HIGH-LEVEL REVIEW OF OFFSHORE ELECTRICITY TRANSMISSION PROPOSALS - JUNE 2008

2 July 2008

EXECUTIVE SUMMARY

On 13 June 2008, Ofgem and the Department for Business and Regulatory Reform (BERR) published proposals in relation to the regulatory regime for offshore transmission arrangements[1]. Pöyry Energy Consulting has been commissioned by a group of offshore wind developers to conduct an independent, high-level review of the proposals relating to the regulatory regime set out in the update document. The key findings of our assessment of the proposals are as follows:

- the proposals are likely to encourage a series of parallel radial offshore-onshore connections which may be low cost when considered individually but inefficient and costly when considered in the context of the development of the overall offshore transmission infrastructure;
- there is limited ability or incentive for coordination of offshore transmission developments, limiting the possibility of one or more integrated offshore transmission grids, which could be expected to be more robust and efficient, as well as being able to accommodate more offshore generation potential;
- the overall process is very complex and lengthy, creating potential for significant risk and delay for project developers, thereby reducing the incentive to initiate projects; and
- the proposed regime frustrates/removes the commercial incentives to develop an offshore generation project and to become an Offshore Transmission Owner.

On this basis, we consider that the proposed regime does not create a framework which will best encourage the connection of significant amounts of renewable generation or the development of efficient and economic offshore transmission systems overall. The proposed process is complex, with the consequence that the cost and time taken to deliver an offshore project are likely to increase. The ultimate result is that the proposals fail to achieve the best value for electricity consumers, who, it is arguable, would be better served if the existing arrangements were maintained.

This paper sets out the details of our assessment of the proposals. The paper initially sets out the context in which the proposals have been made and the basis for our assessment. It then outlines the key features of the proposals. The next sections contain our assessment of the proposals, before drawing conclusions in the final section.

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1 'Offshore Electricity Transmission - A Joint Ofgem/BERR Regulatory Policy Update - 84/08', Ofgem/BERR, June 2008.

INTRODUCTION

On 13 June 2008, Ofgem and the BERR published a joint policy update that outlines and consults upon the proposed regulatory regime for offshore transmission arrangements[2]. Given the importance of offshore renewable generation to the achievement of the UK's renewable energy targets, it is important that effective and efficient offshore transmission arrangements are developed and implemented in order to enable offshore renewable generation to be delivered quickly.

Pöyry Energy Consulting has been commissioned by a group of offshore wind developers to conduct an independent, high-level review of the proposals relating to the regulatory regime set out in the update document referred to above. The review does not consider the specific drafting changes proposed for the transmission licence and industry codes. In this context, this note outlines Pöyry's assessment of the proposed regulatory regime.

Our assessment focuses upon the extent to which the proposed regulatory regime facilitates or frustrates the achievement of the objectives that Ofgem/BERR have outlined and the associated implications upon relevant stakeholders. The stated objectives of the proposals, as set out within paragraph 1.1 of the consultation document, are as follows:

- to connect significant amounts of renewable offshore generation to the onshore electricity network;
- to ensure connection to the onshore grid in a timely and cost effective manner;
- to maintain the integrity of the system as a whole; and
- to achieve best value for electricity consumers.

It has also been stated that the principles associated with onshore electricity transmission should be extended offshore wherever possible.

2 'Offshore Electricity Transmission - A Joint Ofgem/BERR Regulatory Policy Update - 84/08', Ofgem/BERR, June 2008.

KEY FEATURES OF THE PROPOSALS

The proposals outlined in the policy update relate to both the overarching regulatory regime for offshore transmission and the tender process via which Offshore Transmission Owner (OFTO) licences are to be allocated. The key features of the proposals are outlined here in brief in order to provide context to the subsequent appraisal.

Regulatory regime

The proposed regulatory regime has the following key features:

- OFTO licences will be granted for no less than 20 years;
- an OFTO licence holder will have a regulated revenue stream for a default period of 20 years;
  - shorter periods may be set if competition for the OFTO licence is considered to be sub-optimal;
  - after 20 years, the revenue stream can be re-tendered or extended on a case by case basis;
- generator affiliates can be awarded OFTO licences provided that appropriate ring-fencing is in place;
- arrangements for dealing with uncertain and/or unexpected costs are still under consideration; and
- OFTOs will have asymmetric, downside only incentives relating to the performance and availability of their offshore transmission assets.

Tender process

OFTO licences are to be issued via a competitive tendering process run by Ofgem. The proposed enduring tender process (to apply to offshore transmission assets which will be constructed after April 2010) has the following key features:

- Pre-conditions, including the signing of a Connection and Use of System Code (CUSC) bilateral connection offer and Crown Estate lease arrangements by the windfarm developer/s, must be satisfied before a tender can be initiated;
- offshore generators continue to have responsibility for gaining the necessary consents and leases for the offshore transmission assets – these will be transferred to the appointed OFTO following the tender and the generator will be remunerated for necessary and efficiently incurred costs;
- there will be no OFTO of last resort; and
- there will be annual tender windows.

The proposed transitional tender process (to apply to offshore transmission assets which are in service or being constructed by April 2010) differs from the enduring process as follows:

- A development needs to have achieved full financial close (or equivalent) in order to be eligible for the transitional scheme;

- developers will have comfort on funding for transitional projects such that they will be paid by the successful OFTO the greater of 75% of the ex-ante estimate of the Regulated Asset Value (RAV) or 100% of the efficient ex-post RAV; and
- there will be an OFTO of last resort if the tender process is unsuccessful, with the developer being appointed as the OFTO and having to ensure business separation.

ASSESSMENT OF REGULATORY REGIME PROPOSALS

Licence and licensee responsibilities

Policy position summary

- Multiple, non-exclusive licences will be issued for offshore transmission, with the intention of creating competition for the right to build, own and operate offshore transmission assets;
- OFTO licences will be open ended, applying for no less than 20 years and can only be revoked with 18 months' notice once the 19th year has been reached; and
- OFTO licensee is intended to have responsibility for designing, building, financing and maintaining their offshore transmission network.

Assessment

The regime is based on the premise of multiple, non-exclusive licences allocated via a competitive tender process. However, it is worth considering whether the intended benefit of issuing multiple OFTO licences (i.e. creating competition for OFTO licences, thereby encouraging innovations) is likely to be achieved. While the OFTO licensee is supposed to have responsibility for designing, building, financing and maintaining the offshore transmission network, the proposed regime may not actually create freedom for the OFTOs to make these decisions. For example, as part of the proposed connection process, the offshore generator is required to submit an application to National Grid Electricity Transmission (NGET), the System Operator, for connection to the onshore transmission system and in so doing must specify the proposed point of connection. The generator is also asked to submit identified sub-sea cable routes and identified cable landing points. This effectively limits the choices available to a potential OFTO in planning its offshore transmission system. It also may preclude the potential for a project to be connected to an existing offshore transmission line, thereby utilising an existing connection to the onshore system.

Therefore, we consider that issues associated with the design of the arrangements (discussed in more detail below) may result in there being little interest in tendering for an OFTO licence. If this is the case, the proposed regime will be ineffective in terms of developing efficient offshore transmission systems and enabling the quick delivery of offshore generation to consumers.

If, however, we assume that there is some competition for licences, there are further issues with the proposals. For example, the proposed regulatory framework does not provide a framework for coordinated offshore transmission development between the successful OFTOs. This creates a risk of developing a series of parallel, unlinked radial offshore transmission assets, which are collectively inefficient. This could also prevent or hinder the development of integrated offshore transmission grids, which would arguably offer a more efficient solution overall. Indeed, such an approach is being promoted by Statnett, the system operator of the entire, and owner of much of, the transmission system in Norway. The proposed GB offshore regime may, therefore, be relatively cheap in the short-term but inefficient in the longer-term, ultimately increasing the costs of offshore transmission relative to other potential regimes.

In the event of cable faults occurring in an essentially radial offshore transmission system, the affected wind generators will tend to be unable to generate at all for the duration of the outage (which will tend to be long due to the difficulties of repairing subsea cables). Technical options exist to allow some networking which would allow continued operation during outages, but these seem to be discouraged by the proposed arrangements.

It appears that an OFTO licence is to be specific to the offshore transmission infrastructure associated with each particular project. On this basis, a party operating a number of offshore transmission assets would need to hold multiple licences. Whilst this creates a clear relationship between each set of offshore transmission infrastructure and the funding for these assets, it is likely to be burdensome from an administrative perspective (e.g. multiple licence fees must be paid). Furthermore, this does not seem to accommodate the potential for economies of scale to be realised if an OFTO can develop and maintain multiple sets of offshore infrastructure more efficiently on a coordinated basis than if each set were to be managed independently. This arrangement, therefore, has the potential to be a higher cost solution, as synergies between offshore transmission assets are not realised, and it does not engender the development of efficient, coordinated offshore grid systems.

Regulated revenue stream

Policy position summary

- OFTOs will have a regulated revenue stream for a default period of 20 years, although this period can be shortened if the competition to develop the offshore assets for a project is considered by Ofgem to be sub-optimal;
- at the end of the 20-year period, the regulated revenue stream can be either extended or re-tendered;
- certain defined revenue adjustment mechanisms are to be developed to deal with unexpected/uncertain costs; and
- downside only financial incentives will adjust the regulated revenue depending upon the OFTO's performance.

Assessment

20 year period

A 20 year regulated revenue stream does provide some long-term certainty as to future revenue, which should be attractive for investors. However, this period is inconsistent with the revenue period for onshore transmission assets (where an asset life of 40 years is assumed) and typical Crown Estate lease durations[3]. Furthermore, the attractiveness of this revenue stream to a potential investor may be eroded or removed by the following elements of the proposed regime, which are discussed in more detail below:

- the potential for Ofgem to set a shorter regulated revenue period; and
- the arrangements after the 20 year period has ended.

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3 Round one full term leases are for twenty-two years with a further three years allowed for decommissioning. For the largest round two projects the full term lease is for fifty years.

If Ofgem considers that competition in the tender process has not been effective, it reserves the right to grant revenue streams for shorter periods. The basis for evaluating the competitiveness of a tender is unclear in the proposals. It is also unclear what rights, if any, a successful tenderer has in the event that the baseline assumption of a 20 year revenue stream is undermined. As the party submitted its proposed regulated revenue stream on the basis of a 20 year recovery period, shortening this period may make the project economically unattractive. This introduces uncertainty for prospective investors, which will dissuade participation and consequently increase the likelihood that a tender process may be uncompetitive.

At the end of the 20-year period, Ofgem can either extend or re-tender the regulated revenue stream. Given the objective of achieving in excess of 30GW of offshore generation by 2020, it is likely that:

- the generation asset associated with an offshore infrastructure will be renewed/replaced at the end of its lifetime; and/or
- further generation assets will be connected to the relevant offshore transmission infrastructure.

Either of these outcomes will result in an ongoing requirement for the transmission infrastructure. The potential for re-tendering after 20 years potentially creates a cliff edge for the original OFTO, after which its role is uncertain. This creates the potential for perverse incentives in relation to maintenance of the assets in the run-up to the 20 year deadline and in relation to the development of efficient enduring transmission infrastructure. Both of these outcomes will compromise the integrity of the relevant offshore infrastructure and the efficiency of the arrangements. In order to avoid these issues, it may be preferable for the default position to be for the regulated revenue stream to be extended after 20 years, unless the relevant OFTO has failed to fulfil its licence obligations during the initial 20 year period.

Revenue adjustments

The regulated revenue stream is fixed for the 20 year period based on the bid submitted by the successful tenderer. However, the costs associated with fulfilling the role of OFTO are not fixed and there is likely to be considerable uncertainty when a potential OFTO submits its bid as to likely costs, towards the end of the 20 year period in particular. Therefore, a potential investor faces uncertainty and risk in relation to the level of return that it could actually make, which may further erode the incentive to invest. In this context, it is worth noting that the Authority has a duty to ensure that licensees can finance their activities.

The proposals outline that there may be scope for pre-defined adjustments for certain variable costs (e.g. indexation to reflect inflation). This is a pragmatic approach which provides regulatory commitment that unpredictable/uncertain costs/savings will be recoverable in the event that they arise. Unless similar adjustment mechanisms exist for other costs outside the OFTO's control, such as rates and licence fees, this uncertainty may adversely affect the economic viability of becoming an OFTO and, consequently, the level of participation in an OFTO tender.

Clearly, it is difficult to develop adjustment mechanisms for events that cannot be predicted. In these situations, it is important for there to be regulatory commitment that unexpected costs will be given due consideration in terms of potential revenue adjustment on a case by case basis. The principles associated with the case by case assessment of

any unpredictable/uncertain costs/savings should be set out at a high-level in advance to provide certainty.

One specific pre-defined adjustment mechanism relates to incremental capacity increases. It is appropriate for such a mechanism to be in place to enable the offshore transmission assets to be developed beyond their original scope. The proposals allow the OFTO to undertake incremental investment up to a value of 20% of the initial capital cost, without triggering a re-tender exercise. It is clearly important for the initial capacity cost projections to be accurate to ensure that the most economic and efficient bid is accepted. However, this fixed threshold risks placing an arbitrary ceiling upon incremental offshore transmission investment which may frustrate the delivery of additional offshore generation. Where additional investment is warranted (e.g. based on demand from generators) and can be justified as being economic and efficient it should not be restricted.

Financial incentives

The proposals outline that each OFTO will have capacity delivery incentives to encourage timely delivery of the network and operational availability incentives. In principle, it is appropriate (and consistent with the onshore arrangements) for there to be commercial incentives for transmission owners to undertake their roles in an efficient and economic manner to the ultimate benefit of consumers. However, a downside only incentive arrangement increases the risk to the OFTO with no potential reward. The additional risk is likely to translate into higher tender prices, which will be passed onto consumers. A penalty only regime is also likely to encourage the OFTO to be more conservative, potentially leading to delays in the delivery of the offshore infrastructure. However, if upside reward was available, the OFTO may have incentives to pursue more rapid offshore transmission development, speeding up the delivery of offshore generation.

Additionally, a downside only incentive is inconsistent with the system performance incentives which are in place for the onshore Transmission Asset Owners (TOs). In establishing the current transmission price control, Ofgem chose not to introduce "penalty only" reliability incentive arrangements for the TOs and instead opted for a symmetric incentive scheme[4]. Symmetric incentive arrangements offer a balance of risk and reward which is likely to be more attractive to investors and pragmatic in the initial period of the offshore transmission regime at least when the appropriateness of the selected performance targets is unproven.

Offshore transmission charging

NGET's December 2007 transmission charging proposals[5] outlined that:

- the OFTO revenue stream should be recovered through a combination of the residual and locational elements of the Transmission Network Use of System (TNUoS) Charge;
- the costs of offshore cables should be recovered through the locational element of TNUoS; and
- other offshore transmission costs should be recovered via the residual element of TNUoS.

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4 'Transmission Price Control Review: Final Proposals', Ofgem, December 2006.

5 'Charging arrangements associated with the Offshore Transmission Networks – Consultation', December 2007.

Ofgem, however, has questioned the treatment of costs associated with offshore transmission substations. This cost falls within the residual component of TNUoS under NGET's December 2007 proposals, thereby socialising the costs. If this cost is instead included in the locational element, the generator will effectively face all the transmission costs linked to the project (as is the case under the current arrangements where a developer faces all transmission and generation costs), adversely affecting the economics of an offshore generation project under the proposed regime. This further reduces the incentive of progressing a project under the proposed regime.

Additionally, some offshore windfarms off the coast of England and Wales will tend to connect to distribution networks (132kV being defined as distribution there, while it is considered transmission in Scotland). The offshore transmission arrangements refer to this case, however, it is unclear how charging, access and operation of intervening distribution networks will be handled.

ASSESSMENT OF TENDER PROCESS

Tender process

Policy position summary

- The process for appointing an OFTO will be conducted in fixed annual windows; and
- the tender will be a four stage process.

Assessment

Holding the tender process in fixed windows offers administrative benefits in terms of coordinating the tender. However, a prospective project will be delayed until the next scheduled window if it narrowly misses one annual window. Greater flexibility or multiple tender windows within each year may enable projects to be delivered faster.

In the context of the decision to tender OFTO licences, the suggested four stage tender process appears reasonable, but it is reliant upon there being sufficient interest in tendering for an OFTO licence. As outlined elsewhere, we are concerned that the risks linked to the proposed regime may result in there being little interest thereby limiting the perceived benefits of the tender process.

Pre-conditions

Policy position summary

- In order to initiate the tender process an offshore project must meet specified pre-conditions.

Assessment

It is appropriate for some pre-conditions to exist to ensure that the tender process is only initiated for genuine and feasible offshore generation projects. However, it can be argued that the pre-conditions are unduly stringent and increasing the risk faced by developers which may frustrate the delivery of offshore generation projects.

In the enduring arrangements, the proposed pre-conditions are that the developer has entered into a bilateral connection agreement with NGET and into lease arrangements with The Crown Estate. These pre-conditions create potential issues and require significant financial commitments. For example, The Crown Estate will only grant a full term lease or licence when all other statutory consents[6] are in place. Obtaining these consents may be a lengthy and costly process, particularly if this requires consents in relation to the offshore transmission assets which may subsequently vary from initial assumptions (as discussed below). Also, obtaining a bilateral connection agreement potentially restricts the ability of a successful OFTO to design and build the offshore assets to its own specification, potentially deterring participation in the OFTO tender process.

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6 Electricity Act 1989 – Section 36, Food and Environmental Protection Act 1985 – Section 5 and Coastal Protection Act 1949 – Section 34.

The transitional arrangements contain additional pre-conditions such as the provision of a commitment to transfer the infrastructure assets to the successful OFTO and details of the financial model linked to the assets. There is also a requirement that full financial close (or a similar commitment) has been reached, which is a further administrative hurdle.

Connection offer

Policy position summary

- A bilateral connection agreement must be obtained as a pre-condition for triggering a tender process; and
- once a preferred bidder is identified, NGET can propose an 'agreement to vary' the bilateral agreement with the offshore generator based upon the TO Construction Offer provided by the preferred bidder to NGET.

Assessment

It is clear that the connection agreement cannot be agreed until detailed information about the offshore transmission system required to connect the generator to the onshore transmission system is available. This creates the potential for possibly significant differences in the terms of the initial connection agreement and the revised connection agreement. This creates risk for the offshore generator and undermines the value of the initial bilateral connection agreement.

Comfort on funding in transitional regime

Policy position summary

- Developers will have comfort that they will receive the greater of 75% of Ofgem's ex-ante Regulatory Asset Value (RAV) estimate and 100% of the efficient economic cost incurred on an ex-post basis.

Assessment

This commitment provides a commercial incentive for development costs to be incurred economically and efficiently. However, it is unclear on what basis the ex-post assessment of whether or not costs have been efficiently incurred will be made – this could mean that little actual comfort is provided. Furthermore, flooring funding at 75% may constitute a disincentive to progress a development.

Generator affiliates

Policy position summary

- Offshore generators would be allowed to bid for offshore transmission licences subject to compliance with EU legislation.

Assessment

If there is legal separation and ringfencing, this would be consistent with legislation, although this needs to be considered in the context of the developing EC unbundling proposals. However, if this outcome (i.e. separated elements of the same company run the generation project and the transmission project) prevails, it must, given the costs and potential delays linked to the tender process, be less efficient than the current situation

where a developer assumes responsibility for all activities up to the point of onshore connection. As EU Legislation is always changing, this is an additional risk.

OFTO of last resort

Policy position summary

- The transitional arrangements will include provisions for an OFTO of last resort in the event that the tender does not successfully identify an OFTO; and
- the enduring arrangements will not include provisions for an OFTO of last resort.

Assessment

The absence of an OFTO of last resort in the enduring arrangements creates potentially unmanageable risks for an offshore generator. In the event that an OFTO is not financially secure and withdraws from the process during construction of the offshore infrastructure, a project which is dependent upon this infrastructure will be delayed and may have to be dropped. If an OFTO withdraws once the infrastructure has been completed, the assets will not be maintained and the service offered to the offshore generator will deteriorate. An OFTO of last resort would provide security to an offshore generator.

If the tender process in the transitional regime does not identify an OFTO, the OFTO licence would be awarded to the developer, if this is in consumers' interests. This represents a pragmatic solution. However, this would require appropriate ringfencing between the OFTO and the generator, which would increase costs relative to the existing arrangements.

Most generators would not want the burden of transmission design/build/operation. Those that would so wish, would only get benefits if they could operate generation and offshore transmission together so any ringfencing would destroy any potential synergy. Overall this seems to add barriers to entry to the offshore generation market.

CONCLUSIONS

The key findings of our assessment of the proposals in relation to the offshore transmission regime are as follows:

- the proposals are likely to encourage a series of parallel radial offshore-onshore connections which may be low cost when considered individually but inefficient and costly when considered in the context of the development of the overall offshore transmission infrastructure;
- there is limited ability or incentive for coordination of offshore transmission developments, limiting the possibility of one or more integrated offshore transmission grids, which could be expected to be more robust and efficient, as well as being able to accommodate more offshore generation potential;
- the overall process (from meeting the pre-conditions to initiating a tender to the commencement of generation from an offshore project) is very complex and lengthy, creating potential for significant risk and delay for project developers, thereby reducing the incentive to initiate projects; and
- the proposed regime weakens the commercial incentives to develop an offshore generation project and to become an OFTO licensee.

On this basis, we consider that the proposed regime does not create a framework which will best encourage the connection of significant amounts of renewable generation or the development of efficient and economic offshore transmission systems overall. The proposed process is complex, with the consequence that the cost and time taken to deliver an offshore project are likely to increase. The ultimate result is that the proposals fail to achieve the best value for electricity consumers, who, it is arguable, would be better served if the existing arrangements were maintained.

Furthermore, the proposed regime appears to be at odds with the current Ofgem/BERR policy in relation to the onshore transmission access regime. In the Transmission Access Review final report[7], Ofgem/BERR have flagged that urgent steps should be taken to connect new generation quickly and have endorsed a 'connect and manage' approach in the short-term in order to accelerate new connections. This urgency and pragmatism is not replicated in the offshore transmission regime proposals.

7 'Transmission Access Review – Final Report', Ofgem/BERR, June 2008.

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