Memorandum

ARUP

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Subject	Arup's Response to the Consultation on the Enduring Regime		

CHAPTER: Two	
Question 1: Do you have any views on the approach outlined in paragraph 2.8, namely to focus on a single OFTO build option and not to develop the early OFTO build option further at this stage?	We concur that the early build option is not worth further consideration at this stage.
CHAPTER: Three	
Question 1: What are your views on the proposed arrangements for triggering a tender exercise?	If the OFTO build process is designed to take consideration of the balance between risk, contingency and programme, then a trigger point three months before planning application is reasonable.
Question 2 : What are your views on whether our proposal on generator security will ensure the appropriate level of commitment from a generator?	Security is unlikely to stop the Generator changing its mind. The value of the security is therefore to compensate the OFTO for any aborted costs, but will not probably influence the Generator decision. The security package will need to have the appropriate protection for the Generator in the event of uncontrollable issues.
Question 3: Do you agree with our proposed approach to the tender specification for an OFTO build tender exercise?	We concur with the proposed approach in the provision of a tender specification, however consideration needs to be given level of detail provided in the specification and the design of the process (specifically duration of ITT period and level of price certainty provided in the OFTO bid), discussed in more detail below. The primary role of the tender specification will be to allow the OFTO to undertake detailed design, engage with supply chain and ultimately allow the OFTO to bid a fixed price. Current industry trends are for generators/developers to undertake 'light' FEED studies and manage the risk and contingency accordingly. A high level specification will allow the detailed design and procurement of the primary transmission components (e.g. cable, transformers, OSPSs etc) representing a significant proportion of the asset value. However, consideration will need to be given to the duration of the ITT process to allow the OFTO to undertake detailed design activities

	and/or recognition of pricing contingencies for the ancillary items (such as reactive power, harmonic filtering etc) if the detailed design/coordination with wind farm design has not been undertaken. Alternatively, the Generator could undertake a detailed FEED including supportive studies such as harmonics, reactive power, voltage etc. For developers to reverse the industry trend Ofgem will need to provide comfort to the developer that their FEED costs will be reimbursed. Consideration will also need to be given to the opportunities for innovation and commercial tension, under this scenario.
Question 4: Are the proposed arrangements for pre-construction works the most appropriate for investors and generators?	Planning application and early FEED by the Generator is beneficial for all parties.
Question 5: What other information, if any, in addition to that referred to within the tender specification and pre-construction works sections, would be needed within the data room for the project?	See Chapter 3 question 3 in relation to engineering design. A critical design and construction issue is the level of protection provided to the cable and recognition the Generator and OFTO may have different level of risk appetite. To improve transparency on this issue standard industry guidelines on cable risk could be adopted which the OFTO is required to follow. Survey information needs to sufficient information to be able to consider risks to construction of the OFTO, as well as design (route finalisation, burial depth).
Question 6: What do you think would be the best approach to ensuring bidders have access to and confidence in a seabed survey undertaken by the generator?	An inadequate or survey will lead to increased contingency in bids (and therefore lost value) or cost uncertainty for the OFTO. Whilst it is important that each survey specification is developed in consideration of the anticipated risks and sea bed conditions, an appropriate standard survey specification will go some way to minimise the risk of increased costs in potentially the riskiest (with respect to price certainty) component of the transmission assets for the OFTO. However, unless the cable installation supply chain begins to offer more performance based contracts the cable installation and geotechnical risks are still likely to remain with the OFTO and be a primary area of concern for an OFTO bidder and investor.
Question 7: With reference to the approach to seabed surveys outlined within paragraph 3.22, what might be the best approach to developing an independent generic survey specification that would be acceptable to both generators and potential bidders?	We would recommend that a working party (drawn from OSIG members etc) to update/ expand OSIG "Guidance Notes on Site Investigations for Offshore Renewable Energy Projects" Rev 02 (2005). It is important that the development covers a broad range of industry participants, and in particular avoids specifying a survey that limits the number of providers able to perform the required survey. Arup are a member of the group and would be happy to

	initiate discussions.
Question 8: Do you agree that ensuring procurement is undertaken by the OFTO through the tender process would be the most economic and efficient approach?	The specific focus of the OFTO on the procurement of transmission assets, rather than the wind farm as whole, should over time lead to the most efficient and economic approach. To attract the interest of Generators in the OFTO procurement approach, the increase value must outweigh the perceived additional risk by the Generator. Issues may include; • The already constrained supply chain may struggle to deal with multiple request for tenders on each project. Whilst we recognise that they will be similar, assuming the OFTOs offer innovation there will be variations • The Generator has developed many years of experience in managing the supply chain and its limitations minimising the risk of delay to the delivery programme. Generators may be unwilling to relinquish his control and therefore not adopt the OFTO build option • Loss of scalability provided by multi project relationships between the supply chain and generators • Generators will have early engagement with the supply chain before consenting and therefore the completion of procurement activities represent continuation of these activities, which may include binding contractual relationships It should also be noted that responsibility of procurement for the OFTO may encourage strategic partnerships/relationships between OFTOs and the supply chain. Consideration of the impact of such relationships on competitiveness needs to be considered
Question 9: What are your views on whether there are supply chain constraints associated with the manufacture and delivery of some key offshore transmission assets? If there are constraints, do these vary significantly in relation to project design?	It is widely believe that there are significant supply chain constraints to deliver the enduring regime of the OFTO. This is largely due to the fact that the generation is far from the shore line and also the higher transmission capacity of the offshore grid. In order to deliver transmission capacity in the region of 1000MW plus, the HV equipment technologies such as subsea cable at higher voltages and HVDC converter stations have to further developed. In addition, the substation platform configuration and offshore heavy lifting gear will also become a barrier to deliver much larger power capacities. Notwithstanding that, the manufacturing capacity should also be developed at the same time to avoid long lead time of all the major item of equipment. In this background, to deliver the enduring regime OFTO, project design has to

	take into account the most practical and proven technologies to ensure that the investment is not at risk. Therefore, the design may vary depending on the size of the windfarm cluster, platform configuration and its size, selection of AC/DC technology, node configuration, and the cable technology and the transmission voltage.
Question 10: What are your views on the examples of alternative approaches for supply chain engagement under OFTO build outlined in this section?	One of the key factors for the Generator in choosing the OFTO Build option may be a consideration of the overall increased value offered by the OFTOs procurement approach. If this value does not outweigh any perceived increased risk or downside to the Generator, an ability of the Generator to undertake the procurement instead of the OFTO will increase the attractiveness of the OFTO Build option. It should be recognized that there is an advantage to have some supply chain support for the FEED studies, in order to determine the most economical and low risk design strategy, pricing and some certainty of the delivery program. Generally the significant FEED will require payment for their input. We therefore concur that the process needs to be designed to support any binding or non binding options taken by the Generator.
Question 11: Are there any other approaches we should consider under OFTO build to enable the supply chain to be engaged in time to ensure project delivery timescales are met, whilst maximising opportunities for competition through the tender process?	The development of standardize topside solutions would support the development of a more efficient procurement process reducing the risk of delay and more commercial tension/competition. This would require cross industry support.
Question 12: Should there be any restrictions on interactions between parties, either before or during a tender exercise in order to ensure fair and effective competition and best value for consumers?	Consideration could be given to allowing the OFTO to present its proposals before the Generator decides on which procurement route to take.
Question 13: Do you agree that the current 20 year revenue stream provides the best value to consumers under the enduring regime (OFTO or Generator build)? If not, what alternatives should we consider?	We understand that the current 20 year revenue stream does not consider residual project value. To offer better value to consumers residual value could be considered. A number of options, which could be considered are; • OFTO to consider residual value in Financial Model • Decommissioning costs not included and assets 'handed back' to Ofgem meeting defined requirements (in a similar manner to UK PFI projects) • Decommissioning costs considered as 'past through costs' • Longer revenue stream with break clauses
Question 14: What are your views	For the OFTO to be able to access the traditional project

on our proposed treatment of risk relating to: - delay to licence grant? - weather delay?	finance market it will require; a) a form of cost protection in consideration that a number of contracts will not be fixed price contracts b) Ofgem to generally take project risks not under the control of the OFTO, including weather and licence delay. To incentivise the OFTO to negotiate with the supply chain the protection afforded by the Licence could be above a certain level or percentage of cost.
Question 15: Are there other areas of risk which would be more efficiently managed (for consumers) through a risk sharing mechanism rather than factored into bidders' TRS bids? If so, can you suggest how these risks might be shared?	Reburial and remedial of rock berms are significant opex items with a high degree of uncertainty. Consideration of these items as pass through costs could be considered. Consideration needs to be given to the ability of the cable installation supply chain and impact on price for installer to accept geotechnic risk. We are currently seeing a varied approach across the industry. The role of a standard survey specification should be considered in this.
Question 16: Is the current approach to recovering bid costs appropriate for OFTO build? If not, what alternative approach to recovering bid costs would you recommend?	Whilst we recognise the uncertainty and risks of bidding costs, Ofgem can take comfort that the waste PFI industry also has high bid costs and not a shortage of market participants. Anticipated OFTO alliances will help reduce individual company exposure and the process will need to be designed with appropriate stages and bidder numbers to achieve the optimal balance between chances of success and competition.
Question 17: Are there any aspects of the current transitional arrangements or within the proposals for OFTO build, including revenue term, bid requirements and risk profile, which may prevent access to certain sources of finance in the enduring regime?	See response to question 14
Question 18: Do you have any comments on the issues associated with incorporating a refinancing gain share mechanism and how such a mechanism could be structured?	No comment
Question 19: Do you have any preferences from amongst the options outlined for how the PQ stage should operate?	No comment
Question 20: Are there any other ways that a PQ stage might operate in order to meet the objectives set out at the start of this section?	No comment
Question 21: Do you have any preferences from the options outlined for how the ITT stage	We strongly support the concept of an early PQQ or framework selection to minimise the risk to project delay.

might operate?	We recognise the importance of achieving the balance of price certainty, not delaying the delivery of the wind farm project as a whole and avoiding aborted/wasted costs. Neither option is likely to avoid aborted OFTO costs if planning consent is withheld. Typically there is a 9 month period from consent to awarding contracts. Considering that one of the critical path items may be delivery of the transmission assets before that of the windfarm to support commissioning of the wind farm, risks to the delay of delivery of the transmission assets should be minimised. On this basis, there is a risk that under Option 1 and Option 3, delays in finalizing and agreeing the TRS and reaching financial close may lead to a delay in the overall delivery of the project. An earlier ITT under Option 2 may help to mitigate this risk. Furthermore, considering that environmental and consenting information e.g. surveys, should have been available some months earlier at the time of the planning application the majority of information should be available to support the early commencement of the ITT stage. The availability and level of FEED information should be discussed with Developers (as discussed in Response to Question 3 of this chapter). The use of Option 2 may therefore be influenced by the availability of information in particular the status of design. Under Option 2 (as well as Option 3), changes in design and obligations from consents can be addressed by TRS adjustments under the preferred bidder stage. It should also be noted that the delays to the PB stage under the transitional regime has been primarily related to the status of construction and commissioning. Therefore these issues should not be relevant under the enduring regime.
Question 22: Are there any other ways that the ITT stage might operate to ensure its efficiency and effectiveness?	The bidding and evaluation process of the ITT stage needs to be designed in consideration of the level information provided by the Developer and the duration of the ITT period. The level of uncertainty in the OFTO bid will increase with a reduced level of information provided by the Generator and duration of the ITT stage. Consequently, the treatment of bid uncertainties and contingencies needs to be considered with a manner which will maintain consumer value. The process also needs to be designed to achieve an appropriate balance between competition and certainty. Whilst the size of the overall opportunity is large enough to generate worldwide interest and ensure market appetite

	the balance of risk/certainty and reward needs to be sufficient to generate interest, in particular during the initial projects. The waste industry offers comparisons where detailed solutions are developed by four bidders which is reduce to two final bids. Overall returns are typically 12-15% nominal equity IRR with bid costs in the order of £5 to £10m
Question 23: What are your views on the proposals for involving generators in evaluation of bids? In particular, what key technical aspects of bids would be most important for generators to evaluate?	Given the reliance placed on the OFTO to deliver the transmission assets to programme, it is reasonable for the Generator to be able to provide an opinion on the OFTO bid. However, this can not to be the detriment to the market's opinion on the fairness and confidentiality of the process.
Question 24: What are your views on the proposals for involving NETSO in evaluation of bids? In particular, what key technical aspects of bids are most important for NETSO to evaluate?	NESTO will have a relationship with each of the OFTO in accordance with the System Operator – Transmission Owner Code. However, NETSO review should be limited to compliance of proposals with relevant industry codes and standards. If NETSO have specific concerns about other matters they should be able to raise these via Ofgem. Note NETSO may need to liaise with the relevant TO or DNO, in which case they too should be subject to the relevant confidentiality agreements etc (recognising that they may also be a prospective OFTO)
Question 25: Are there areas on which you think allowing variant bids under OFTO build would add value to the process and to consumers?	Any variants bids need to be consider in line with the limitations of the consented scheme. Variant bids, for example, offering different phasing arrangements, number and location of offshore platforms and its configuration, selection of technologies, the connection arrangement to shore etc., might provide more scope for innovation by the OFTOs. An OFTO might also offer an alternate cable route (for example more direct, if the OFTO had a solution to unexploded ordnance). In addition, the OFTO can take into account the supply chain constraints and formulate their variant bids suit the project delivery mechanism.
Question 26: What are your views on generators recovering efficiently incurred pre-construction costs at the point at which the transmission construction works are completed?	As noted previously, to ensure the tender specifications are developed to a level that allows the OFTO to offer a fixed price bid with minimal price risk and contingency (delivering value to the consumer) the Generator may be required to undertake a greater degree of design to their current approach. The ability of the Developer to recover pre-construction costs may support a decision to adopt the OFTO build option.
Question 27: Do you have any early views on the appropriateness of design incentives for transmission asset lifecycle design, eg transmission availability, quality of installation and transmission	Design to maximise transmission availability can be incentivized through the licence mechanism, whilst quality and minimization of losses can be incentivised through the tender specification. Incentivisation of the asset lifecycle design requires consideration of the treatment of residual value.

losses?	
Question 28: What are your views on whether the current approach to indexation, and in particular the proportion of the TRS subject to indexation, provides the best value to consumers? How might any alternative approaches be managed?	No comment.
Question 29: Do you agree that additional delivery incentives for OFTOs are not necessary?	We concur. Liquidated damage to a cap will be appropriate. It should also be noted that consideration needs to be given on the start of payment to the OFTO and in particular the co-ordination risks around commissioning. The OFTO needs to be protected against delay in wind farm build out and subsequent delay in performance testing of the OFTO assets with load.
Question 30: What are your views on what approach to decommissioning of assets would provide best ongoing value to consumers?	It is of our opinion that the key components of the transmission assets (including the transformers, switch gear, reactive compensation equipment and other ancillary equipment, the offshore platform and cable) will have an asset life beyond 20 years. Please refer to the response to question 13 of this chapter for possible options for treatment of residual life.
CHAPTER: Four	
Question 1: What are your views on whether there are benefits under Generator build to the generator undertaking the seabed survey against a comprehensive generic survey specification agreed by industry?	We concur, this will help minimize any delays due to insufficient survey information. It also does not makes sense for each bidder to undertake asurvey.
Question 2: Do you agree with the approach that Ofgem continues to run tender rounds for groups of projects, not necessarily limited to one per year, or would you recommend an alternative approach?	No comment
Question 3: Do you think there are further efficiencies we could make to the tender process and the transaction procedures for Generator build which would increase their efficiency and provide greater certainty to bidders and funders?	Ensure that information provided by Generator is appropriate and ensure that the process is aligned with commissioning and completion of construction so as to minimise the Preferred Bidder period. The process and the industry would benefit from standardization of information, processes and certification. Specific areas to focus include geophysical/geotechnical; surveys and investigations of the cable route, risk assessments and cable installation contracts. The greater the consistency, the higher the probability that the OFTO assets can be procured and

	financed without delaying the wind farm project delivery.
Question 4: Are there any changes to the information supplied in the data room which would improve the efficiency of the process for Generator build?	Construction contracts could be individually numbered (as per London Array) with specific folders for each contract containing the relevant design and technical information
Question 5: What are your views on the benefits of involving generators in evaluation of bids as outlined in this section?	No comment
Question 6: Do you have any suggestions on amendments which would improve the efficiency of the process for finalisation of transfer documentation and which would maximise value to consumers?	None further
Question 7: What do you consider might be the implications of a share sale approach as opposed to a transfer of assets as has been seen to date?	No comment
Question 8: Do you agree that the current split between costs priced into the TRS and those allowed as pass throughs provides best value for consumers?	Reburial and remedial of rock berms are significant opex items with a high degree of uncertainty. Consideration of these items as pass through costs is recommended?
Question 9: Are there any aspects of the current arrangements for transitional tender exercises or within the changes we have proposed above, including revenue term, bid requirements and risk profile, which may prevent access to certain sources of finance under Generator build?	Access to project finance markets will require the process to be designed to support projects with a risk profile commensurate to project finance with the required level of cost and revenue certainty. Key issues include; fixed price from suppliers, cable installation risk, weather risk. If too much risk is allocated to the OFTO finance is likely to be limited to balance sheet finance. The process needs to be designed to allow the EIB and GIB to enter in at the required stage. To support the late entries of these entries the process and risk profile needs to be consistent and standardized, with clarity on the level of commercial debt required to be provided by bidders. Consideration also needs to be given to the level of liquidity in the market and the capacity of the market to deal with multiple bidders. Standard terms (and possibly staple financing) could be considered to reduce this risk but allow quantitative assessment of bids.
Question 10: Do you have any comments on the issues associated with incorporating a refinancing gain share mechanism for Generator build and how such a mechanism could be structured?	No comment
CHAPTER: Five	
Question 1: Are you satisfied with the practical relevance of our	Yes

definition of the terms 'phase' and 'stage'?	
Question 2: What are your views on the measures we propose to determine whether a stage or phase within a site/zone qualifies for a single tender exercise?	No Comment
Question 3: What are your views on whether running a separate tender exercise for each phase within a site/zone would best meet the objectives of the enduring regulatory regime?	No Comment