.

## **Adoption**

BWEA recognises that the complete regulatory regime may not be fully established before it is necessary to procure offshore assets for the early Round 2 projects. This needn't be a barrier to development as project developers may be prepared to procure connection assets so long as there is a clear process in place that will allow those assets to be adopted by the subsequent transmission licensees.

BWEA proposes that the DTI and Ofgem commit to a process that we have termed “Adoption with Equity”. This has three components. Firstly, it is necessary to confirm the codes and standards that will apply offshore, as noted above. Secondly, developers need confidence that any assets will be brought into the enduring regulatory regime through adoption by the subsequent licensee. Finally, the principle of equity should ensure that no developer is disadvantaged (or indeed given an advantage) as a result of the adoption process. BWEA believes that developers who go through the adoption process should end up in the same position as those who connect at a later date, after the new regulatory regime is in place. BWEA expects that this is likely to involve purchase of cables and/or the taking over of contracts by the incoming offshore transmission licensees.

DTI and Ofgem can promote confidence in the development of a licensed price control regime by announcing a commitment to such an adoption process. BWEA urges DTI/Ofgem to make such an announcement in their conclusions to this current consultation process.

## **Regulated Price Control with capped charges**

The consultation document seeks views on whether it would be appropriate to introduce a Regulated Price control approach with a power to cap the charges that are payable by offshore generators.

BWEA notes that a similar question is currently being asked in a separate consultation which proposes capping transmission charges in the Scottish Islands. BWEA is providing a separate response to that consultation.

The proposal to cap charges in Scotland was raised in recognition of the high charges that are levied on generators in remote northern locations that arise from the application of a locational charging regime. BWEA recognises application of a similar locational charging regime offshore may result in high charges for those offshore generators that are distant from shore.

BWEA believes that a cap may be justified to avoid unnecessarily high charges, particularly if such charges act to prevent the development of renewable generation. However, BWEA sees no need for a distinction between onshore and offshore generation in this respect and therefore suggests that whatever decision is taken for onshore generation in the parallel consultation is applied equally to offshore generation.

### **The economics of offshore transmission and generation**

BWEA welcomes the recognition that the regulatory regime for transmission has a key part to play in making offshore wind economic. The Association believes the benefits of bringing offshore connection assets within the regulated system – primarily the lower cost of capital and longer amortisation periods that are appropriate for regulated assets – will be vital in bringing the cost per MWh of power generated offshore down to the level that can be supported under the Renewables Obligation.

The discussion on the economics of the transmission assets themselves, based as it is on the Econnect report, is an accurate reflection of the current situation. BWEA agrees there should be no problem of competition for the provision of those assets.

In discussing the overall economics of offshore wind it is important to emphasise the current lack of experience globally, which militates against making definitive statements, particularly on operating costs – BWEA agrees with the general conclusion that considerable uncertainty remains in the economics of offshore generation and transmission. That said, of the four scenarios laid out in Table 2 (page 30) the most realistic is the 'Higher Cost & Lower Revenue' one. Capital costs for early Round 2 projects are unlikely to come in at less than £1.3m/MW; this is supported by prices being quoted for Round 1 projects currently negotiating contracts. BWEA is embarking on initiatives bringing together the developer and contractor sides of the industry to find ways to bring capital costs down, but it will take the experience of a few projects to find optimal contracting and partnering arrangements, as well as innovative technical solutions. Beyond this, the kind of learning ratios referred to by Garrad Hassan in its 2003 study are likely to come into effect, with a general reduction foreseen between 2010 and 2020, as set out in the Performance and Innovation Unit's energy review report of 2002.

BWEA's central estimate of operational costs, including transmission charges, is £15.50/MWh, though we are hopeful that this is a conservative figure and that experience will bring this figure down rapidly. Given the limited global experience in operating large offshore projects in open seas, there appears to be scope for cost reduction – for instance, considerable progress has already been made in widening the range of sea conditions under which it is possible to access turbines, thus reducing down times. It will take some time for experience to work through, however.

While current prompt and near-term power and ROC prices are high, there is considerable uncertainty in these prices over the period that would be covered by a power and ROC purchase agreement. Any such deal would thus be struck at a considerable discount to current prices; it is unlikely that a 15-year deal at £72.5/MWh could be agreed, and the £60/MWh level appears more realistic. Since most of this discount is due to the price risk

associated both with brown power and ROC prices, any mechanism that could mitigate this risk would ensure that more of the value of the output is passed back to the generator.

With regard to the other assumptions used in the analysis, the project life of 15 years appears conservative, though this would be an appropriate term for lending to the project. Developers are generally working on a 20 year life assumption, though the back end of a project's life would have a relatively small impact on NPV due to the effect of discounting. The discount rate chosen seems realistic. When it comes to load factor, there is some emerging evidence from Denmark that load factors may be higher than 35%, possibly over 40%. However, for the purposes of bank financing, it is highly unlikely that project finances will be calculated on an assumption higher than 35% until there has been several years' experience of higher factors in the real world.

### **Other issues raised in the consultation**

In a regulated price control approach, the point of common coupling between a generator and the transmission network would be offshore. Consequently, the obligations on the generator (for example, in provision of reactive support) would apply at the offshore point of connection, which would also be the metering point. In many cases, and particularly for any radial connections to shore, it may be more appropriate for the meters to be physically located onshore and for the relevant obligations to also be applied onshore. An obvious example would be for any reactive compensation equipment to be installed onshore since offshore installation would add unnecessary costs. BWEA would support a pragmatic approach to this issue and suggests that the industry codes and documents should allow for installation of meters and ancillary equipment onshore wherever this would be cost effective and where there would be no adverse impact on operation of the onshore grid.

### **Conclusions**

BWEA strongly supports the development of a regulated price control approach. Conversely, BWEA believes that the regulated merchant approach is inappropriate and would, in fact, be difficult to implement.

BWEA would encourage DTI and Ofgem to take an early decision to develop the regulated price control approach. At the same time, BWEA would encourage DTI and Ofgem to:

- Announce a firm decision to adopt licensed price control approach;
- Invoke the Energy Act Power to extend the role of GBSO;
- Announce a commitment to a process of "Adoption with Equity";
- Initiate work to establish appropriate offshore technical standards and grid code requirements.

Any questions on this response can be addressed to Richard Ford, Head of Grid and Technical Affairs at the BWEA on 020 7689 1938 or [richard@bwea.com](mailto:richard@bwea.com)