



**REGULATION OF OFFSHORE
ELECTICITY TRANSMISSION**

Updated Regulatory
Impact Assessment

DTI Updated Regulatory Impact Assessment

1 Title of proposal

- 1.1 Updated Regulatory Impact Assessment (RIA) following the Preliminary Public Consultation on the Regulation of Offshore Electricity Transmission.

2 Purpose and intended effect

Summary

- 2.1 This RIA updates the Preliminary RIA produced for the preliminary consultation on the 'Regulation of Offshore Electricity Transmission' published in July 2005.
- 2.2 Such a regime is necessary due to the emergence of marine renewable energy developments which need to be connected to the onshore grid and in particular 'Round 2' offshore wind farms. The policy on marine renewable energy has already been consulted on and Round 2 is expected to deliver up to 7.2 gigawatts of electricity (enough electricity for more than one in six UK households). Establishing a regulatory regime for offshore transmission provides the opportunity to get that renewable energy connected.
- 2.3 The options considered in the consultation ranged from an unlicensed or licence exempt approach (effectively the 'do nothing' option), to a light touch regulatory regime,

to a regime broadly similar to the one which exists onshore and finally to a regime which would provide additional support to renewable energy generators. Given this range of options (which all have sub-options around implementation) the analysis in the preliminary consultation was necessarily high level. This RIA provides a more detailed analysis in the light of responses received to the initial consultation document. A further consultation on the detailed workings of the regulatory regime chosen will be undertaken. A key point, however, is that a regulatory regime is likely to be welcomed by the industry sector it is primarily aimed at – the renewables industry – as regulation brings with it certain advantages in terms of funding the costs of connecting renewable energy. The main issue is the extent to which a regulatory regime should support the renewables industry in managing what are relatively high costs of its connections to the grid as opposed to leaving it to bear the actual costs of those connections.

Objective

- 2.4 The Government stated in the 2003 Energy White Paper, its long-term goals to cut current carbon dioxide emissions in the UK by some 60% by 2050. The White Paper set a target of 10% of electricity from renewable energy sources by 2010.

- 2.5 Wind energy is expected to contribute the largest proportion of the 10% target. While increasing generation from renewable energy sources is important to the Government's targets to reduce carbon emissions, it is also likely to be important in terms of security of energy supplies. Onshore and offshore wind are expected to make roughly equal contributions to the 10% target.
- 2.6 The Government has already set out and consulted on its strategy for the development of offshore wind in the document 'Future Offshore – A Strategic Framework for the Offshore Wind Industry' published in 2002. A key factor behind this policy is that the UK has some of the best offshore wind resources in Europe, if not the world¹.
- 2.7 The purpose of this consultation exercise was to seek views on an essential piece of the regulatory framework necessary to exploit this potential energy source. That is an electrical connection connecting offshore wind farms to the onshore transmission network.
- 2.8 The Energy Act 2004 includes provisions enabling the introduction of a new regulatory regime for offshore electricity transmission. It does so by providing that the prohibition on persons participating in transmission activities without a licence applies in Great Britain, the territorial sea adjacent to Great Britain and any designated Renewable Energy Zone (REZ).
- 2.9 This Preliminary Consultation sought views on the high-level options for an effective regime to regulate the transmission of electricity produced offshore. In making his decision on the appropriate form of regulation the Secretary of State has been guided by the principle objective and general duties set out in section 3A of the Electricity Act which seeks to balance costs to consumers with social and environmental goals. The views of all stakeholders including offshore developers, other users of the electricity grid including other generators and consumers were therefore sought.
- 2.10 The responses to the preliminary consultation have informed the decision on the appropriate form of offshore regulation. A further Full Consultation will be carried out in which views on the detailed regulatory regime will be requested.

Background

The Government's Renewables Policy

- 2.11 In 2001, the UK Government signed the Kyoto Protocol and has a legally binding target to reduce greenhouse gas emissions to 12.5% below 1990 levels during the period 2008 to 2012. The Government's Climate Change Programme of 2000 seeks to go further by reducing emissions to 20% below 1990 levels by 2010.

¹ DTI (2002). Future Offshore: A Strategic Framework for the Offshore Wind Industry Sustainable Development Commission (2005). Wind Power in the UK; <http://www.sd-commission.org.uk> DTI (2000). The UK Wind Resource. <http://www.dti.gov.uk/renewables/publications/pdfs/windfs8.pdf>

2.12 These targets are supplemented by those on reduction of carbon dioxide emissions and increasing renewable energy mentioned at paragraph 2.4. The Energy White Paper also set out the Government's policy of maintaining energy reliability through energy diversity. The Government believes that competitive wholesale markets complemented by appropriate levels of efficient investment are the best way of providing diverse and viable long-term energy supplies. Increasing generation from renewable energy sources is likely to be important in terms of security of energy supplies as it will help to increase the diversity of the energy supply mix both in terms of fuel type and of geographical source.

Offshore Electricity Generation

2.13 The UK has some of the best wind resources in Europe, if not the world, in both onshore and offshore locations. The high average wind speeds and good reliability should result in more power output and lower costs. These benefits will be further augmented by the higher wind speeds encountered offshore.

2.14 In addition the lower visual impact of offshore development will mean that it will be possible to build much larger turbines offshore. The Government is therefore committed to ensuring a framework for offshore development that will enable its energy policy objectives to be met – including a regulatory system for the offshore grid.

2.15 The Government has taken a strategic approach to offshore wind development to ensure that the new industry is developed in a way that meets Government energy commitments as well as promoting sensible marine resource management. Two competitive rounds have been held for offshore wind farm site leases, with the competitions organised by Crown Estate with DTI. (The Crown Estate is the landowner of the seabed out to 12 nautical miles and leases areas of both this and the Renewable Energy Zones beyond territorial waters for the placing of turbines.)

2.16 The first round was relatively small scale with projects limited to a maximum of 30 turbines connected directly to the electricity distribution network. The Round 2 projects – that will be subject to the new transmission system regime – are much larger in scale and the Government has designated three offshore strategic areas where the licensing rounds have been held in the Greater Wash, the North West of England and the Thames Estuary.

The Regulatory Environment

2.17 The Government's aim is that the offshore transmission regulatory regime facilitates the connection of a proportion of Round 2 projects in time to contribute to the 2010 target. The objectives are to ensure efficiency of connections and allow fair and open access for offshore generators. The regulatory framework should

also be robust enough to control the connection of future offshore renewable development.

2.18 As set out in the White Paper, the Government believes that the achievement of its objectives may be dependent on a radical transformation of the energy system to one that is more diverse with a greater mix of energy, especially in electricity sources and technologies and the control and management of demand.

2.19 This is likely to require new electricity generation in widely dispersed parts of the country including offshore. The Government does not seek to be prescriptive in the way these changes are achieved, believing that within the broad context of policy set by the White Paper the market is best placed to deliver cost effectively the outcomes that are sought. However, the Government intends that the regulatory system should facilitate the Government's wider social and environmental goals. That framework seeks to strike the right balance between the interests of consumers and investors; combating fuel poverty; and balancing short-term consumption and long-term conservation of resources.

2.21 The DTI is committed to reducing the regulatory burden on business. In this case, however, it is difficult to provide direct compensatory deregulation. It is not possible to provide transmission related compensatory deregulation but we are anticipating other deregulation

for the sector (see 2.22). Deregulation of offshore transmission is not possible because there is a need to create regulation in an area of the marine environment where none currently exists and give structure, standards and certainty to a new and developing area of energy resource development. The Government consulted on both an unlicensed approach and a light touch regulatory regime which would minimise new regulatory burdens on business. These are discussed further in Sections 4 and 5. However, these options were not supported by the majority of responses to the consultation document. There was no support for these options by the businesses that will be most affected by the new regulatory regime – that is offshore wind developers. These businesses favour a regulated approach.

2.22 More widely, the DTI is committed to reducing regulatory burdens within the renewable energy support framework created by the Renewables Obligation. Over the past year, as part of the Review of the Renewables Obligation (RO), the DTI has conducted a major exercise with affected companies to identify and consider the case for a range of detailed changes to the RO which aim to reduce the regulatory burdens on the companies who benefit from and/or are required to comply with the Obligation. This exercise has resulted in the Government proposing a number of specific measures to simplify the operation and

administration of the Obligation. Specific changes are being proposed in the following areas:

- Introduction of a pre-accreditation system which will deliver clarity to business on the RO eligibility of proposed projects
- Introduction of greater flexibilities in relation to the claiming and issuing of Renewables Obligation Certificates (ROCs)
- Amendments to the definition of biomass fuels which will allow biomass generators greater flexibility in relation to the biomass fuels which they use
- Reduced sampling requirements in relation to the use of established biomass fuels
- Amendments to allow off-site blending and measurement of biomass fuels
- Improvements to the timetable by which electricity suppliers comply with the RO
- Allowing agents to act on behalf of smaller renewable generators in the process of applying for RO accreditation and the claiming of ROCs
- Allowing agents to amalgamate the output of smaller generators – reducing overall administrative burdens

- Removing the requirement on smaller generators to hold a sale and buy back contract in order to qualify for the RO.
- Developing detailed guidance for industry on the use of biomass fuels within the Obligation

2.23 These changes enjoy the strong support of the renewables industry and we expect to bring them into force for 1 April 2006. The changes introduced in the area of smaller generators may be particularly beneficial in the long term as they have the potential to simplify the system considerably for smaller generators. At present there are several hundred smaller generators benefiting from the RO but this figure could rise to many thousands over the coming decade and beyond.

2.24 The precise impact of these detailed changes will vary considerably across the renewables industry depending on the companies in question and on a number of uncertainties. The Renewable Energy Association (REA) has confirmed that whilst the beneficial impact is hard to quantify, the proposed amendments to the administration of the Obligation have the broad support of the industry and should help to improve the operation of the scheme for participating companies. The REA estimate that the changes will have the following benefits:

- Pre-accreditation is probably the most significant change and will bring great benefit to the renewables

industry. Whilst it is difficult to quantify this benefit in financial terms, it could make the difference between a project being constructed or not.

- The introduction of greater flexibility on ROC issuing could save the industry many thousands of pounds. The ability to issue ROCs when appropriate could mean that individual projects will no longer face delay in receiving payments. This makes it more likely that renewable projects will be constructed as developers will have greater certainty about receiving payment. Together with statements on ROCs claimed but not issued this improves transparency in the process and has been welcomed by industry.
- The changed requirement to make annual rather than monthly declarations could save industry £500/site/year.
- The reduced sampling requirements for established biomass plants could be in the region of £5k – £10k/site/year
- The majority of biomass co-firers have already invested in onsite blending facilities so the amendments to offsite blending/measurement will not affect their investment decisions. However, offsite measurement will allow more accurate reporting when compared to the analysis of a mixed fuel at site. The REA has stated that

the financial implications of this are difficult to quantify but are significant.

- 2.25 In the slightly longer term, and in the context of the Government's plans to introduce a Marine Bill, it will be possible to look at the options for streamlining the consenting arrangements applied to offshore renewable energy generation.

European Directives

- 2.26 The regulatory regime for offshore wind will need to be consistent with European law. Of particular relevance, will be the requirements of the EU Directive 2003/54/EC Concerning Common Rules for the Internal Market in Electricity (IMED), the EU Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market (Renewables Directive) and the regulation (1228/2003) on conditions for access to the network for cross-border exchanges in electricity.

3 Consultation

- 3.1 Within Government – The joint DTI / Ofgem consultation document was agreed by all interested Government departments and issued on 27 July 2005. The consultation closed on 19 October 2005.
- 3.2 Public consultation – Views on the contents of this preliminary consultation were sought from offshore developers, transmission and system operators, other grid users, wider energy industry stakeholders, environmental groups and members of the public.
- 3.3 The consultation asked a number of specific questions and these will be dealt with in the Official Government Response to the Consultation. This document aims to update the possible regulatory impacts of each of the suggested options in the light of responses received during the consultation process.
- 3.4 31 responses to the consultation were received and those, which are to be disclosed, are available on the DTI website.² A full list of respondents is at Annex A. A consultation workshop was held on 22 September 2005 and a list of attendees and the note of this workshop is at Annex B. Their views have been considered during the preparation of this RIA and during the decision making process. A further programme of technical work on the

details of the regulatory framework that will apply offshore will commence immediately. Ofgem will be issuing an Open Letter setting out how this work will be taken forward. That technical work will inform the exercising of the Secretary of State's relevant powers under the Energy Act. Before exercising those powers a further consultation exercise will be carried out.

- 3.5 The DTI and Ofgem have and will continue to use existing stakeholder relationship structures such as the Renewables Advisory Board to facilitate further discussion with key stakeholders during the next phase of the consultation process.

² www.dti.gov.uk/renewables

4 Options

4.1 The DTI and Ofgem considered a range of options in the consultation process.

(i) Unlicensed or license exempt approach

4.2 This was effectively the “do nothing” option. DTI and Ofgem did not, however, believe it was practical or even legally permissible. At an operational level there is a requirement for regulation to ensure that the offshore transmission system can safely and effectively interface with the onshore grid; failure to achieve this could lead to faults and interruptions in existing supply. At the very least regulation is needed to ensure appropriate codes and standards are applied to the interface. In legal terms, the Energy Act 2004 prohibits electricity transmission in the Renewable Energy Zones without a licence. In addition the requirements of the IMED for regulated third party access means that a license exempt approach is not possible. Some form of regulation is therefore essential if the infrastructure needed to connect offshore renewable energy is to be provided. The RIA done for the offshore renewable energy provisions of the Energy Act 2004, covering both generation and transmission, was clear on this point:

“Without a specific comprehensive regulatory regime which introduces an element of certainty of outcome, there is a real risk that renewable energy developers will not be encouraged to come forward with proposals for projects outside territorial waters. If this were to happen, there would then be considerable doubt as to whether the Government would be able to meet its target of achieving 10% of electricity being supplied by renewable sources by 2010 and its aspiration for 2020.”

Post-consultation update

4.3 There was no call for this option to be seriously considered in the responses received to the consultation document and the Government therefore wishes to reject this option for the reasons outlined above.

(ii) Extension of the current onshore regime offshore

4.4 The DTI and Ofgem also consulted on a regulated price control approach to offshore electricity transmission which would resemble the onshore approach to the regulation of transmission activities. Participation in offshore transmission would be a licensable activity, with offshore transmission licences having broadly similar standard licence conditions as onshore licences, with only such amendments as would be necessary to account for any relevant differences between onshore and offshore networks.

Transmission Owners (TO) would be responsible for planning investment in networks, following consultation with the System Operator (SO).

- 4.5 The offshore TO licences would contain special licence conditions establishing price controls similar to those onshore. This would allow the TO licensee to recover its efficiently incurred costs from the SO. The SO would recover both SO and TO costs via its charging methods from generators and suppliers.

Post-consultation update

- 4.6 The Government believes that the responses received to the consultation exercise shows that the price control approach has a number of clear advantages.
- 4.7 Extending the price control approach offshore ensures consistency with the onshore arrangements and will ensure a level playing field for wind energy generators onshore and offshore, and also with other forms of generation. Extending that approach offshore would be consistent with the policy precedents established by New Electricity Trading Arrangements (NETA) and British Electricity Trading & Transmissions Arrangements (BETTA). The overall aim behind BETTA was to create a single wholesale electricity market for generation onshore in GB.
- 4.8 Extending the existing onshore charging methodology for the construction of new transmission lines offshore, and allowing for the recovery of the

construction and operation costs from developers through annual transmission charges, removes the need for developers to finance those costs upfront themselves. The annualising of the connection costs – which are around 15 – 20% of the total project costs – over the lifetime of the assets will provide a financial benefit to offshore developers, as that proportion of costs will be recovered from the developers over a longer period of time. Onshore wind and other forms of generation also benefit from this mechanism for the recovery of costs.

- 4.9 If more wind farms are built offshore as a result and provide a significant contribution to the Government's renewable energy targets then, as well as reducing carbon emissions and increasing diversity of supply, it should also improve the cost effectiveness of the RO by reducing the risks that the rising costs of the RO to electricity consumers are not matched by a rising level of renewable generation.
- 4.10 An important issue raised by respondents is the need to avoid unnecessary environmental damage through duplication of cable assets and landfall requirements to link with the grid onshore. The environmental implications of the cable connection is a vital issue – not least in ensuring that projects are not delayed whilst the necessary consents are sought. The support of all stakeholders with an interest in this issue will therefore be crucial. The price control approach

with an offshore system operator should enable a more strategic approach to network development to take place thus helping to avoid unnecessary duplication of assets.

4.11 The Government therefore concludes that the extension of the current onshore regime offshore is the correct approach to take for the licensing of offshore electricity transmission.

(iii) Extension of the current onshore regime offshore with a degree of cross-subsidisation with other onshore users

4.12 Because of the higher costs of offshore development relative to onshore, consideration was given to a policy option under which both offshore generators and other transmission system users would meet a proportion of the extra cost of offshore transmission infrastructure. That is, rather than offshore generators being responsible for all the additional costs, which they impose upon the transmission system, at least some of the cost of the offshore transmission infrastructure could be smeared across a wider class of transmission system users.

4.13 This would involve the existing onshore approach being extended offshore but with modifications either to the transmission charging methodology used by the SO to recover the costs; or perhaps through the Secretary of State making amendments to the licence conditions

so that the SO was required to recover a proportion of the costs of offshore wind farm connections above an upper limit from other users of the system.

Post-consultation update

4.14 The Government indicated in the consultation document that other approaches to offshore charging could be considered – including capping – if the level of transmission charges that would apply offshore would be likely to deter the development of renewables. The power the Government took under Section 185 of the Energy Act to assist renewable generation in remote areas provides a precedent for such an approach.

4.15 Concerns were raised about this option in the responses received from other generators, offshore developers from parent companies with portfolios of generation assets, and user and consumer groups. The main message from those responses was (i) the need not to discriminate between different forms of generation and (ii) that if extra financial support was needed for offshore wind other funding instruments should be used which did not introduce distortions in the transmission market.

4.16. Other offshore developers, however, supported this option suggesting that it was more likely to lead to the achievement of the Government's renewable energy targets.

4.17. One of the main advantages of extending price control offshore is that it ensures a consistent approach to connecting different forms of generation to the grid. That means transmission charges are set on a cost-reflective basis unless it can be shown that renewable forms of generation are unreasonably disadvantaged by high charges.

4.18. At this stage the Government does not believe that there is sufficient information to indicate that the level of offshore transmission charges would be high enough to deter offshore development. However, as some significant cost influencing factors have yet to be worked through, for example security standards, it would be premature to draw any conclusions in this regard. Should that position change at some point in the future, the Government would need to consider the implications.

(iv) A Licensed Merchant approach

4.20 A licensed merchant approach to offshore electricity transmission would involve the minimum regulatory arrangements consistent with the IMED. This would be a relatively light touch regulatory regime. While offshore transmission would be a licensable activity the licence conditions would be limited to conditions such as requiring any surplus transmission capacity to be offered to third parties on non-discriminatory terms. The conditions

would also need to deal with the interface between the offshore cable and the onshore transmission system.

4.21 A key aspect of the licensed merchant approach is that wind farm developers would have to meet all the costs of developing the connection themselves upfront and raise the necessary finance in the capital market at prevailing conditions. The transmission licence would therefore not contain conditions establishing a price control mechanism. The only interaction with transmission price controls would be through the onshore transmission charging arrangements from the point at which connection was made to the onshore grid. This approach to regulating offshore would be different to the approach used to regulate onshore transmission in not providing a price-control. Nevertheless a licensed merchant approach would not appear to be inconsistent with the underlying economic characteristics of offshore electricity transmission assets and there are precedents for such treatment from other offshore assets such as electricity and gas interconnectors.

Post-consultation update

- 4.22 The licensed merchant option received no support from offshore developers and only limited support from other parties that responded to the consultation document. The responses from developers indicated that they did not consider this approach would deliver the levels of offshore wind generation capacity that are expected to contribute to the Government's renewable electricity generation targets.
- 4.23 The main attraction of this option is that it would appear to be simpler to implement than the regulated price control option, as the development of the offshore transmission infrastructure, and its financing, would be left to the individual developers themselves, or parties they contracted with to supply the cable connections. This option may have attractions for single operator connections.
- 4.24 However, as the Econnect study³ carried out for the DTI showed, the most economic option for at least 50 per cent of the connections to shore are likely to be shared by more than one developer. In such circumstances, to capture these economies, access rights and agreements would have to be negotiated between the developers wishing to share the connection. Experience from the offshore oil and gas industry has shown that negotiating similar access agreements to offshore

pipelines can be difficult. A regulated framework for access, while more time consuming to put in place, would however provide greater certainty and clarity to the parties involved and should in the long run prove a more effective way of dealing with this issue.

- 4.25 The licensed merchant approach would not be consistent with the approach taken to the provision of onshore transmission assets. It would also not provide the financial benefit available to onshore generators through the recovery of connection costs via annual transmission charges. The Government therefore believes that this approach is less likely to support the development of offshore wind energy and the achievement of the four key goals of its Energy White Paper.

³ Study on the Development of the Offshore Grid for Connection of the Round 2 windfarms, Econnect, January 2005, www.dti.gov.uk/renewables/publications_pdfs/offshoregrid.pdf

5 Costs and benefits

Sectors and Groups Affected

5.1 In its broadest context any new regulatory regime will affect electricity suppliers and generators in Great Britain, particularly the renewable energy industry and by implication, all consumers of electricity in Great Britain. Any new regulatory regime that leads to an increase in electricity prices may adversely affect the fuel-poor more than other electricity users. However, there are a range of stakeholders, which may be affected differently by each of the regulatory options.

Under option (i) it would not be possible to build any new offshore transmission connections so it would not affect any new commercial or non-commercial groups in that this option represents the status quo. Consequently there are no new benefits. In terms of costs, the Government would be unlikely to meet its 2010 reduction targets for carbon dioxide and would lose the associated environmental benefits, as offshore electricity developers would be unlikely to build offshore wind farms.

Option (ii) will not have a disproportionate negative effect on any group as it will provide a level playing field for onshore and offshore generators. It should be beneficial to offshore developers, as it will allow

them to recover the costs of building transmission assets under a price control regime similar to onshore. Under the current system Ofgem assesses the efficient levels of costs and determines levels of allowed revenue for each year of the price control period. In the final proposals for Transmission Investment in Renewable Generation (TIRG) in 2004 Ofgem allowed a real cost of capital of 8.8 per cent (equivalent to around 11.5 per cent in nominal terms). If this enables more renewable energy to be built it will have environmental benefits through reduced carbon dioxide emissions.

Option (iii) may have a disproportionate effect on other users of the system as it will lead to them incurring higher charges as a result of a proportion of the extra cost of offshore transmission being recovered from them. There was no significant call for a form of extra subsidy in the responses to the consultation. At this stage there is no specific proposal for the level of subsidy and it is therefore not possible to assess the level of any extra costs that might be associated with it. Should this approach be pursued, the costs would be looked at in more detail in the next stage of the consultation process.

Option (iv) may have a disproportionate effect on offshore generators as they alone will have to fund upfront the costs of developing the transmission assets. That may

mean some projects do not go ahead and so not all of the potential carbon savings will be realised. The paragraph and table below sets out an estimate of the potential carbon savings. Costs to other users of the system under this option will however be negligible.

Post-consultation update

The consultation did not identify any new groups that would be specifically affected by any of the options that were consulted upon.

5.2 Potentially up to 7.2 GW of renewable generating capacity could be installed offshore as a result of the Round 2 licenses awarded. Assuming the annual load factor of these developments averages 35% (i.e. taking account of wind intermittency), then up to 22 TWh of renewable electricity could be generated per year, which is equivalent to almost 7% of final consumption in 2003. If the additional generation capacity displaced an equal amount of CCGT generation then up to 2.2 million tonnes of carbon (MtC) could be avoided each year. The latest guidance from Defra⁴ recommends using a central estimate of the social cost of

carbon of £70 per tonne in 2000 prices, increasing by £1/tC each year thereafter, although these figures are presently the subject of a review. At today's prices, therefore, the estimated social cost is around £85.5/tC in 2005 and rising by over £1.1/tC in each subsequent year. If all 2.2MtC were saved in the current year, for the sake of argument, then the total benefit to society would be worth £188 million/year. The table below illustrates the amount of carbon replaced and the savings in terms of the social cost of carbon.

In seeking to encourage the generation of renewable energy, the Government provides support through the RO, LECs (Climate Change Levy Exemption for Renewables Certificate) and the Emissions Trading Scheme (ETS). The table opposite, shows income that would be received by the renewables industry from a range of ROC prices, LECs and ETS, and for a range of renewable energy generation scenarios (using various proportions of the total generation expected from Round 2 wind farms as the range).

% of possible 7.2 GW renewable generation /yr	0	25	50	75	100
Renewable generation GW / yr	0	1.8	3.6	5.4	7.2
TWh generated /yr	0	5.5	11.0	16.6	22.1
MtC replaced /yr	0	0.55	1.1	1.66	2.2
Social costs of carbon saved (£m/yr)	0	47	94	141	188

⁴ <http://www.defra.gov.uk/environment/climatechange/carbon-cost/index.htm>

5.3 The costs of building the cable connection to Round 2 projects has been estimated as between 10-15% of the total capital costs of building Round 2 wind farms. The Econnect report⁵ for DTI suggested the costs of building the individual connections are between £117m – 254 m per GW of installed capacity. The main consideration with the options being consulted on is how these costs will be financed. Under option (ii) the costs will be recovered from developers through an annual transmission charge over a fixed period. Under option (iv) the cost of building the connection will be met by developers upfront. Only under option (iii) would there be an extra element of cross-subsidisation by other users of the system. Ascertaining whether an extra element of subsidy was appropriate was one of the purposes of the consultation.

Post-consultation update

- 5.4 The consultation did not produce any responses that significantly challenged the assumptions used in the consultation document on the overall economics, in terms of costs, revenues and social cost of carbon savings, of offshore renewable electricity generation as outlined above.
- 5.5 It was, however, suggested that load factors offshore may be higher than the estimated 35% and that the project life of an offshore wind farm is more likely to average 20 years as opposed to 15 years as described in the consultation document. However, developers would require several years of evidence before these were to make a significant difference to overall investment decisions.

% of possible 7.2 GW renewable generation /yr	0	25	50	75	100
ROC income received (£m/yr) (£45/MWh)	0	248	497	745	993
ROC income received (£m/yr) (£37.5/MWh)	0	207	414	621	828
ROC income received (£m/yr) (£30/MWh)	0	166	331	497	662
LEC income received (£m/yr)	0	24	47	71	95
EU ETS income received (£m/yr)	0	16	32	49	65
Total benefits (high ROC) (£m/yr)	0	288	576	865	1153
Total benefits (mid ROC) (£m/yr)	0	247	493	741	988
Total benefits (low ROC) (£m/yr)	0	206	411	617	822

⁵ Available at http://www.dti.gov.uk/renewables/publications_pdfs/offshoregrid.pdf

5.6 Option (i)

Unlicensed or license exempt approach

Benefits

It is unlikely that development of offshore electricity generation would proceed on any significant scale and hence no significant new economic, environmental or social benefits would be realised.

Post-consultation update

No new economic, environmental or social benefits were identified as a result of the consultation.

Costs

Economic

Offshore developers would be highly unlikely to invest in projects without a regulated transmission regime. As up to 7.2 GW of offshore electricity generation would not proceed there would be a loss of up to £188m/yr in terms of the social cost of carbon savings. The emerging offshore wind energy industry would fail to develop and this could cause a loss of confidence in the wave and tidal energy industry, where the technology is behind wind.

Environmental

This option would have a significant negative effect on the likelihood of the Government meeting its 2010 target for electricity to be supplied from renewable energy sources. Up to

7.2GW of currently planned Round 2 offshore wind electricity generation would be unable to proceed. This would mean that a reduction in carbon dioxide emissions of up to 2.2mtc/yr would not be realised.

Social

In broad terms, society would fail to benefit from a reduction in the effects of climate change and the emergence of a new industry.

Post-consultation update

No new economic, environmental or social costs were identified as a result of the consultation.

5.7 Option (ii)

Extension of the Current Onshore regime offshore

Benefits

Economic

This approach would enable offshore connections to be constructed by a TO with Ofgem approving a level of efficiently incurred costs which could be recovered by a SO via charges. In terms of competition this approach would be consistent with onshore arrangements and provide a level playing field for offshore and onshore generators. A significant part of the cost of developing Round 2 offshore wind projects is the grid connection and the cost of building these assets will be recovered from developers over a fixed period and at a fixed rate

of capital, which is likely to be beneficial to developers.

Post-consultation update

Consistency with the onshore system will ensure maintenance of overall security standards with consistent price signals and similar charging methods. Maintenance of these common standards would avoid uncertainty and be likely to lead to cost reductions which would be beneficial.

Extension of the onshore regime offshore would create a level-playing field with the onshore system and this consistency of regulation, considered to be sensible following the introduction of BETTA, allows the same principles to extend offshore which would be beneficial to developers in terms of providing an opportunity for the sharing of the risk of offshore transmission developments.

Environmental

If more renewable generation connects to the electricity grid because of this approach, there is an environmental benefit stemming from the substitution of generation plant with high levels of carbon emissions for renewable sources of generation. Offshore wind is expected to provide a significant proportion of renewable energy by 2010. If 7.2GW of planned offshore wind generation were to connect, this is equivalent to a reduction of up to 2.2mtc/yr.

Post-consultation update

The consultation responses suggested that a co-ordinated approach to the development of the offshore transmission system under this regime would have an environmental benefit, as it would help avoid unnecessary proliferation of cables.

Social

Benefits for energy supply may be derived from increased diversity of the energy mix both in terms of fuel type and geographical source if greater volumes of offshore electricity generation connect. This would have long-term benefits to society in terms of security of a sustainable energy supply.

Post-consultation update

Responses suggested that increased renewable generation would have economic benefits for specific regions of the UK. Offshore wind projects could have significant economic benefits for communities adjacent to them.

Costs

Economic

There is a risk that costs of stranded assets or other inefficient investment decisions will be borne by consumers rather than the generators. The imposition of prescriptive regulations and standards may blunt incentives for developers to investigate more efficient methods of design, construction and/or operation of transmission links.

Post-consultation update

Responses suggested that under a price control approach it would be possible to protect the consumer from stranded assets as experience has shown that regulation of monopoly networks onshore has provided an adequate proxy for competition. It was suggested that a price control approach would be more complex and time-consuming to implement which would increase risk and delay offshore development, which would increase costs.

Environmental

The complexity of a price control regime may delay offshore wind projects which may have a significant negative effect on the reduction of carbon dioxide emissions, although flexible approaches in the period during the establishment of the regime would be adopted to prevent delays occurring.

Post-consultation update

No new environmental costs were identified as a result of the consultation.

Social

There is a possibility of higher costs being borne by consumers compared to option (iv) (see economic costs above). Higher prices tend to impact disproportionately on the fuel poor and the Government's targets for reducing the number of consumers living in fuel poverty could be affected.

Post-consultation update

No new social costs were identified as a result of the consultation.

5.8 Option (iii)

Extension of the current onshore regime offshore with a degree of cross-subsidisation with other onshore users Benefits

Economic

Providing a cross-subsidy for offshore electricity transmission would tend to lead to a greater increase in the amount of electricity generated from renewable energy sources than is likely under Option (ii) as it would directly reduce costs for renewable energy generators.

Post-consultation update

Responses suggested that offshore wind is constrained by location and potentially high grid costs may be a major deterrent to the development of these projects. Cross-subsidisation may therefore be justified to avoid unnecessarily high charges if those charges were likely to prevent offshore renewable development. Increased renewable generation would have economic benefits for specific regions of the UK. It was suggested that offshore wind projects could have significant economic benefits for communities adjacent to them.

Environmental

This approach is likely to lead to more renewable generation being constructed. There would be an increased environmental benefit stemming from the substitution of generation plant with high levels of carbon emissions for renewable sources of generation. Offshore wind is expected to provide 3-4% of renewable energy by 2010. If 7.2GW of planned offshore wind generation were to connect, this is equivalent to a reduction of up to 2.2mtc/yr. This amounts to savings of up to £188m/yr in terms of social cost of carbon savings. This would make it more likely that the Government would meet its 2010 target of 10 per cent of electricity to be supplied from renewable energy sources contributing to its long-term goals to reduce carbon dioxide emissions.

Post-consultation update

No new environmental benefits were identified as a result of the consultation.

Social

Benefits for energy supply may be derived from increased diversity of the energy mix both in terms of fuel type and geographical source if greater volumes of offshore electricity generation connect. This would have long-term benefits in terms of security of a sustainable energy supply.

Post-consultation update

No new social benefits were identified as a result of the consultation.

Costs

Economic

Under this option other transmission users would be subsidising offshore connections and this may encourage energy generation that is not as economically efficient. Increased charges to generators, suppliers and industrial sites onshore may deter renewable generation onshore, alter operating decisions of existing plant or harm competitiveness. Market distortions may increase regulatory uncertainty and hence market risk. Cross subsidy may simply cause existing generators to alter their location and deliver no additional capacity.

Post-consultation update

It was suggested that any system of 'capping' or cross-subsidy would undermine the cost-reflective transmission charging structure with the loss of locational price signals. Transmission charges which were not broadly cost reflective of costs would create distortions within the onshore charging methodology. A number of respondents stated that capping or cross-subsidy for offshore generation projects would discriminate against efficiently sited projects and other forms of generation. Some respondents

did not believe that Government policy should be allowed to distort transmission charges and therefore competition to meet a short-term need for one part of the industry with unknown future consequences. It was suggested that cross-subsidy would lead to higher costs to consumers.

Environmental

The complexity of a price control regime may delay offshore wind projects which may have a significant negative effect on the reduction of carbon dioxide (up to 2.2mtc/yr if all 7.2GW of offshore wind were to connect by 2010), although flexible approaches in the period during the establishment of the regime would be adopted to prevent delays occurring.

Post-consultation update

Cross-subsidy may lead to inefficient decision making for example in deciding cable routes, which may have negative environmental consequences.

Social

Under this approach a proportion of the costs are likely to be ultimately passed to consumers as users of the onshore transmission system seek to recover their higher costs. Any rise in electricity prices may adversely affect the fuel-poor more than other users – a 1% rise in retail gas and electricity prices would lead to 40,000 households falling into fuel poverty.⁶

Post-consultation update

Cross-subsidy may lead to inefficient decision-making, which will lead to the higher costs being passed on to consumers.

5.9 Option (iv)

A Licensed Merchant approach

Benefits

Economic

Under this approach transmission assets would be provided without any costs falling on other users of the transmission system or consumers as wind generation developers would have to meet all the costs of transmission assets and raise the associated finance. Under this option there may be stronger incentives for efficiency if a developer is required to provide its own transmission assets. This light-touch approach to regulation could potentially allow transmission asset investment decisions to be made in a more timely fashion.

Post-consultation update

Responses suggested that since developers would be responsible for funding the costs of connection themselves the chances of inadvertent cross-subsidy are reduced. This approach may reduce risks of stranded assets as the full costs are known at the start of the project and are borne by developers.

Environmental

This option could potentially allow transmission asset investment decisions to be made in a more timely fashion thus ensuring that renewable energy projects connected to the grid more quickly.

Post-consultation update

No new environmental benefits were identified as a result of the consultation.

Social

There may be stronger incentives for efficiency if a developer is required to provide its own transmission assets. This may mean that the likelihood of stranded assets would be reduced and therefore lessen the risk of higher prices being borne by the consumer with a positive effect on Government targets for reducing fuel poverty.

Post-consultation update

No new social benefits were identified as a result of the consultation.

Costs

Economic

A licensed merchant approach would differ from the arrangements onshore, because of the underlying cost characteristics, and this could be perceived as distorting competition between generators.

Post-consultation update

Responses suggested that this approach may lead to each developer establishing their own cables with no requirement for a co-ordinated approach to the offshore transmission system. This may lead to inefficiencies in design and operation of the transmission system in respect of shared connections and connections to multiple onshore points and may not result in the most practical and economic approach to the large systems required to connect offshore generation. This could result in a sub-optimal offshore network which may increase costs in the long-term.

It was also suggested that the risks facing an individual project would be larger as developers would have to bear all the costs of building transmission networks up front, which will be reflected in a higher cost of capital.

Environmental

If all the high investment costs to develop transmission connections had to be met by offshore renewable energy developers up front it may mean that projects would be less likely to proceed than in options (ii) and (iii). This may mean that conventional generation sources could not be substituted for by renewable sources. The offshore wind farm industry could fail to develop and this may adversely impact on the reduction of carbon dioxide emissions

⁶ http://www.dti.gov.uk/energy/consumers/fuel_poverty/ready_reckoner.pdf

both by 2010 and beyond. This may mean that up to 7.2GW of offshore wind generation would not connect and reductions in carbon dioxide of up to 2.2mtc/yr and savings of up to £188m/yr in terms of the social costs of carbon would not be made.

Post-consultation update

It was thought that any regulatory regime must be future proof and whilst the merchant approach may fit with current expectations for wind, it would create a less stable environment for future investment as it may not fit well with future technologies.

Social

If offshore renewable electricity generation failed to develop, the benefits for energy supply which may be derived from further increased diversity of the energy mix both in terms of fuel type and geographical source would not be realised. This may have long-term costs in terms of the security of the energy supply.

Post-consultation update

No new social costs were identified as a result of the consultation.

5.10 Summary of the environmental, economic and social benefits of each main option

In environmental terms, option (ii) has the advantage of being likely to encourage the development of more offshore wind farms and thereby contributing to the Government's target of 10% of electricity supply from renewable energy by 2010. This would in turn contribute to the Government's targets for reductions in carbon dioxide emissions under the Kyoto Protocol and beyond. The economic benefits of option (ii) would stem partly from the advantages to the energy market of having a level playing field between onshore and offshore transmission arrangements. An element of the development risk is also shared with other users of the system. There could also be some wider benefits to the economy from increasing the diversity of energy supply and therefore improving the security of that supply. Social benefits would be primarily based on the potential for improving the sustainability of energy supply in the longer term.

The benefits of option (iii) would be similar to those of option (ii) but the encouragement of offshore wind farm developments could be further enhanced and therefore the renewable energy and carbon dioxide emission reductions similarly enhanced. (This

would, of course, be at the price of the cross-subsidy that would be required).

While the main advantages of options (ii) and (iii) are to offshore developers and environmental, the main advantage of option (iv) is the lower risk to consumers of developing the offshore grid. It would avoid any costs falling on other users of the transmission system and reduce the risk of costs to consumers from stranded assets. It could also provide greater incentives to the industry to introduce efficiencies into provision of the transmission assets and would minimise regulation and market intervention. There could also be a social benefit through the avoidance of any higher prices to consumers that might impact disproportionately on the fuel poor.

6 Small Firms Impact Test

6.1 The Small Business Service were consulted prior to the consultation and agreed that the proposed regulatory regimes were unlikely to have a significant impact on small and medium sized enterprises (SMEs) as the sectors directly affected are made up almost entirely of large businesses. There is the potential for an increase in electricity prices although this is expected to be less than 1% and should have no significant impact on SMEs. The Preliminary Consultation was used to test the above.

Post-consultation update

6.2 No responses were received to suggest that there is likely to be any significant impact on small and medium size enterprises.

7 Competition assessment

7.1 In terms of competition between providers of electricity from different sources of energy, option (ii) is likely to have the least affect on competition in the electricity generation market, as it will provide a level-playing field for both offshore and onshore generators. Under option (iii) there may be a risk that increased charges to generators and suppliers onshore may deter other forms of generation, alter operating decisions of existing plant or harm competitiveness. These market distortions may increase regulatory uncertainty and hence market risk. Regulation is a less perfect way of encouraging competition than a market approach. Option (iv) would impact more on the competitiveness of offshore developers as the approach to regulating offshore would be different to that onshore in not providing a price control.

Post-consultation update

Respondents suggested that there was scope for provision of offshore transmission assets via a competitive process and that needed to be one of the fundamental objectives of the regulatory framework. Respondents believed that there is scope for competitive provision within both the merchant and price control approaches. For example, in either case whoever owns the cables will

be required to contract with a party to lay the cables. As there are limited companies able to do this it is likely that the developer or transmission owner will face the same competitive pressure. If one of the cable installation companies was the transmission owner there would be less competitive pressure but regulatory oversight should ensure that a licence requirement for economic and efficient investment is met.

There were differing views on whether or not a tender process for granting the licences for offshore transmission was appropriate and on the associated issues such as proposed operation and scope of any process. Under the price control approach a competitive tender process will help in ensuring assets are delivered at least cost.

8 Enforcement, sanctions and monitoring

8.1 The licenses for electricity transmission are administered and enforced by Ofgem. The detailed enforcement arrangements will be consulted upon in the next stage of the consultation process.

9 Conclusions

- 9.1 The Energy Act 2004 includes provisions enabling the introduction of a new regulatory regime for offshore electricity transmission. It does so by providing that the prohibition on persons participating in transmission activities without a licence applies in Great Britain, the territorial sea adjacent to Great Britain and any designated Renewable Energy Zone (REZ). The DTI and Ofgem consulted on the broad options for licensing offshore – from a light touch approach with the minimum regulatory arrangements consistent with UK and European law – to a more regulated approach consistent with the current onshore arrangements.
- 9.2 In making his decision on the appropriate form of regulation the Secretary of State has been guided by the principle objective and general duties set out in section 3A of the Electricity Act which seeks to balance costs to consumers with social and environmental goals. The key considerations have been (i) the opportunities increase the proportion of electricity generated from renewable energy sources; (ii) the effects of the various ways in which the costs of connecting that electricity can be met; (iii) the cost of connection and who should pay.

10 Implementation and delivery plan

- 10.1 In announcing the Secretary of State's decision the Minister for Energy has made a statement to Parliament. An 'Open Letter' from Ofgem will be issued setting out how issues such as (i) adoption of assets; (ii) tender process; (iii) security standards and; (iv) metering will be resolved.
- 10.2 DTI / Ofgem will undertake a further consultation on the detailed workings of the proposed regime in the Spring / Summer 2006 which will build on the responses to the Open Letter. That work will inform the exercising of the Secretary of State's Energy Act powers.

11 Post Implementation review

11.1 As stated above, following the Secretary of State's announcement, there is further detailed technical work to be done on the workings of the proposed regime. As part of this process further consideration will be given to the option of extending the current onshore regime offshore with a degree of cross-subsidisation with other onshore users as outlined above. At this stage there is sufficient information to indicate that the level of offshore transmission charges would be high enough to deter offshore development. However, as some significant cost influencing factors have yet to be worked through, e.g. security standards, it would be premature to draw any conclusions in this regard prior to the completion of further technical work. Should that position change at some point in the future, the Government would of course need to consider the implications and would review its initial decision on the regulatory regime that would be implemented.

11.2 DTI / Ofgem will undertake a review 3 years after the implementation of the regulatory regime. This review will consider the impact of the regime on the offshore wind industry and will specifically address:

- the costs and benefits experienced by offshore developers in relation to transmission charges and capital costs. This will include a further analysis of the economics of offshore generation.
- the environmental impacts of the regime
- the effect on electricity prices to consumers
- the effect on the Government's renewable energy targets
- the continuing effectiveness and suitability of the security standards, licence conditions and adoption criteria implemented will be reviewed

11.3 Offshore developers, transmission and system operators, other Grid users, wider energy industry stakeholders, environmental groups and members of the public will be consulted during the review of the regulatory regime.

12 Summary and recommendations

- 12.1 The Secretary of State will announce his decision that the extension of the current onshore regime offshore is the correct approach to take for the licensing of offshore electricity transmission for the reasons outlined in Section 4.
- 12.2 The Secretary of State considers that this approach has a number of advantages in that it will ensure consistency with the regulatory arrangements onshore; should provide a financial benefit to offshore developers; will help to deliver its renewable energy targets; has environmental benefits; was the option favoured by the majority of the consultation respondents.
- 12.3 At this stage the Secretary of State does not believe that there is sufficient information to indicate that the level of offshore transmission charges would be high enough to deter offshore development. He does not, therefore, believe that the consultation exercise provides sufficient evidence to support the inclusion of some form of capping at this stage.
- 12.4 The licensed merchant approach would not be consistent with the approach taken to the provision of onshore transmission assets. It would also not provide the financial benefit available to onshore generators through the recovery of connection costs via annual transmission charges. The Secretary of State therefore believes that this approach is less likely to support the development of offshore wind energy and the achievement of the four key goals of the Government's Energy White Paper.
- 12.5 An 'Open Letter' from Ofgem will be issued following the announcement of the Secretary of State's decision. This will set out how issues such as (i) adoption of assets (ii) tender process (iii) security standards and (iv) metering will be resolved.
- 12.6 The Secretary of State is minded to extend NGET's, role as the onshore GB System Operator, offshore. Stakeholders will be consulted on this decision.
- 12.7 The further programme of technical work is likely to take 7 – 9 months, before the Secretary of State will be in a position to be able to make the decision on price capping and know what needs to be done for the specific condition of the offshore licences.
- 12.8 The Secretary of State will undertake a further consultation on the exercise of the relevant Energy Act powers once the programme of work set out in the Open Letter has been completed.

Annex A

Consultation respondents

DTI / Ofgem would like to thank the following for their responses to the consultation document.

ABB

Airtricity

Alstom Power Conversion

Association of Electricity Producers

British Energy

British Wind Energy Association

Centrica

Charles Davies

Chemical Industries Association

Council for National Parks

EDF Energy

Elexon

Energy Networks Association

Energywatch

English Nature / Countryside Council
for Wales / Joint Nature Conservancy
Committee

Eon UK / London Array

Eon UK

Highlands & Islands Enterprise

NGT

RWE Npower

Scira Offshore Energy

Scottish Natural Heritage

Scottish Power Energy Management

Scottish Power Transmission /
Distribution / Manweb

Shell Wind Power

Siemens Power Transmission &
Distribution

Scottish & Southern Energy

Total Gas & Power

United Utilities

Warwick Energy

Western Isles Council

Annex B

Regulation of Offshore Electricity Transmission

Consultation Workshop Discussion Notes

22 September 2005

This note has been taken by DTI/Ofgem to capture some of the key points made and to inform further debate. It is not our intention to clear the note with participants but it will be made available for their use in preparing any response to the formal consultation document.

A summary of the general views that emerged from the workshop discussion under headings used in the consultation document and other generic headings is set out below.

Please note that the points captured here are not necessarily consistent or fully explained and were the views of individuals at the workshop.

Workshop 1 – advantages and disadvantages of different regulatory regimes

Protecting the interests of consumers

- The cost reflective pricing model in the UK is a benefit that must be retained.
- To deliver genuine cost savings there needs to be a level playing field onshore and offshore.
- There is more chance of R2 projects progressing under a regulated approach as it allows more liability to be secured.
- There is not the margin at present to make offshore wind projects happen under a merchant approach.
- From a consumer perspective, the environmental tax burden is already high. Industry is already responding to environmental challenges but cannot pay more as it needs to remain competitive. Further subsidy for renewables should be transparent and accountable, e.g. through capital grants.
- There is concern that consumers may pick up the risk of stranded offshore assets or assets not fully utilised for a period of time. If an offshore investment cannot demonstrate economic investment and has no end user then it should not proceed. However, it was felt that a new owner is always likely to

take over distressed assets at the right price.

- As it is considered acceptable that consumers bear the risk of stranded assets onshore, this should apply offshore as well.
- If Round 2 is successful, consumers will benefit as it will reduce costs of ROCs. An alternative view presented was that this option is too slanted towards helping wind farm developers reduce costs and risks.
- From a developer perspective, it was felt that if R2 does not go ahead it will result in higher ROC prices for other forms of renewable energy, thereby increasing the cost burden on consumers.
- A price control approach has TNUoS charges at lower rates of return than under a merchant approach which is beneficial to offshore developers. There was therefore a view that a price control approach should in theory lead to lower capital cost and therefore lower cost to consumers.

Environment and sustainable development

- The merchant approach was considered to allow development faster which would better deliver the 2010 target.
- Round 2 is more likely to succeed under a price control approach as there will be some sharing of costs and risk.

- There might be a pay off between speed of connection and minimising other environmental damage through investing more time in planning the construction.

Security of supply

- The approach to wind generation must be consistent with and not discourage the potential for expansion and incorporation of other forms of renewable generation (i.e. wave and marine generation technology).
- It was considered that issues associated with wind generation such as intermittency, reliability and peak capacity did not pose a big issue.
- Wind would have a role to play in future energy security solution as it means less use of oil/gas.

Cross subsidisation

- Some felt that a price control approach with cross subsidy would recognise that offshore developers are not in a position to be able to respond to locational signals built into the transmission charging system in the way that those onshore can. As such, if overall level of support for offshore renewables was inadequate a price control approach with cross subsidy would be supported.

- From NGT's perspective, a price control approach provides some additional support to offshore developers from GB consumers but brings a higher risk of excessive cross-subsidy. The tariffs can be economically inefficient.
- It is too early to say whether cross-subsidy was required but having a price control approach – as opposed to merchant approach – would allow take up of the cross-subsidy option later.
- A subsidy may not close the funding gap and other money would be required.
- A subsidy may only be required for projects further offshore, with those closer to shore being able to manage without.
- There was also a view that the benefits of subsidy went solely to the developers, with customers only receiving increased risk in return.
- It was felt that further work was required in terms of expanding assumptions on asset life, depreciation rate and potential expansion and utilisation of circuits in order to model their impact upon risk / return of investment projects.
- Contracting issues need to be included in the estimation of costs e.g. reduction in costs if cabling and piling done together.
- Cost certainty is an important consideration for developers and risk is not sufficiently captured as a cost.

Non discrimination

Economics

- Developers estimate capital costs of offshore generation are actually £1.3m – £1.5m/MW. However, costs vary between projects and it is too early to say whether current cost estimates will continue to be relevant.
- Developers were of the view that project life will be 20-25 years and not 15 as assumed in the consultation.
- From a developer perspective, a merchant approach would be discriminatory as it would be different to that used onshore. It would be a move back to deep connection charges which no longer apply onshore.
- Price control with cross subsidy may lead to other forms of generation (i.e. those not offshore) being disadvantaged. From a consumer perspective a level playing field is preferred.
- From NGT's perspective the consistency arising from extending the price control model offshore is important. This approach would also be consistent with BETTA onshore.

- While non-justifiable discrimination is not acceptable, there may be a case for different treatment of the onshore and offshore regimes.

Managing risk

- From NGT's perspective the price control approach provides some sharing of investment risks with other users of the system.
- Who will bear risk if re-powering of projects does not occur after 20 year life of generation assets (cable life 40 years)?
- Developers were also of the view that under a merchant approach the risks on an individual project will be larger which in turn will be reflected in a higher cost of capital.
- Questions were raised with respect to whether developers will have an incentive to design a project for a finite 15 year asset life, or incorporate the potential for future expansion and use (and value) of initial cable investment.
- It was also pointed out that there was equally a risk that assets potentially had a long life, which could lead to them being over-paid for.
- Some felt that the merchant approach put the risks entirely on developers (and therefore not on customers) and felt that this was appropriate.

Technical issues

- Standardisation offshore is likely to lead to a reduction in costs. This is more likely under a price control approach rather than a merchant approach where standards are likely to be lower and this may cost more in the long run.
- From an NGT perspective most connections will be radial from onshore to offshore and if they fail it is a problem for the generator and not an issue for the System Operator (SO).
- From a developer perspective, projects with multiple connections e.g. Walney would be difficult to manage under the merchant approach. It introduces the complexity of SO-SO interfaces.
- A price control approach allows greater scope for development of offshore network to connect other forms of generation in the future as it has more scope for co-ordination than under a merchant approach.
- With reference to a merchant approach, interconnectors are not an equivalent model for radial generation connections.
- From a developer perspective the GBSO role should be extended offshore as soon as possible.
- Some felt that the merchant approach dictated that connections should be radial (point-to-point), ruling out a wider grid offshore.

- There was a suggestion that this might not always lead to the most efficient connections where a developer might build a line to shore rather than a shorter line to meet an offshore grid and share a connection.
- There are a range of issues that can be looked at now: changes in metering codes, line loss factors, CUSC, connection agreements with SO and generators, transmission losses, offshore restoration, compensation issues, constraint payments offshore.

Government policy delivery

- A regulated approach has more scope for policy interventions.
- A merchant approach may be easier to implement as a developer has control over the assets and timeliness of delivery. It may therefore allow Round 2 projects to happen more quickly. However a price control approach, if it does not hinder the timely development of wind farms, will be effective in terms of 2010 target and may ultimately lead to more connections.

Regulatory complexity

- A regulated regime is more complex but the burden of complexity would more likely impact upon DTI/Ofgem more than offshore developers.
- However, a merchant approach could be potentially more complex on an ongoing basis for developers

as they would have to negotiate bilateral agreements with other developers over shared use of assets.

Adoption process

- It was felt important to establish the criteria for adoption of assets that might be constructed prior to the commencement of any regulatory regime.
- It was suggested that it was important to establish the standard that lines should be built to in order to qualify for adoption
- From a developer perspective there is a need for an agreed adoption process early on.

Workshop 2 – what needs to be done to implement a new regulatory regime?

This workshop looked at the practicalities involved with four different issues that need to be considered when implementing a new regulatory regime. These issues were:

- Security standards
- Tender process for granting licences
- Licence conditions
- Industry codes

The group considered each in turn, both in terms of issues that need to be considered regardless of the regulatory option taken and issues that were specific to one of the two options.

Security standards

- A level of minimum security standards are required whichever option is chosen. These levels will need consideration.
- It was deemed important to retain the choice and flexibility available in onshore standards to allow variation in design to reflect circumstances. However, applying a “customer choice” option for connection (available under onshore standards) may not deliver commensurate fall in transmission tariff for offshore generators (as is the intention onshore).
- Under a merchant approach it might be appropriate to have lower security standards offshore to reflect the fact that the design of network may be less stringent and not include a redundancy requirement.
- In the case of a simple radial connection, applying a customer choice option would be easier and more flexible than a shared connection option.
- Higher standards may mean longer lead times, which could have a negative effect on the 2010 target.
- It might be appropriate to have lower security standards offshore since demand customers do not directly rely on cables (as they do onshore) and the loss of one line would not affect the amount of electricity transmitted hugely.
- Two different sets of security standards may need to be developed – security for the generator and security of the system as a whole.
- The main issues that need looking into are availability, the probability of when a cable fails, where they fail, the amount of generation lost and the time for repairs need to be looked at in terms of security. DTI/Ofgem would welcome any relevant information.
- The general view was that security standards onshore broadly reflect cost benefit approach – and that the same should be applied offshore.

- Would onshore standards (if offshore standards are different) become effective at the beach or at the point of connection to the onshore grid?
- It was thought that under the price control approach, standards would be more uniform, but less optimal as it would be a one size fits all solution.
- Adoption standards need to be made clear for the price control approach and consequently this option would require faster resolution of security standards.
- Offshore developers need assurance that the TO will be appropriately incentivised to fix cables (assuming no redundancy) in the event of a fault to ensure operation as soon as reasonably practicable. Options for such incentivisation include:
 - reproduction of the arrangements onshore which include compensation payments at market price (i.e. what price the SO needs to buy at);
 - agreement that users will curtail output when no/limited availability of cable with no compensation;
 - the introduction of a pooled insurance scheme for offshore generators.
- Rights for access and expected service levels of user's need urgent consideration due to expected lower redundancy.

Tender process

- The general view was that tenders might be a fair way of recognising the advantages to companies of a regulated form of price control with built in rates of return.
- Tenders would only be relevant for a price control approach; they are not needed under a merchant approach.
- The use of a tender process will depend how many parties are willing to tender. Even under a regulated approach they would only be required where more than one party sought to become TO.
- There should be pre-qualification for the tender process.
- The use of tenders might imply a licence approach based on wider geographic areas rather than just cable routes.
- Should the developer have a role in the selection process for a TO?
- Boundaries would need to be defined prior to any invitation to tender. In particular, a decision would need to be made on whether to grant TO licences on a per-line basis or by area. There would be different incentives for different bidders under each system, although again (theoretically) a mixture of the two might be possible.

Licence conditions

- There was some discussion as to how the licence conditions will be different offshore. From a developer perspective, it was suggested that licences should cover routes of cables and not geographic areas – an asset based licence approach.
- Point-to-point licences become difficult when sharing is involved.
- Scottish TO licences could also be used as models for offshore licences.
- Substantial changes might be required to the SO – TO Code.
- Key licence conditions could be those relating to price controls and tariffs.
- The definition of voltage may lead to complications in cases where an offshore line connects to a distribution system. Offshore transmission is defined as 132kv and above, while onshore distribution voltage is defined as 132kv and below. The electricity that enters the system through a distribution asset might then be routed onto the onshore transmission network (normally electricity flows the opposite way – from transmission system to distribution assets).
- Could there be exemptions [to the price control approach] if offshore developers were able to proceed more quickly without regulation? Some raised a concern that experience suggests that parallel systems of regulation and non-regulation do not work although others saw no reason why they shouldn't. It was felt that it could be

possible to build in incentives to ensure TOs delivered assets in a timely way.

- The matter of who would be the TO of last resort remained unresolved although the GBSO was seen as the most practical choice (if deemed appropriate).
- The option of requiring insurance as a means of ensuring faults are fixed quickly was raised.
- GBSO extension is only applicable for a price control approach. Under the merchant approach any SO activities that were required would be undertaken by the developer.

Industry codes

- The fault criteria in the GB Grid Code and GB security standard needs further examination if they are to apply offshore (i.e. measuring at offshore point, onshore point or other).
- In terms of metering location, one view was that while a metering point offshore may be more beneficial for offshore developers, it was important that the issue of losses is dealt with appropriately in the first instance.
- Clarification was requested on what metered output is to be included in the settlement system (and reflected in the price of ROCs).
- Work that needs to be done to decide what the grid requires offshore. It was felt that to inform this process developers should be invited to the TIWG and consideration given to relevant international experience.

Workshop Attendees

Paul	Abbot	Total
Neil	Birch	npower renewables
Damien	Cox	John Hall Associates
Lewis	Dale	NGT
Richard	Daniels	DTI
David	Densley	Scottish & Southern Electricity
Gordon	Edge	BWEA
Richard	Ford	BWEA
Jennie	Fuller	DTI
Nick	George	E.ON UK Renewables Developments Ltd
Graham	Knowles	Ofgem
Daniella	Lane	Centrica
Stefan	Leedham	Chemical Industries Association
Majbrit	Malle Hoeyer	Dong A/S
Richard	Mellish	DTI
Sarah	Merrick	Association of Electricity Producers
Alan	Mortimer	Scottish Power
Anthony	Mungall	Ofgem
Paul	Neilson	NGT
Jeremy	Nicholson	Energy Intensive Users Group
John	Overton	DTI
Mark	Petterson	Warwick Energy
Angela	Pearce	DTI
Dragana	Popovic	Energy Networks Association
Rob	Pryce	Eurus Energy UK Ltd
Bob	Spears	Utility Consumers Consortium
Giles	Stevens	Ofgem
Claire	Taylor	energy watch
Colin	Taylor	Scottish Power
Chris	Veal	Airtricity



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