

**REPORT TO OFGEM ON THE OFFSHORE TRANSMISSION
SECOND TRANSITION TENDER ROUND –
EX ANTE COST REVIEW OF WEST OF DUDDON SANDS WIND
FARM TRANSMISSION ASSETS**

30 July 2015

CONTENTS

1	Executive Summary	1
2	Introduction	7
3	History	9
4	The WoDS Wind Farm ex ante review	13

1 EXECUTIVE SUMMARY

- 1.1 The West of Duddon Sands (WoDS) Wind Farm (the Wind Farm) is located in the East Irish Sea approximately 14 km from Barrow-in-Furness, off the Cumbrian Coast in northwest England. The wind farm consists of 108 wind turbine generators with an installed capacity of 388.8MW (382MW at point of connection to Offshore Transmission Owner (OFTO)¹), connected to the offshore substation platform located within the boundaries of the WoDS Wind Farm. The WoDS transmission assets (the Transmission Assets), will connect to the 400/132kV National Grid substation at Heysham, Lancashire.
- 1.2 The Transmission Assets for the WoDS Wind Farm are currently owned equally by Scottish Power Renewables (UK) Ltd (Scottish Power) and DONG Energy Wind Power (UK) Ltd (DONG Energy) (collectively the Developers) through subsidiary companies as depicted at paragraph 3.3. The Developers have entered into a Joint Operation Agreement to establish an Unincorporated Joint Venture.
- 1.3 Grant Thornton UK LLP (Grant Thornton) have been instructed by Ofgem to review the ex ante cost assessments prepared by the Developers of the WoDS Wind Farm for the Transmission Assets.
- 1.4 The review has assessed the accuracy, completion and allocation of costs against a cost template prepared by the Developers of the Wind Farm Transmission Assets, based on supporting information and methodology provided by the Developers. Further detail on our work is set out below in section 4. The purpose of a review at this stage is to:
- determine if Developer cost estimates require updating for the next stages of the transfer process, the Invitation to Tender (ITT);
 - aid technical analysis by identifying areas where the cost information indicates that further technical review may be required to consider efficiency as part of determining the indicative value for the ITT stage of the process; and
 - assist determination of indicative value for the ITT by reviewing the accuracy, allocation and completeness of cost information.

¹ The difference between installed and connected capacity is attributed to array cable losses

- 1.5 The latest cost template submitted to Ofgem in December 2012 and based upon the estimated costs at 30 June 2012 assesses the capital costs of the WoDS Wind Farm Transmission Assets at £REDACTED and total costs at £REDACTED, as set out in the table below:

TABLE REDACTED

- 1.6 Our review and this report is based upon the cost template submitted to Ofgem in December 2012 and incorporates information and explanations provided regarding the costs in this version of the cost template, both during our site visit on 8 April 2013 and in correspondence with the Developers during April and May 2013.

SUMMARY OF FINDINGS

- 1.7 The Developers have provided us with supporting documentation and / or explanations for all items included within the cost template, which we have reviewed, except certain items where we consider we have insufficient information (detailed at paragraph 4.133 below). We have found that most major items of expenditure for Transmission Assets have been procured under contracts specific to the Transmission Assets and we have seen nothing in our initial review to suggest that the costs of this contract have not been appropriately allocated between the generation and transmission businesses, save for the inclusion of a 36kV switchgear within the offshore substation, which we have proposed should be removed from the cost template (see paragraph 4.47).
- 1.8 We have agreed a substantial proportion of costs of the transmission business to the major contracts entered into between the Developers and the subcontractors for the various packages, and other costs to contract options, variation orders or working schedules with underlying supporting documentation. However we would like to bring the following areas to the attention of Ofgem as detailed below, which we would recommend that Ofgem should discuss with the Developers in more detail.

A – Overhead allocation rates

- 1.9 As part of our review of the Developers cost assessment for the Transmission Assets, we are required to consider how the Developers have allocated those costs which are common to the Wind Farm as a whole and which cannot be directly allocated to either the Transmission or Generation Assets.
- 1.10 The Developers have four different rates to allocate project common costs to the Transmission Assets, with three of these rates being based upon Transmission Asset costs expressed as a percentage of total Transmission and Generation costs within each cost grouping.

- 1.11 We are satisfied that the allocation rates for resources, consultants and travel costs and insurance costs have been prepared on a reasonable basis. However we consider that the calculation of allocation rates for electrical resources may be overstated as follows:
- 1.11.1 The Developers calculated a separate allocation rate for the electrical resources costs which are heavily weighted towards the Transmission Assets (REDACTED%) due to the Transmission Assets requiring higher levels of directly attributable resources expenditure (notably engineering and support time spent on the cables and substations).
- 1.11.2 The cost driver for the electrical resources costs is also one of the cost drivers for the resources, consultants and travel costs. However the Developers have not sought to calculate separate allocation rates for other cost items within resources, consultants and travel costs which are more heavily weighted to the Generation Assets.
- 1.11.3 We therefore consider that the Developers should either calculate separate allocation rates for a number of different costs within the resources, consultants and travel expenditure or apply the same allocation rate to unallocated electrical resources costs as it has for other resources, consultants and travel costs. The Developers have agreed to do the latter.
- 1.11.4 At present, the cost template includes an amount of £REDACTED representing costs which have been allocated to the Transmission Assets at a rate of REDACTED%. If, as the Developers propose, these costs were to be allocated to the Transmission Assets at the same rate used for resources, consultancy and travel costs of REDACTED%, the electrical resources costs allocated to the Transmission Assets should be reduced to £REDACTED, a fall of £REDACTED.
- 1.11.5 However whilst we consider that the methodology for the allocation of overheads is not an unreasonable basis for allocation costs, the overhead allocation rate of REDACTED% is more than REDACTED percentage points higher than the range of allocation rates we have seen on other projects.

B – Contingencies

- 1.12 The cost template for the Transmission Assets includes a contingency provision amounting to £REDACTED (REDACTED% of pre contingency costs). In June 2012 the Developers conducted an assessment of the contingencies they considered were required for the Transmission Assets at that date and have provided us with a detailed breakdown of the anticipated contingent amounts.

- 1.13 As our cost assessment has been carried out a number of months after the contingency review was carried out, following our discussions the Developers agreed that contingent costs amounting to £REDACTED are no longer required as the contingent events for which the provision was considered necessary are not expected to arise. This is particularly evident in relation to the offshore substation installation as works for the platform are due to start shortly.
- 1.14 By the time of the ex post cost assessment, the value of contingencies are expected to fall close to zero, as at this stage all costs will be known.

C – Foreign exchange

- 1.15 The cost template includes costs of approximately £REDACTED which are payable in foreign currencies (either Euros or Danish Krone). The Developers have accounted for these costs within the cost template by applying a set exchange rate for transactions which arise in each calendar year (see also paragraphs 4.96 to 4.98).
- 1.16 In order to mitigate the risk of exchange rate variances, since construction started the Developers have entered into a number of forward exchange contracts in both Euros and Danish Krone, which we understand are due to mature in line with the payment profile for costs denominated in foreign currencies. However the rates of the forward contracts that the Developers have been able to achieve are more expensive in sterling terms than the rates used in the cost template.
- 1.17 As a result, the Developers have included a provision within the cost template for the additional costs that they expect to incur as a result of the exchange rate differences. This provision amounts to £REDACTED, which has been calculated at a rate of 4% of capital and transaction costs of the Transmission Assets.
- 1.18 Whilst in principle we do not take issue with the Developers calculating a provision for foreign exchange differences based upon a fixed percentage of costs, it is our view that such a provision within the cost template should be calculated by reference to those contracts/costs denominated in foreign currencies only, as opposed to capital and transaction costs of the Transmission Assets. There should also be a justification for the rate chosen that is capable of substantiation.
- 1.19 We therefore consider that the Developers should review the calculations made for foreign exchange hedging costs, ensuring that it includes only those costs denominated in foreign currencies and that the justification for the rate chosen is clear.

D – Areas requiring technical input

- 1.20 As part of our review we have identified items of expenditure which may benefit from a review by Ofgem's technical advisors in order to establish whether the costs have been efficiently incurred, as this is outside our area of expertise. Further detail of these areas is included from paragraph 4.135.

E – Estimated costs

- 1.21 The cost template prepared by the Developers details costs that have already been incurred and costs that will be incurred in the future during the development of the Transmission Assets. Therefore by its very nature the cost template contains many items which are estimates. The Developers state that these estimates have been determined by them based upon the experience from working on other wind farm projects.
- 1.22 Whilst we have been provided with documentation which we consider to be sufficient to support most items included within the cost template, there are three costs amounting to £REDACTED where we consider that the information provided by the Developers is currently insufficient to support the amounts stated, and we are therefore unable to state whether these costs have been calculated on a reasonable basis. Further details are provided at paragraphs 4.131 to 4.134.
- 1.23 We therefore recommend that Ofgem should consider whether it requires further supporting information from the Developers in respect of these costs.

CONCLUSION

- 1.24 As a result of our review we consider that the capital value of the Transmission Assets may require a reduction from £REDACTED to £REDACTED, a fall of £REDACTED (REDACTED % of capital costs of the Transmission Assets), as detailed in the table below:

TABLE REDACTED

- 1.25 On the basis of our initial review of the information and explanations received to date, save for the specific issues and adjustments detailed above, which we understand are the subject of discussions between the Developers and Ofgem, we have seen no information which suggests that the cost assessment for the WoDS Wind Farm Transmission Assets has not been prepared on a reasonable basis.

GRANT THORNTON UK LLP

Grant Thornton UK LLP

London

30 July 2015

2 INTRODUCTION

INSTRUCTIONS

- 2.1 Grant Thornton UK LLP have been instructed by Ofgem to prepare a report on our review of the cost information and cost templates of the WoDS Wind Farm Transmission Assets, prepared for Ofgem by the Developers of the Wind Farm.
- 2.2 The review is to understand whether the costs provided in the Developer's costs template can be matched to specific contracts or other supporting information and whether metrics exist for cost allocation between Transmission and Generation Assets and involved checks against contract schedules, values and other supporting information that indicates how costs have been derived. The review also involved a site visit to the Developer's premises in order to discuss the information provided together with the basis for the cost allocation metrics used.
- 2.3 The purpose of a review at this stage is to:
- determine if developer cost estimates require updating for the next stage of the transfer process, the Invitation to Tender (ITT);
 - aid technical identification by helping to identify areas where the cost information suggests that further technical review may be required to consider efficiency as part of determining the indicative value for the ITT stage of the process; and
 - assist determination of the indicative value for ITT by reviewing accuracy, allocation and completeness of cost information.
- 2.4 The high level review we have conducted (the ex ante cost review) is based upon the Developer's current estimates of the total costs to be incurred by the transmission business. Following construction of the Wind Farm, we expect to carry out a detailed forensic review of the actual expenditure incurred by the transmission business (the ex post cost review).
- 2.5 Grant Thornton's review of the ex ante cost information prepared by the Developers is limited to the scope as set out above and does not include detailed cost verification or any review of technical or legal issues.
- 2.6 If further information is produced and brought to our attention after we provide this report, we reserve the right to revise our opinions as appropriate.

- 2.7 This work does not constitute an audit performed in accordance with Auditing Standards, but follows instructions agreed upon with Ofgem, as detailed in the task order.
- 2.8 Except to the extent set out in this report, we have relied upon the documents and information provided to us as being accurate and genuine. To the extent that any statements we have relied upon are not established as accurate, it may be necessary to review our conclusions.
- 2.9 The report may contain minor rounding adjustments due to the use of computers for preparing certain calculations.

RESTRICTION ON CIRCULATION

- 2.10 Grant Thornton UK LLP does not accept or assume responsibility, duty of care, liability or other obligation to any third party other than Ofgem who as a result, either directly or indirectly of disclosure of the whole or any part of this report by Ofgem receives, reads or otherwise obtains access to this document. Any party relying on this report does so entirely at their own risk.
- 2.11 In the preparation of our report Grant Thornton UK LLP has been provided with material by Ofgem (and by third parties at Ofgem's request) relating to third parties. We have relied upon warranties and representations provided by Ofgem that (i) Ofgem is fully entitled to disclose such information to us for inclusion within our report, free of any third party rights or obligations and (ii) Ofgem will only permit circulation of this report in accordance with any rights to confidentiality on the part of any third party. Any objections to the inclusion of material should be addressed to Ofgem. Accordingly, Grant Thornton UK LLP acknowledges no duty or obligation whatsoever to any party in connection to the inclusion in the report of any material referring to any third party material or the accuracy of such material.

DISCLOSURES OF INTEREST

- 2.12 To the best of our knowledge, we have no connection with any of the parties or advisors involved in this case beyond normal commercial relationships in other areas of the firm which would not influence our report in any way.

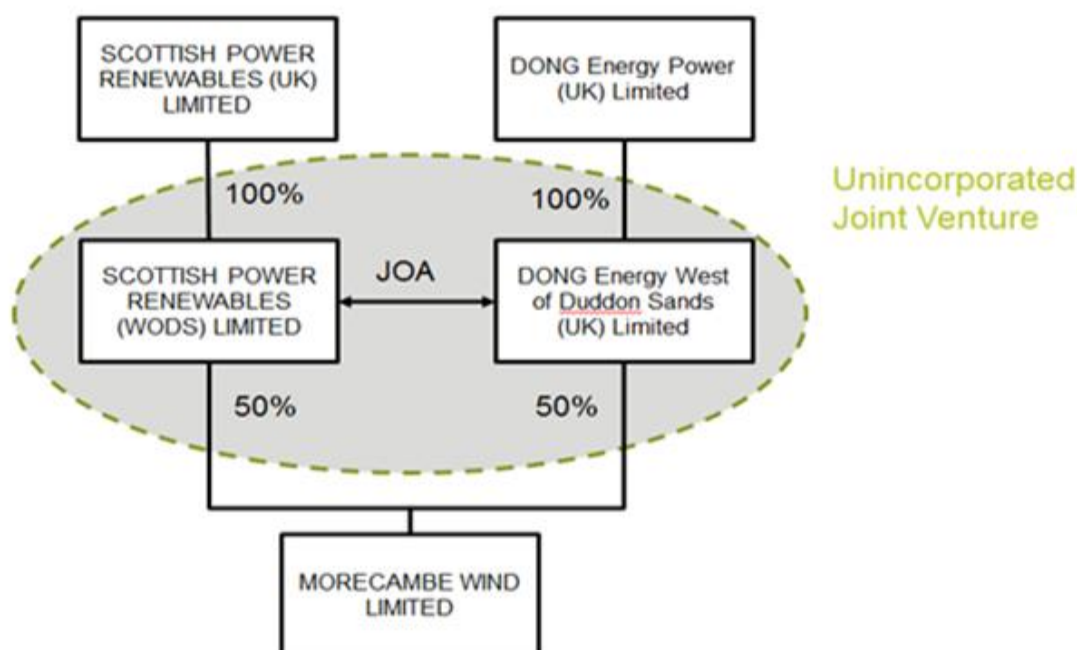
FORMS OF REPORT

- 2.13 This report may have been made available to recipients in electronic as well as hard copy format. Multiple copies and versions of this report may therefore exist in different media and in the case of any discrepancy the final signed electronic copy should be regarded as definitive.

3 HISTORY

INTRODUCTION

- 3.1 The WoDS Wind Farm is located in the East Irish Sea approximately 14 km from Barrow-in-Furness, off the Cumbrian Coast in northwest England. The wind farm consists of 108 wind turbine generators with an installed capacity of 388.8MW, connected to the offshore substation platform located within the boundaries of the WoDS Wind Farm. The WoDS Transmission Assets will connect to the National Grid substation at Heysham, Lancashire.
- 3.2 The onshore transmission licensee is National Grid Electrical Transmission PLC (NGET). The WoDS Transmission Assets are currently under construction and due to be fully operational by the end of 2014.
- 3.3 The current structure of the Wind Farm is set out below:



- 3.4 The Joint Operations Agreement (JOA) signed between Scottish Power Renewables (WODS) Limited and DONG Energy West of Duddon Sands (UK) Limited appoints DONG Wind (UK) Limited to undertake the operator role during the construction and the first five years of operations. Morecambe Wind Limited holds the consent and generation licence but assets are held by the Developers.

INFORMATION PROVIDED

3.5 Grant Thornton have relied upon the following information in reviewing the cost assessment for the Wind Farm:

- Preliminary Information Memorandum dated December 2012 and the Information Memorandum dated March 2013 prepared by RBC Capital Markets
- Information contained in the Ofgem developer data room for the WoDS Wind Farm Project
- Information and explanations provided to us by the Developers. This included a visit to the Developers on 8 April 2013 to discuss the Transmission Assets and subsequent telephone calls and email correspondence with the Developers.

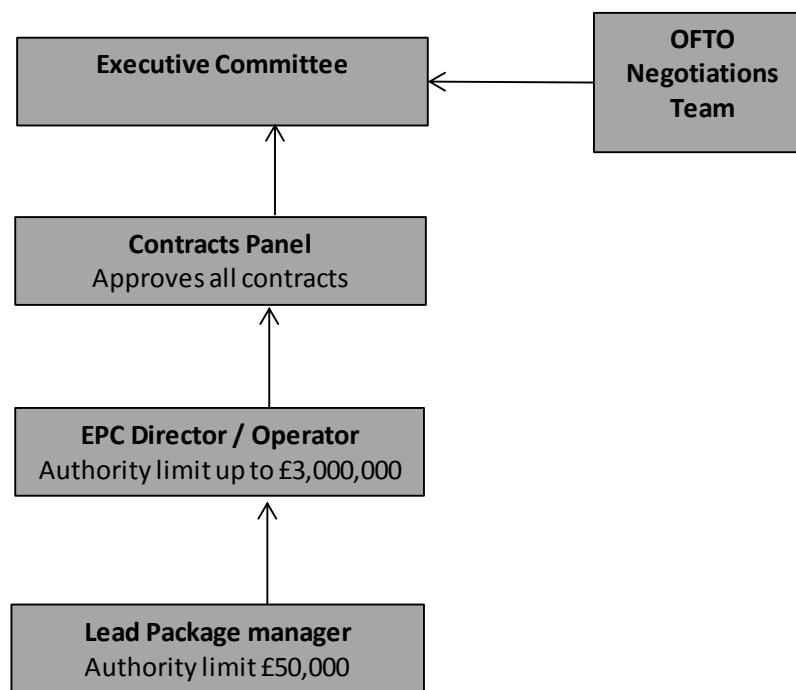
DEVELOPER'S COST ACCOUNTING METHODOLOGY

3.6 From our discussions with the Developers and our review of the cost information prepared by them in respect of the Transmission Assets, it is evident that there are systems in place eg competitive tendering, specific planning and budgeting tools, including building on experience obtained from similar projects, controls over variation orders and large expenditure items, which will help to ensure that the cost of the Wind Farm Transmission Assets represents value for money.

3.7 DONG Energy as the Operator of the WoDS Wind Farm provides the accounting team that supports the Wind Farm project, with expenditure forecasts provided to Scottish Power on a quarterly basis and management accounts provided on a monthly basis, alongside an analysis of expected payments for the forthcoming month. This analysis is circulated so that both parties can deposit funds into a designated bank account to facilitate expected payments during the month. DONG Energy use the SAP accounting system for the Wind Farm.

DECISION MAKING PROCESS

- 3.8 The key parties in the decision making process at WoDS are summarised in the diagram below².
The arrows show information flows:



- 3.9 The WoDS executive committee comprises two directors from each of DONG Energy and Scottish Power. The WoDS executive committee heads up the decision making process for the Wind Farm.
- 3.10 The contracts panel review all packages, including the generation assets. The Operator project team negotiate and appraise contracts. The Contracts Panel supervise all tender processes, approve tender long and short lists and preferred bidders and advise the executive committee that the JV procurement manual has been followed throughout the tender process before contract award. The Contracts Panel comprises representatives from both DONG Energy and Scottish Power.
- 3.11 The executive committee is advised by the OFTO negotiations team which is led by the Transaction Manager. The team includes members with commercial, legal and technical expertise. The negotiations team are responsible for preparing and negotiating the sale of the Transmission Assets.

² This is a simplified overview of the decision making structure only

Variations

- 3.12 When variations to contracts are required, negotiations are held between the Developers and the contractor until an agreement on the variation required and amount is agreed. At this point the variation order is prepared.
- 3.13 Where variation orders are under £REDACTED and within budget, it is signed by the contract lead engineer, the EPC director and the contractor.
- 3.14 Any variations over £REDACTED or outside of the budget have to be approved by the Contracts Panel, before being signed by the contract lead engineer, the EPC director and the contractor.

4 THE WODS WIND FARM EX ANTE REVIEW

OVERVIEW

- 4.1 The main purpose of the ex ante cost review of the Wind Farm's Transmission Asset is to determine whether the costs as set out in the Developers' cost template for the Transmission Asset are appropriately stated to use in Ofgem's cost assessment and whether costs not directly attributable to either the generation or transmission assets have been allocated between the two on a reasonable basis.
- 4.2 The starting point in our review of the cost information provided was the cost template submitted by the Developers into the data room in December 2012 based upon the Developers estimates of the costs at 30 June 2012 (the Initial Cost Template).
- 4.3 Our analysis has considered confirmation that costs incurred relate to contracts that are either for the Transmission Assets or are for the Wind Farm in a broader sense but have a reasonable basis for allocation between Transmission Assets and other elements of the Wind Farm. The basis of allocation is different in some cases depending upon what is considered the main driver behind the relevant cost (this is usually capital cost or the degree of time/activity required in relation to different components of the Wind Farm development). In each case where an allocation is involved we have considered if the proposed method and rate of allocation are appropriate for that particular cost. We have not at this stage sought to verify that any expenditure has actually been incurred by tracing to actual payments, as that will be done for selected contracts as part of the later forensic review.
- 4.4 The cost assessment for the Transmission Assets of the Wind Farm as per the Initial Cost Template at 30 June 2012 is summarised below:

TABLE REDACTED

- 4.5 A number of costs within the cost assessment are payable in foreign currencies. The calculation of foreign exchange rates is detailed from paragraph 4.96.

COMPETITIVE TENDERING

- 4.6 One of the main tools used by the Developers in achieving value for money is the use of a competitive tendering process for the selection of companies to construct the Wind Farm.

- 4.7 We understand that all contracts were put to tender, with the Developers inviting specialist companies in each area to tender for the work. The minimum number of tenders that ideally need to be received before a contract can be awarded is three, as set out in the WoDS Joint Operations Agreement tender process manual. However this requirement can be waived when the nature of the work means that satisfying this criteria would be impossible.
- 4.8 The final selection of bidder is based upon a combination of expertise, price and reputation following an assessment of the bids by the Developers'.
- 4.9 The contracts panel makes a recommendation of final bidder to the executive committee after conducting a tender appraisal. We understand that there is no standard assessment matrix for appraising tenders. Instead each contract is treated on a case by case basis, with the weighting that is given to certain criteria (for instance price) varying dependent on the package up for tender.
- 4.10 The Developers have confirmed that all major work has been awarded with underlying contracts signed with subcontractors. All contracts require the approval of both DONG Energy and Scottish Power. A project authority matrix is in place, with different authorisation limits in place dependent on whether the contract is for general works, site works or consultancy. General contracts and contracts concerning sites require authorisation when they exceed £REDACTED. The number of authorisations needed and the seniority of the authoriser increases as the size of the proposed contract increases. Consultancy contracts in excess of DKK REDACTED likewise require authorisations on an escalating scale.
- 4.11 As part of our review of the cost assessment for the Transmission Assets, we were provided with tender evaluation reports for the fabrication and installation of the offshore substation, and supply and installation of the submarine cable. In line with the Developers' processes, three tenders were received for all packages save for the offshore substation installation as only two parties were considered suitable bidders. One tender was withdrawn for the submarine cable installation due to a subcontractor going into administration.

Fabrication of offshore substation

- 4.12 For the fabrication of the offshore substation five tenders were received, of which REDACTED were shortlisted:
- REDACTED.

4.13 The tender evaluation documentation shows that the basis for recommendation was REDACTED.

4.14 A recommendation was made to award the work to REDACTED.

Installation of offshore substation

4.15 For the installation of the Offshore Substation REDACTED tenders were received from the REDACTED parties who were considered suitable:

- REDACTED.

4.16 The tender evaluation documentation shows that the basis for recommendation was REDACTED.

4.17 A recommendation was made to award the work to REDACTED.

Supply of submarine cable

4.18 For the supply of the export cable REDACTED tenders were received:

- REDACTED.

4.19 REDACTED.

4.20 The tender evaluation documentation shows that the basis for recommendation was REDACTED.

4.21 A recommendation was made to award the work to REDACTED.

Installation of submarine cable

4.22 For the installation of the export cable REDACTED tenders were originally received. REDACTED:

- REDACTED.

4.23 The tender evaluation documentation shows that the basis for recommendation was REDACTED.

4.24 A recommendation was made to award the work to REDACTED.

Related party transactions

4.25 The Developers have confirmed that there have been no related party transactions.

Boundaries used for purposes of cost allocation

4.26 The Preliminary Information Memorandum confirms the boundary points of the Transmission Assets are as follows:

- offshore – located at the 155/34kV transformer 34kV LV terminals
- onshore – located at the 400kV main and reserve busbar clamps contained within NGET's Heysham Substation.

The details that we have seen reflect costs between these two boundary points, save for the inclusion of the 36kV switchgear on the offshore substation (see paragraph 4.47), which we propose should be removed from the cost template.

COST ALLOCATION METHODOLOGY

4.27 All costs of the Wind Farm are posted to a Work Breakdown Structure (WBS) code in the accounting system. There are REDACTED WBS codes making up the costs of the Wind Farm. Costs have been grouped dependent on the cost activity that they relate to and whether they relate entirely to Transmission or Generation Assets, or to the Wind Farm as a whole. We have reviewed the grouping of costs and are satisfied that the groupings are consistent with the cost activities.

4.28 The table below summarises the various allocation categories used by the Developers:

TABLE REDACTED

4.28.1 The allocation rates for resources, consultancy and travel costs and electrical resources costs which cannot be directly attributed to either the Transmission or Generation Assets have been calculated as follows:

REDACTED

4.28.2 The allocation rate for the insurance costs has been calculated on the same basis, but using project capital expenditure rather than project management expenditure.

4.28.3 We understand that the SCADA allocation rate has been calculated based upon the Developer's experience on other projects, and that this allocation rate has been discussed with Ofgem, with approval to be sought.

4.29 In line with standard cost accounting principles that consider alternative bases of allocation dependent upon issues such as capital value or costs generated by a particular activity (activity based costing) amongst others, we consider that an allocation of common costs based upon the directly allocated costs of the Transmission Assets as a proportion of total directly allocated costs of the Wind Farm project is an appropriate allocation method.

4.30 We understand that the Developers will be updating allocation rates as the development of the Wind Farm progresses.

4.31 Our commentary on the calculation of allocation rates is set out in more detail from paragraph 4.107.

REVIEW OF CAPITAL COSTS

Project management and engineering hours

4.32 The Initial Cost Template includes provision for the costs of time spent by the Developers' internal staff in managing the project as a whole and in overseeing the construction of particular aspects of the Transmission Assets as follows:

TABLE REDACTED

- 4.33 Project management and engineering hours are charged at a rate of DKK REDACTED per hour, which is converted into Sterling in accordance with the foreign exchange policy detailed from paragraph 4.97. The Developers have provided us with a detailed breakdown of the number of hours that they consider will be spent by their staff on each of the areas above on a monthly basis. The hourly rate for staff has been calculated based upon REDACTED. The Developers have stated that the hourly rate for staff costs does not include any elements of profit. We have not had information to carry out any analysis of these rates.
- 4.34 Estimates of the time to be spent are prepared following consultation with package managers who are able to call on previous experience of working on similar projects. Further details of these costs are included within the relevant cost categories below.
- 4.35 We recommend that Ofgem's technical advisors should review the breakdowns provided of the number of hours by activity in order to assess whether the number of hours spent is efficient.

Project common costs

- 4.36 The project common costs included within the cost template are comprised as follows:

TABLE REDACTED

- 4.37 The project management and support hours represents the Developers' estimate of the costs of their own staff in managing the project as a whole during the construction of the Transmission Assets. The Developers have estimated that their staff will spend REDACTED hours in managing the project, and have provided us with a monthly breakdown of these hours across the different activity types.
- 4.38 For all other project common costs, we have been provided with schedules of cost items greater than £REDACTED and sought explanations/documentary evidence for high value items, and are satisfied that the costs are capable of substantiation.
- 4.39 Following our review, the Developers have confirmed that PR and communication costs of £REDACTED should be removed from the cost template.
- 4.40 The allocation of the project common costs to the Transmission Assets is considered further from paragraph 4.107.

Offshore substation

- 4.41 The offshore substation costs are comprised as follows:

TABLE REDACTED

Offshore substation and platform

- 4.42 The Developers have entered into a contract with Fabricom NV/SA and Iemants NV for the supply of the offshore substation platform for the amount of €REDACTED, which we have agreed to the underlying contract. These costs have been converted at a rate of REDACTED to £REDACTED. Expected options within the contract amount to €REDACTED, which we have agreed to a cost breakdown prepared by the Developers, and have been converted at a rate of REDACTED to £REDACTED.
- 4.43 The Developers have entered into a contract with Scaldis Salvage and Marine Contractors for the installation of the offshore substation platform for the amount of €REDACTED, which we have agreed to the underlying contract. However following a contract variation, which we have agreed to the variation order, the contract amount was reduced to €REDACTED. These costs have been converted at a rate of REDACTED to £REDACTED.
- 4.44 The cost template includes an amount of €REDACTED relating to an option for seabed testing by Fugro Seacore, which has been converted at a rate of REDACTED to £REDACTED. Fugro Seacore has invoiced £REDACTED for this testing, and no further work is expected. As such a reduction in the cost template for £REDACTED may be required.

Other costs

- 4.45 The Developers have entered into a contract with CG Power Systems for the supply and installation of two 240MVA 155/34kV transformers for the offshore substation for an amount of €REDACTED, which we have agreed to the underlying contract. These costs have been converted at a rate of REDACTED and recorded in sterling at £REDACTED. Agreed variations to this contract amount to €REDACTED (£REDACTED).
- 4.46 The Developers have entered into a contract with Alstom for the supply and installation of two 170kV switchgear in the offshore substation for the amount of €REDACTED, which we have agreed to the underlying contract. These costs have been converted at a rate of REDACTED to £REDACTED.

- 4.47 The Developers have entered into a contract with Schneider Electric Danmark for the supply of a 36kV switchgear for the amount of €REDACTED, which we have agreed to the underlying contract. One variation order has been agreed under this contract for €REDACTED, increasing the total amount payable to €REDACTED, although the cost template includes an amount of €REDACTED for this contractor. This has been converted at a rate of REDACTED to £REDACTED. We understand from our conversations with Ofgem that the 36kV switchgear forms part of the generation assets and that therefore these costs should be removed from the cost template.
- 4.48 The cost template includes an amount of €REDACTED, converted at a rate of REDACTED to £REDACTED in respect of equipment installation. The Developers have advised us that the cost has been based upon previous experience from other wind farm projects and have provided us with a copy of the fact book showing this amount. However we have been provided with no further information to substantiate this cost. We recommend that Ofgem discusses this cost item further with the Developer in order to obtain substantiation of these costs.
- 4.49 The cost template includes an amount of €REDACTED, converted at a rate of REDACTED to £REDACTED in respect of MV cables and termination costs. The Developers have advised us that these costs, together with a further €REDACTED of HV cables and termination costs included within the amounts under £REDACTED, should be removed from the cost template.

Engineering hours

- 4.50 The engineering hours cost of £REDACTED represents the Developers estimate of the costs that their own staff will spend in the construction of the offshore substation. The Developers have estimated that their staff will spend REDACTED hours on the construction of the offshore substation, and have provided us with a monthly breakdown of these hours.

Consultancy costs

- 4.51 The consultancy costs of £REDACTED represents the Developers estimate of the costs that they will pay to external consultants during the construction of the offshore substation. We have been provided with a breakdown of this amount, and sought further details of high value amounts.

4.51.1 We have been provided with a contract to support costs payable to ISC Consulting Engineers which are included in the cost template at an amount of £REDACTED. However the contract amount has now increased to £REDACTED which we have been told by the Developers is the result of additional works for the project, and therefore an increase in the cost template of £REDACTED is required.

4.51.2 Consultancy costs also include an amount of €REDACTED in relation to electrical conditioning costs. This has been converted at a rate of REDACTED to £REDACTED. The Developers have advised us that the cost has been based upon previous experience from other wind farm projects and is set at a rate of 8% of base budget and covers variations and additional minor supplies for the HV systems on the offshore platform. However we have been provided with no further information to substantiate this cost. We recommend that Ofgem discusses this cost item further with the Developer in order to obtain substantiation of these costs.

Submarine cable supply and installation

4.52 The submarine cable supply and installation costs are comprised as follows:

TABLE REDACTED

Submarine cable supply

4.53 The Developers have entered into a contract with NKT Cables for the supply of the submarine cables for the amount of €REDACTED, which we have agreed to the underlying contract. Adjustments to the contract have been made, such that the latest contract value amounts to €REDACTED, which we have agreed to a variation order. Of this contract amount, €REDACTED relates to agreed costs and €REDACTED relates to contract options.

4.54 Of the contract amount, €REDACTED relates to the submarine cable and €REDACTED relates to the land cable. This cost has been converted at a rate of REDACTED to £REDACTED.

4.55 Options and expected variations in relation to the NKT Cables contract amount to €REDACTED, which we have agreed to a detailed breakdown from the Developer. These costs have been converted at a rate of REDACTED to £REDACTED.

Submarine cable installation

- 4.56 The Developers have entered into a contract with Visser & Smit for the installation of the submarine cables for the amount of €REDACTED, which we have agreed to the underlying contract. These costs have been converted at a rate of REDACTED to £REDACTED.
- 4.57 The cost template includes an amount of €REDACTED, converted at a rate of REDACTED to £REDACTED in respect of the offshore installation of export cables. We are advised that this amount relates to the cost of rock dumping on the export cables. We comment upon these costs further at paragraph 4.60 below.
- 4.58 The cost template includes an amount of €REDACTED, converted at a rate of REDACTED to £REDACTED in respect of options for the cable burial. These options are all included within the VSMC contract.
- 4.58.1 REDACTED
- 4.59 The cost template includes an amount of €REDACTED, converted at a rate of REDACTED to £REDACTED in respect of the expected costs of the normal level of delays caused by bad weather. REDACTED.
- 4.60 The cost template includes an amount of €REDACTED, converted at a rate of REDACTED to £REDACTED in respect of the costs of rock dumping on the cables in order to protect them.
- 4.60.1 REDACTED.
- 4.61 The cost template includes an amount of €REDACTED, converted at a rate of REDACTED to £REDACTED in relation to the cost of fuel during the installation of the submarine cable. We were initially provided with a schedule for the cost of fuel amounting to US\$REDACTED. However we have since been provided with a revised schedule which estimates the cost of fuel and lubricants to be €REDACTED. As a result, we consider a reduction is required in the cost template to account for the expected cost of fuel for the installation of the export cable has fallen by €REDACTED.
- 4.62 The cost template includes an amount of €REDACTED, converted at a rate of REDACTED to £REDACTED in respect of the costs of landfall crossing. We have been provided with a variation order from Visser & Smit which covers €REDACTED of the costs REDACTED.
- 4.63 REDACTED

Engineering hours

4.64 The engineering hours cost of £REDACTED represents the Developers estimate of the costs that their own staff will spend in the supply and installation of the submarine cable. The Developers have estimated that their staff will spend REDACTED hours on the supply and installation of the submarine cable, and have provided us with a monthly breakdown of these hours.

Consultancy costs

4.65 The consultancy costs of £REDACTED represents the Developers' estimate of the costs that they will pay to external consultants during the supply and installation of the submarine cable, and we have been provided with a breakdown of this amount.

Land cable supply and installation

4.66 The submarine cable supply and installation costs are comprised as follows:

TABLE REDACTED

NKT contract

4.67 The cost of the land cable is included within the NKT Cables contract for the submarine cable, as detailed at paragraphs 4.53 and 4.54 above. The contract amount relating to land cables of €REDACTED plus contract options of €REDACTED have been converted at a rate of REDACTED to £REDACTED.

Engineering hours

4.68 The engineering hours cost of £REDACTED represents the Developers estimate of the costs that its own staff will spend in the supply and installation of the land cable. The Developers have estimated that its staff will spend REDACTED hours on the supply and installation of the land cable, and has provided us with a monthly breakdown of these hours.

Onshore substation

4.69 The onshore substation costs are comprised as follows:

TABLE REDACTED

Onshore civil works

4.70 The Developers have entered into a contract with Onshore Substation Contractor for onshore substation civil works for £REDACTED, which we have agreed to the underlying contract.

4.71 The cost template also includes the following amounts attributable to works by Onshore Substation Contractor:

4.71.1 REDACTED.

4.72 The Developers have included an amount of £REDACTED in the cost template which is described as "conditioning costs". The Developers have confirmed that this amount needs to be removed from the cost template.

4.73 The Developers entered into a contract with IKM Consulting for the supervision of the onshore site works on contaminated land. The cost of the original contract and subsequent variation is £REDACTED, which we have agreed to the variation order.

4.74 The Developers have included an unidentified item within onshore civil works costs of £REDACTED. We have not seen information to substantiate this cost, but understand that Ofgem has done so and is satisfied that the cost should be included in the cost template.

Reactive equipment

4.75 The Developers have entered into a contract with Siemens Transmission and Distribution Limited for SVCs and associated 13.9kV reactors within the onshore substation for the amount of £REDACTED, which we have agreed to the underlying contract. Contract variations amount to £REDACTED which we have agreed to the underlying variation orders.

4.76 The Developers have entered into a contract with SMIT Transformers and Reactors for the supply and installation of two 400/155kV transformers and two 170kV reactors within the onshore substation for the amount of €REDACTED, which we have agreed to the underlying contract.

4.77 The transformers have been included within onshore substation costs whilst the reactors have been included within reactive substation costs.

4.78 The cost of the transformers within the contract, including installation, amount to €REDACTED, although a further variation order for €REDACTED within this contract was agreed. These costs have been converted at a rate of REDACTED to £REDACTED.

Alstom contracts

4.79 The Developers have entered into two contracts with Alstom for the supply and installation of a 170kV GIS switchgear and harmonic filters within the onshore substation. These contracts amount to €REDACTED (converted at a rate of REDACTED to £REDACTED) and £REDACTED respectively, which we have agreed to the underlying contracts.

Engineering hours

4.80 The engineering hours cost of £REDACTED represents the Developers estimate of the costs that their own staff will spend in the construction of the onshore substation. The Developers have estimated that their staff will spend REDACTED hours on the construction of the offshore substation, and have provided us with a monthly breakdown of these hours.

Consultancy costs

4.81 The consultancy costs of £REDACTED represents the Developers estimate of the costs that they will pay to external consultants during the construction of the onshore substation. We have been provided with a breakdown of this amount, and sought information to support costs payable to REDACTED. Whilst we have not seen information to substantiate these cost, we understand that Ofgem has done so and are satisfied that the costs should be included in the cost template.

Reactive substation

4.82 Reactive substation costs are comprised as follows:

TABLE REDACTED

4.83 Included within the Smit Transformers and Reactors contract (see paragraph 4.76 above) is an amount of €REDACTED which relates to the cost of two reactors. These costs have been converted at a rate of REDACTED to £REDACTED.

Connection costs

4.84 Connection costs are comprised as follows:

TABLE REDACTED

NGET contract

4.85 The Developers have entered into a contract with National Grid Electricity Transmission plc for the supply and installation of two 400kV GIS feeder bays for the amount of £REDACTED, which we have agreed to the underlying contract.

- 4.86 However, only £REDACTED of this amount has been included in the cost template, with amounts already invoiced excluded from the cost template. These costs were excluded by the Developers because they relate to the period prior to the Final Investment Decision (FID) which was agreed in June 2011, and the Developers were unclear whether such costs could be included within the cost template. These costs have been agreed to screenshots from SAP.
- 4.87 The amount included within the cost template for these costs represents the contract value of £REDACTED, less the costs incurred pre FID of £REDACTED, together with a variation order and possible options totalling £REDACTED.
- 4.88 The Developers have asked Ofgem to include £REDACTED of the pre FID costs in relation to the NGET contract to the cost assessment, and we understand that Ofgem has agreed to the inclusion of these costs.

Grid connection studies

- 4.89 The cost template includes an amount of £REDACTED in relation to the cost of grid connection studies. The Developers have estimated these costs based upon past experience on similar projects, and have provided us with a list of 11 studies that will be required.

Contingencies

- 4.90 Each cost category within the cost template, except for reactive substation and connection costs, includes a contingency provision as follows:

TABLE REDACTED

- 4.91 The Developers have conducted a detailed exercise in order to calculate the contingency provision, with particular reliance placed upon the input of package managers who have made estimations based upon their previous experience on other offshore wind farm projects.
- 4.92 We have discussed the contingency schedule prepared by the Developers, and sought explanations for all large amounts included within the provision.
- 4.93 Given the amount of time that has elapsed between the date that contingencies were calculated in June 2012 and the time of our review, we asked the Developers to obtain an updated position of some of the larger items, particularly in relation to the offshore substation development and commodities prices for the offshore substation and submarine cable. As a result, the Developers now consider that reductions are required in relation to offshore substation of £REDACTED and submarine cables of £REDACTED, a total reduction of £REDACTED.

- 4.94 By the time of the ex post cost assessment, the value of contingencies is expected to fall close to zero, as at this stage all costs will be known.

INTEREST DURING CONSTRUCTION

- 4.95 The cost assessment includes the Developers nominal pre tax interest charge of 10.8% to November 2011 and 8.5% thereafter until October 2013, after which the project is expected to be generating power and thus beyond this time the Developers will cease to earn interest. The Developers interest costs for the Wind Farm total £REDACTED.

FOREIGN EXCHANGE

Accounting for foreign exchange in the Initial Cost Template

- 4.96 During the development of the Transmission Assets, costs of around £REDACTED will be payable in foreign currencies, either Euros or Danish Krone. Furthermore as DONG Energy is based in Denmark, a number of project management costs are also likely to be paid in Danish Krone. These costs are summarised in the following table:

TABLE REDACTED

- 4.97 In order to account for costs in foreign currencies in the cost template, at FID the Developers applied a set rate for each year of construction as follows:

TABLE REDACTED

- 4.98 The Developers have applied the exchange rates above to costs denominated in foreign currency based upon the payment profile of the contract. For example, a contract for €1,000,000 of which €700,000 is payable in 2012 and €300,000 is payable in 2013 would have an effective exchange rate of REDACTED, based upon €700,000 at REDACTED and £300,000 at REDACTED.

Mitigation of foreign exchange risk

- 4.99 Since 2011, both the Danish Krone and the Euro exchange rates have fluctuated and as such the exchange rates used by the Developers in the cost template are different to the rates that have been paid. In order to mitigate the impact of exchange rate fluctuations, at FID the Developers entered into a number of forward exchange contracts for Danish Krone and Euros.
- 4.100 We have been provided with a copy of all forward exchange contracts entered into by the Developers for contracts in Euros and in Danish Krone, as set out in the table below.

TABLE REDACTED

Calculation of hedging provision

- 4.101 Due to the exchange rates obtained under forward contracts being different to those rates included within the cost template, the Developers have included an amount within the cost template referred to as hedging costs of £REDACTED.
- 4.102 The Developers have decided that due to the complexity of splitting the hedging contracts into Transmission and non Transmission contracts, they have assumed that the impact of these exchange rate difference is REDACTED% of capital expenditure and Transmission Asset related costs, and have calculated this amount as follows:

TABLE REDACTED

- 4.103 In light of the difference between the exchange rates used by the Developers in preparing the cost template and the rates that the Developers have obtained on forward exchange contracts, we consider that it is appropriate for the Developers to include a provision in the cost template for the additional costs that it will incur.
- 4.104 Whilst in principle we do not take issue with the Developers calculating a provision for foreign exchange differences based upon a fixed percentage of costs, it is our view that such a provision within the cost template should be calculated by reference to those contracts/costs denominated in foreign currencies only, as opposed to all Transmission Asset costs.
- 4.105 We consider that the proposed rate of REDACTED% within the hedging provision calculation may not be unreasonable given the difference between actual exchange rates obtained on the forward exchange contracts we are aware of and the rates used in the cost template, which results in a difference in costs of REDACTED% but the actual basis for the rate chosen should be clear.
- 4.106 We therefore consider that the Developers should review the calculations it has made for foreign exchange hedging costs, ensuring that it includes only those costs denominated in foreign currencies and clarify the basis for any provision adopted.

COST ALLOCATION CALCULATIONS

- 4.107 As described from paragraph 4.27, the Developers have used four rates for the allocation of costs which cannot be directly attributed to either the Transmission or Generation Assets as follows:

TABLE REDACTED

- 4.108 We have reviewed the calculations of the rates for resources, consultancy and travel costs, electrical resources costs and insurance costs. Whilst we consider that the rates for resources, consultancy and travel costs and insurance costs have been calculated in accordance with the Developers stated methodology, we consider that a separate overhead rate for electrical resources costs may be inappropriate.
- 4.109 The cost categories which form the calculation of the allocation rate for electrical resources expenditure have already been included within the calculation of the allocation rate for resources, consultancy and travel expenditure. This is because the driver for electrical resources costs, being engineering and support time on cabling and substations, is one of the cost drivers for the resources, consultancy and travel expenditure.
- 4.110 Electrical resources costs are more heavily weighted towards the Transmission Assets because much of the cabling and substation work on the Wind Farm relates to the Transmission Assets. However whilst other cost drivers of the resources, consultants and travel expenditure may be more heavily weighted to the Generation Assets, the Developers have not sought to calculate separate allocation rates for these items.
- 4.111 We therefore consider that either i) the Developers calculate separate allocation rates for a number of different costs within the resources, consultants and travel expenditure; or ii) the Developers should apply the same allocation rate to unallocated electrical resources expenditure as it has for other resources, consultants and travel costs. The Developers have decided to proceed with the second option.
- 4.112 At present, the cost template includes an amount of £REDACTED representing costs which have been allocated to the Transmission Assets at a rate of REDACTED%. If these costs were to be allocated to the Transmission Assets at the same rate used for resources, consultancy and travel costs of REDACTED%, the electrical resources costs allocated to the Transmission Assets should be reduced to £REDACTED, a fall of £REDACTED.
- 4.113 The allocation rate for SCADA equipment has been based upon previous experience and as such we are unable to comment if this is appropriate. We therefore recommend that Ofgem should consult with its technical advisors in regard to this item.

APPLICATION OF OVERRIDING GLOBAL DISCOUNTS

4.114 The Developers have confirmed that no global discounts have been obtained in the course of the project.

TAXATION STATUS

4.115 The Developers have confirmed that the transmission business will be transferred as a going concern with the benefit of tax reliefs, and have confirmed that capital allowances on the Transmission Assets will not be claimed during the construction phase.

ISSUES ARISING

4.116 We summarise the main issues arising from our review below, which we recommend that Ofgem discusses with the Developers:

Overhead allocation rate

4.117 As detailed at paragraphs 4.107 to 4.113 above, we consider that the overhead allocation rate for a number of project common costs has been overstated.

4.118 The Developers have four different rates to allocate project common costs to the Transmission Assets, with three of these rates being based upon direct Transmission Asset costs within each cost grouping as a percentage of total direct Transmission and Generation costs within each cost grouping.

4.119 Whilst we have no concerns regarding the allocation rate for insurance costs and resources, consultants and travel costs, we consider that the calculation of allocation rates for electrical resources may be overstated.

4.120 The cost drivers for resources, consultants and travel costs include engineering and support time on cabling and substations, and the Developers have calculated a separate allocation rate for electrical resources based upon this cost driver, which is heavily weighted towards the Transmission Assets (REDACTED%) due to high levels of directly attributable costs relating to the Transmission Assets.

4.121 However the Developers have not sought to calculate separate allocation rates for other costs within resources, consultants and travel costs which are more heavily weighted to the Generation Assets.

- 4.122 We therefore consider that either the Developers calculate separate allocation rates for a number of different costs within the resources, consultants and travel expenditure or apply the same allocation rate to unallocated electrical resources expenditure as it has for other resources, consultants and travel costs.
- 4.123 The Developers have agreed that they will proceed with the latter option, and based upon this revised rate, we consider that the level of electrical resources costs allocated to the Transmission Assets should fall from £REDACTED to £REDACTED.

Contingencies

- 4.124 The cost template for the Transmission Assets includes contingencies amounting to £REDACTED (REDACTED% of pre contingency costs). In June 2012 the Developers conducted an assessment of the contingencies it considered was required for the Transmission Assets at that date and have provided us with a detailed breakdown of the anticipated contingent amounts.
- 4.125 As our cost assessment has been carried out a number of months after the contingency review was carried out, five contingencies amounting to £REDACTED are no longer required as the contingent events for which the provision was considered necessary are not expected to arise. This is particularly evident in relation to the offshore substation as works for the platform are due to start. The Developers have acknowledged that these items should therefore be removed from the cost template.

Foreign exchange

- 4.126 As detailed at paragraphs 4.96 to 4.106 above, the Developers have accounted for contracts denominated in foreign currency within the cost template by applying a set exchange rate for transactions occurring during each year of construction.
- 4.127 In order to mitigate the risk of exchange rate variances, the Developers have entered into a number of forward exchange contracts. However the rates of the forward exchange rate contracts are difference to the rates used within the cost template. In order to account for these differences, the Developers have included a "hedging" provision within the cost template to account for the difference in rates.
- 4.128 Whilst in principle we do not take issue with the Developers calculating a provision for foreign exchange differences based upon a fixed percentage of costs, it is our view that such a provision within the cost template should be calculated by reference to those contracts/costs denominated in foreign currencies only, as opposed to all Transmission Asset costs.

- 4.129 In principle, we do not take issue with the methodology used by the Developers for the calculation of a provision for exchange rate differences within the cost template. However we consider that such calculation should be referenced to those costs denominated in foreign currencies only.
- 4.130 We therefore consider that the Developers should review the calculations made for foreign exchange hedging costs, ensuring that it includes only those costs denominated in foreign currencies and that the basis for calculation is clear on a basis that can be substantiated.

Estimated costs

- 4.131 Due to the nature of the ex ante review, many of the costs included within the cost template are based upon estimates by the Developers, based upon the experience from working on other wind farm projects.
- 4.132 As part of our review, we have asked for and the Developers have provided us with more detailed information to support the estimates that have been made, such as copies of contracts or schedules of calculations.
- 4.133 However based upon the information seen to date by the Developers, we consider that the level of detail provided for the following costs, amounting to £REDACTED, is insufficient for us to determine if the costs are appropriately stated:
- 4.133.1 offshore substation equipment installation costs of £REDACTED (see paragraph 4.48)
 - 4.133.2 offshore substation electrical conditioning costs of £REDACTED (see paragraph 4.51.2)
 - 4.133.3 costs of rock dumping for the burial of the export cables of £REDACTED (see paragraph **Error! Reference source not found.**).
- 4.134 We recommend that Ofgem discusses these cost estimates further with the Developers.

Areas requiring technical input

- 4.135 As detailed at paragraphs 4.32 to 4.35 above, the cost template for the Transmission Assets includes £REDACTED relating to the Developers internal staff costs spent in managing the project and in the construction of the Transmission Assets.

- 4.136 The Developers have provided us with detailed schedules which show the monthly number of hours spent by activity during the construction period. However we do not have technical expertise to enable us to establish whether the time spent by the Developer's own staff is reasonable.
- 4.137 On this basis, we recommend that Ofgem should instruct its technical advisors to review these schedules in order to determine whether these costs are being efficiently incurred.
- 4.138 As stated at paragraph 4.113, the allocation rate for SCADA equipment of REDACTED % has been based upon the Developer's prior experience on similar projects. We recommend that Ofgem should instruct its technical advisors to consider whether this allocation rate is consistent with other offshore wind farms.

IMPACT OF COST ASSESSMENT REVIEW

- 4.139 Following the ex ante review of the cost information provided, we consider that the capital value of Transmission Assets as per the cost template may require a reduction from £REDACTED to £REDACTED, a fall of £REDACTED (REDACTED % of capital costs of the Transmission Assets). The Developers have already confirmed to us that that costs of £REDACTED should be removed from the cost template, and based upon our procedures we consider that further adjustments with a net reduction in costs of £REDACTED should be considered, as set out in the table below:

TABLE REDACTED

- 4.140 We recommend that Ofgem discusses these adjustments with the Developers. Further changes may be appropriate depending upon the outcome of several of the points above.



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