Ex-Ante Cost Review of Race Bank Offshore Wind Farm Transmission Assets

Report of Grant Thornton UK LLP

dated 23 April 2018

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APPENDICES

1 EXECUTIVE SUMMARY

1.1 This report relates to the Race Bank Offshore Wind Farm (ROW01/ the Wind Farm) which is owned[1] by DONG Energy A/S (DONG Energy) (50% shareholder) and Macquarie Corporate Holdings Pty Limited (25% shareholder) and Macquarie European Investment Fund 5 RB Holding (25% shareholder)[2] (collectively the Developers). The Wind Farm is owned through the subsidiary Race Bank Wind Farm Limited and its development is being managed by DONG Energy.

1.2 Our review is based upon the Developers' cost template submitted to Ofgem dated 17 March 2017 and incorporates information and explanations provided regarding the costs in this version of the cost template, both in our site visits and in correspondence with the Developer, up to 26 January 2018.

1.3 The Wind Farm is situated 27km north of Blakeney Point off the coast of Norfolk, and 28km east of Chapel St. Leonards off the Lincolnshire coast in the North Sea, and will be located partially within UK territorial waters. It is expected to consist of 91 6.3MW Wind Turbine Generators (WTGs) with a Transmission Entry Capacity (TEC) of 565MW[3], which will be connected to two Offshore Substations (OSS) located within the boundaries of the ROW01 Offshore Wind Farm.

1.4 The Transmission Assets are under construction at present, with the expectation of being fully operational and commissioned by the end of Q3 2017. The OSS and all other main elements are installed and first power was achieved in May 2017.

1.5 Grant Thornton UK LLP (Grant Thornton) has been instructed by The Office of Gas and Electricity Markets (Ofgem) to review the ex-ante cost assessments prepared by the Developers for the Transmission Assets of the Wind Farm (Ex-Ante Review).

[1] Ownership as at the date of the cost assessment template (March 2017) used in our review

[2] In December 2016, DONG Energy divested 50% of the shareholding to the Macquarie Group. This joint venture added another UK stakeholder to share the risks and decision-making authority in the construction phase

[3] The difference between installed (573.3MW) and connected capacity (565MW) is attributed to WTG transformer and array cable losses

1.6 The Ex-Ante Review has considered the accuracy, completeness and allocation of costs against the cost template prepared by the Developers for the Wind Farm Transmission Assets, based on supporting information and methodology provided by the Developers. Further detail on our work is set out in Sections 4 to 13 of this report. The purpose of a review at this stage is to:

1.6.1 determine if a developer cost estimate requires updating for the next stage of the transfer process, Enhanced Pre-Qualification (EPQ) and Invitation to Tender (ITT);

1.6.2 aid technical evaluation 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 Transfer Value (ITV) for the ITT stage of the process; and

1.6.3 assist determination of the ITV for ITT by reviewing accuracy, allocation and completeness of cost information.

1.7 The Developers' estimate of the cost of the Wind Farm Transmission Assets, included in the cost assessment template dated 17 March 2017[4] (the CAT) amounts to £535.1 million. This represents a £4.7 million increase on the initial cost assessment by the Developers at 30 June 2016 as set out in version 1 of the cost template that projected the original cost to be £530.4 million. The CAT presents the Developers' estimated costs of the Transmission Assets as follows:

Transmission Assets cost summary

	CAT Reference	Ref	Direct costs £	Contingency £	Total costs £	%
Project common costs	CR8	6.1	[redacted]	[redacted]	[redacted]	[redacted]
Offshore substation	CR2	7.1	[redacted]	[redacted]	[redacted]	[redacted]
Submarine cable supply and installation	CR3	8.1	[redacted]	[redacted]	[redacted]	[redacted]
Land cable supply and installation	CR4	9.1	[redacted]	[redacted]	[redacted]	[redacted]
Onshore substation connection	CR5	10.1	[redacted]	[redacted]	[redacted]	[redacted]
Reactive substation	CR6	11.1	[redacted]	[redacted]	[redacted]	[redacted]
Connection costs	CR7	12.1	[redacted]	[redacted]	[redacted]	[redacted]
Other costs	CR9	13.1	[redacted]	[redacted]	[redacted]	[redacted]
Total capital costs			[redacted]	[redacted]	[redacted]	[redacted]
Interest during construction (IDC)			45,004,415	-	45,004,415	8.4%
			[redacted]	[redacted]	**535,068,861**	**100.0%**

[4] Version 3

SUMMARY OF FINDINGS

1.8 The Developers have provided us with supporting documentation and/or explanations for the majority of items[5] included within the cost template. Our review found that all major items of capital expenditure for Transmission Assets have either been procured under contracts specific to the transmission business, or have been procured under contracts specific to the Wind Farm as a whole and have been allocated between the Transmission and Generation Assets using a mix of allocation methodologies that will be considered further in this report.

1.9 As part of our line-by-line review of the CAT, we have agreed the costs of the transmission business above £100,000 to supporting documentation. This included confirming costs in the CAT to contracts between the Developers and the subcontractors, contract variation orders and to working schedules prepared by the Developers that set out how estimated costs within the CAT have been calculated. This also included gaining an understanding from the Developers about the determination of costs in the CAT, such as the approach to procurement of main items of expenditure, the allocation of shared costs between the transmission and generation businesses and the treatment of costs incurred in foreign currencies.

1.10 In most cases, we were able to confirm that the costs included in the CAT were appropriately stated. However, we identified that some costs were incorrectly stated in the CAT, and as such, we propose adjustments for these costs at paragraph 1.41 below.

1.11 Furthermore, there were some costs where we were unable to gain sufficient comfort of their treatment in the CAT, and where this is the case, we recommend that Ofgem should discuss these areas with the Developers. These are set out below:

Allocation rates

1.12 The CAT included a number of costs common to the Wind Farm as a whole. Where costs are not directly attributable to either the transmission or generation businesses (shared costs), the Developers have allocated costs to the Transmission Assets based upon a variety of methods as follows:

1.12.1 Direct allocation. Costs are allocated to the Transmission Assets based upon the items contract values/cost incurred on a line-by-line basis where specifically identifiable as Transmission Assets expenditure;

[5] Being individual costs with a value in the CAT of more than £100,000

1.12.2 Geographical area. For costs related to environmental and geo survey work where there are clear geographical links to the costs incurred. Three allocation rates have been calculated dependent upon the area where work has taken place; i) the offshore transmission owner (OFTO) offshore area of 100%; ii) the offshore area relating to Generation Assets of 0%; and iii) the shared offshore area of 78.26%;

1.12.3 Transmission Assets cost percentage of total capital expenditure (CAPEX). This rate is similar to allocation rates used in previous projects where the cost of directly attributable Transmission Assets capital expenditure is taken as a percentage of total directly attributable Wind Farm capital expenditure including resource and travel costs, where the rate derived is [redacted]%. This rate is then applied to non-specific CAPEX where the other allocation methods are not considered appropriate;

1.12.4 Shared resource and travel costs. For the resource and travel costs that are shared between transmission and generation (eg programme management), an allocation has been determined on a package-by-package basis. These rates are largely based upon hours spent or contract values, but in a small number of cases based upon Package Manager assessments;

1.12.5 Transmission Assets cost percentage of total Development expenditure (DEVEX). For the Centrica acquisition costs (described in further detail at paragraph 1.31 below), the Developers made the decision to allocate costs based on the proportion of DEVEX attributable to the Transmission and Generation assets, from the time of acquisition to Final Investment Decision (FID). This results in a high OFTO allocation rate (compared to historic CAPEX based methodologies) of [redacted]%.

1.13 We consider that some of the allocation methodologies used by the Developers appear reasonable in isolation and in line with cost allocation methodologies that we have seen elsewhere. However, some allocation methodologies appear overly complicated, for example, the allocation of costs within some cost categories use a mixture of rates.

1.14 The table below summarises the allocated costs included within the CAT, and the effective allocation rate[6] for such costs:

Allocated costs

	Ref	Total £	Allocation £	Effective rate %
Common costs	6.1	[redacted]	[redacted]	[redacted]
Shared resources	5.3	[redacted]	[redacted]	
DEVEX	6.46	[redacted]	[redacted]	
Centrica acquisition costs	6.54	[redacted]	[redacted]	
		[redacted]	[redacted]	35.4%

1.15 This table shows that the change in allocation methodologies used by the Developers has resulted in cost allocations to the Transmission Assets at an average rate of 35.4%, which is higher than rates we have seen on previous projects of around 25%. This is primarily due to the high effective rate of [redacted]% and [redacted]% in relation to the Centrica acquisition costs and DEVEX respectively.

1.16 The Developers consider that it is appropriate to allocate the Centrica acquisition costs based on the proportion of DEVEX costs as it is project specific, based on costs incurred and associated with related or similar activities. Further, as set out at paragraph 5.36, they have provided six specific reasons as to why the high OFTO allocation rate of [redacted]% is realistic including the complexity and extensiveness of the work associated with the Transmission Assets.

1.17 Of the [redacted] of DEVEX costs allocated to the Transmission Assets, [redacted] relates to time costs which have higher allocation rates as explained above. The average allocation rate for these time costs is [redacted]%, which remains higher than the CAPEX rate used by the Developers.

1.18 In light of the high effective allocation rates for shared costs to the Transmission Assets, particularly in relation to DEVEX and Centrica acquisition costs, we recommend that Ofgem should discuss cost allocation further with the Developers.

Resources costs - calculation of hourly rates

1.19 The CAT includes approximately [redacted] relating to the time costs of DONG Energy employees spent on the Transmission Assets.

1.20 Whilst we have been provided with details of the hours spent by the employees on the Transmission Assets, we have not reviewed how the hourly rates for each employee/group of employee have been calculated, or of the constituent parts of those hourly rates.

[6] Ie excluding costs with an 'allocation rate' of 100%

1.21 Based upon our experience from other projects managed by DONG Energy, the hourly rates have previously included a profit element, which had been included in all cross entity activities to ensure compliance with transfer pricing requirements.

1.22 We understand that the Developers are required to sell the Transmission Assets to the OFTO at cost. As such, if the hourly rates calculated by the Developers do include any profit element, then this would be inconsistent with this requirement, and in these circumstances, consider that the hourly rates included in the CAT should be reduced to remove such profit element.

Contingencies

1.23 The CAT for the Transmission Assets includes a contingency provision amounting to [redacted] of pre contingency capital costs excluding IDC). The Developers have calculated the contingency provision based upon their assessment of risks in relation to the Transmission Assets (and a share of common costs where appropriate), the likelihood of such risks being realised and an estimate of the costs involved in these circumstances. Based upon our experience of similar projects, this appears to be a sensible approach, and the amount of contingencies as a percentage of total costs is not out of line with what we have seen on other projects.

1.24 However, our verification of the contingency provision has been limited in two respects:

1.24.1 Whilst the Developers have provided a schedule with descriptions of the top 10 individual risks and confirmed that these were all items within the contingency provision attributable to the Transmission Assets exceeding £250,000, we do not know the collective value of these contingencies, as the Developers have not provided their monetary values. Furthermore, we have been unable to verify any contingencies that are not included in the top 10 risks and as such, we are unable to comment on the proportion of the total contingency provision that we have not verified. We have asked the Developers to provide additional information to substantiate the contingency provision, but their policy is not to share their risk registers in full. As such, without further information, we are unable to conclude upon whether the level of these contingency items is appropriate.

1.24.2 We have reviewed the top 10 risks, for which the associated contingency assessment exceeds £250,000, which, based upon what we have seen on similar projects, appear reasonable in relation to the Transmission Assets at the time of the CAT submission. However, we consider that the assessment of the expected value of risks and of the likelihood of each event occurring (which we have not been provided with) fall within the scope of a technical assessment, rather than the Ex-Ante Review. On that basis, we cannot say whether these amounts, which form the basis for the contingency provision, are correct.

1.25 As a result, in light of these limitations, we are unable to conclude whether the contingency provisions in the CAT are reasonable.

1.26 We note that by the time of the ex-post cost assessment (the Ex-Post Review), the value of the contingencies is expected to fall to zero, as at this stage all costs will be known.

Foreign exchange

1.27 The CAT includes costs which are payable in foreign currencies (either Euros (€) or Danish Krone (DKK)), which we consider total in the region of [redacted](excluding common costs and development expenditure). This is based upon a split by percentage of costs denominated in foreign currencies provided by the Developers. The Developers have accounted for these costs within the CAT by applying set exchange rates based upon actual rates incurred or estimates of the future rates payable.

1.28 Following the Brexit vote in June 2016, the value of sterling fell sharply. Given the large exposure that the Wind Farm had to foreign currencies, this resulted in a notable increase in the value of the Transmission Assets. From May 2016 the Developers began to enter into foreign exchange hedging contracts amounting to [redacted]and [redacted], and as a result, estimates that it has reduced the impact of these foreign currency movements by [redacted](as set out in Section 13).

1.29 However, as the Developers chose not to enter into many hedging arrangements until just prior to the Brexit vote (and the remaining budget was hedged as, and when, it became committed), it was unable to mitigate against the whole increase in the cost of the Transmission Assets. We therefore consider that further adjustments may be required to the Transmission Assets to reflect the increase in costs that were not mitigated through the Developers hedging arrangements.

1.30 We understand that Ofgem are aware of the Developers' hedging arrangements and are in discussions with the Developers regarding the impact of the Developers' hedging on the Transmission Assets, including whether any additional adjustments are required.

Centrica acquisition costs

1.31 The Developers acquired the ROW01 offshore Wind Farm from Centrica Plc (Centrica) in 2013. The Developers have included costs incurred by Centrica from 2004 up to the date ROW01 acquired the Wind Farm in the CAT of [redacted], based upon an allocation to the Transmission Assets at the rate of [redacted]% (see paragraphs 1.12.5 and 1.16 above), of total costs of [redacted].

1.32 In support of these costs, the Developers have provided us with Centrica (RBW) Limited's completion accounts balance sheet as at 12 December 2013, which includes [redacted][7] of assets under construction. Additionally, we have been provided extracts of KPMG's financial due diligence report in relation to the acquisition that sets out estimated costs incurred by Centrica by the end of 2013 of approximately [redacted]. However, no detailed breakdown of the assets under construction has been provided.

1.33 The Developers have confirmed there was no profit, premium or goodwill element within the acquisition price. However, in light of the magnitude of the costs incurred by Centrica, together with the absence of a more detailed breakdown of the expenditure incurred by Centrica (including any split of costs between the Transmission and Generation Asset costs), we are unable to conclude whether the acquisition costs were economically and efficiently incurred, and whether the allocation of costs to the Transmission Assets at the rate of [redacted]% is supportable.

Areas requiring technical input

1.34 The CAT for the Transmission Assets includes the cost of time spent by the Developers' internal staff in managing the project and in the construction of the Transmission Assets.

1.35 The Developers have provided us with detailed schedules that show the number of hours spent and forecasted hours by each individual and activity during the construction of the Wind Farm. However, it is not our area of expertise to establish whether either the time spent by the Developers' own staff is reasonable, or whether the average hourly rates used in the CAT are reasonable.

1.36 On this basis, we recommend that Ofgem should instruct technical advisors to review these schedules in order to determine whether these costs are being efficiently incurred.

[7] Small difference of [redacted] to the total costs allocated to the Transmission Assets

1.37 Another area requiring technical input, as we set out above, is the contingency provision for the Transmission Assets. This has been calculated based upon the Developers' assessment of the risks associated with the construction of the Transmission Assets. It is not our area of expertise to establish whether the Developers' assessment of the expected value of risks and of the likelihood of each event occurring is correct.

1.38 On this basis, should Ofgem require a review of these risks, we recommend that it should instruct its technical advisors to review the risk schedule in order to determine whether the Developers' assessment is reasonable.

Unsubstantiated costs

1.39 The CAT contains a number of estimates made by the Developers for expected contract variations and remaining budgets. Whilst the Developers have provided information to support certain of these costs, there remain a number of individual estimates of over £100,000 where the level of information provided has been insufficient for us to substantiate the amount included in the CAT. This includes instances where the Developers have provided rationale for the inclusion of an estimate, whilst being unable to provide justification for the value of the estimate. These estimates, which do not include the contingency provision and Centrica acquisition costs detailed above, total [redacted] of capital costs excluding IDC) as follows:

Unsubstantiated costs

	CAT Reference	Ref	OFTO amount £
[redacted]	[redacted]	[redacted]	[redacted]

1.40 In light of the high value of these estimates, we recommend that Ofgem should obtain an update from the Developers on these costs shortly prior to finalising the ITV in order to determine whether these costs should be included within the Transmission Assets.

Conclusion

1.41 Following the Ex-Ante Review of the supporting information provided, based upon our line-by-line review of the CAT and discussions with the Developers and Ofgem, we have identified a number of items where the costs in the CAT were incorrect. As such, we consider that adjustments of [redacted] of capital costs excluding IDC) are required to the CAT as summarised in the following table.

Impact of cost assessment

	CAT Reference	Ref	£
[redacted]			
Total adjustments			
Revised cost of Transmission Assets			

1.42 At **Appendix 1**, we set out a summary by CR category of the above cost movements, along with the unsubstantiated costs including those in the table at paragraph 1.39 above, the contingency provision (paragraph 1.23) and the Centrica acquisition costs (paragraph 1.31).

Grant Thornton UK LLP

London

23 April 2018

2 INTRODUCTION AND BACKGROUND

INSTRUCTIONS

2.1 Grant Thornton UK LLP has been instructed by Ofgem to prepare an Ex-Ante Review of the cost information and cost templates prepared for Ofgem by the Developers in relation to the ROW01 Transmission Assets.

2.2 The review is to understand whether the costs provided in the Developers' cost template can be matched to specific contracts or other supporting information, and whether appropriate metrics exist for cost allocation between transmission and generation. Our work involved tracing the amounts quoted in the cost assessment template to supporting contracts, schedules and other supporting information that indicate how costs have been derived. The review also involved attendance at the Developers' 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:

2.3.1 determine if a developer cost estimate requires updating for the next stage of the transfer process, EPQ and ITT;

2.3.2 aid technical evaluation 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 ITV for the ITT stage of the process; and

2.3.3 assist determination of ITV for ITT by reviewing accuracy, allocation and completeness of cost information.

2.4 The Ex-Ante Review is based upon the Developers' current estimates of the costs to be incurred in developing and constructing the transmission assets. Following construction of the Wind Farm, we expect to carry out a forensic review of the actual expenditure incurred by the transmission business (the Ex-Post 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 Our review and this report is based upon the cost template submitted to Ofgem dated 17 March 2017[8] and incorporates information and explanations provided regarding the costs in this version of the cost template, both during our meeting with DONG Energy and in correspondence with the Developers up to 26 January 2018.

2.7 If further information is produced and brought to our attention after service of this report, we reserve the right to revise our opinions as appropriate.

2.8 This work does not constitute an audit performed in accordance with Auditing Standards.

2.9 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.

2.10 The report has been prepared using Microsoft Word and Microsoft Excel. The report may contain minor rounding adjustments due to the use of computers for preparing certain calculations.

2.11 No responsibility is accepted to anyone other than Ofgem.

RESTRICTION ON CIRCULATION

2.12 Grant Thornton 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.

2.13 In the preparation of our report, Grant Thornton 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 it is fully entitled to disclose such information to us for inclusion within our report, free of any third party rights or obligations, and that 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 acknowledges no duty or obligation 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.

[8] Version 3

DISCLOSURES OF INTEREST

2.14 To the best of our knowledge, we have no connections with any of the parties or advisors involved in this matter, beyond normal commercial relationships, which would influence our report in any way.

FORMS OF REPORT

2.15 For your convenience, 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.

BACKGROUND TO THE WIND FARM

2.16 The Wind Farm is situated 27km north of Blakeney Point off the coast of Norfolk, and 28km east of Chapel St. Leonards off the Lincolnshire coast in the North Sea, and will be located partially within UK territorial waters. The onshore licensing body is National Grid Electricity Transmission plc (NGET) and the ROW01 Transmission Assets will connect to the Walpole 400kV NGET substation, near King's Lynn, Norfolk.

2.17 The Wind Farm is expected to comprise 91 6.3 MW WTGs with a Transmission Entry Capacity (TEC) of 565 MW, which will be connected to two OSS located within the boundaries of the ROW01 Offshore Wind Farm.

2.18 DONG Energy acquired the ROW01 Offshore Wind Farm from Centrica Renewable Energy Limited on 13 December 2013. Design of the ROW01 Offshore Wind Farm commenced in 2014 and construction work on the ROW01 Transmission Assets commenced in Q2 2015. In December 2016, DONG Energy divested 50% of its shareholding in the Wind Farm to the Macquarie Group. This joint venture added another UK stakeholder to share the risks and decision-making authority in the construction phase.

2.19 The ROW01 Transmission Assets are currently under construction and are due to be fully constructed and commissioned by the end of Q3 2017. They will include an onshore substation (ONSS), two OSS, two export cables (subsea and land), interlink cable (subsea between OSSs) and an ROW01 Transmission Asset dedicated Supervisory Control and Data Acquisition (SCADA) system.

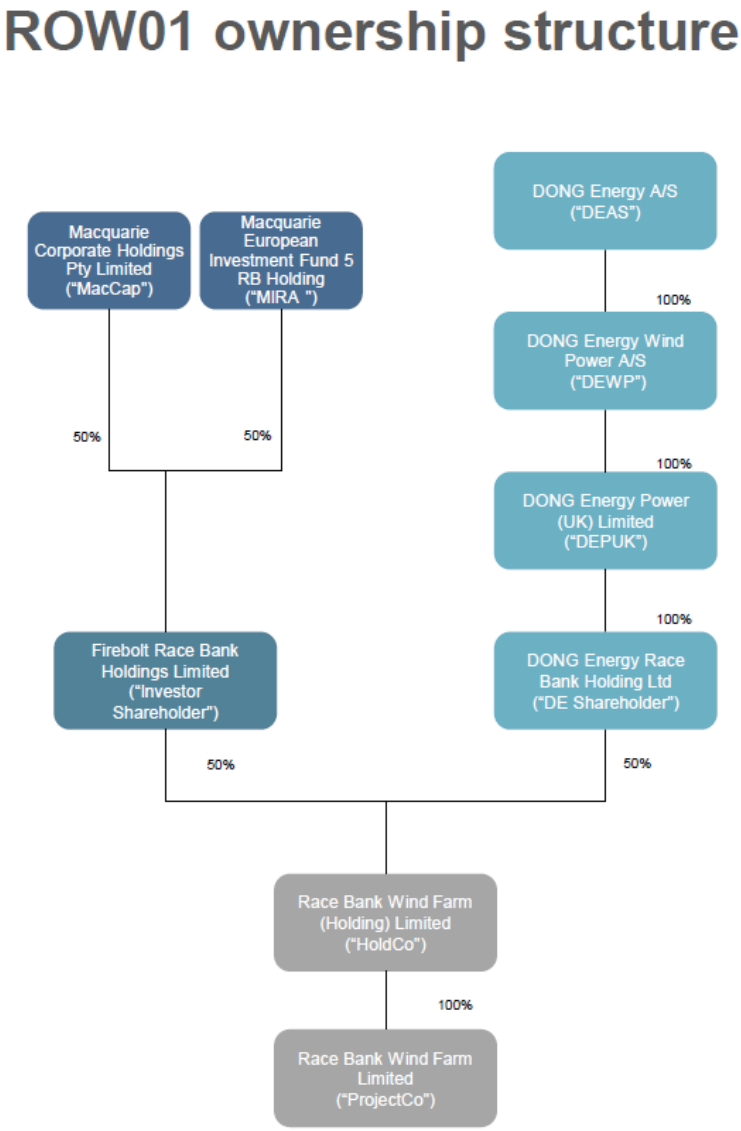
2.20 The ROW01 Transmission Assets are expected to deliver an availability of 98%, taking into account both planned and unplanned maintenance.

OWNERSHIP STRUCTURE

2.21 The Wind Farm is owned[9] by Race Bank Wind Farm Limited, an indirect subsidiary of DONG Energy (50% shareholder) and Macquarie Corporate Holdings Pty Limited (25% shareholder) and Macquarie European Investment Fund 5 RB Holding (25% shareholder).

2.22 Race Bank Wind Farm Limited holds the marine license for the ROW01 Offshore Wind Farm under the Marine and Coastal Access Act 2009, and consent under section 36 of the Electricity Act 1989.

2.23 The ownership structure[10] of the Wind Farm is set out below:



[9] Ownership as at the date of the cost assessment template (March 2017) used in our review

[10] Ofgem developer data room - 4.3.03 ROW01 Ownership Structure [DOK2727472]

3 THE ROW01 EX-ANTE REVIEW

3.1 The main purpose of the Ex-Ante Review of the Wind Farm's Transmission Assets is to determine whether the costs as set out in the Developers' cost template for the Transmission Assets are appropriately stated for 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.

3.2 The starting point in our review of the cost information provided was the CAT dated 17 March 2017, and was based upon the Developers' estimates of the costs of the Transmission Assets at 16 January 2017.

3.3 Our review has considered confirmation that costs included in the CAT relate to contracts that either are 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:

3.3.1 whether the costs can be directly attributed to either the transmission or generation businesses (as in the case of the main capital contracts); or

3.3.2 what is considered the main driver behind the relevant development or project management cost (this is usually capital cost or the degree of time/activity required in relation to different components of the Wind Farm development).

3.4 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.

3.5 The cost assessment for the Transmission Assets of the Wind Farm as per the CAT is summarised below:

Transmission Assets cost summary

	CAT Reference	Ref	Direct costs £	Contingency £	Total costs £	%
Project common costs	CR8	6.1	[redacted]	[redacted]	[redacted]	[redacted]
Offshore substation	CR2	7.1	[redacted]	[redacted]	[redacted]	[redacted]
Submarine cable supply and installation	CR3	8.1	[redacted]	[redacted]	[redacted]	[redacted]
Land cable supply and installation	CR4	9.1	[redacted]	[redacted]	[redacted]	[redacted]
Onshore substation connection	CR5	10.1	[redacted]	[redacted]	[redacted]	[redacted]
Reactive substation	CR6	11.1	[redacted]	[redacted]	[redacted]	[redacted]
Connection costs	CR7	12.1	[redacted]	[redacted]	[redacted]	[redacted]
Other costs	CR9	13.1	[redacted]	[redacted]	[redacted]	[redacted]
Total capital costs			[redacted]	[redacted]	[redacted]	[redacted]
Interest during construction (IDC)			45,004,415	-	45,004,415	8.4%
			[redacted]	[redacted]	**535,068,861**	**100.0%**

3.6 Our findings in respect of the Ex-Ante Review are set out as follows:

3.6.1 The overview of the Developers' processes for accounting and procurement of the Wind Farm are set out in Section 4;

3.6.2 Our work in relation to costs and procurement matters which are common to the CAT as a whole are set out in Section 5;

3.6.3 Our work in relation to project common costs and development costs which have been allocated to the Transmission Assets, summarised on the CAT under CR8, are set out in Section 6;

3.6.4 Our work in relation to costs specific to each component of the Transmission Assets, summarised on the CAT under CR2, CR3, CR4, CR5, CR6, CR7 and CR9 are set out in Sections 7 to 13;

3.6.5 A summary of the issues identified as part of our review are set out in the executive summary (Section 1).

INFORMATION PROVIDED

3.7 We have relied upon the following information in reviewing the cost assessment for the Wind Farm:

3.7.1 Preliminary Information Memorandum dated September 2016 and Information Memorandum dated October 2016[11];

3.7.2 information contained in the Ofgem developer data room for the Wind Farm Project; and

3.7.3 information and explanations provided to us by the Developers. This included a meeting with the Developers on 21 April 2017 to discuss the Transmission Assets and subsequent telephone calls and email correspondence with the Developers.

[11] Actual dates not specified

4 ROW01 PROCESSES

INTRODUCTION

4.1 In this section, we set out the processes that have been used by the Developers in relation to the procurement of and the accounting for the Wind Farm, and in particular, the Transmission Assets.

4.2 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 which will help to ensure that the cost of the Wind Farm Transmission Assets represents value for money including:

4.2.1 competitive tendering;

4.2.2 specific planning and budgeting tools, including building on experience obtained from similar projects; and

4.2.3 controls over variation orders and large expenditure items.

DECISION MAKING PROCESSES

4.3 Decision making in the ROW01 programme is based on a project specific Authorisation Matrix. We have been provided with an extract from the current Authorisation Matrix dated September 2016, which sets out the three steps of authorisation, namely:

4.3.1 authorisation to approve decisions (Decision Governance);

4.3.2 authorisation to enter commitments ie to sign contracts (Commitment Governance); and

4.3.3 authorisation to approve and release payments (Payment Governance).

4.4 The formal requirements of the decision making process have been aligned between the Product Line and the ROW01 project as follows[12]:

[redacted]

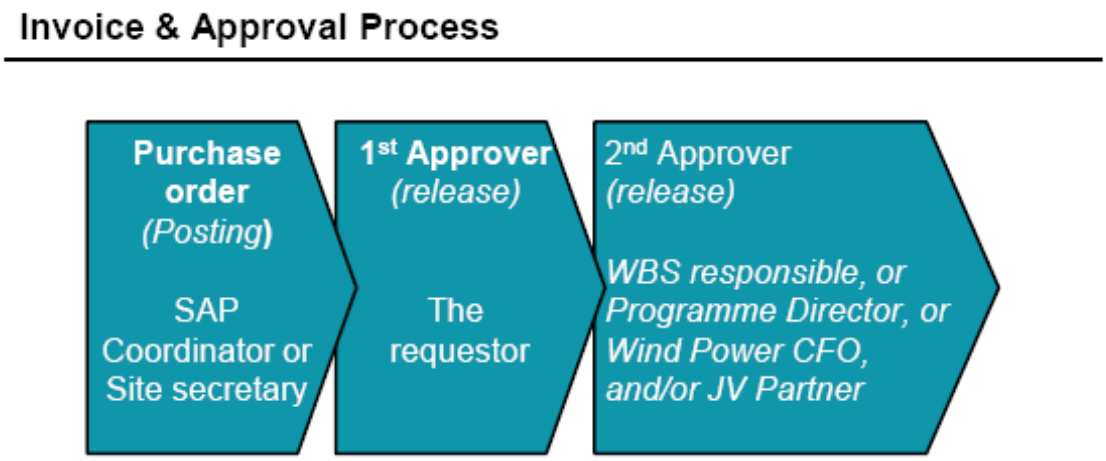
ACCOUNTING AND BUDGETING PROCESS

4.5 DONG Energy, as project manager of the Wind Farm, provides the accounting team that supports the Wind Farm project and undertakes the budgeting process.

[12] [redacted]

4.6 DONG Energy operates two SAP systems, which were novated in November 2016. It uses the Propsi interface for forecasting which records expected contract prices along with resources and other forecasts. SAP records the actual costs and remaining committed costs. The CAT is populated using a download from the Propsi interface.

4.7 The Developers operate a rigid invoice and purchase order approval process, as set out in the below diagram from the Developers:



4.8 For each contract, purchase orders are prepared for the costs expected to be incurred, along with a cash flow profile.

4.9 When the 'First approver' receives the invoice of costs incurred for 'release', the invoice amount and currency is matched against the purchase order (and the payment plan if one has been created). The 'First approver' ensures that the terms, quantities and the total amount are in accordance with both the contract and the item(s)/services(s) received from the vendor.

4.10 The 'Second approver', defined in the Authorisation Matrix depending upon the size and type of the invoice, approves the release of the invoice by the 'First approver'.

Budget Change Request

4.11 Whenever a change in cost is expected from the budgeted amount requiring the transfer of budgets between packages and the usage of contingency a Budget Change Request (BCR) is created.

4.12 The BCR approval process is performed on a biweekly basis and requires approval from the below levels, in the following order, dependent upon the value of the change:

4.12.1 Package Managers

4.12.2 Schedule Manager

4.12.3 Cost Manager

4.12.4 EPC Director

4.12.5 Programme Director

4.12.6 Programme Steering Committee.

Cost controlling

4.13 Capital expenditure, budgets and forecasts are updated on a monthly basis. Budgets are made up of actual costs incurred, committed costs and remaining expenditure. Remaining costs are inspected on a monthly basis, with the Package Manager being asked to provide rationale for those costs. [redacted]

PROCUREMENT PROCESS

4.14 The [redacted] for ROW01 has the procedural responsibility for all procurement in the project. [redacted] are responsible for sourcing, tendering and managing a contract throughout the whole process.

Multi-contract strategy

4.15 ROW01 has adopted a multi-contract strategy as the most suitable, cost effective and efficient procurement and construction approach for the Transmission Assets. Based upon DONG Energy's experience in the offshore sector, it has found that it is an expensive and often negative risk strategy to combine all contracts into a single EPC contract package. It is considered that a single contractor would increase prices if it was taking all risks across a wide spread of packages and consequently the price for the project would significantly increase.

4.16 As such, DONG Energy considers that a multi-contract strategy is more economical, and enables the Developers to enlist the services of suitable suppliers with the appropriate technical expertise and experience for specific tasks. It also allows the Developers to retain control and responsibility over all aspects of the ROW01 project, including over the management of key interfaces between contractors and the resulting impact on the project and underlying budget.

Competitive Tendering

4.17 One of the main tools used by the Developers in achieving value for money and highest compliance to requirements is the use of a competitive tendering process for the main elements of construction of the Wind Farm.

4.18 DONG Energy generally adopts a multi-contract procurement strategy for development and construction of their offshore wind farms, whereby companies were asked to tender for three wind farms; ROW01, [redacted]. This has been done in order to increase procurement volume, to promote a learning curve to increase technical and execution quality, and decrease cost.

4.19 The majority of contracts were put out to tender, with DONG Energy inviting specialist companies in each area to tender for the work. However, in some circumstances the requirement to tender was waived when the nature of the work required so.

4.20 The final selection of preferred bidders was based upon an evaluation model, typically focussing on [redacted] and [redacted]. This model is adapted for each contract on a case by case basis. This means that in respect of the detailed weighting that is given to certain criteria (for example, [redacted]), adjustments made are dependent on the profile of the package up for tender and are based upon the experience from former tenders, executed contracts and the market situation.

4.21 The following limits have been set for the 'approval of contract award':

4.21.1 < DKK 5 million [redacted];

4.21.2 > DKK 5 million [redacted]; or

4.21.3 > DKK 500 million [redacted].

Contracting

4.22 For the ROW01 project, construction contracts were entered into by DONG Energy Wind Power A/S (DEWP). However, following the joint venture with the Macquarie Group in December 2016, the construction risk is now shared between DONG Energy and the Macquarie Group.

COST ACCOUNTING AND ALLOCATION METHODOLOGY

4.23 All costs of the Wind Farm are posted to a Work Breakdown Structure (WBS) code in the accounting system. Costs have been grouped by the cost activity to which they relate and on whether they relate entirely to Transmission or Generation Assets, or to the Wind Farm as a whole (shared costs).

4.24 Shared costs are typically indirect costs which are for the general benefit of the overall project and include:

4.24.1 general project management and administration;

4.24.2 project support functions eg procurement, cost control, health and safety;

4.24.3 general consultants eg legal/environment and consent;

4.24.4 offices – London, Copenhagen and on site; and

4.24.5 SCADA equipment benefitting both the Transmission and Generating Assets.

4.25 Further detail on cost allocations is set out in Section 5.

5 COSTS COMMON TO THE TRANSMISSION ASSETS AS A WHOLE

INTRODUCTION

5.1 Whilst the CAT has broken down the costs of the Transmission Assets into distinct areas, largely based upon the separate components that make up the Transmission Assets, there are certain costs and cost principles which are common to the Transmission Assets as a whole.

5.2 As such, we have summarised the work that we have undertaken in relation to these costs and cost principles in this section, and we cross refer to our findings in relation to such costs and cost principles in the later sections of this report.

Resources and travel costs

5.3 The CAT contains internal resources and travel costs comprising the following amounts:

Travel and resources costs

	Ref	Resources £	Travel costs £	Total £
Offshore substation	7.1	[redacted]	[redacted]	[redacted]
Submarine cable supply and installation	8.1	[redacted]	[redacted]	[redacted]
Land cable supply and installation	9.1	[redacted]	[redacted]	[redacted]
Onshore substation connection	10.1	[redacted]	[redacted]	[redacted]
Reactive substation	11.1	[redacted]	[redacted]	[redacted]
Connection costs	12.1	[redacted]	[redacted]	[redacted]
Other costs	13.1	[redacted]	[redacted]	[redacted]
Project common costs	6.1	[redacted]	[redacted]	[redacted][13]
Total		[redacted]	[redacted]	[redacted]

Resources

5.4 The Developers have provided detailed calculations of expected hours by employee for each package within the Transmission Assets, and of expected hours that employees who work on the Wind Farm as a whole will spend on the Transmission Assets.

5.5 These hours have been multiplied by hourly rates, and allocated where appropriate, to derive total expected resources costs for the Transmission Assets.

[13] We note that in version 4 of the cost assessment template CR8 resource costs have increased by [redacted] and travel costs have increased by [redacted]. This is as a result of the Transmission Assets cost allocation rate for total resource costs increasing from [redacted] to [redacted], and the Transmission Assets cost allocation rate for total travel costs increasing from [redacted] to [redacted]

5.6 Whilst we have agreed the calculations of total resources costs, we have not reviewed how the hourly rates have been determined, including whether the hourly rates include any profit element, which has been the case on similar projects managed by DONG Energy.

5.7 Furthermore, we recommend that Ofgem's technical advisers should review the breakdowns provided of the number of hours by activity and the hourly rates used in order to assess whether the number of hours spent and the hourly rates are efficiently incurred.

Travel costs

5.8 The Developers have provided detailed calculations of the budgets for travel costs. These are based upon the number of trips expected from each employee working on each package over the course of the project, and budgeted costs per trip for hotels and flights. As such, we can see that there is a reasoned basis for the estimates.

CONTINGENCIES

Methodology

5.9 The Developers have conducted a detailed exercise in order to calculate the contingency provision for the projects, based on a Risk Register.

5.10 Each [redacted] is responsible for identifying all potential risks in connection with their specific [redacted], based upon issues that have arisen from [redacted], and then with support from the [redacted], they estimate the probability of the risk materialising and the cost.

5.11 The Risk Register records all significant project risks and is reviewed and revised on a [redacted] basis to enable an accurate and up to date estimate of the total contingency.

Calculation

5.12 The risk contingency provision included within the CAT is [redacted] along with uncertainties of [redacted], leading to contingency costs of [redacted], approximating [redacted] of pre-contingency capital costs. The Developers have provided a summary of the risk contingency provision, to the nearest million, as set out in the table below:

Contingencies

	[redacted]
Offshore substation	[redacted]
Submarine cable	[redacted]
Land cable	[redacted]
Onshore substation	[redacted]
Common costs	[redacted]
	[redacted]

5.13 Each of the contingency amounts are calculated by [redacted]

5.14 However, as the contingency provision was based upon the CAT, as prepared up to 17 March 2017, the current value of contingency related to the Transmission Assets is likely to have decreased as the construction of the Transmission Assets nears completion.

5.15 By the time of the Ex-Post Review, the value of the contingencies will fall to zero, as all costs will be known at this stage.

Verification work

5.16 We have discussed the contingency provision with the Developers, and initially sought an overview of the key Transmission Assets-related risks associated with the contingency and explanations for all large amounts (>£250,000) included within the provision.

5.17 The Developers have provided us with a document[14] that summarises the Wind Farm's approach to quantifying risks, a summary of the key risks by area, [redacted]. This schedule describes the risk, its cause and mitigation measures. It assigns a probability of the risk occurring and the expected value. The share attributable to the Transmission Assets is then recorded.

5.18 We requested a copy of the Risk Register from the Developers. However, they do not wish to provide this on the grounds of confidentiality. During our meeting with the Developers, we were provided with descriptions of the top 10 risks currently facing ROW01, although this did not include the monetary values of the individual risks. [redacted]

[14] "Contingency Race Bank, Determination and Management of Contingency – Focused on OFTO"

5.19 The key amounts within contingency are summarised below.

Project common costs

5.20 Contingencies in relation to common costs of approximately [redacted] have been made to cover risks related to costs and delays caused by [redacted] or [redacted] on the project.

Offshore substation

5.21 Contingencies in relation to the OSS in the region of [redacted] have been made to cover:

5.21.1 [redacted]

5.21.2 [redacted];

5.21.3 [redacted] and

5.21.4 [redacted]

Submarine cable

5.22 Contingencies of approximately [redacted] have been made to cover:

5.22.1 [redacted]

5.22.2 [redacted]

5.22.3 [redacted]

Onshore substation

5.23 Contingencies in relation to the onshore substation of approximately [redacted] have been made to cover:

5.23.1 [redacted]; and

5.23.2 [redacted].

Limitations of our review

5.24 Our review of contingencies has been limited in the following two respects:

Incomplete information

5.25 Whilst the Developers have provided a schedule with descriptions of the top 10 individual contingencies, [redacted] we do not know the collective value of these contingencies as the Developers have not provided their monetary values. Furthermore, we have been unable to verify any contingencies that are not included in the top 10 risks.

5.26 We have asked the Developers to provide further information to substantiate more of the contingency provision, but their policy is not to share their risk registers in full. As such, we have not been provided with information to substantiate the remainder of the contingency provision, and cannot therefore conclude upon whether these contingencies are appropriate.

Technical review

5.27 We have reviewed the risk provisions included within the list of contingencies over £250,000 for the Transmission Assets, which appear reasonable provisions in relation to the Transmission Assets at the time of the CAT submission. However, we consider that the assessment of the expected value of risks and of the likelihood of each event occurring fall within the scope of a technical assessment, rather than the Ex-Ante Review. On that basis, we cannot say whether these amounts, which form the basis for the contingency provision, are correct.

INTEREST DURING CONSTRUCTION

5.28 The CAT includes the Developers' nominal pre-tax interest charge of 8.0%. This is applied for the period to the end of construction, estimated at June 2017, 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 cost for the Transmission Assets totals £45,004,415. For the avoidance of doubt, we have not verified the Developers' assessment of interest during construction, as this is outside the scope of our review.

COST ALLOCATION

Cost allocation methodology

5.29 Previously, DONG Energy has used a high-level allocation methodology to assign shared costs to the Transmission Assets, typically based upon the value of capital items for the Transmission Assets as a percentage of the value of total capital items for the Wind Farm as a whole.

5.30 For recent projects, including ROW01, the Developers have taken what they have described as "*a more-evidenced based approach*" wherever possible to ensure that appropriate cost allocation is made. Five different methods have been used to derive the allocation percentage in the CAT as summarised below:

5.30.1 Direct allocation. Costs are allocated to the Transmission Assets based upon the specific items contract values/cost incurred. Costs are identified through a detailed item-by-item review by the Package Manager and Cost Controller. This methodology was used for [redacted], and [redacted] within the [redacted] (see Section 7) and [redacted] (see Section 10), [redacted] within the [redacted] (see Section 8), and for [redacted] costs at both the DEVEX and CAPEX phases (see Section 6);

5.30.2 Geographical area. For costs related to [redacted] and [redacted] work where there are clear geographical links to the costs incurred, the allocation has been made based on the proportion of the geographical area related to the Transmission Assets. Three allocation rates have been calculated here: i) the Transmission Assets offshore area of 100%; ii) the Generation Assets offshore area of 0%; and iii) the shared offshore area of 78.26% dependent upon the area of where the costs were incurred. The assessment of whether the costs are related to geographical area was undertaken by the Cost Controller along with the relevant Package Managers;

5.30.3 Transmission Assets cost percentage of total CAPEX. This rate is similar to allocation rates used in previous projects where the cost of Transmission Assets capital expenditure is taken as percentage of total Wind Farm capital expenditure including resource and travel costs. The rate derived is [redacted]%, which is in line with rates used on other projects. This is applied to non-specific CAPEX where the other allocation methods are not considered appropriate for example, common costs (Section 6) such as [redacted] and [redacted].

5.30.4 Shared resource and travel costs. For the resource and travel costs that are not directly attributable to either transmission or generation (eg programme management), an allocation has been determined on a package-by-package basis. These rates are either based upon hours spent by Wind Farm staff during the construction phase of the project, contract values or by Package Manager assessments.

5.30.5 Transmission Assets cost percentage of total DEVEX. For the Centrica acquisition costs (described in further detail at paragraph 6.54), the Developers made the decision to allocate costs based on the proportion of DEVEX attributable to the Transmission and Generation assets, from the time of acquisition to FID. This results in a high OFTO allocation rate (compared to historic CAPEX based methodologies) of [redacted].

5.31 Ofgem instructed Xero Energy Limited (Xero) to undertake a detailed review of the resource costs and the methodologies used to allocate such costs between the Generation and Transmission Assets on another current DONG Energy project. We have been provided with a copy of the technical report. Whilst the review was undertaken in relation to the allocation rates applied on another project, as noted at paragraph 5.30 above, the allocation methodologies are the same for the two projects.

5.32 Whilst some of the above allocation methodologies may appear reasonable in isolation, as highlighted in the Xero report, the approach adopted by the Developers appears overly complicated with the allocation of costs within some categories using a mixture of different rates.

5.33 As such, we recommend that Ofgem should discuss the allocation methodologies and the rates used with the Developers.

Cost allocation rates

5.34 The table below summarises the allocated costs included within the CAT, and the effective allocation rate[15] for such costs:

Allocated costs

	Ref	Total £	Allocation £	Effective rate
Common costs	6.1	[redacted]	[redacted]	[redacted]
Shared resources	5.3	[redacted]	[redacted]	
DEVEX	6.46	[redacted]	[redacted]	
Centrica acquisition costs	6.54	[redacted]	[redacted]	
		[redacted]	[redacted]	**35.4%**

5.35 This table shows that the allocation methodologies used by the Developers has resulted in cost allocations to the Transmission Assets at an average rate of 35.4%, which is higher than rates we have seen on previous projects of around 25%. This is primarily due to the high effective rates of [redacted]% and [redacted]% in relation to the Centrica acquisition costs and DEVEX respectively.

5.36 The Developers consider that it is appropriate to allocate the Centrica acquisition costs based on the proportion of DEVEX costs as it is project specific, based on costs incurred and associated with related or similar activities. Further, they consider that the high allocation rate of [redacted]% is realistic due to:

[15] Ie excluding costs with an 'allocation rate' of 100%

5.36.1 the complex physical and human environment in the locality of the project (associated with the Transmission Assets);

5.36.2 the need to develop a plan for delivery of the Transmission Assets based on the lessons learnt from the Lincs project and heightened stakeholder requirements;

5.36.3 undertaking extensive engineering work to sufficiently mature the export cable installation concept for the intertidal region;

5.36.4 additional surveys required to de-risk the cable installation and burial in terms of sand wave mobility, boulders and unexploded ordnance (UXOs);

5.36.5 the need to consider a range of options, including the design, consent and construction of the transmission assets to satisfy local and national stakeholders, including regulators and statutory bodies, and

5.36.6 the preliminary work for a 220kV transmission asset design, which ultimately unlocked substantial CAPEX savings and de-risked the construction of the transmission assets mobility, boulders and UXOs.

5.37 However, the Developers have been unable to provide a detailed breakdown of the acquisition costs, and as such, we are unable to confirm whether the allocation rate is appropriate in light of the expenditure incurred by Centrica.

5.38 Of the £[redacted] of allocated DEVEX costs, [redacted] relates to time costs which have higher allocation rates as explained above. The average allocation rate for these time costs is [redacted]%, and excluding these time costs, the average allocation rate for DEVEX is [redacted]% which remains higher than the CAPEX rate used by the Developers. This is because some of the rates applied in relation to associated employment costs such as travel and accommodation expenses, are the same as the time cost allocation rates.

5.39 In light of the high effective allocation rates for shared costs to the Transmission Assets, particularly in relation to DEVEX and Centrica acquisition costs, we recommend that Ofgem should discuss cost allocation further with the Developers.

Verification of allocation rates

Geographical area

5.40 We have verified the calculation of allocation rates for the geographical area, and this appears to have been determined in line with the stated methodology.

Transmission Assets costs percentage of total CAPEX

5.41 We have verified the calculation of the allocation rate for Transmission Assets capital expenditure as a proportion of total capital expenditure (which excludes project management costs), and this appears to have been determined in line with the stated methodology.

Shared resource and travel costs

5.42 The Developers have provided details for the different allocation rates used for the shared resource and travel costs, as summarised in the following table:

Resource and travel allocation rates

	Rate	Rationale
[redacted]	[redacted]	[redacted]

5.43 We have verified that the allocation rates that were determined by reference to hours spent or contract value, appear to have been calculated in line with the stated methodology. Likewise, the assessment of costs as all generation or transmission accords with our expectations.

5.44 However, we note that the allocation rates for asset management resources have been based upon judgement of [redacted]. Whilst the allocation for the asset management resources has been conducted on a line-by-line basis, and as such, this may be a well-informed assessment of the allocation of time spent, we are unable to confirm whether the allocation rate for design and compliance hours, which leads to costs in the CAT of [redacted], is reasonable.

5.45 Furthermore, as detailed in Section 6, the basis for allocation rates for some project common costs, such as in relation to environmental and fishery consent costs, remains unclear.

FOREIGN EXCHANGE

Accounting for foreign exchange in the CAT

5.46 During the development of the Transmission Assets, costs are payable in foreign currencies; either Euros, Sterling (GBP) or Danish Krone (DKK). Furthermore, as DONG Energy is based in Denmark, a number of project management costs are also likely to be paid in the local currency of DKK.

5.47 The Transmission Assets cost estimate applied in the CAT is based on the documented currency for each of the contracts, for resources, travel, etc. The Developers have converted costs, where applicable, into Sterling based upon the monthly rates applied when the payments were made. The Developers have used OANDA[16] monthly average exchange rates. Where costs have not yet been incurred or committed through a contract, an assessment has been made of the exchange rates that are most likely to be applied each month. The exchange rate used for future periods is the Dong Energy Market Price Committee (MPC) rate.

5.48 Of the costs detailed in the CAT, [redacted] of the Transmission Asset capital costs pre contingency) are denominated in either Euros or Danish Krone as per the table below:

Costs denominated in foreign currencies

	Euros	£	DKK	£	Total £
Offshore substation	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Submarine cable supply and installation	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Land cable supply and installation	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Onshore substation	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Reactive substation	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Effective exchange rate	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

5.49 In addition, as DONG Energy is based in Denmark, we consider that a large proportion of resources and travel costs, together with certain project common costs, are also likely to be paid in foreign currencies. As such, a significant proportion of the Transmission Assets costs are expected to be payable in currencies other than Sterling.

Rates used

5.50 As explained in paragraph 5.47 above, the Developers have used monthly exchange rates to translate amounts payable in foreign currencies into Sterling.

[16] Oanda.com

5.51 For incurred costs (up to December 2016), the Developers have used OANDA monthly average rates and for future costs, the Developers official forecast (MPC) rates from January 2017 have been applied to the payment profile. Whilst the fluctuation in exchange rates following Brexit would be expected to result in higher costs of construction, as the Developers entered into some foreign currency hedges as detailed below, the impact of such fluctuations will have been mitigated to some degree.

Mitigation of foreign exchange risk

5.52 At the start of the project, the Developers decided, based upon previous Ofgem cost assessment guidance, not to enter into hedges for foreign currency transactions. Instead, costs incurred in foreign currencies are included in the CAT based upon applicable day rates (ie the spot rate) when the payments were made and would be based on actual CAPEX spent on any given day.

5.53 Further to the Developers' discussions with Ofgem, they have entered into foreign currency hedges (with effect from June 2016) as follows:

Foreign currency hedges

	DKK	EUR	£	Effective rate
DKK CAPEX hedges	[redacted]	[redacted]	[redacted]	[redacted]
EUR CAPEX hedges	[redacted]	[redacted]	[redacted]	[redacted]

5.54 In Section 13, we set out a breakdown of the foreign exchange gains of [redacted] that have been made in relation to the above hedges.

5.55 However, we note the following in relation to the hedges which the Developers have entered into:

5.55.1 There is no correlation between the exchange rates used by the Developers in the CAT and the rates obtained by Developers on hedging contracts.

5.55.2 As of May 2016, which was the time when Ofgem and the Developers agreed the approach to mitigating foreign exchange exposure, the future costs that were committed or remaining in foreign currencies totalled [redacted] and [redacted][17]. As such, it is unclear why only a small amount of the exposure in Danish Krone was hedged;

[17] Based upon schedule prepared by Ofgem "Forex Race Bank.xlsx"

5.55.3 In May 2016, the Developers' assessment of future exchange rates over the remainder of the construction period were [redacted] However, following the Brexit vote in June 2016, the future exchange rates dropped, such that by the end of December 2016 (on which the CAT is based) the Developers' assessment of future exchange rates over the remainder of the construction period fell to [redacted] respectively. This will have had a big impact on the total cost of the Transmission Assets, with increases in the total costs expected. Given that the rates obtained by the Developers on hedges were considerably lower than the future expected rates at May 2016 it is expected that these increases will only partially be offset by the hedging gains of [redacted] set out above.

5.56 As such, whilst we consider it appropriate that the hedging gains should be approved in the CAT, we consider that further adjustments may be required to the Transmission Assets to reflect the increase in costs which were not mitigated through the Developers' hedging arrangements. We understand that Ofgem are aware of the above and are in discussions with the Developers regarding the hedging arrangements and treatment of foreign exchange in the CAT.

APPLICATION OF OVERRIDING GLOBAL DISCOUNTS

5.57 The Developers have confirmed that no global discounts have been obtained in the course of the project, save for those included in the CAT in relation to [redacted] and [redacted].

RELATED PARTY TRANSACTIONS

5.58 The Developers have confirmed that there have been no related party transactions, other than project management and personnel.

BOUNDARIES USED FOR PURPOSES OF COST ALLOCATION

5.59 The Information Memorandum confirms the boundary points of the Transmission Assets proposed by the Developers, as follows:

- offshore – located at the sealing ends of the 34kV cables terminating at the 34kV MV switchgear connecting from the grid transformers on the OSSs.
- onshore – the complete fixed contact assembly bolted to the busbar above the isolator (pantograph type disconnector) for both main and reserve 400kV busbars within the existing NGET Walpole 400kV substation. NGET own the fixed contact assemblies of the pantograph disconnectors and the ROW01 OFTO will own all other HV equipment in the generator bays.

5.60 The details that we have seen reflect costs between these two boundary points.

6 PROJECT COMMON COSTS AND DEVELOPMENT COSTS

PROJECT COMMON COSTS

6.1 The project common costs included within the CAT are comprised as follows:

CR8 – COMMON COSTS

	Ref	£
Programme management	6.3	[redacted]
EPC Management (consultancy)	6.10	[redacted]
Financial Management (external consultancy)	-	[redacted]
Asset Management	6.12	[redacted]
Consents	6.15	[redacted]
Geo Survey	6.24	[redacted]
Site & Commissioning	6.27	[redacted]
		[redacted]
		[redacted]
DEVEX Costs		[redacted]
Development period costs	6.46	[redacted]
Centrica acquisition	6.54	[redacted]
		[redacted]
CAPEX - Resource cost	5.3	[redacted]
		[redacted]
Contingency	5.12	[redacted]
		[redacted]
Total		[redacted]

6.2 We detail these costs further in this section. The allocation of costs to the Transmission Assets, including the rates used and rationale for the allocation methodology, together with the procedures we have undertaken to verify these rates, are set out in Section 5.

Programme management costs

6.3 Programme management costs are summarised as follows:

Project management costs

	Ref	Total costs £	Allocation rate	Total per CAT £	Allocation rate	Total per Version 4
Insurance	6.5	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Legal advice	6.7	[redacted]		[redacted]		[redacted]
Training	6.9	[redacted]		[redacted]		[redacted]
		[redacted]		[redacted]		[redacted]

6.4 We note that in version 4 of the cost assessment template (dated 27 March 2017) the allocation rate for legal costs and training (as well as for EPC management (see paragraph 6.10 below) and financial management) has been amended to [redacted]%, thereby increasing these costs as set out in the table above. The Developers have confirmed that [redacted]% is the correct allocation rate.

Insurance

6.5 The Wind Farm is expected to incur insurance costs of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. The majority[18] of these costs relate to the Construction All Risks (CAR) policy with Aon, of which [redacted] had been incurred up to 17 March 2017, which we have agreed to invoices. A further [redacted] of costs were expected to be incurred before construction is complete, which we agreed to the policy payment schedule, leading to total expected costs in relation to this policy of [redacted].

6.6 The final instalment of the CAR policy of [redacted] was paid in June 2017, which we have agreed to the invoice, leading to final costs for the CAR policy of [redacted] This is a difference of [redacted] compared to the expected costs of [redacted] (see paragraph6.5 above) and therefore an adjustment has been agreed to remove this additional budget now that actual costs are known. Applying [redacted]% to this amount leads to a reduction in Transmission Assets costs of [redacted] As such, an adjustment is proposed to decrease insurance costs in the CAT by this amount.

Legal advice

6.7 The Wind Farm has included a provision for legal costs of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted] (allocation of [redacted]% in version 4 of the cost assessment template amounting to [redacted][19]). [redacted] The Developers have provided a breakdown from which we requested supporting documentation for the one item above £100,000, being total costs of [redacted] of which [redacted]% [redacted])[20] is OFTO related.

[18] [redacted] of other costs (of which [redacted]% [redacted] has been allocated to the Transmission Assets) are included in the total estimate of [redacted]

[19] An increase of [redacted] compared to the CAT (version 3)

[20] [redacted]% [redacted] in version 4 of the cost assessment template

6.8 In response to our request, the Developers have explained that the costs relate to the remaining budget for "*Other legal external assistance for ROW01 – for entire programme. [redacted]% of [redacted] More likely during installation. Note from FID based on previous project expenditure*". Whilst we are unable to substantiate these costs, we would also question whether the inclusion of provisions for contingent legal expenditure is appropriate, particularly absent further information about the nature of costs and the full contingency provision. As such, we recommend that Ofgem should discuss the estimated costs of [redacted] further with the Developers.

Training

6.9 The Wind Farm expect to incur programme training costs of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted][21]. The Developers have provided a breakdown from which we requested supporting documentation for the individual Transmission Assets costs above £100,000. Costs largely comprise the cost of future programme training events for the project management team and media costs for the website maintained throughout the project, regular newsletters, press releases, and media monitoring, all of which are individually below £100,000.

EPC management

6.10 The Wind Farm expects to incur costs of [redacted] in relation to EPC management (consultancy), of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted][22]. The Developers have provided a breakdown from which we requested supporting documentation for the one Transmission Assets amount above £100,000, being total costs of [redacted] of which [redacted]% [redacted]) is included in the CAT.

6.11 The costs of [redacted] described as "remaining budget" largely relates to Contract Design Management (CDM) allowance to be used by the EPC management team for EPC related activities and events. The Developers have confirmed that as of May 2017 this budget (along with further CDM allowance of [redacted], of which [redacted]% [redacted] is included in the CAT) is unlikely to be used due to efficient upfront management and as such, an adjustment to reduce the costs in the CAT by [redacted][23] is required.

[21] We note the allocation of [redacted]% in version 4 of the cost assessment template amounting to [redacted], an increase of [redacted] compared to the CAT (version 3)

[22] We note the allocation of [redacted]% in version 4 of the cost assessment template amounting to [redacted], an increase of [redacted] compared to the CAT (version 3)

[23] [redacted]. We note that this relates to total costs of [redacted] and therefore the required adjustment to V4 of the cost assessment template would be [redacted] ([redacted]% of [redacted])

Asset management

6.12 Included in the CAT are asset management costs relating to commercial contracts of [redacted], of which [redacted]% were allocated to the Transmission Assets, amounting to [redacted].

6.13 However, the Developers have confirmed that the total costs and allocation percentage stated in the CAT are incorrect. They have provided a breakdown of commercial contracts totalling [redacted] of which [redacted]%[24] have been allocated to the Transmission Assets, leading to costs of [redacted] This differs to the Transmission Assets value included in the CAT of [redacted] by [redacted], which is not significant and therefore no adjustment is proposed.

6.14 The expected costs of [redacted] largely comprise the risk relating to lower cable burial. From the breakdown provided by the Developers, we requested supporting documentation for the Transmission Assets costs above £100,000. These amounted to [redacted]. We have agreed these costs to the cable zone agreement with Port of Boston Limited relating to the electricity export cable for ROW01.

Consents

6.15 The budget for consent costs included the CAT is broken down into the following areas:

Consents

	Ref	Total costs £	Allocation rate	Total per CAT £
Application costs	6.17	[redacted]	[redacted]	[redacted]
Consultation costs	-	[redacted]		[redacted]
Environmental costs	6.19	[redacted]		[redacted]
Fisheries	6.20	[redacted]		[redacted]
		[redacted]		[redacted]

6.16 However, the Developers have advised that the total costs and allocation rates included in the CAT were not calculated correctly, although the Transmission Assets amount (total per CAT) is not affected. We discuss this in further detail below.

Consents – Application costs

6.17 The CAT includes costs of [redacted] in relation to consent applications of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of the consent application costs amounting to [redacted] of which [redacted]%[25] has been allocated to the Transmission Assets, amounting to [redacted].

[24] Allocation based upon mix of the [redacted]%, [redacted]% and [redacted]% rates detailed in Section 5

[25] Allocation based upon mix of the [redacted]%, [redacted]%, [redacted]% and [redacted]% rates detailed in Section 5

6.18 We requested supporting documentation for Transmission Assets costs individually above £100,000, of which there was one amount of [redacted] in relation to the contract with RPS Energy Consultants Limited for onshore ecological and planning support, which we have agreed to the contract.

Consents – Environmental costs

6.19 As set out in the CAT, the Wind Farm is expected to incur environmental costs of [redacted] of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of environmental costs amounting to [redacted] of which [redacted]%[26] have been allocated to the Transmission Assets, amounting to [redacted]. Of this amount, individual items above £100,000 amount to [redacted] as follows:

6.19.1 Haskoning UK Limited environmental screening and reporting Transmission Assets costs of £[redacted] that we have agreed to the contract for [redacted]. We have not adjusted for the small difference of [redacted];

6.19.2 RSK Environment Limited ecological support costs of [redacted], we have agreed to the contract and subsequent invoices; and

6.19.3 remaining budget of [redacted] for which the Developers have provided a detailed breakdown. This includes estimates for the execution of the saltmarsh monitoring plan, provision of marine mammal observers during installation of OSSs, cocklebed monitoring survey and survey and reporting costs associated with the marine licence requirement for marine mammal monitoring, with all individual Transmission Assets amounts in this detailed breakdown being below £100,000.

Consents – Fisheries

6.20 The Wind Farm is expected to incur fisheries costs in relation to consents of [redacted] of which [redacted]%[27] are allocated to the Transmission Assets, amounting to [redacted]. We requested supporting documentation for Transmission Assets costs individually above £100,000 (totalling [redacted]), which comprises fisheries payments of [redacted] allocated at [redacted]% - see paragraph 6.21 below) and the remaining budget amount of [redacted] allocated at [redacted]% - see paragraph 6.22 below).

[26] Allocation based upon mix of rates of [redacted]%, [redacted]% and [redacted]% for which the basis is unclear, and the [redacted]% and [redacted]% rates detailed in Section 5

[27] Allocation based upon mix of a rate [redacted]% for which the basis is unclear, and the [redacted]% rate detailed in Section 5

6.21 The Developers have provided a breakdown of the fisheries payments of [redacted]. We have agreed individual items over £100,000 (totalling [redacted]) to payment request forms and the payment schedules included in the settlement agreements with Greater Wash Fishing Industry Group (GWFIG) and Wells & District Inshore Fisherman's Association (W&DFA). These agreements set out the amounts payable to commercial fisheries as compensation for any adverse effect on their fishing activities due to the Developers requirement that at certain times, certain areas of the sea and seabed are to be free from all fishing activity and fishing equipment.

6.22 The Developers have provided a further breakdown totalling [redacted] in support of the remaining budget of [redacted][28], which includes commercial fisheries payments [redacted] (see paragraph 6.23 below), and estimated consultant costs (fisheries industry representative) for the provision for fisheries liaison services between local fisheries and the project) [redacted] at [redacted][29]) for the period January 2017 to March 2018.

6.23 We have agreed individual items over £100,000 (totalling [redacted]) included in the breakdown provided for commercial fisheries payments of [redacted] to the following supporting documentation:

6.23.1 costs amounting to [redacted] have been agreed to the payment schedule included in Appendix 2 to the settlement agreement with GWFIG and Appendix 1 to the settlement agreement with W&DFA;

6.23.2 costs of [redacted] in relation to payments to whelkers have been agreed to a supporting calculation based on a day rate of [redacted] per day for 8 whelk boats) as set out in the payment schedule included in Appendix 2 to the settlement agreement with GWFIG; and

6.23.3 costs of [redacted] have been agreed to a supporting calculation based on a day rate of [redacted] as set out in Schedule 3 to the settlement agreement with W&DFA.

Geo survey

6.24 The CAT includes costs of [redacted] in relation to geo surveys, of which [redacted] have been allocated to the Transmission Assets, amounting to [redacted]. However, the Developers have confirmed that the total costs and allocation rates included in the CAT were not calculated correctly, although no change is required to the Transmission Assets value.

[28] Small difference of [redacted]

[29] Estimated cost of [redacted] for March 2017 and five bi-monthly amounts of [redacted] (ie [redacted]) from May 2017 to January 2018

6.25 The Developers have provided a breakdown of the geo survey costs amounting to [redacted], of which [redacted][30] have been allocated to the Transmission Assets, leading to costs of [redacted]. We requested supporting documentation for Transmission Assets costs individually above £100,000, which amount to [redacted] as follows:

Geo survey costs

	Ref	Total costs £	Allocation rate	Transmission Assets cost £
Dynasafe Bactec Limited, UXO Inspection survey	6.26.1	[redacted]	[redacted]	[redacted]
MMT, UXO inspection and Optional EOD	6.26.2	[redacted]	[redacted]	[redacted]
Ordtek, UXO consultancy services	6.26.3	[redacted]	[redacted]	[redacted]
Spectrum Geosurvey Limited	6.26.4	[redacted]	[redacted]	[redacted]
Future Costs, Postconst survey	6.26.5	[redacted]	[redacted]	[redacted]
Spectrum Geosurvey, Extension of Survey Spread	6.26.6	[redacted]	[redacted]	[redacted]
		[redacted]		[redacted]

6.26 We have agreed the above costs to the following supporting documentation:

6.26.1 Dynasafe Bactec Limited UXO inspection survey costs of [redacted] have been agreed to the contract and variation orders[31];

6.26.2 MMT, UXO inspection and Optional EOD costs of [redacted] have been agreed to the contract [redacted]) and four variation orders totalling [redacted], leading to total costs of [redacted]. The Developers have explained that the additional costs of [redacted][32] are covered within the remaining budget and contingency amounts and therefore no adjustment is required;

6.26.3 Ordtek UXO inspection survey costs of [redacted] have been agreed to the contract, with a revised contract price of [redacted]. The Developers stated that the remaining amount of [redacted] has been approved based on the contracted hourly rates setup in the original contract. We understand Ordtek are the Developers principal UXO consultants for the project. The Developers confirmed that in 2017, an actual item of UXO was found and required removal prior to cable installation which requires office and site based support and therefore additional costs for these works are anticipated;

[30] Allocation based upon mix of rates of [redacted]% and [redacted]% for which the allocation basis is unclear, and the rates of [redacted]%, [redacted]%, [redacted]% and [redacted]% rates detailed in Section 5

[31] Revised total contract value of [redacted] as per variation order 6

[32] [redacted]

6.26.4 Spectrum Geosurvey Limited costs of [redacted] have been agreed to the contract [redacted] and a variation order (VO1) which extends the contract from May 2016 to August 2017 and hence costs are increased by [redacted] to [redacted] to cover the additional contracted work. No adjustment is proposed for the small difference of [redacted] post allocation);

6.26.5 The Developers have provided a breakdown with supporting calculations and assumptions for costs of [redacted]) in relation to post construction surveys with CTV vessel equipped with geophysical equipment. These costs reflect the rental of geophysical equipment for 30 months (October 2015 to April 2018) and operation costs for 24 months;

6.26.6 Spectrum Geosurvey, Extension of Survey Spread costs of [redacted] have been agreed to the relevant purchase order[33] and subsequent six invoices in relation to the agreed contract as per paragraph 6.26.4 above.

Site and commissioning

6.27 Site and commissioning costs are comprised as follows:

Site and commissioning

	Ref	Total costs £	Allocation rate	Total per CAT £
Operate construction site	6.28	[redacted]	[redacted]	[redacted]
Commissioning equipment	-	[redacted]		[redacted]
Fuel construction support	6.29	[redacted]		[redacted]
CTV and guard vessels	6.30	[redacted]		[redacted]
Jack-up accommodation vessel	6.34	[redacted]		[redacted]
Operate installation harbour base	6.36	[redacted]		[redacted]
Site office	6.38	[redacted]		[redacted]
Internal travel cost[34]	6.39	[redacted]		[redacted]
Construction site running costs	6.40	[redacted]		[redacted]
Running costs Offshore substation	6.41	[redacted]		[redacted]
Operate Offshore construction site	-	[redacted]		[redacted]
Construction base outdoor facility	6.42	[redacted]		[redacted]
HSE costs	6.43	[redacted]		[redacted]
External consultancy	6.44	[redacted]		[redacted]
Marine coordination	6.45	[redacted]		[redacted]
		[redacted]		[redacted]

[33] PO 4800021940

[34] We note that the allocation rate in the CAT for internal travel costs is shown as [redacted]% however the overall allocation is [redacted]% as per the above table as a result of two amounts (totalling [redacted]) being allocated at [redacted]%

Construction site costs

6.28 The Wind Farm is expected to incur costs of construction in relation to site and commissioning of [redacted] of which [redacted]%[35] have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs which includes one individual Transmission Assets item above £100,000 of [redacted], which the Developers have stated is the remaining budget relating to "*Diving Agreement Calloff/ standby based on previous projects*". We have not been provided with further information to substantiate this cost, and therefore recommend that Ofgem should discuss this further with the Developers.

Fuel construction support

6.29 The Wind Farm is expected to incur costs for fuel construction support of [redacted], of which [redacted]%[36] have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs which includes one individual Transmission Assets item above £100,000 of [redacted] allocated at [redacted]%), which we have agreed to the signed waiver of completion in relation to fuelling in Grimsby fish dock dated August 2015.

CTV and guard vessel

6.30 The Wind Farm is expected to incur crew transfer vessel (CTV) and guard vessel costs of [redacted], of which [redacted]%[37] have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown[38] of these costs. Of this amount, individual OFTO items above £100,000 amount to [redacted], and relate to the charter of six sea vessels as detailed below:

CTV and guard vessel costs

	Ref	Total costs £	Allocation rate	Total per CAT £
Vessel contract - Helen Mary Guard MPV	6.32	[redacted]	[redacted]	[redacted]
Vessel contract - CTV Charter for EPC - Seacat Defender	-	[redacted]	[redacted]	[redacted]
Vessel contract - CTV Charter for EPC - Seacat Freedom	-	[redacted]	[redacted]	[redacted]
Vessel contract - CTV Charter for EPC - Seacat Magic	-	[redacted]	[redacted]	[redacted]
Vessel contract - CTV Charter for EPC - Seacat Volunteer	-	[redacted]	[redacted]	[redacted]
Vessel contract - Charter of the Foryd Bay Vessel - Turbine Transfers	-	[redacted]	[redacted]	[redacted]
	6.31	[redacted]		[redacted]
Remaining budget allowance for potential delays	6.33	[redacted]	[redacted]	[redacted]
		[redacted]		[redacted]

[35] Allocation based upon the [redacted]% rate detailed in Section 5

[36] Allocation based upon a mix of [redacted]% (Package Manager assessment) and [redacted]% as detailed in Section 5

[37] Allocation based upon a mix of [redacted]% and [redacted]% rates determined by the Package Manager

[38] The breakdown provided includes total costs of [redacted] of which [redacted]% [redacted] has been allocated to the Transmission Assets, ie OFTO related amount agrees to the CAT

6.31 The Developers have provided a calculation (summarised in the table below) for the estimated vessel costs based on the number of days of hire multiplied by the daily rates, which we have agreed to the underlying contracts:

Vessel costs

Vessel name	Start date	End date	Dayrate >14h (a) £	Dayrate 24h (b) £	Days >14h (c)	Days 24h (d)	Estimate £ (a*c) + (b*d)	Actual PO £
Foryd Bay	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Seacat Magic	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Helen Mary	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Seacat Volunteer	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Seacat Defender	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Seacat Freedom	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
							[redacted]	[redacted]

6.32 The Developers have advised that whilst it is correct for the CTV costs to be allocated at a rate of [redacted]% to the Transmission Assets (and [redacted]% to the Generation Assets), as per the assessment by the Package Manager, the guard vessel costs should be allocated at a rate of [redacted]% (and [redacted]% to the Generation Assets). The Helen Mary costs included in the CAT should therefore only be [redacted][39], ie [redacted] less than the costs of [redacted] as per the table at paragraph 6.30 above. As such, an adjustment is proposed to decrease the CAT amount by [redacted], as agreed by the Developers.

6.33 Additionally, the Developers have noted that the remaining budget for potential delays of [redacted], of which [redacted]% [redacted] has been allocated to the Transmission Assets, is no longer required. As such, a further adjustment is proposed to decrease the CAT by [redacted].

[39] [redacted]

Jack-up accommodation vessel

6.34 The Wind Farm is expected to incur jack-up accommodation vessel costs of [redacted], of which [redacted][40]% have been allocated to the Transmission Assets, amounting to [redacted][41]. We have been provided with a breakdown of these costs. Of this amount, individual items above £100,000 amount to [redacted](being [redacted]allocated at [redacted]%). The Developers have provided a calculation (summarised below) of the estimated purchase order with a value of [redacted][42] and we have agreed the rates used in the calculation to the underlying contract.

Jack-up accommodation vessel costs

	Ref	Rate per contract £	Days/ persons/ vessels/ months	Total costs £
J/U dayrate	-	[redacted]	[redacted]	[redacted]
J/U dayrate	-	[redacted]	[redacted]	[redacted]
Mob/demob	-	[redacted]	[redacted]	[redacted]
Move	-	[redacted]	[redacted]	[redacted]
Tug dayrate	6.35	[redacted]	[redacted]	[redacted]
Waste Disposal	-	[redacted]	[redacted]	[redacted]
Supply vessel costs	-	[redacted]	[redacted]	[redacted]
Internet (per month)	-	[redacted]	[redacted]	[redacted]
Accommodation pr person	-	[redacted]	[redacted]	[redacted]
Estimated PO cost				[redacted]

6.35 The tug budget is calculated as [redacted]per day, being the day rate of [redacted]plus fuel costs of [redacted], multiplied by 15 days, to derive the 'rate' of [redacted]. This is then multiplied by four (being the number of vessels per trip) to give the total costs as per the above table of [redacted].

[40] Allocation based upon a mix of [redacted]% (Package Manager assessment), and [redacted]% as detailed in Section 5

[41] We note that in version 4 of the cost assessment template this cost has been reallocated to CR2

[42] Small difference of [redacted]

Installation harbour base

6.36 The Wind Farm is expected to incur costs in relation to operating the installation harbour base of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs. Of this amount, individual items above £100,000 amount to [redacted], being [redacted] allocated at [redacted]%. The Developers have provided a breakdown of the estimated post-installation repair costs of [redacted] of which [redacted]% [redacted]) is covered in risk contingency and [redacted]% [redacted]) in the base budget. Of the [redacted]:

6.36.1 [redacted] relates to the offshore platforms. The Developers explained that [redacted]; and

6.36.2 [redacted] relates to the offshore foundations. The Developers explained that "[redacted]"

6.37 We recommend that Ofgem should discuss these estimates, totalling [redacted][43] of which [redacted] is included within offshore substation costs, further with the Developers.

Site office costs

6.38 The Wind Farm is expected to incur site office costs of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted], which we have agreed to intercompany asset transfer agreement from [redacted] to [redacted].

Travel costs

6.39 The Wind Farm is expected to incur travel costs of [redacted] of which [redacted]%[44] have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs, which includes one individual Transmission Assets item above £100,000 of [redacted], for which the Developers have provided a supporting schedule of expected travel costs.

[43] [redacted] x [redacted]%) of which is included in CR8 of the CAT in relation to operating the installation harbour base as detailed in paragraph 6.36

[44] Allocation based upon a mix of [redacted]% and [redacted]% (for costs of [redacted]) as detailed in Section 5

Construction site running costs

6.40 The Wind Farm is expected to incur construction site-running costs of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs, which includes individual Transmission Assets items above £100,000 of [redacted] at [redacted]%), which relate to rental costs as set out in the lease agreement with Grimsby Fish Dock Enterprises Limited, commencing [redacted] and expiring [redacted]. As per the lease agreement, rent per annum is [redacted], leading to total costs for the [redacted] of [redacted]. Therefore, the total rent included in the breakdown provided of [redacted] differs to the agreement by [redacted]. However, as the Transmission Assets amount (at [redacted]%) is only [redacted] we do not propose an adjustment for this.

Offshore substation running costs

6.41 The Wind Farm is expected to incur offshore substation running costs of [redacted], of which [redacted][45]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs that includes one individual Transmission Assets item above £100,000 of [redacted] (allocated at [redacted]%). The Developers have stated this was their best estimate at the time of the CAT submission based on the [redacted] budget. They note the possibility of future cost reductions however, as these cannot be accurately estimated at present do not suggest a reduction to costs. We recommend that Ofgem should obtain an update from the Developers in relation to this remaining budget of [redacted].

Construction base outdoor facility

6.42 The Wind Farm is expected to incur the costs of construction of the base outdoor facility of [redacted] of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs. Of this amount, individual items relating to the Transmission Assets above £100,000 amount to [redacted], being [redacted] marine co-ordination costs and [redacted]) to reduce cost overruns expected to be funded from contingency. The Developers explained that due to updates received on the [redacted], they would remove the marine co-ordination costs from the Transmission Assets budget for ROW01. As such, we propose an adjustment to reduce costs included in the CAT by [redacted].

HSE equipment

6.43 The Wind Farm is expected to incur costs for HSE equipment costs of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs and there are no individual items above £100,000.

[45] Allocation based upon a mix of [redacted]% and [redacted]% as detailed in Section 5

External consultancy

6.44 The Wind Farm is expected to incur external consultancy costs of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs. Of this amount, there is one item above £100,000 of [redacted] allocated at [redacted]%). The Developers explained that this is an "*allowance based on* [redacted] *actuals*" and that it is the "*Best estimate at time of CAT submission. Based on package manager's judgement of* [redacted] *experience roughly scaled for ROW. No calculation available for this estimate.*" As we have not been provided with supporting documentation to substantiate these costs, we recommend that Ofgem should discuss this estimate of [redacted] further with the Developers.

Marine co-ordination

6.45 The Wind Farm is expected to incur marine management and co-ordination costs of [redacted], of which [redacted]% have been allocated to the Transmission Assets, amounting to [redacted]. We have been provided with a breakdown of these costs. Of this amount, individual items above £100,000 amount to [redacted]. Of these costs, the Developers have explained that these are estimates of [redacted] being a "[redacted] *allowance for remainder of Cable install and WTG campaigns*" and [redacted] based on the assumption that a second buoy is required as mitigation to losing one buoy during bad weather. Again, as we have not been provided with any further supporting documentation to substantiate these costs, we recommend that Ofgem should discuss these estimates, totalling [redacted], further with the Developers.

General development costs

6.46 General development costs (DEVEX) are incurred in the ROW01 project development activities and include all activities in the initial commencement of the project including ensuring consents and obtaining advice in respect of the set-up.

6.47 The Developers have separated DEVEX costs into three categories as set out below:

6.47.1 **External costs** – calculation is based on input from relevant project managers;

6.47.2 **Internal hours** – calculation is based on amount of internal hours per WBS element and Transmission Assets cost percentages calculated for relevant external costs; and

6.47.3 **Travel expenses** – calculation is based on Transmission Assets cost percentages calculated for amount of relevant internal hours per WBS.

6.48 The Developers have provided a detailed breakdown of the DEVEX costs of [redacted] as follows:

DEVEX

	£
Advance payments	[redacted]
Cable protection system	[redacted]
CoE Standard WF	[redacted]
Concept & layout	[redacted]
Contingency	[redacted]
Contract management	[redacted]
Design	[redacted]
Elect MV/HV	[redacted]
Export cable	[redacted]
External consultancy	[redacted]
Gate review	[redacted]
Geophys	[redacted]
GIS general support	[redacted]
Internal resources	[redacted]
Landowner agreements	[redacted]
Overall project development costs	[redacted]
Package management	[redacted]
Product Line Electrical	[redacted]
Project set-up	[redacted]
SCADA	[redacted]
Standard Wind Farm	[redacted]
Travel and meetings	[redacted]
	[redacted]

Verification of costs incurred

6.49 In order to gain comfort in relation to the general development costs incurred, we have obtained a breakdown of all lines on the CAT where the costs allocated to the Transmission Assets are greater than £100,000, to gain some understanding on how the costs were incurred. The results of our review are summarised in **Appendix 2**.

6.50 General development cost categories which had a balance of more than £100,000 amount to [redacted] (95.6% of total development costs), of which [redacted] (45.9% of total development costs) relate to resources. We have confirmed that there has been no double counting of resources costs between those included in general development costs and those included in common costs as summarised in paragraph 5.3.

6.51 For non-resources expenditure we reviewed the cost breakdowns, and sought explanations for significant costs.

Allocation rates

6.52 The allocation rates used for DEVEX have been calculated using the same methodology as that detailed from paragraph 5.29, albeit that the rates for resources are different as these rates were calculated based upon hours incurred during the DEVEX phase, rather than the construction phase.

6.53 We have verified the calculations of these allocation rates that appear to be determined in line with the stated methodology.

Centrica acquisition costs

6.54 The Developers acquired the ROW01 offshore Wind Farm from Centrica in 2013. The Developers have included costs incurred by Centrica up to the date ROW01 acquired the Wind Farm in the CAT. In support of these costs, the Developers have provided us with Centrica (RBW) Limited completion accounts balance sheet as at 12 December 2013, which we have agreed costs of [redacted] to the total for assets under construction. The CAT includes costs of [redacted], an allocation to the Transmission Assets of [redacted]% (see paragraph 6.56 below) of total costs of [redacted] (see paragraph 6.55 below). We do not propose an adjustment for the small difference of [redacted][46].

6.55 Whilst the Developers have confirmed there was no profit, premium or goodwill element within the acquisition price, we requested further information from the Developers in support of the balance sheet costs of [redacted]. We have been provided with extracts of KPMG's financial due diligence report in relation to the acquisition. This sets out a summary of the total spend (CAPEX, DEVEX and construction) by Centrica of approximately [redacted] and explains that Centrica estimates that it would have incurred costs of approximately [redacted] by the end of 2013 in relation to the development of the Race Bank project, which commenced in 2004.

6.56 The allocation rate of [redacted]% is based upon the average allocation rate used for all other DEVEX on this project[47] as the Developers believe that this is the most similar activity to base allocation of this cost. Further detail in relation to the allocation rate is set out in Section 5.

[46] [redacted] * [redacted]% = [redacted]

[47] [redacted] = [redacted]%

6.57 In light of the magnitude of the costs incurred by Centrica and the absence of a more detailed breakdown of the expenditure incurred by Centrica, including any split of costs between the Transmission and Generation Assets costs, we are unable to conclude whether the acquisition costs or the allocation rate used are reasonable. As such, we recommend that Ofgem should discuss these costs further with the Developers.

6.58 Furthermore, whilst we recognise that the ROW01 is a larger project and that allocation rates have increased, we note that the allocated acquisition costs (before taking into account other DEVEX on this project) are higher than the total DEVEX costs incurred on the projects under tender rounds three and four.

7 OFFSHORE SUBSTATION

7.1 The OSS costs are comprised as follows:

CR2 – OFFSHORE SUBSTATION COSTS

Contract Overview	Ref	£
Offshore Transformers		
ABB A/S - 220/33kV Transformers	7.2	[redacted]
Other	7.9	[redacted]
		[redacted]
Offshore Switchgear/Protection		[redacted]
Siemens A/S - 220kV GIS Offshore	7.12	[redacted]
Other	7.13	[redacted]
		[redacted]
Offshore Substation and Platform		[redacted]
Atkins Limited – Design	7.17	[redacted]
FORCE Technology Limited – Design	7.20	[redacted]
DNVGL – Design	7.21	[redacted]
Other design costs	7.22	[redacted]
JVFL – Fabrication	7.23	[redacted]
Site running costs	7.34	[redacted]
SHL Offishore contractors BV- Installation	7.35	[redacted]
Miscellaneous	7.41	[redacted]
		[redacted]
Resources and travel		[redacted]
Resource cost	5.3	[redacted]
Travel cost	5.3	[redacted]
		[redacted]
SCADA		[redacted]
Alstom Grid UK Limited - SCADA control system	7.43	[redacted]
Semco Maritime A/S - Network & Telecommunications	7.45	[redacted]
Siemens Plc - Metering (Auxilliary Systems)	-	[redacted]
Miscellaneous	10.29	[redacted]
		[redacted]
		[redacted]

OFFSHORE TRANSFORMERS – 220/33KV TRANSFORMERS

7.2 As set out in Section 4, DONG Energy adopted a portfolio approach to the competitive tendering for three wind farms, ROW01, WOW03+04 and BBW02 to maximise the attractiveness and competitiveness of procurement across the portfolio.

7.3 The tender for the design, fabrication and installation of two onshore transformers, along with the supply of transformers for the UK pipeline, was divided into four lots as set out below:

7.3.1 Lot A: Supply of offshore 220kV transformers (two for BBW02, four for ROW01 and four for WOW03+04);

7.3.2 Lots B to D: Supply of two onshore 400kV transformers for each of WOW03+04, BBW02 and ROW01 respectively.

7.4 Lot D was introduced after the first round of negotiations and only suppliers already shortlisted for one of the other lots (A to C) were invited to submit an offer for Lot D.

7.5 The shortlisted suppliers invited to tender and their respective bids were as follows:

- ABB A/S [redacted]
- BEST A/S [redacted]
- Siemens A/S [redacted]

7.6 The basis for recommendation was an evaluation model focusing on [redacted], with the weighting for this tender [redacted], [redacted].

7.7 A recommendation was made to award the work to ABB A/S after it achieved an overall weighting of [redacted] compared with [redacted] for BEST A/S and [redacted] for Siemens A/S. Additionally, ABB A/S achieved the [redacted] and submitted the [redacted].

7.8 Subsequently, the Developers entered into a contract with ABB A/S for the provision of offshore transformers for [redacted], which we have agreed to the contract. There have been six variations to this contract amounting to [redacted] which we have agreed to variation orders, to give total ABB A/S costs of [redacted].

7.9 Other costs in relation to the offshore transformers, totalling [redacted], include:

7.9.1 [redacted] for the supply of Earthing Auxiliary Transformers (EAT), which we have agreed to the contract with Kolektor Etra Energetski. There were three variations to this contract amounting to [redacted], leading to total costs of [redacted]; [redacted] and

7.9.2 there were with two further contracts for [redacted] in relation to Neutral Earthing Resistors (NER) costs, and [redacted], in relation to EAT costs, and an estimated further variation of [redacted].

7.10 This leads to expected total costs for the 220/33kV transformers of [redacted].

OFFSHORE SWITCHGEAR/PROTECTION

220kV GIS offshore

7.11 The Developers explained that in order to harvest synergies and volume discounts a combined lot based tender for all onshore and offshore GIS equipment for ROW01, BBW02 and WOW3+4 was conducted. Tenders were received from ABB, Alstom and Siemens A/S. Siemens offered the [redacted] and achieved [redacted] using the evaluation model set out in the tender documents.

7.12 Subsequently, the Developers entered into a contract with Siemens A/S for the supply of 220kV GIS offshore equipment, being Lot B, at a cost of [redacted] which we have agreed to the contract [redacted]. There was one variation to this contract for [redacted] and estimated future costs of [redacted] leading to expected total costs for the 220kV offshore switchgear of [redacted].

Other costs

7.13 Other costs of [redacted] in relation to the provision of offshore switchgear/protection are broken down as follows:

Offshore switchgear/ Protection other costs

Cost	Supplier	Ref	€	£
DTS equipment	AP Sensing	7.14	[redacted]	[redacted]
Electrical Interface Design Consultancy	PSDS	7.15	[redacted]	[redacted]
Soak test equipment	Aggreko Belgium	-	[redacted]	[redacted]
V02 Component inspection	PARSONS BRINCKERHOFF	-	[redacted]	[redacted]
Expected variation order		-	[redacted]	[redacted]
Expected variation order		7.16	[redacted]	[redacted]
			[redacted]	[redacted]

7.14 The Developers entered into a contract with AP Sensing for the supply and installation of distributed temperature sensing (DTS) systems for monitoring the export cable for [redacted], which we have agreed to the contract. This amount has been apportioned in the CAT (66.6%:33.3%) between the OSS (CR2) [redacted] and the ONSS (CR5) [redacted][48].

7.15 The Developers entered into a contract with Power Systems Design Solutions Limited (PSDS) for the onshore electrical interface design consultancy at a cost of [redacted], which we have agreed to the contract. There was one variation to the contract at a cost of [redacted], leading to a total cost of [redacted].

7.16 The Developers have estimated expected variation orders amounting to [redacted] We obtained a breakdown of this amount and note there were no individual items above £100,000.

OFFSHORE SUBSTATION AND PLATFORM

Design

7.17 The Developers entered into a contract with Atkins Limited for the design of the OSP for [redacted], which we have agreed to the contract. There were three variations amounting to [redacted], which we have agreed to the variation orders. Together with a transfer from BBW02 of [redacted], based on a split of development costs between DONG Energy's three UK projects (see paragraph 7.18 below), this leads to a total cost of [redacted]. Of this, [redacted] has been allocated to the OSS (CR2) and [redacted] has been allocated to DEVEX (CR8).

[48] We note a small difference of [redacted] between the total costs included in the CAT of [redacted] and the contract value

7.18 The cost transfer of [redacted] from BBW02 has been agreed to an email from the Senior Project Controller dated 28 November 2016. In summary:

7.18.1 The email details the costs for each of the three projects (as at the date of the email) known as the Forecast at Complete, which total [redacted] (see below table – (A));

7.18.2 This total cost (A) is then apportioned across the three projects based on the five substations in the frame agreement ie 20% each. For example, as ROW01 has two of the five substations, 40%[49] of the total costs (A) should be apportioned to it; and

7.18.3 As costs in ROW01 were only [redacted] an additional [redacted][50] has been transferred from BBW02 (which had more than 20% (one substation) of the total costs).

7.19 The total costs and the calculation of the required cost transfer as described above is set out in the table below:

Design – cost transfer

Project	Current costs = Forecast at complete (A) £	Apportionment of total current costs	Expected costs based on apportionment (B) £	Cost transfer (B)-(A) £
BBW02	[redacted]	20%	[redacted]	[redacted]
ROW01	[redacted]	40%	[redacted]	[redacted]
WOW03+04	[redacted]	40%	[redacted]	[redacted]
	[redacted]		[redacted]	[redacted]

7.20 The Developers instructed Force Technology Limited to conduct testing and inspection of the OSS fabrication. The respective costs associated with these tasks included in the CAT are [redacted] and [redacted] totalling [redacted]. We have agreed the Euro amount to the contract for [redacted][51].

[49] [redacted] x 40% = [redacted]

[50] [redacted]

[51] Small difference of [redacted]

7.21 The Developers entered into an agreement with Det Norske Veritas, Denmark A/S (DNVGL) to deliver the constructed design of the OSP, along with manufacturing surveillance, at a cost of [redacted] which we have agreed to the contract. There were six variations to this contract amounting to [redacted] which we have agreed to variation orders. The Developers expect to receive an additional variation of [redacted] leading to total costs of [redacted] Included in the CAT is [redacted] within CR2 and [redacted] within DEVEX costs in CR8, leading to total costs in the CAT of [redacted] We do not propose any adjustment in light of the small difference of [redacted].

7.22 Other design costs of [redacted] comprise a contract with HR Wallingford for [redacted] in relation to a scour protection assessment and an estimated variation of [redacted]

Fabrication

7.23 As set out in Section 4, DONG Energy adopted a portfolio approach to the competitive tendering for three wind farms, ROW01, WOW03+04 and BBW02 to maximise the attractiveness and competitiveness of procurement across the portfolio.

7.24 For the supply of the OSP fabrication, 20 companies applied for pre-qualifications of which five did not meet the criteria. Following further evaluation, eight candidates were shortlisted, of which six submitted tenders (one subsequently withdrew) and following initial negotiations and clarifications, three were shortlisted:

- Burntisland Fabrication [redacted]
- Joint Venture Cofely Fabricom-Lemants (JVFL) [redacted]
- Heerema Hartlepool [redacted].

7.25 The basis for recommendation was an evaluation model focusing on [redacted] with the weighting for this tender being [redacted].

7.26 As [redacted] was unable to perform to the required conditions, a recommendation was made to award the work to JVFL after it achieved an overall weighting of [redacted], compared to [redacted] for [redacted]. JVFL also submitted the [redacted].

7.27 Subsequently, the Developers entered into an agreement with JVFL for the fabrication of the OSP for [redacted], which we have agreed to the contract.

7.28 There were 16 variations to this fabrication contract totalling [redacted] which we have agreed to the respective variation orders, and estimated future costs of [redacted][52]) (see paragraph 7.29 below) and [redacted] (see paragraph 7.31 below), leading to expected total costs for the fabrication of the OSP of [redacted].

7.29 The Developers have provided a breakdown of the estimated future costs [redacted]. We requested supporting documentation for individual items in this breakdown above £100,000, which total [redacted], as detailed in the table below:

Fabrication – estimated future costs

Description	Estimated value €
Outside lightings brand IMT	[redacted]
Late receipt of DE cable list	[redacted]
DONG cable list partially 2nd routing	[redacted]
Inefficiency due to the late approval of MS 7	[redacted]
Inefficiency in engineering	[redacted]
Expected claims to contract close	[redacted]
Total	[redacted]

7.30 The Developers explained that these variation orders are 'partially settled' such that only part of the variation orders are agreed in principal and no formal agreement or payment is in place other than confirmation from the Package Manager that there is a high likelihood that these costs will be incurred. However, the total amount is still subject to change on negotiations with the suppliers and closing. Other than an email from the Package Manager confirming the current outstanding variation order requests (VORs), we have not received any further documentation to substantiate these costs. As such, we recommend Ofgem obtain an update from the Developers regarding these estimated future costs totalling [redacted][53]).

[52] The 'cost in GBP' (column I) shown in the CAT is [redacted] however the total costs allocated to the CAT (column L) are [redacted] (as noted above). We have not looked into this difference of [redacted] further as note that it is cancelled out by the same 'error' in relation to the installation cost variations of [redacted], for which the cost in GBP is shown as [redacted] and the total costs allocated to the CAT are [redacted] greater [redacted])

[53] Converted into sterling using the implied exchange rate taken from the CAT, being estimated costs of [redacted] / cost in GBP of [redacted]

7.31 Included in the CAT is [redacted] relating to expected variations. The Developers have provided a breakdown (with supporting calculations) of the expected variations, which have been allocated to the Transmission Assets (and Generation Assets) using the direct allocation method, ie on a line-by-line basis. In summary:

Fabrication - expected variations

	OFTO £	Generation £	Total costs £
Internal platform cables 36kV - Supply of 36kV single-core cables	[redacted]	[redacted]	[redacted]
Termination works 36kV - Installation (cutting, pulling, fastening, termination, testing etc)	[redacted]	[redacted]	[redacted]
Transport of 36kV IPC single core cables on drums	[redacted]	[redacted]	[redacted]
Copper conductor cables	[redacted]	[redacted]	[redacted]
Variation orders	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]

7.32 As shown in the table above, the total amount of the expected variations is [redacted] of which [redacted] has been allocated to the Generation Assets and [redacted] has been allocated to Transmission Assets, ie a difference of [redacted][54] [redacted] to the amount included in the CAT.

7.33 A comment from the Package Manager included with the expected cost calculation provided noted that although the breakdown provided is higher than anticipated the overall budget including contingency is not expected to increase and therefore they would not increase the December forecast included in the CAT. However, the Developers have since confirmed that the difference should be adjusted for. As such, an adjustment to the CAT, being an increase of [redacted], is proposed.

Site running costs

7.34 Included within the CAT are fabrication site running costs of [redacted]. The Developers have provided a breakdown and we confirm that this cost comprises multiple small purchase orders, all of which are below £100,000.

[54] [redacted]

Installation

7.35 Competitive tendering was used for the OSP installation, as set out in Section 4. As part of the tender, contractors were requested to present a volume discount for the exclusive award of up to five lots. Eight installation contractors were approached and based on a prequalification process, five companies were invited to bid. However, only three submitted tenders for ROW01[55]:

- Seaway Heavy Lifting BV (SHL) [redacted]
- Scaldis Marine and Salvage [redacted]
- GeoSea [redacted]

7.36 The basis for recommendation was an evaluation model focusing [redacted], with the weighting for this tender being [redacted].

7.37 A recommendation was made to award the work to SHL after it achieved an overall weighting of [redacted], compared to [redacted] for Scaldis and [redacted] for Geosea (both of which would have required additional technical costs [redacted]. SHL also submitted the [redacted] when taking into account discounts and the additional technical costs required if Scaldis was the selected bidder.

7.38 Subsequently, the Developers entered into a contract with SHL Offshore Contractors B.V. for the installation of the OSP for [redacted][56] [redacted]), which we have agreed to the contract. Following the multi-contract strategy, the Developers received a discount for the each of the two OSP platforms of [redacted], ie a total discount of [redacted]), which we have agreed to the call off agreement. Variations in the CAT amount to [redacted]) (see paragraph 7.39 below), and there are estimated future costs of [redacted]) (see paragraph 7.40 below), leading to total expected costs of [redacted]).

[55] Base case tender prices for ROW01 (Lot 2)

[56] The Developers explained the tender price for the two platforms was [redacted] and the final contract amount of [redacted] includes [redacted], likely options and excluding barge and grillage supply

7.39 There are 12 variations to this contract totalling [redacted], which have been agreed to their respective variation orders. However, this is lower than the total for variations included in the CAT of [redacted] by [redacted]. In addition, the Developers have confirmed that the pile reduction portion of variation order 003, being [redacted], and variation order 009 for a reduction of [redacted], ie a total of [redacted] are not included in SAP, and therefore the CAT is to be adjusted by this amount. As such, an adjustment for [redacted][57] [redacted] is required.

7.40 The Developers have confirmed that the estimated future costs of [redacted] relate to the remaining expected variation orders that have not yet been identified and that correspond to only [redacted] of costs due to the late stage of completion. We have not been provided with further information to substantiate these estimated future costs. As such, we recommend that Ofgem should discuss these costs further with the Developers.

Miscellaneous

7.41 The Developers entered into a contract with Jan De Nul NV (Jan de Nul) for the provision of ZO1 Scour protection at a cost of [redacted], which we have agreed to the contract.

7.42 Together with marine warranty survey costs of [redacted] and estimated future costs of [redacted] this makes up the total miscellaneous costs included within the CAT of [redacted]. The marine warranty survey costs of [redacted] comprise [redacted], which has been agreed to the contract with Global Maritime Scotland Limited, three variation orders amounting to [redacted], a contract with Nordic Maritime Solutions for [redacted] and an unexplained difference of [redacted].

SCADA

SCADA control system

7.43 The Developers entered into a contract with ALSTOM Grid UK Limited for the development of the SCADA Control System at a cost of [redacted], which we have agreed to the contract. There was one variation to this contract costing [redacted], and estimated future costs of [redacted]) leading to total expected costs of [redacted]. The Developers have allocated 34.05% of the SCADA control systems costs to the Transmission Assets (OSS), which amounts to [redacted] based upon a line-by-line analysis of the contract[58].

[57] [redacted] (small difference in relation to VO3/VO9)

[58] Direct cost allocation methodology as described in Section 5

7.44 The allocation rate and estimated future costs are described in further detail in paragraphs 10.24 to 10.26.

Network & telecommunications

7.45 The Developers entered into a contract with Semco Maritime A/S for the provision of network and telecommunications amounting to [redacted], which we have agreed to the contract. The Developers have allocated [redacted]% [redacted] of these costs to the Transmission Assets. Expected variations to the agreement with Semco amount to [redacted] and [redacted] of which [redacted]% [redacted]) and [redacted]% [redacted] respectively have been allocated to the Transmission Assets, leading to total expected costs allocated to the Transmission Assets of [redacted]

7.46 The allocation rates and estimated future costs are described in further detail in paragraphs 10.27 and 10.28 respectively.

8 SUBMARINE CABLE SUPPLY AND INSTALLATION

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

CR3 – SUBMARINE CABLE SUPPLY AND INSTALLATION COSTS

Contract Overview	Ref	£
Subsea Cable Supply & Design		
NKT - 220kV Cable supply & termination	8.2	[redacted]
		[redacted]
Subsea Cable		[redacted]
Jan De Nul NV - Installation & burial (export cable)	8.13	[redacted]
Tekmar - Cable protection system	8.22	[redacted]
Expect VO	8.23	[redacted]
Miscellaneous costs	8.26	[redacted]
Site running costs		[redacted]
		[redacted]
		[redacted]
Boulder removal		[redacted]
Site running costs	8.28	[redacted]
Cable damage	8.29	[redacted]
Resources and travel		[redacted]
Resource cost	5.3	[redacted]
Travel cost	5.3	[redacted]
		[redacted]
		[redacted]
		[redacted]

220KV CABLE SUPPLY & TERMINATION

8.2 Competitive tendering was used for the supply of the submarine and onshore cable, as set out in Section 4. For the cable supply, seven companies were invited for pre-qualification, of which one did not qualify and one did not submit a tender, leading to five submitted tenders. Subsequently one further company did not submit a tender as they did not have the capacity to supply more than one project. The received tender prices were evaluated and adjusted for various cost elements. The evaluated tender prices for the four remaining companies were as follows:

- LS Cable and System [redacted]
- Prysmian [redacted]
- NKT Cable [redacted]
- Nexans [redacted].

8.3 The basis for recommendation was an evaluation model focusing on [redacted], with the weighting for this tender being [redacted]

8.4 A recommendation was made to award the work to NKT after it achieved an overall weighting of [redacted], compared to [redacted] for LS Cables, [redacted] for Prysmian and [redacted] for Nexans. The evaluation team recommended NKT as the preferred contractor for ROW01 with LS Cables as a fall-back supplier if an agreement could not be made with NKT. An important element in choosing NKT over LS Cables was that LS Cables had not finalised [redacted] manufacturing of the cables for ROW01 which significantly increased the risk profile. NKT was the [redacted], with a bid that was [redacted] than the [redacted] from LS Cables.

8.5 Subsequently, the Developers entered into a contract with NKT for the supply of the subsea and land cable amounting to [redacted] of which the Developers have allocated [redacted] to the subsea cable and [redacted] to the land cable, with allocations between the two based upon the breakdown of costs in the contract. We have agreed the total cost to the contract.

8.6 Included in the CAT are subsequent variations to the cable supply contract totalling [redacted] (see paragraph 8.7 below), and estimated future variations of [redacted] (see paragraph 8.8 below), leading to expected total costs for the submarine cable supply of [redacted]

8.7 We have agreed 32 variations to the contract totalling [redacted] The Developers have advised that one variation order (VO O26-29) amounting to [redacted] relates to the [redacted], leading to variations in relation to the submarine cable (CR3) of [redacted] As noted in paragraph 8.6 above, the CAT only includes variations to the contract totalling [redacted]). The Developers have confirmed that an adjustment is required for these additional variations, which have not been included in the CAT, amounting to [redacted][59] [redacted]

[59] [redacted] Small difference of [redacted]

8.8 The estimated future costs are broken down as follows:

220kV cable supply & termination - Estimated future costs

Description	Ref	Estimated value €
Offshore 220kV cable supply		
Potential standing VOs from NKT for offshore jointing and termination works (including waiting on weather) for 2017 work scope	8.9	[redacted]
Additional design work at OSS for transformer terminations at Z01 for JVFL		[redacted]
		[redacted]
220Kv Offshore platform and 220kV additional scope items		[redacted]
JDR assistance for cable pulling at OSS to be settled	8.11	[redacted]
Scaffolding at OSS and support from JVFL during installation at OSS		[redacted]
Third party review of cable design (consultants for Transmission Assets questions and consultants for transformer penetrations, fibre issues and sand waves)	8.12	[redacted]
Termination QA supervision		[redacted]
		[redacted]
		[redacted]
Total		[redacted]

8.9 Included in the CAT is an estimate of [redacted] in relation to the offshore 220kV cable supply, which the Developers have confirmed is related but not limited to:

8.9.1 [redacted];

8.9.2 extra work requested to NKT – pulling head installation; and

8.9.3 purchase of materials.

8.10 We have not been provided with detailed calculations or further information to support the [redacted][60]) estimate and therefore recommend that Ofgem should discuss these costs further with the Developers.

8.11 The Developers have advised that the [redacted] assistance was for cable pulling and installation work on the OSS platform. The Developers have confirmed the amount has now been settled at [redacted], which we have agreed to the variation order. We do not propose an adjustment in respect of the small difference of [redacted] to the amount included in the CAT of [redacted].

8.12 The Developers have confirmed the [redacted] of design costs of [redacted] relates to various contracts each less than £100,000. We have not looked further into this amount.

[60] Converted into sterling using the implied exchange rate taken from the CAT, being estimated costs of [redacted] / cost in GBP of [redacted]

INSTALLATION & BURIAL (EXPORT CABLE)

Jan De Nul NV

8.13 Competitive tendering was used for the installation of the submarine and array cables, as set out in Section 4, with the strategy being to divide the tender into lots and sub-lots to maximise competition and encourage bids from specialist firms as set out below:

[redacted]

[redacted]

[redacted]

8.15 For Lot A+B nine contractors pre-qualified, of which six progressed to the tender round. For Lot B, three contractors pre-qualified, of which two progressed to the tender round.

8.16 Based on the evaluation of the tenders received, a shortlist was developed for Lot A+ B. During the second tender round, it became clear that none of the shortlisted tenderers wished to execute Lot A only. Therefore, the combined Lot A+ B progressed.

8.17 The combined evaluation of Lot A +B resulted in three contractors being invited to participate in the next tender round. The evaluated tender prices were:

- DeepOcean UK Limited [redacted]
- Jan de Nul NV [redacted]
- VBMS [redacted]

8.18 The basis for recommendation was an evaluation model focusing on [redacted], with the weighting for this tender being [redacted]

8.19 A recommendation was made to award the contract for installation of the offshore export cable to Jan de Nul after it achieved an overall weighting of [redacted], compared to [redacted] for DeepOcean UK Limited and [redacted] for VBMS. Jan de Nul also submitted [redacted].

8.20 Subsequently, the Developers entered into a contract with Jan De Nul for the installation and burial of the subsea cable for [redacted] which we have agreed to the contract.

8.21 There were three variations amounting to [redacted] which we have agreed to variation orders, leading to total costs of [redacted]

Cable protection system

8.22 The Developers entered into a contract with Tekmar Energy Limited for the cable protection system for [redacted], which we have agreed to the contract. The Developers have allocated [redacted][61] to the Transmission Assets leading to the amount of [redacted] included in the CAT.

[61] Allocation rate has been derived on a line-by-line basis – direct allocation as set out in Section 5

Other installation and burial costs

8.23 The CAT includes the following costs totalling [redacted] which had not yet been incurred at 31 December 2016, but which the Developers expect to incur during the installation and burial of the submarine cable:

Other installation and burial costs

Item No	Work Package	Estimate/spent at CAT date (31 Dec 2016)	Ref	Cost provision €
1	Rock dumping provision - [redacted] cable route lengths assumed	Estimate	8.24.1	[redacted]
2	Ports requirement for buoys in the Wash	Spent	-	[redacted]
3	Boulder removal	Estimate	8.24.2	[redacted]
4	[redacted] jointing/standby	Estimate	8.24.3	[redacted]
5	As laid survey costs	Estimate	-	[redacted]
6	Standby time for OSS pull in works	Estimate	8.24.4	[redacted]
7	Remedial burial works including joint locations	Estimate	8.24.5	[redacted]
8	[redacted] variation allowance due to unknown interface/change of scope/unforeseen ground conditions / stand downs due to fishermen etc.	Estimate	8.24.6	[redacted]
9	Use of Accommodation Vessel for the jointing and pull in works during 2017.	Estimate	8.24.7	[redacted]
10	Office located at Port Sutton Bridge	Spent	-	[redacted]
11	Marine Warranty Surveyor - Work on Vessel and document review	Spent	8.24.8	[redacted]
12	Marine Warranty Survey - Document review and approval and Work on vessel	Spent	8.24.8	[redacted]
13	Claim by JDN for accommodation vessel used during [redacted] installation	Estimate	8.24.9	[redacted]
14	Claim by JDN due to waiting on MMO consent on and offshore	Estimate	8.24.10	[redacted]
15	Spot check reviewing of cable burial	Estimate	8.24.11	[redacted]
16	External review of 2016 acoustic burial survey	Estimate	-	[redacted]
17	JDN additional work not yet placed at a VO, but expected - roller spacing	Estimate	8.24.12	[redacted]
18	JDN additional work not yet placed at a VO, but expected - secondary contingency winch	Estimate	-	[redacted]
19	JDN additional work not yet placed at a VO, but expected - return of cable drum to NKT, [redacted]	Estimate	-	[redacted]
20	JDN additional work not yet placed at a VO, but expected - additional use of burial equipment	Estimate	8.24.13	[redacted]
21	JDN additional work not yet placed at a VO, but expected - change in RPL (route position list)	Estimate	8.24.14	[redacted]
22	JDN VO for trial of the [redacted] (jointing/installation barge)	Estimate	8.24.15	[redacted]
23	JDN additional work not yet placed at a VO, for expected installation vessel standby time during 2nd end pull-in operation of [redacted]	Estimate	-	[redacted]
24	Change - additional cost for dredging delays	Estimate	8.24.16	[redacted]
25	Change - usage of [redacted]) and extra transit	Estimate	8.24.17	[redacted]
26	Change - Omega joint for [redacted]	Estimate	8.24.18	[redacted]
27	Change - intertidal cable delivery to [redacted]	Estimate	8.24.19	[redacted]
28	Delivery of spare export cable	Estimate	8.24.20	[redacted]
29	Replacement of [redacted] on DEWP request	Estimate	8.24.21	[redacted]
30	Final DOB survey using [redacted]	Estimate	8.24.22	[redacted]
31	Replacement of [redacted] trencher with a similar tool	Estimate	**Error! Reference source not found.**	[redacted]
Total				[redacted]

8.24 Below we detail the explanations provided by the Developers in support of each of the above estimates which are individually greater than £100,000 (which total [redacted]):

8.24.1 Item No. 1 - The Developers have advised that as at December 2016, following cable burial and assessing the Depth of Burial (DoB), where DoB is not sufficient, an allowance is made for carrying out remedial burial work where seabed conditions allow. Where this is not possible due to a very hard seabed or rock outcrop then the cables need to be protected by other means such as rock dumping and/or concrete mattresses. The Developers have estimated an allowance of [redacted] and have stipulated that this is the best-case scenario where no further rock dumping or concrete mattress is needed apart from the [redacted] length cables.

8.24.2 Item No. 3 - The Developers have confirmed that the boulder removal was carried out to allow the trenching vehicle to conduct its work whereby a [redacted] corridor was adopted for this clearance however some areas were left too narrow. The boulder removal was carried out for the Southern cable corridor and was agreed upon however the Northern cable corridor is yet to be carried out and paid. As such, an estimate for this of [redacted] is included in the CAT.

8.24.3 Item No. 4 - The Developers have advised that there are [redacted] planned joints. There are a [redacted] in the contract. The estimated amount of [redacted] relates to a contingency of [redacted] days, where it may be necessary, to extend the work beyond the contractual days dependent on weather conditions.

8.24.4 Item No. 6 - The Developers have advised that an allowance of [redacted] has been made for standby time of OSS pull in works in the event that Jan De Nul are delayed, either by DEWP or a third party, in pulling in export cables and interlink.

8.24.5 Item No. 7 - The Developers have made an allowance of [redacted] in relation to remedial burial works including joint locations. This item is in addition to the best-case scenario (described in paragraph 8.24.1 above), and is considered to be the worst case scenario.

8.24.6 Item No. 8 - The Developers have advised that an allowance of [redacted] has been estimated to cover any delay or extra work caused by events such as the following:

i unknown interface;
ii change of scope;
iii unforeseen ground conditions; and
iv stand downs due to fishermen.

8.24.7 Item No. 9 - The Developers have estimated that [redacted] will be required in relation to transit costs of the accommodation vessel from jack-up platform [redacted].

8.24.8 Item No.s 11 and 12 - In respect of the marine warranty surveyor (MWS) consultant costs, the Developers have advised that estimates for additional costs of [redacted] and [redacted] are required due to using MWS consultants more than would normally be expected due to the complexity of the project. The Developers have advised that [redacted] of these costs had materialised as at the date of the CAT.

8.24.9 Item No. 13 - The Developers have advised that during the jointing work at KP8, due to the limitation of water depth, ordinary crew transfers were not possible. A decision was made for Jan De Nul to acquire an accommodation barge to be positioned as near as possible to the jointing barge, limiting crew transfer by Crew Transfer Vessel (CTV). The Developers have estimated this cost at [redacted].

8.24.10 Item No. 14 - The Developers have estimated a claim by Jan De Nul of [redacted] due to waiting on consent from Marine Management Organisation (MMO) for both onshore and offshore. This is due to operations being restricted by MMO whereby installation spread was going on standby until new approval by MMO was obtained in around July/August 2016.

8.24.11 Item No. 15 - The Developers have advised that a contingency allowance of [redacted] has been made in the event that a major discrepancy occurs between the DoB survey supplied by Jan De Nul and the third party DOB survey conducted after completion of the burial works. A contingency is included for spot check verification to confirm the burial depth.

8.24.12 Item No. 17 - The Developers have advised that they were advised to reduce the roller spacing distance in the saltmarsh and mudflats [redacted] to reduce the risk of cable birdcaging. As such, an estimate of [redacted] has been made for this additional work.

8.24.13 Item No. 20 - The Developers have advised that an allowance of [redacted] has been made as a result of changing the burial from the contract to suit the port requirements, seabed mobility and the thermal conditions of the cable.[redacted]

8.24.14 Item No. 21 - The Developers have estimated additional costs of [redacted] arising from a change in the route position list due to obstructions, environmental constraints and archaeological findings leading to an alternative cable route requiring additional works such as engineering, designs, charts etc.

[redacted]

8.24.16 Item No. 24 - The Developers have estimated an additional cost of [redacted] because of dredging delays. The Developers have advised that the delay of the consent approval from the MMO on the second campaign in 2017 is at risk of causing delay to the [redacted] dredging vessels and as such, have estimated delays of [redacted].

8.24.17 Item No. 25 - The Developers have estimated additional transit costs of [redacted] because of having to use a different vessel than originally planned. The original vessel, [redacted] was due to go to [redacted] to load all three cables and return to site for the installation however there were delays on other projects in [redacted] and therefore the original vessel was not available. The replacement vessel, [redacted] was not able to carry all three cables at one time therefore installation had to be split into two operations with the first operation being the installation of [redacted] and [redacted] followed by the transit back to load [redacted] for installation.

[redacted]

8.24.19 Item No. 27 - The Developers have estimated additional costs of [redacted] in relation to the intertidal cable delivery. The contract was originally based on picking up the intertidal cables in one operation, however due to NKT delays, Jan De Nul had to go to the Netherlands to pick up the second intertidal cable at NKT's choice of location, resulting in additional costs.

8.24.20 Item No. 28 - The Developers have estimated costs of [redacted] for a spare export cable. The strategy for a spare cable was not decided at point of signing the contract and therefore was not included in the original contract sum.

8.24.21 Item No. 29 - The Developers have estimated [redacted] as the cost of replacing [redacted] with using the [redacted] barge. The change resolves the need for accommodation barge alongside the [redacted] during the KP8 jointing work albeit at a higher cost. The advantage of using the [redacted] as a jointing barge for the KP8 joint is the ability to accommodate both vessel crew and jointers on board therefore not requiring an additional accommodation barge.

[redacted]

[redacted]

8.25 As set out in the table at paragraph 8.23 above, the Developers have noted the costs that have been spent as at the CAT date (ie at the end of December 2016). Of the total estimated costs of [redacted][62] [redacted] of the estimate had materialised at the CAT date, ie outstanding estimate of [redacted] The Developers have noted that this estimate is updated by DEWP on a regular basis, adjusting against the conditions encountered. We recommend that Ofgem should obtain an update from the Developers on the estimated costs of [redacted])[63] before finalising the ITV.

[62] Items 2, 10, 11 and 12 for [redacted] and [redacted] respectively

[63] Being the total of all of the estimates in the breakdown provided individually greater than £100,000, as per paragraph 8.24

Miscellaneous costs

8.26 The CAT includes the following miscellaneous costs relating to the installation of the submarine cable:

Miscellaneous costs

Cost	Supplier	Ref	€	£
Intertidal UAV Survey	Cyberhawk Innovations		[redacted]	[redacted]
Anatec cable risk Assessment	Cathie Associates Limited		[redacted]	[redacted]
Third party review of Export Cable route	WSP		[redacted]	[redacted]
Third party review of Orcaflex analysis	Apollo Offshore Engineering		[redacted]	[redacted]
Third party review of export Cable route	IHC Engineering		[redacted]	[redacted]
Export cable burial risk assessment	Anatec		[redacted]	[redacted]
Assessment of seabed mobility	ABP		[redacted]	[redacted]
Officer's time on request	Port of Boston		[redacted]	[redacted]
Rent of temp Office in Port Sutton	C.RO Ports Sutton Bridge		[redacted]	[redacted]
HDD on intertidal area	Riggall & Associates		[redacted]	[redacted]
Deploy, Maintain 5 Light buoys	King's Lynn		[redacted]	[redacted]
HDD pre investigations work	VolkerInfra	8.27.1	[redacted]	[redacted]
Integrated Cable Storage Solution	Wind Cable Services BV	8.27.2	[redacted]	[redacted]
Vessel inspections Export Cable	NMS		[redacted]	[redacted]
Vessel inspections Export Cable	Erria		[redacted]	[redacted]
Vessel inspections Export Cable	London Offshore Consultants	8.27.4	[redacted]	[redacted]
Vessel inspections Export Cable	Specialist Marine Consultants		[redacted]	[redacted]
Vessel for PanGeo Trials	MMT Sweden AB	8.27.5	[redacted]	[redacted]
Sea defence Consultancy	Mott MacDonald	8.27.6	[redacted]	[redacted]
Total			[redacted]	[redacted]

8.27 We have agreed costs above £100,000 to supporting documentation as follows:

8.27.1 We have agreed the HDD pre investigations work of [redacted] to VolkerInfra Limited invoice.

8.27.2 Integrated cable storage solution costs of [redacted] are included in the CAT. We have been provided with the framework agreement for the integrated export cable storage framework that includes a schedule of rates (Appendix 5). The Developers have noted (as set out in an email from the Export Cable Engineer[64]) that the costs are lower than was originally expected when the call-off was created and they expect the following to be charged to the purchase order:

- [redacted] for 1600mm² cable storage;
- [redacted] for 950 mm² cable storage; and
- [redacted] for storage of offshore accessories.

[64] Ofgem developer data room - 4.4.3.39 RE GT question 55 1.msg

8.27.3 We have agreed the calculation of the above costs, totalling [redacted] and the rates used to the framework agreement. Expected costs are therefore [redacted] lower than include in the CAT. As such, an adjustment to reduce the CAT by the difference is proposed.

8.27.4 The Developers have provided a detailed calculation of the MWS hours and expenses from August 2015 to December 2016 with [redacted] spent to date and an allowance of [redacted] to cover January 2017, leading to total costs of [redacted]. We have agreed the day rates in the calculation to the contract with London Offshore Consultants Limited for MWS services.

8.27.5 We have agreed the costs in relation to the vessel for PanGeo trials of [redacted] to the contract with MMT Sweden AB.

8.27.6 The Developers entered into an agreement with Mott MacDonald for sea defence consultancy at a cost of [redacted], which we have agreed to the contract. There have been two variations amounting to [redacted] which we have agreed to variation orders, leading to total costs of [redacted]. Included in the CAT are costs of [redacted], ie, a small difference of [redacted]

BOULDER REMOVAL

Site-running costs

8.28 The CAT includes site-running costs of [redacted] that mainly relate to boulder removal costs of [redacted]. We have agreed the original (provisional) contract amount of [redacted] to the contract with Ecosse, which was subsequently revised to [redacted][65]. There was one variation amounting to [redacted] leading to a total amount of [redacted]. The Developers have apportioned [redacted]% [redacted]) of the total contract amount as Transmission Assets related with the remaining [redacted]% allocated to Generation Assets, split according to the number of vessel days used for Transmission Assets ([redacted] days) and Generation Assets ([redacted] days).

[65] As set out in the Final Accounts and Final Payment Certificate

Cable damage

8.29 Cable damage comprises the following costs:

Cable damage

Item No	Cost provision £
Resource cost	[redacted]
Internal travel cost	[redacted]
Internal travel cost	[redacted]
NKT Offshore 220kV export cable supply	[redacted]
King's Lynn conservancy board	[redacted]
BPP, Cable inspection review	[redacted]
Expected insurance recovery	[redacted]
Total	[redacted]

8.30 The Developers have provided a breakdown of the resources budget of [redacted] and the offshore 220kV export cable estimated costs of [redacted] has been agreed to NKT Cables A/S variation order for jointing works.

8.31 However, the costs are fully offset by the expected insurance recovery (under the CAR policy) of [redacted] in relation to the south export cable damage claim and as such, no costs have been included in the CAT. The CAR policy requires a deductible excess of [redacted] to be paid which will be covered by the contractor (Jan De Nul), which we have agreed to an email from the senior project manager dated 21 April 2017. The Developers have confirmed that any value above the excess will be paid by insurance.

9 LAND CABLE SUPPLY AND INSTALLATION

9.1 The land cable supply and installation costs are comprised as follows:

CR4 – LAND CABLE SUPPLY AND INSTALLATION

Contract Overview	Ref	£
Onshore Cable Supply		
NKT cables - 400kV Cable supply	9.2	[redacted]
NKT - 220kV Cable supply	9.4	[redacted]
Miscellaneous	9.7	[redacted]
		[redacted]
Onshore Cable Installation		[redacted]
400kV & 220kV Onshore export cable installation	9.11	[redacted]
Termination and jointing QA engineer	9.16	[redacted]
Miscellaneous costs	9.17	[redacted]
		[redacted]
Resources and Travel		[redacted]
Resource cost	5.3	[redacted]
Travel cost	5.3	[redacted]
		[redacted]
		[redacted]
		[redacted]

ONSHORE CABLE SUPPLY

400KV cable supply

9.2 The Developers entered into an agreement with [redacted] for the supply of the 400kV cable at a cost of [redacted] which we have agreed to the contract.

9.3 There were variations to the contract amounting to [redacted] and estimated future costs amount to [redacted] leading to total expected costs of [redacted] We requested supporting documentation for the estimated future costs however, the Developers have not provided a breakdown or detailed calculations and have confirmed this is their best estimate based on current negotiations and discussions with contractors. As such, we recommend Ofgem should obtain an update on the estimate of [redacted] from the Developers.

220KV cable supply

9.4 As set out at paragraph 8.5 above, the Developers entered into a contract with [redacted] for the supply of the submarine and onshore cable, of which the onshore cable amounted to [redacted], which we have agreed to the contract.

9.5 Along with further expected costs of [redacted] as per the below table, this results in a total expected cost of [redacted]

220kV cable supply – Estimated future costs

Description	Estimated value €
LIRA tests for remaining cables and pre-energisation	[redacted]
Wind.nl contract (turntable)	[redacted]
Termination QA supervision	[redacted]
External supervision at Factory QA for FATs	[redacted]
SAT at OSS shipyard Z01 only LCOE	[redacted]
FATs external supervision	[redacted]
Third party review of cable design (consultants)	[redacted]
Total	[redacted]

9.6 We requested supporting documentation for expected future costs above £100,000 totalling [redacted]), however, the Developers have not provided detailed calculations and have confirmed these are their best estimates based on current negotiations and discussions with contractors. As such, we recommend Ofgem should obtain an update on these costs from the Developers.

Miscellaneous

9.7 The Developers entered into the purchase and service agreement with [redacted]' for HVAC testing and [redacted] of HV cables. The CAT includes costs of [redacted] in relation to 'HV Underground, ONSS cables'. We have agreed costs of [redacted] to the pricing schedule in the contract, leading to a difference of [redacted]). We do not propose an adjustment to the CAT for this insignificant amount.

ONSHORE EXPORT CABLE INSTALLATION

Main installation contractor

9.8 Competitive tendering was used for the installation of the onshore cables, as set out in Section 4. For this work, six contractors were pre-qualified with four being shortlisted:

- Carillon Utility Services [redacted]
- J Murphy & Sons Limited [redacted]
- VolkerInfra Limited [redacted]
- Compass Infrastructure UK Limited [redacted].

9.9 The basis for recommendation was an evaluation model focusing [redacted], with the weighting for this tender being [redacted]

9.10 A recommendation was made to award the work to J Murphy & Sons Limited after it achieved an overall score of [redacted], compared to [redacted] for Carillion Utility Services and [redacted] for Compass Infrastructure UK Limited. Although J Murphy & Sons [redacted] The Developers stated that this in turn lowers the risk and provides additional safety benefits with the V bucket solution.

9.11 Subsequently, the Developers entered into a contract with J Murphy & Sons Limited for the installation of the 400kV & 220kV onshore export cable included in the CAT at a cost of [redacted](see paragraph 9.12 below). Contract variations of [redacted](see paragraph 9.13 below) and expected variations of [redacted](see paragraph 9.14 below), lead to total expected costs included in the CAT of [redacted].

9.12 As noted above, costs of [redacted]have been included in the CAT in relation to the contract with J Murphy & Sons Limited, however only [redacted]has been agreed to the contract, a difference of [redacted]. As such, an adjustment is proposed to decrease the CAT by this amount.

9.13 There were seven variations to the contract amounting to [redacted], which have been agreed to the variation orders. However, as noted above, the CAT only includes costs of [redacted]in relation to variation orders, a difference of [redacted] The Developers have confirmed the CAT value is to be adjusted for this amount, as such, an adjustment to increase the CAT by [redacted] is proposed. The Developers have stated that one variation order (VO 20) for an amount of [redacted]is being re-drafted and agreed, and as such, the value may change but as it will be in line with the expected variation order budget no further adjustment is considered necessary. However, we recommend Ofgem should obtain an update from the Developers.

9.14 Estimated future costs amount to [redacted], which comprise:

Onshore export cable installation – Estimated future costs

Description	Estimated value £
Delayed due to restricted access	[redacted]
Additional cable delivery off loading	[redacted]
Specialist Dewatering	[redacted]
Fibre Optic additional works	[redacted]
Extra dewatering to TJB's	[redacted]
Supply of aerial markers	[redacted]
Second additional offloading	[redacted]
Christmas 2015 cover	[redacted]
Week end working NKT jointers	[redacted]
Compound extension	[redacted]
Weekend working 9/10 January	[redacted]
Scaffolding at substation	[redacted]
Protection of cables at JB1 & 8	[redacted]
Delayed works weekly charges 11/09/2016 to completion	[redacted]
Minor valuations carried out during delay period	[redacted]
Contract works carried out during disruption period 10/04/2016 to completion	[redacted]
Minor variations during period of disruption week ending 10/04/2016 to completion	[redacted]
Disruption and overhead costs April to December 2016	[redacted]
Total	[redacted]

9.15 We requested supporting documentation for expected future costs above £100,000, totalling [redacted]. However, the Developers confirmed that the breakdown, provided by the senior project manager, was the best available estimate at the time of submitting the CAT. Furthermore, these variation orders are being negotiated and it is their policy not to provide commentary on the negotiation of ongoing claims. The Developers have subsequently advised that expected variation orders are estimated to be at a final value of [redacted] (a difference to the CAT of [redacted]) of which [redacted] has been agreed leaving the remainder still under negotiation. The Developers have stated that no adjustment is required. We recommend that Ofgem should discuss the expected future costs (of which [redacted] are individually above £100,000) further with the Developers.

Termination and Jointing QA Engineer

9.16 The Developers entered into a contract with H&Askham Limited for at a cost of [redacted], which has been agreed to the contract. There were three variations to the contract amounting to [redacted], which have been agreed to variation orders, leading to total costs of [redacted].

Miscellaneous costs

9.17 The miscellaneous onshore cable installation costs comprise [redacted] relating to landowner agreements and [redacted] other miscellaneous costs, leading to total miscellaneous costs of [redacted].

9.18 The costs of the landowner agreements to cover the area of the onshore cable route are expected to amount to [redacted], which comprise the following:

Landowner agreements

Cost	Ref	£
Slaughter and May, Title certificates	-	[redacted]
Proctor, Legal fees (farmers)	-	[redacted]
Dalcour Maclaren Limited. Land Agency services	-	[redacted]
Eversheds, Legal Support	-	[redacted]
Remaining - ASS Land Agent Costs	-	[redacted]
Remaining - ASS Prop. Legal Cost	-	[redacted]
Remaining - ASS Landowner ADVSR RNB	-	[redacted]
Remaining - ASS Landowner agreement and compensation	9.19	[redacted]
Dalcour, Land rights	-	[redacted]
Eversheds, Client account	9.22	[redacted]
Watson Farley, Stat Declaration fee	-	[redacted]
Dalcour Maclaren Limited	-	[redacted]
Total		[redacted]

9.19 The Developers have provided the following breakdown in relation to the forecast costs of [redacted]:

Landowner agreements - Remaining - ASS Landowner Agreement & Compensation

Cost	Status	£
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]		[redacted]

9.20 As set out above, the current forecast costs are only [redacted] and therefore the Developers have agreed a reduction of [redacted][66]. As such, an adjustment is proposed to reduce the CAT by this amount.

[66] £[redacted] £[redacted] = £[redacted]

9.21 We note that the above breakdown includes costs in relation to [redacted] totalling [redacted] (of which only [redacted] has been paid). As the Developers have not provided any further information in support of these costs (of which one amount is above £100,000), it is not clear exactly what these costs relate to and whether they tie into the general acquisition costs (described at paragraph 6.54 above). We recommend that Ofgem should discuss this cost of [redacted] further with the Developers.

9.22 We have agreed the payment for leases to the [redacted] Client Account of [redacted] to the signed payment request form and a reconciliation of monies into and out of the client account.

10 ONSHORE SUBSTATION CONNECTION

10.1 The ONSS connection costs are comprised as follows:

CR5 – ONSHORE SUBSTATION CONNECTION COSTS

Contract Overview	Ref	£
Onshore Substation Design		
Earthing risk management - earthing and Lightning design		[redacted]
WSP - Design of onshore substation civil works	10.2	[redacted]
PSDS - Electrical interface design consultancy	10.4	[redacted]
		[redacted]
Onshore Substation Civil works – Construction		[redacted]
J. Murphy and Sons Limited	10.5	[redacted]
Kelvin Construction - Fire resistant acoustic enclosures	10.12	[redacted]
FL Design-ROC drill model for OnSS Walpole site		[redacted]
		[redacted]
Onshore Substation office costs		[redacted]
Site running costs	10.13	[redacted]
		[redacted]
Onshore Transformers		[redacted]
ABB A/S - 400/220kV Transformers	10.14	[redacted]
		[redacted]
Onshore Switchgear and Control		[redacted]
Siemens - 400kV GIS Onshore	10.16	[redacted]
Siemens - 220kV GIS Onshore	10.18	[redacted]
Miscellaneous installation related cost	10.20	[redacted]
		[redacted]
		[redacted]
SCADA		[redacted]
Alstom Grid UK Limited -SCADA control system	10.24	[redacted]
Semco Maritime A/S - Network & Telecommunications	10.27	[redacted]
Siemens Plc - Metering (Auxiliary Systems)		[redacted]
Miscellaneous	10.29	[redacted]
		[redacted]
Resources and travel		[redacted]
Resource cost	5.3	[redacted]
Travel cost	5.3	[redacted]
		[redacted]
		[redacted]
		[redacted]

ONSHORE SUBSTATION DESIGN

10.2 The Developers entered into a contract with WSP UK Limited for [redacted] in respect of the design of the ONSS, which we have agreed to the contract. There have been two variations amounting to [redacted] (which have been agreed to variation orders) and future expected costs of [redacted] (which has been agreed to a variation order request), leading to total costs of [redacted].

10.3 Included in the CAT are total costs of [redacted], split [redacted] within CR5 and [redacted] within DEVEX (CR8)[67]. This leads to a difference of £211,665[68]. The Developers expect this amount to be agreed with the contractor during design finalisation and as such, do not consider that an adjustment is required. We recommend Ofgem should obtain an update on this unsubstantiated expected cost of £211,665.

10.4 The Developers entered into a contract with Power Systems Design Solutions Limited (PSDS) for onshore electrical interface design consultancy at a cost of [redacted], which has been agreed to the contract. There has been one variation to this contract with a cost of [redacted], leading to total costs of [redacted].

ONSHORE SUBSTATION CIVIL WORKS

10.5 Competitive tendering was used for the civil works construction of the ONSS, as set out in Section 4. 20 suppliers were invited for pre-qualification, of which five were pre-qualified and invited to tender. Following evaluation, two suppliers were shortlisted and invited to submit a best and final offer. The evaluated tenders received were:

- Balfour Beatty [redacted]
- J Murphy & Sons [redacted].

10.6 The basis for recommendation was an evaluation model focusing on [redacted], with the weighting for this tender being [redacted]

10.7 A recommendation was made to award the work J Murphy & Sons after it achieved an overall weighting of [redacted], compared to [redacted] for Balfour Beatty.

10.8 Subsequently, the Developers entered into a contract with J. Murphy and Sons Limited at a cost of [redacted], which has been agreed to the contract. There are estimated further costs of [redacted] (see paragraph 10.9 below) which are based upon the Developers' estimate of the current expected level of claims and ongoing negotiations, leading to total expected costs of [redacted]

[67] Within ROW01 External consultancy - Onshore Con

[68] £[redacted] - £[redacted] = £[redacted]

10.9 We requested supporting documentation for the expected variation orders individually above £100,000. The Developers have provided a breakdown of the expected variation orders for ONSS civil works construction which comprise the following:

Onshore substation civil works – expected variation orders

Reference	Description	Ref	Estimated value £
VO1	Extension of time costs	10.10.1	[redacted]
VO2	Piling delays	10.10.2	[redacted]
VO3	Delay and disruption to the civil works (complexity)	10.10.3	[redacted]
VO4	Delay and disruption to M&E works		[redacted]
Total			[redacted]

10.10 The Developers have confirmed that the expected variation orders are subject to adjustment at final settlement. The Developers have provided explanations for the variations above £100,000 as follows:

10.10.1 VO 1 – The contractor has not made an official claim to substantiate the extension of time costs. The Developers' estimate of [redacted] is based on the prices for overhead, site facility costs etc. in the schedule of rates. There is a time extension of around [redacted] weeks with an estimated weekly cost of [redacted] (rounded to [redacted]) leading to costs of [redacted]. The difference of [redacted] is an allowance for any remaining staff and facilities that are on site during the nine weeks up to 31 May 2017.

10.10.2 VO 2 – The accepted claims from the contractor is [redacted] hours at a rate of [redacted] leading to a total claim of [redacted]. The Developers stated minor adjustments to this figure have been made for lack of piling crews and other claims to reduce this figure by [redacted], leading to costs of [redacted], which have been accepted by the contractor.

10.10.3 VO 3 – The contractor has made no official claim to substantiate the delay and disruption to the civil works complexity claim. The Developers' estimate of [redacted] is based on the labour and plant used in the relevant period. The Developers have stated that the introduction of the cable pit design in November 2015, which continued to June 2016, caused the cable pit work and the other civil works to be carried out in a more complex manner than had been apparent to the contractor when tendering. Works continued in the area, which demonstrated the intention by the contractor to mitigate the time and costs. The cable pits had a substantial footprint and at the same time, the third party contractors were delivering their plant and equipment into the same area. In light of this, the Developers accept that this caused the contractor additional costs, which were not foreseeable at the tender stage, and were as a direct result of the introduction of the cable pits. However, the Developers believe the claim of [redacted] made by the contractors is excessive. The Developers have estimated the labour and plant expended in the areas affected in the period at approximately [redacted] and estimate the recovery in the same period of [redacted] leaving a shortfall for the contractor of [redacted].

10.11 The Developers have not provided any further calculations or documentation in support of expected variation orders one and three and therefore we are unable to substantiate the costs of [redacted] and [redacted] respectively. As such, we recommend Ofgem should discuss these costs, totalling [redacted], further with the Developers.

Onshore substation civil work – Kelvin Construction

10.12 The Developers entered into an agreement with Kelvin Construction Company Limited for the construction of the [redacted] and [redacted] amounting to [redacted], which we have agreed to the contract.

SITE RUNNING COSTS

10.13 The CAT includes site-running costs for the ONSS amounting to [redacted]. The Developers have provided a detailed breakdown of the site running costs amounting to [redacted][69], which included no individual amounts above £100,000.

[69] Insignificant difference of [redacted] compared to the amount included in the CAT

ONSHORE TRANSFORMERS

400/220KV Transformers

10.14 The Developers entered into a contract with ABB A/S for the provision of ONSS transformers at a cost of [redacted] which we have agreed to the contract. There was one variation to the contract amounting to [redacted] of costs have been incurred in relation to heat analysis of the 400kV filter, and future expected costs are [redacted], leading to total expected costs of [redacted]

10.15 We have been provided with an email from the Senior Project Manager dated 10 April 2017 stating that the expected future cost of [redacted] is an allowance to cover interface issues with the 400kV GIS installation with Siemens and claims from both ABB and Siemens are still outstanding and pending negotiation. This amount is the Developers' best estimate from current negotiation and discussions with contractors. We requested detailed calculations to support the amount. However, the Developers have not provided this information. We recommend Ofgem should discuss these expected future costs further with the Developers.

ONSHORE SWITCHGEAR AND CONTROL

400kV GIS Onshore

10.16 The Developers entered into a contract with Siemens A/S for the provision of 400kV GIS onshore switchgear and control at a cost of [redacted], which we have agreed to the contract. There were two variations to the contract amounting to [redacted] (which we have agreed to the variation orders) and future expected costs of [redacted] (see paragraph 10.17 below), leading to total expected costs of [redacted]

10.17 A breakdown of the expected future costs of [redacted] is set out in the table below. As each amount is less than £100,000, we have not looked further into these costs.

400kV GIS onshore – Expected future costs

Description	Estimated value €	Estimated value £
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted]

220KV GIS onshore

10.18 The Developers entered into a contract with Siemens A/S for the provision of 220kV GIS onshore switchgear and control at a cost of [redacted]), which we have agreed to the contract. There have been three variations to the contract amounting to [redacted]) (which we have agreed to the variation orders), and future expected costs of [redacted]) (see paragraph 10.19 below), leading to total expected costs of [redacted]

10.19 The Developers have provided a detailed breakdown of the future expected costs amounting to [redacted]which included no individual amounts above £100,000.

Miscellaneous costs

10.20 The CAT included a number of other costs totalling [redacted]. These are summarised as follows:

Miscellaneous costs

Miscellaneous costs	Supplier	Ref	DKK	€	£
DTS equipment	AP Sensing	7.14	[redacted]	[redacted]	[redacted]
Hire Components Test Equipment	Inlec	-	[redacted]	[redacted]	[redacted]
QC to STATCOM	Gehrung & Partner	-	[redacted]	[redacted]	[redacted]
V02 Component inspection	Parsons Brinckerhoff	-	[redacted]	[redacted]	[redacted]
Storage of onshore components	PSB	10.21	[redacted]	[redacted]	[redacted]
LIRA Testing	Wirescan AS,	10.22	[redacted]	[redacted]	[redacted]
Expected variation orders	COMPON Install	10.23	[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]

10.21 The Developers entered into an agreement with C.RO Ports Sutton Bridge Limited. The contract includes a schedule of storage rates. The Developers have estimated the cost of storing onshore components at [redacted]for [redacted]months leading to costs of [redacted]leaving the remainder of [redacted]as an allowance for handling with cranes, fork lifts and delivery to Walpole, leading to costs of[redacted]. We have agreed [redacted]to an invoice from C.RO Ports Sutton Bridge Limited for storage from 15 February 2017 to 14 March 2017, which includes the rates stated in the contract.

10.22 The Developers entered into a contract with Wirescan AS for the provision of [redacted] testing for [redacted], which we have agreed to the contract.

10.23 There are future expected costs of [redacted] for which we requested a detailed breakdown along with supporting documentation. We have been provided with an email from the [redacted] dated 1 March 2017 confirming that installation costs were not part of the contract prices and therefore will be paid on a rates basis. The Developers have confirmed the estimate is based on previous projects of similar scope. We have not been provided with a breakdown or detailed calculation of this estimate to enable us to substantiate the costs. As such, we recommend that Ofgem should discuss the costs of [redacted] further with the Developer.

SCADA

SCADA control system

10.24 The Developers entered into a contract with ALSTOM Grid UK Limited for the development of the SCADA Control System at a cost of [redacted], which we have agreed to the contract. There was one variation to this contract costing [redacted], and estimated future costs of [redacted]) (see paragraph 10.25 below) leading to total expected costs of [redacted]. The Developers have allocated [redacted]% (see paragraph 10.26 below) of the SCADA control systems costs to the Transmission Assets, in both CR2 (paragraph 7.43) and CR5 (ie total OFTO allocation of [redacted]%), which amounts to [redacted] of costs in each (total costs in CAT of [redacted]), based upon the split of directly attributable costs in the Wind Farm.

10.25 We have observed an email from the Senior Project Manager dated 10 April 2017 that explains that the estimated future cost of [redacted]) is an allowance for site commissioning and no claim has been received for SAT assistance. We requested detailed calculations for this amount however, the Developers confirmed these are the remaining budget amounts expected to be used to finalise the work and no further detailed calculations are available. As noted above, [redacted]% of the SCADA costs have been allocated to the CAT and therefore [redacted][70] has been allocated to both CR2 and CR5. We have not looked further into this amount.

10.26 We have been provided with the Developers' calculation of the allocation rate of [redacted]% (being [redacted]% of [redacted]%) that shows that costs have been allocated based upon a line-by-line analysis of directly attributable contract costs, using allocation rates of either [redacted]% or [redacted]%. The indirectly attributable costs have been allocated on the same basis, save for Transmission Assets fabrication costs of [redacted] which were allocated to the Transmission Assets at the rate of 71.29% (ie total costs of [redacted]). We are satisfied that separate allocation for Transmission Assets fabrication does not create a significant difference to the total costs and as such, no adjustment is proposed.

[70] [redacted] at [redacted]% = [redacted]

Network & telecommunications

10.27 The Developers entered into a contract with Semco Maritime A/S for the provision of network and telecommunications amounting to [redacted]), which we have agreed to the contract. The Developers have allocated [redacted]% [redacted]) of these costs to the Transmission Assets, in both CR2 and CR5 (ie total OFTO allocation of [redacted]%). Expected variations to the agreement with Semco amount to [redacted]) and [redacted]) of which [redacted]% [redacted]) and [redacted]% [redacted]) respectively have been allocated to the Transmission assets, leading to total expected costs included in the CAT of [redacted][71] in both CR2 (paragraph 7.45) and CR5 (total costs in CAT of [redacted]).

10.28 We have been provided with the Developers' calculation of the allocation rate of [redacted]% (being [redacted]% of [redacted]%) which shows that costs are allocated based upon a line-by-line analysis of directly attributable contract costs of [redacted]%. The indirectly attributable costs are allocated on the same basis, save for telephone system costs of [redacted] that were allocated to the Transmission Assets at the rate of 39.56% (to give OFTO costs of [redacted]). We are satisfied that the separate allocation for telephone system costs does not create a significant difference to the total costs and as such, no adjustment is proposed.

Miscellaneous

10.29 The CAT includes miscellaneous SCADA costs totalling [redacted], which have been apportioned across CR2 [redacted][72]) and CR5 [redacted][73])[redacted] as detailed below:

10.29.1 The Developers entered into a contract with Parsons Brinckerhoff in relation to component inspection for an amount of [redacted], of which [redacted]% [redacted] has been allocated to both CR2 and CR5;

10.29.2 The Developers entered into a contract with IKM Communication ApS for the supply of antennas and adapters for an amount of [redacted]) of which [redacted]% [redacted]) has been allocated to both CR2 and CR5;

10.29.3 One variation order for [redacted] of which [redacted]% [redacted]) has been allocated to the Transmission Assets (CR5 only); and

[71] [redacted]

[72] [redacted] (included in the table at paragraph 7.1)

[73] [redacted]

10.29.4 Remaining SCADA installation costs amount to [redacted] of which the Developers have allocated [redacted]%[74] [redacted]) to both CR2 and CR5.

10.30 We have been provided with the Developers' calculation of the allocation rate of [redacted]% that has been based upon a line-by-line analysis of directly attributable costs.

[74] [redacted]% of the rate described in paragraph 10.28, [redacted]% x [redacted]% = [redacted]%

11 REACTIVE SUBSTATION

11.1 The reactive substation costs are comprised as follows:

CR6 – REACTIVE SUBSTATION COSTS

Contract Overview	Ref	£
Reactive Substation		
RXPE - Dynamic reactive compensation plant	11.2	[redacted]
		[redacted]
Shunt Reactors		[redacted]
Siemens - Onshore shunt reactors	11.13	[redacted]
Royal SMIT Transformers - Offshore 220kV reactors	11.14	[redacted]
		[redacted]
Harmonic Filters		[redacted]
Tnei services - Harmonic filter design		[redacted]
Alstom - Harmonic filters	11.15	[redacted]
		[redacted]
		[redacted]
Resources and travel		[redacted]
Resource cost	5.3	[redacted]
Travel cost	5.3	[redacted]
		[redacted]
		[redacted]
		[redacted]

REACTIVE COMPENSATION PLANT

Dynamic reactive compensation plant

11.2 A standalone tender was in place for the provision of a Dynamic Reactive Compensation (DRC) plant. Six companies were invited to tender and six submitted tenders.

11.3 The basis for recommendation was an evaluation model focusing on [redacted] with the weighting for this tender being [redacted]

11.4 Following further evaluation, three companies were shortlisted and invited for a second round. The evaluated contract prices of the second tender round are as follows:

- ABB [redacted]
- Siemens [redacted]
- RXPE [redacted]

11.5 A recommendation was made to award the work to RXPE after it achieved an overall weighting of [redacted], compared to [redacted] for Siemens and [redacted] for ABB.

11.6 Subsequently, the Developers entered into a contract with RXPE for the provision of services in respect of the development of the DRC plant, at a cost of [redacted], which we have agreed to the contract. There was one variation to the contract amounting to [redacted], which we have agreed to the variation order and a future expected variation of [redacted], leading to total expected costs of [redacted]

SHUNT REACTORS

Onshore and offshore shunt reactors

11.7 The tender for the design, fabrication and installation of two onshore reactors and two offshore reactors was part of a lot based tender covering offshore and onshore reactors for the portfolio projects ROW01 and WOW03+04. The tender was divided into three lots as set out below:

11.7.1 [redacted] WOW03+04;

11.7.2 [redacted]

11.7.3 [redacted] WOW03+04.

11.8 The five contractors invited to tender were ABB A/S, Alstom Grid Denmark, BEST, Siemens A/S and SMIT. Tenders were received from four as set out below:

Supplier	Lot A € million	Lot B € million
ABB A/S	[redacted]	[redacted]
BEST	[redacted]	[redacted]
Siemens A/S	[redacted]	[redacted]
SMIT	[redacted]	[redacted]

11.9 A recommendation was made to shortlist Siemens and SMIT for both [redacted]. The reasons for not shortlisting the other two suppliers are set out below:

11.9.1 ABB A/S [redacted]

11.9.2 BEST [redacted] BEST [redacted].

11.10 The basis for recommendation was an evaluation model focusing on [redacted], with the weighting for both [redacted] being [redacted]

11.11 A recommendation was made to award the work for [redacted] to SMIT after it achieved an overall weighting of [redacted] compared with [redacted] for Siemens A/S, although we note that SMIT did not submit the [redacted]

11.12 A recommendation was made to award the work for [redacted] to Siemens A/S after it achieved an overall weighting of [redacted] compared with [redacted] for SMIT. Siemens also submitted the [redacted]

11.13 Subsequently, the Developers entered into a contract with Siemens A/S for the supply of onshore shunt reactors ([redacted]), at a cost of [redacted], which we have agreed to the contract. There was one variation to this contract with a cost of [redacted] leading to total expected costs of [redacted]

11.14 The Developers entered into a contract with SMIT for the supply of offshore shunt reactors [redacted] at a cost of [redacted] which we have agreed to the contract. Included in the CAT is an amount of [redacted] a difference of [redacted] As such, an adjustment is proposed to increase the CAT amount by this difference.

HARMONIC FILTERING EQUIPMENT

11.15 The Developers entered into a contract with [redacted] for the provision of 400kV harmonic filters at a cost of [redacted]. We have agreed this cost to the contract.

12 CONNECTION COSTS

12.1 The connection costs are comprised as follows:

CR7 – CONNECTION COSTS

Contract Overview	Ref	£
Grid connection modification		
NGET - Grid connection modification	12.2	[redacted]
		[redacted]
		[redacted]
Onshore connection bay equipment		[redacted]
Force - Onshore connection bay	12.4	[redacted]
Mitsubishi Electric Europe B.V - 400kV generator bay	12.5	[redacted]
		[redacted]
Resources and travel		[redacted]
Resource cost	5.3	[redacted]
Travel cost	5.3	[redacted]
		[redacted]
		[redacted]
		[redacted]

GRID CONNECTION MODIFICATION

Grid connection

12.2 The Developers entered into a contract with NGET for grid connection modifications, at a cost of [redacted]. The estimated future costs are [redacted](see paragraph 12.3 below) leading to total expected costs of [redacted].

12.3 The Developers have confirmed that of the estimated future costs, they no longer expect to incur [redacted], and therefore this amount should be removed from the CAT, thereby reducing the estimated costs to [redacted]. As such, an adjustment to decrease the CAT amount by [redacted] is proposed.

ONSHORE CONNECTION BAY EQUIPMENT

Onshore connection bay equipment

12.4 The Developers entered into a contract with Force for DRC containers inspection at a cost of [redacted]

12.5 The Developers entered into a contract with Mitsubishi Electric Europe B.V. for 400kV Generator Bay, at a cost of [redacted]which we have agreed to the contract. There have been 24 variations to the contract amounting to [redacted]. Variations above £100,000 have been agreed to variation orders. Estimated future costs amount to [redacted], leading to total expected costs of [redacted]

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13 OTHER COSTS

13.1 The other costs included in the CAT comprise Transmission Assets transaction costs and hedging impacts as follows:

CR9 – OTHER COSTS

	Ref	£
Transmission Assets transaction costs		
External consultancy	13.2	[redacted]
Resource cost	5.3	[redacted]
Travel cost	5.3	[redacted]
		[redacted]
Hedging impacts		[redacted]
Matured hedge	13.5	[redacted]
Open hedge	13.5	[redacted]
		[redacted]
		[redacted]
Total		[redacted]

TRANSMISSION ASSETS TRANSACTION COSTS

13.2 The Developers have provided the following breakdown from SAP of the estimated costs of £2,682,763 in relation to external consultancy:

	Ref	£
Direct payment / Journal	-	[redacted]
Remaining - Transmission Assets Ext legal Cost	13.3.1	[redacted]
Remaining - Transmission Assets Ext tech Cons	13.3.2	[redacted]
Remaining - Transmission Assets Ext tax Cons	13.3.3	[redacted]
Remaining - Transmission Assets Letter of Credit	-	[redacted]
Remaining - Transmission Assets Cost asses cost	13.3.4	[redacted]
Remaining - Transmission Assets Add. Cons	13.3.5	[redacted]
DNV GL UK Limited 'ROW01 Transmission Assets VDD	-	[redacted]
Watson, Farley & Williams LLP	-	[redacted]
Direct payment / Journal	-	[redacted]
Total		[redacted]

13.3 The Developers have explained that the above amounts were its best estimate at the time of submitting the CAT and have provided the following explanations for the estimates above £100,000 (which total [redacted]):

13.3.1 [redacted] - Pre-tender estimate for external legal advice costs. based on previous transactions;

13.3.2 [redacted] – Pre-tender estimate of technical consultants to perform third party analysis, DD enquiries, VDD, and all technical aspects of the transmission asset design, installation;

13.3.3 [redacted]– Pre-tender estimate of tax consultant engaged to provide tax advice related to the transaction and tax treatment of the the project during the transaction process based on previous transactions;

13.3.4 [redacted]- Cost associated with undertaking the cost assessment based on previous transaction; and

13.3.5 [redacted]- Uncertainty in legal and technical fees based on previous transactions.

13.4 We have not been provided with further documentation or detailed calculations for these estimates. As there is insufficient information to substantiate these costs, totalling [redacted], we recommend that Ofgem should discuss these costs further with the Developer.

Hedging impact

13.5 Included in the CAT are profits and losses made on the hedging contracts that the Developers entered into from May 2016 to mitigate their exposure to foreign exchange movements, as detailed further in Section 5. The Developers have calculated a net foreign exchange gain of [redacted], being net exchange gains on contracts in Euros of [redacted] and net exchange gains on contracts in Danish Krone of [redacted].

13.6 The Developers have provided a summary of the net exchange gains and losses on hedges entered into for the Transmission Assets. The Developers also provided a spreadsheet[75] setting out an example calculation, confirming that the budget is a snapshot and the hedges are based on a rolling monthly forecast with delta hedges being set up as and when contracts are placed or payment schedules revised. As a result, there is no correlation between the rates used to calculate the exchange gains and losses arising from their hedging activities, and the exchange rates set out in the CAT.

13.7 Our conclusions in relation to the hedging impact are set out in Section 5.

[75] Ofgem developer data room – 4.3.118 ROW01_CA_ITV_FX hedging re-valuation calculation example

1 SUMMARY OF COST MOVEMENTS AND UNSUBSTANTIATED COSTS

Summary of cost movements

Project cost category	Per CAT v3 £	Adjusted value £	Total adjustment £	Breakdown £	Rationale for adjustment	Unsubstantiated costs £
[redacted]						
Total capital costs (exc. IDC)						

2 GENERAL DEVELOPMENT COSTS

Object	CO object name	Total costs DKK	OFTO %	OFTO Amount £	Reviewed Breakdown	Time costs £	Transactions to	Notes	Notes on allocation
[redacted]									

| Object | CO object name | Total costs DKK | OFTO % | OFTO Amount | Reviewed Breakdown | Time costs £ | Transactions to | Notes | Notes on allocation |

[redacted]

Object	CO object name	Total costs DKK	OFTO %	OFTO Amount £	Reviewed Breakdown	Time costs £	Transactions to	Notes	Notes on allocation