



**Ex-Post Cost Review of the Humber Gateway Offshore Wind
Farm Transmission Assets**

Report of Grant Thornton UK LLP dated 12 May 2016

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1 EXECUTIVE SUMMARY

1.1 Grant Thornton UK LLP (Grant Thornton) has been instructed by the Office of Gas and Electricity Markets (Ofgem) to carry out a review (in accordance with our instructions set out below) of the ex-post cost information prepared by E.ON Climate & Renewables UK Humber Wind Limited (the Developer) for the transmission assets (the Transmission Assets) of the Humber Gateway Offshore Wind Farm (HGOWF / the Wind Farm), as set out in further detail at paragraph 2.6 below.

1.2 The Wind Farm is wholly owned by the Developer, which is a subsidiary of E.ON UK plc¹. The ultimate parent of the E.ON group of companies is E.ON SE. The project forms part of the renewables business of E.ON Climate & Renewables (EC&R).

1.3 The review has sought to determine whether the Developer has procedures in place for managing directly and indirectly incurred costs, and to carry out certain testing on whether the Developer's latest assessment of the costs of the Transmission Assets recorded in the cost assessment template (CAT) provided to Ofgem on 6 October 2015 (the 6 October 2015 CAT) have been incurred as stated. Further detail of our work is set out in Section 3, supplemented in **Appendices 1 to 8**, and is summarised as follows:

- establish the procedures and policies undertaken by the Wind Farm for making payments for directly and indirectly incurred costs;
- in relation to directly incurred costs, for selected contracts, trace expenditure through the purchasing and payments system and reconcile the costs included on the invoice schedule to the 6 October 2015 CAT;
- in relation to indirectly incurred costs, for a sample of transactions, trace expenditure through the accounting system, and confirm the amount allocated has been correctly applied in accordance with the stated allocation methodology, using appropriate metrics in respect of the allocation of costs between transmission and generation; and
- compare the costs at 6 October 2015 to the Indicative Transfer Value (ITV) at 6 March 2015, and obtain explanations for significant variances arising between the two dates.

¹ Humber Gateway Information Memorandum, April 2014, page 8

- 1.4 This report reflects the 6 October 2015 CAT together with information and explanations received by Grant Thornton up to and including 15 January 2016. Our report does not therefore reflect any information or the outcome of discussions held after that date.
- 1.5 The Developer has prepared cost templates setting out its assessment of the costs of the Transmission Assets throughout the development of the Wind Farm project. We reviewed an earlier version of the cost template submitted on 11 June 2014 (the ex-ante review) which culminated in the submission of our report on 26 November 2014. Our report was considered by Ofgem in establishing the project's ITV set in March 2015².
- 1.6 The Developer has submitted the 6 October 2015 CAT to Ofgem setting out its current assessment of the costs incurred in the development of the Wind Farm's Transmission Assets and it is this cost template that has been used in our work. The 6 October 2015 CAT is summarised below:

Breakdown of Transmission Asset costs

	March 2015 ITV £	6 October 2015 CAT £	Movement £
CR2 - Offshore substation	■	■	■
CR3 - Submarine cable supply and install	■	■	■
CR4 - Onshore cable supply and install	■	■	■
CR5 - Onshore substation	■	■	■
CR6 - Reactive substation	■	■	■
CR7 - Connection contract costs	■	■	■
CR8 - General development (contingency, development costs)	■	■	■
Total capital costs	■	■	■
Interest during construction	■	■	■
	173,388,639	184,550,837	11,162,198

- 1.7 The 6 October 2015 CAT reflects an increase in the cost of the Transmission Assets of £11,162,198 from the March 2015 ITV. The reasons for the increase between cost assessments are set out in more detail at **Appendix 8**, with the principal reasons being an increase in offshore substation costs as a result of chartering a jack-up vessel to provide accommodation and reinstating costs to their value prior to a benchmarking exercise undertaken by Ofgem at the ITV stage, offset by a release of contingencies, within general costs, as costs became known. The full analysis of the variances above is presented at **Appendix 8**.

² Letter from Ofgem to EC&R dated 6 March 2015 "Indicative Transfer Value for the Humber Gateway (HG) project"

SUMMARY OF FINDINGS

The Wind Farm's payment processes

- 1.8 We were instructed by Ofgem to establish the Wind Farm's processes for making payments to suppliers for directly and indirectly incurred costs.
- 1.9 The Developer has confirmed that of the 11 main contracts for the Transmission Assets, seven were subject to a competitive tendering process and the other four were awarded on a single-source basis as detailed in our ex-ante report dated 26 November 2014.
- 1.10 Based upon our review, which is detailed further below, it appears the Developer has suitable systems in place for the approval and payment of invoices to contractors, including contract variations, and has further systems in place to ensure that, where appropriate, the allocation of costs between the Transmission and Generation Assets is properly recorded.

Directly incurred costs

- 1.11 We were instructed by Ofgem to carry out certain procedures (as detailed in paragraph 0) on the costs payable by the Wind Farm to ABB Group (ABB) for offshore export cable supply; Balfour Beatty plc (Balfour Beatty) for onshore cable supply and installation; CG Power Solutions UK Limited (CG Power) for work carried out on the onshore and offshore substations; Harland and Wolff Heavy Industries Limited (Harland and Wolff) for the offshore substation foundation supply and Visser & Smit Marine Contracting Limited (Visser & Smit) for the offshore export cable installation.
- 1.12 These five contracts amounted to £[REDACTED] and represent [REDACTED]³ of the overall capital cost of the Transmission Assets as at 6 October 2015 excluding interest during construction. The specified procedures have been carried out as required and a summary of our findings is set out below:

Summary of direct costs testing

	Invoices paid £	Accrued amounts £	Estimated amounts £	Amounts not related to the Transmission Assets £	Total per the 6 October 2015 CAT £
ABB	████	████	████	████	████
Balfour Beatty	████	████	████	████	████
CG Power	████	████	████	████	████
Harland and Wolff	████	████	████	████	████
Visser & Smit	████	████	████	████	████
Total	96,631,941	8,898,233	36,716	(8,345,561)	97,221,329
	99.4%	9.2%	0.0%	-8.6%	100.0%

1.13 We have checked that 90.8%⁴ of the amounts due to the contractors in relation to the Transmission Assets have been paid.

1.14 Accrued amounts represent outstanding milestone payments and variations. █████

1.14.1 █████

1.14.2 █████

1.14.3 █████

1.14.4 █████

1.15 Estimated amounts are not considered significant to the overall value of the Transmission Assets and therefore no further work has been performed on these during this review.

1.16 Amounts not related to the Transmission Assets represent amounts paid to contractors which relate to the portion of the Wind Farm retained by the Developer.

⁴ $\pounds(96,631,941 - 8,345,561) / \pounds97,221,329 = 90.8\%$

Indirectly incurred costs

- 1.17 We were instructed by Ofgem to carry out certain procedures (as detailed in paragraph 3.23) in relation to the following employee costs payable by the Wind Farm:

Summary of indirect costs testing

	September 2014 cost £	Agreed to invoice	Agreed to ledger	Agreed to bank / intercompany ledger
████	████	n/a	✓	✓
████	████	✓	✓	✓
████	████	n/a	✓	✓
████	████	✓	✓	✓
████	████	n/a	✓	✓
29,496.76				

- 1.18 Our work in relation to these costs is summarised below.

Project management support services costs

- 1.19 We have been provided with a breakdown of project management support services costs, and carried out a sample test of these costs to underlying records as specified by Ofgem. Costs incurred to date have been allocated to the Transmission Assets based upon the time spent between the transmission and generation businesses by the Developer's staff and the external contractors who have worked on the Wind Farm development.

- 1.20 Estimated time costs have been allocated to the Transmission Assets based upon the time spent by employees and contractors on activities relating to the Transmission Assets as a proportion of total employee and contractor time on the Wind Farm project as a whole, with rates used based upon timesheet records. This allocation methodology is in line with that employed on similar projects.

- 1.21 The shared costs that have been allocated in proportion to the value of the Transmission Assets as a total of the overall project costs have been included in the 6 October 2015 CAT within general development costs at 23.0%, however we understand that based on actual direct costs incurred the percentage should have been amended to 21.9%. We have therefore proposed an adjustment to reduce the value of the 6 October 2015 CAT by £████ to reflect this.

Allocation of shared staff costs

- 1.22 From our discussions with the Developer, we understand that there has been no allocation to the Transmission Assets relating to the costs of some employees/contractors who work for the project as a whole, rather than specifically for the transmission or non-transmission businesses, as we would have expected, under the method described in paragraph 3.11.3. As such, the

Developer and Ofgem may wish to consider whether an adjustment should be made to the 6 October 2015 CAT.

CONCLUSIONS

- 1.23 Our review of the Wind Farm's processes and procedures has indicated that it has suitable policies for the approval and payment of goods and services received, including for the allocation of costs where appropriate between the Transmission and Generation Assets.
- 1.24 On the basis of our review of the information and explanations received to date in relation to the sample of directly and indirectly incurred costs that we have been asked to review, we can confirm that the sample is supported by invoices, ledgers and bank statements that indicate that the costs have been incurred or are due in relation to the Transmission Assets and that the relevant cost is included within the 6 October 2015 CAT, subject to a reduction of £[REDACTED] for the allocation of shared costs. We recommend that a further Ofgem review is carried out of the accrued amounts for [REDACTED] for which reductions of £[REDACTED] and £[REDACTED] respectively may need to be applied. A technical review by Ofgem of the commissioning of a jack up vessel for £[REDACTED] as per paragraph 8.4 would be worthwhile and possible further allocation of staff costs as per paragraph 1.22 above may be required.

2 INTRODUCTION

INSTRUCTIONS

- 2.1 Grant Thornton has been instructed by Ofgem, to prepare a report on our review of the cost information and 6 October 2015 CAT for the Transmission Assets of the Wind Farm, prepared for Ofgem by the Developer (the ex-post review). This review is limited to the procedures set out in more detail in section 3, and in particular to a sample of costs which have been selected by Ofgem.
- 2.2 Throughout the development of the Wind Farm, Ofgem has required the Developer to submit cost templates which set out both the estimated and actual costs that will be or have been incurred in relation to the Transmission Assets.
- 2.3 In July 2014, we conducted reviews of the cost template for the Transmission Assets dated 11 June 2014 (the ex-ante cost review) culminating in our ex-ante report dated 26 November 2014. At this stage construction of the Transmission Assets had begun, however there remained a degree of uncertainty over a number of costs. As such, the ITV included a contingency provision of £[REDACTED] which equated to [REDACTED]⁵ of the Transmission Asset capital costs.

2.4 Further to the ex-ante cost review, Ofgem set the ITV for the Transmission Assets in 6 March 2015. This was based upon the Transmission Assets costs included in our report dated 26 November 2014, and adjusted for particular issues that had been highlighted in our report as follows:

Reconciliation of ex ante report to ITV

	26 November 2014 Grant Thornton report £	Reallocations £	Grant Thornton adjustments ex ante £	Ofgem adjustments ex ante £	March 2015 ITV £
CR2 - Offshore substation	■	■	■	■	■
CR3 - Submarine cable supply and install	■	■	■	■	■
CR4 - Onshore cable supply and install	■	■	■	■	■
CR5 - Onshore substation	■	■	■	■	■
CR6 - Reactive substation	■	■	■	■	■
CR7 - Connection contract costs	■	■	■	■	■
CR8 - General development (contingency, development costs)	■	■	■	■	■
Total capital costs	■	■	■	■	■
Interest during construction	■	■	■	■	■
	190,839,209	-	1,766,604	(19,217,174)	173,388,639

2.5 The development work on the Transmission Assets is largely complete and the Wind Farm became fully operational during the first half of 2015, with the final turbine completing its performance tests on 19 June 2015.

2.6 The main purpose of the ex-post review of the Wind Farm's Transmission Assets is to determine whether a sample of items, selected by Ofgem, which have been included within the 6 October 2015 CAT prepared by the Developer for the Transmission Assets are appropriately stated, and whether selected costs not directly attributable to either the generation or transmission businesses have been allocated to the Transmission Assets on a reasonable basis. In particular we have been asked to:

- establish the processes and policies undertaken by the Developer for making payments to suppliers for directly and indirectly incurred costs;
- in relation to directly incurred costs, for selected contracts trace expenditure from the cash flow schedule to the contract invoice, the accounting ledgers of the Wind Farm, and to bank statements, and reconcile the costs included on the invoice schedule to the 6 October 2015 CAT;

- in relation to indirectly incurred costs, for a sample of transactions trace from the 6 October 2015 CAT to journal entries made on the accounting system, and confirm the amount allocated has been determined as prescribed in the cost allocation methodology that the Developer has indicated, using appropriate metrics in respect of the allocation of costs between transmission and generation; and
 - compare the costs at October 2015 to the ITV at March 2015 and obtain explanations for variances between the two dates.
- 2.7 If further information is produced and brought to our attention after service of this report, we reserve the right to revise our findings 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 this 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 to us by Ofgem that (i) Ofgem is fully entitled to disclose such information to us for inclusion within our report, free of any third party rights or obligations and (ii) Ofgem will only permit circulation of this report in accordance with any rights to confidentiality on the part of any third party. Any objections to the inclusion of the material should be addressed to Ofgem. Accordingly, Grant Thornton acknowledge no duty or obligation whatsoever to any party in connection to the inclusion in the report of any material referring to any third party material or the accuracy of such material.

DISCLOSURES OF INTEREST

- 2.14 To the best of our knowledge, we have no connection with any of the parties or advisors involved in the Wind Farm development that would in any way impact upon our independence in preparing this report.

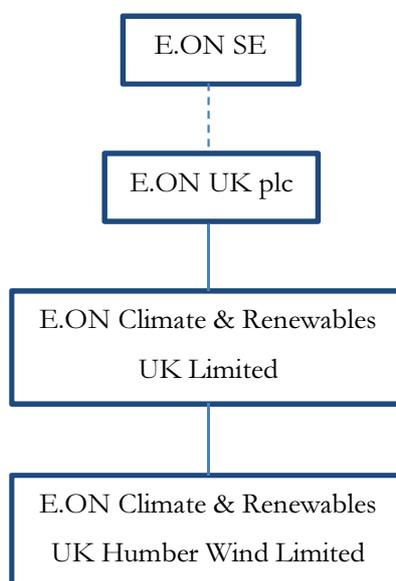
FORMS OF REPORT

- 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 copy should be regarded as definitive.

3 THE HUMBER GATEWAY EX-POST REVIEW

INTRODUCTION

- 3.1 The HGOWF is located in the North Sea, approximately eight kilometres from the coast of East Yorkshire, and is located entirely within UK territorial waters. The Wind Farm covers an area of approximately 35 square kilometres and is situated in water depths of around 15 metres. It consists of 73 Vestas 3.0MW turbines, with a maximum total generating capacity of 219MW⁶.
- 3.2 The Transmission Assets comprises of an offshore substation platform, two nine kilometre long 132kV undersea offshore export cables, two sets of 30 kilometre long 132kV onshore underground cables and an onshore substation at Staithes Road, Salt End, Hull.
- 3.3 HGOWF is wholly owned by the Developer which is a subsidiary of E.ON UK plc⁷. The ultimate parent of the E.ON group of companies is E.ON SE. The project forms part of the renewables business of E.ON Climate & Renewables.
- 3.4 The Developer confirmed that the ownership structure of the Wind Farm, as set out below, has remained unchanged since our ex-ante cost review:



⁶ Humber Gateway Information Memorandum, April 2014, page 8

⁷ ibid

INFORMATION PROVIDED

3.5 Grant Thornton has relied upon the following information in reviewing the cost assessment for the Wind Farm's Transmission Assets:

- the 6 October 2015 CAT, which includes actual costs incurred up to August 2015 and accrued costs that will be incurred from that date up to completion of the Wind Farm development, together with a list of reconciling items between the cost template at 6 October 2015 to the ITV at March 2015 (as detailed in paragraph 2.4 above);
- schedules of invoices prepared for the contracts selected for review by Ofgem, together with copies of invoices, bank statements and ledgers showing payments of the invoices recorded;
- schedules providing supporting information for the internal project management costs; and
- information and explanations provided to us by the Developer. This included a visit to the Developer's offices on 17 December 2015 to discuss the Transmission Assets, and subsequent telephone calls and email correspondence with the Developer's staff responsible for the preparation of the 6 October 2015 CAT.

EX-POST REVIEW

3.6 The main purpose of the ex-post review is set out in section 2.

3.7 The 6 October 2015 CAT for the Transmission Assets of the Wind Farm is summarised below:

Breakdown of Transmission Asset costs

	March 2015 ITV £	6 October 2015 CAT £	Movement £
CR2 - Offshore substation	■	■	■
CR3 - Submarine cable supply and install	■	■	■
CR4 - Onshore cable supply and install	■	■	■
CR5 - Onshore substation	■	■	■
CR6 - Reactive substation	■	■	■
CR7 - Connection contract costs	■	■	■
CR8 - General development (contingency, development costs)	■	■	■
Total capital costs	■	■	■
Interest during construction	■	■	■
	173,388,639	184,550,837	11,162,198

THE WIND FARM'S FINANCIAL PROCESSES

Accounting systems

- 3.8 The Developer confirmed that there have been no changes in its accounting systems since our ex-ante cost review.
- 3.9 All of the costs for the Wind Farm are posted to the SAP accounting system. Costs have been grouped together dependent on the cost activity that they relate to and whether they relate entirely to Transmission or Generation Assets, or to the Wind Farm as a whole (shared costs).
- 3.10 Shared costs are typically indirect costs which are for the general benefit of the overall project and include:
- general project management and administration;
 - project support functions eg procurement, cost control, health and safety;
 - general consultants eg legal/environmental and consent; and
 - equipment benefiting both the Transmission and Generating Assets.
- 3.11 We confirmed with the Developer that the methods for cost allocations of shared costs are consistent with those in place at the date of our ex-ante report, except where otherwise noted, as outlined below:
- 3.11.1 For project management and transaction costs an analysis was performed of staff employed on the project. The approach used was to determine the cost of their work and the amount of time that they had spent working on the Transmission Assets, and hence the costs that should be attributed to the Transmission Assets. The rates used varied between £[REDACTED] and £[REDACTED] per fortnight for staff, and between £[REDACTED] and £[REDACTED] per day for contractors, depending on their role. The Developer confirmed at the ex-ante stage that there was no profit element included within internal staff costs. When determining the FTV, staff costs for both E.ON staff and contractors were based on actual costs recorded within SAP.

3.11.2 Where a specific calculation could be made, for example, in respect of boulder clearance where the Transmission Assets occupy a set percentage of the total seabed associated with the HGOWF project, the specific percentage calculated was allocated to the cost (ie the percentage of the boulder clearance costs has been allocated to the Transmission Assets based upon the area occupied). Land acquisition costs are another example where a calculation of the area has been conducted in order to allocate costs to the Transmission Assets. In respect of boulder clearances, at the FTV stage costs were calculated based on an analysis of the contract costs and vessel day rates associated with the OFTO-related boulder clearance work.

3.11.3 In respect of insurance and other miscellaneous costs it has been assumed that the cost should be allocated in proportion to the value of the Transmission Assets as a total of the overall project, which was estimated at 23.0% (which we have suggested should be amended to 21.9%). This is a common method of cost allocation which we have seen on other wind farm projects.

3.12 Within the 6 October 2015 CAT, the allocation of shared costs has been performed using the same methods as described in paragraph 3.11.

Process for making payments

3.13 The main process used by the Developer for making payments for both directly and indirectly incurred costs is set out below:

- a competitive tender is undertaken for each contract, with a minimum of 3 suppliers involved for any contract with a value greater than £[REDACTED]⁸
- a contract, which will contain the details of agreed milestone payments and any amounts to be paid in advance, will be signed in accordance with the approval thresholds
- the project team complete a requisition form containing details of the contract and is signed off by the project team according to the approval thresholds
- as detailed in the delegations of authority spreadsheet revised on 6 September 2012, there are separate approval thresholds for contracts and for invoices. The approval thresholds for contracts have varied during the course of the HGOWF project, and typical examples are as follows:
 - Interface Engineer; Cable Installation Manager; Lead Marine Co-ordinator; HSSE Co-ordinator; and QA Manager: up to £[REDACTED]

⁸ The limit is €[REDACTED] which is assumed to be £[REDACTED] to account for currency exchange

- HV System Manager; Package Managers; Integration Manager; Construction Manager; Logistics Manager; Cable Installation Contract Manager; Consents & Environment Manager; Consents Support; and O& M Co-ordinator: up to £ [REDACTED]
- Commercial Manager; and Engineering Manager: up to £ [REDACTED]
- EC&R Head of Offshore Financial & Performance; UK Offshore Development Manager; Project Manager; Project Management Office Manager: £ [REDACTED]
- EC&R UK Regional Director; Director Offshore Wind; and EC&R Head of Construction: amounts exceeding £ [REDACTED]
- once the requisition form is completed and received via SAP by the procurement team, a purchase order, with the associated contract value, is set up on SAP
- when a contract milestone has been met, a payment application is made by contractor. The engineer or the package manager completes a certificate confirming the amount that the contractor is able to invoice based on the completion of milestones and variations, and any outstanding work to be performed
- upon receipt of the certificate, the contractor submits an invoice
- the invoice is scanned by the Accounts Payable (AP) team onto the SAP system and a copy is sent to the package team for review. The invoice is stamped by the package team and signed by two people; the Package Manager and one other depending on the value of the invoice
- the approval thresholds for invoices have varied during the course of the HGOWF project and typical examples are as follows:
 - Construction Manager: up to £ [REDACTED]
 - Consents Manager: up to £ [REDACTED]
 - Commercial Manager: up to £ [REDACTED]
 - EC&R Head of Construction; Project Manager; Project Management Office Manager; and EC&R Head of Onshore Finance: up to £ [REDACTED]
 - Director Offshore Wind: amounts exceeding £ [REDACTED]
- the approved invoice is returned to the SAP team who enter the goods received number (GRN) into SAP. The invoice and the GRN are matched in SAP, which allows for the invoice to be paid according to the payment terms

- regular payment reports are run by the AP payment clerks, who do not have access to input invoices onto the system. The report contains a suggested payment run based on the due dates and payment terms set within SAP as well as any flagged items for example blocked accounts, debit balances or invoices exceeding the total amount outstanding on the individual account
- after the flagged items have been reviewed and amended where necessary, a detailed manual check is performed on the proposed payment run by the preparer who signs it off
- the proposed payment run is reviewed and signed off by a second AP payment clerk
- the payment run is uploaded to the banking system and approved by a banking team member and a banking team leader to confirm that it matches the payment run proposed by AP
- the subsequent payment of the invoices contained within the file is automated once the relevant approvals have been received.

Contract variations

- 3.14 The Developer has confirmed that the process for payment of contract variations is the same as the general invoice system set out above with the exceptions that a contract value change form is drawn up instead of requisition form and a variation order is agreed with the contractor which is used to amend the purchase order number already generated within SAP.

REVIEW OF DIRECTLY INCURRED COSTS

- 3.15 Ofgem has selected the following five contracts of directly incurred costs for review:

Summary of directly incurred costs selected for testing

	6 October 2015 CAT £	% of total Transmission Asset capital costs
ABB	■	■
Balfour Beatty	■	■
CG Power	■	■
Harland & Wolff	■	■
Visser & Smit	■	■
	97,221,329	59.0%

3.16 Ofgem has directed that our work in relation to these contracts covers the following:

- trace expenditure from the cash flow schedule to the relevant contract or other source record, and from the contract trace to an invoice(s) or journal;
- trace the invoice through the purchasing system;
- trace the invoice through to the payment system; and
- trace the payments through to the bank accounts.

3.17 Our detailed testing in relation to these contracts is set out in **Appendices 2 to 6**, and our findings are summarised in the following table:

Summary of direct costs testing

	Invoices paid £	Accrued amounts £	Estimated amounts £	Amounts not related to the Transmission Assets £	Total per the 6 October 2015 CAT £
ABB	█	█	█	█	█
Balfour Beatty	█	█	█	█	█
CG Power	█	█	█	█	█
Harland and Wolff	█	█	█	█	█
Visser & Smit	█	█	█	█	█
Total	96,631,941	8,898,233	36,716	(8,345,561)	97,221,329
	99.4%	9.2%	0.0%	-8.6%	100.0%

Invoices paid

3.18 Our review of invoices paid by the Developer that relate to the five Ofgem contracts selected raised no areas of concern.

Accrued amounts

3.19 The accrued amounts represent unpaid milestones and variations on the Balfour Beatty and CG Power contracts. Whilst we have agreed the outstanding milestones payable to CG Power to the contract, the unpaid variation orders in relation to CG Power together with the whole of the milestones and variations potentially due to Balfour Beatty are currently subject to negotiation between the Wind Farm and each of the contractors.

3.20 Further information in relation to these items is included in the executive summary and **Appendix 1**.

Estimated amounts

3.21 Estimated amounts are not considered significant to the overall value of the Transmission Assets and therefore no further work has been performed on these during this review.

Amounts not related to the Transmission Assets

3.22 Amounts not related to the Transmission Assets represent amounts paid to contractors which relate to the portion of the Wind Farm being retained by the Developer.

3.22.1 For ABB this has been calculated based on the length of cable attributable to the Transmission Assets compared to total cable length.

3.22.2 For CG Power, labour and equipment costs have been allocated to either OFTO or the Developer on a line by line basis, with the exception of project management and, engineering and design costs which have been allocated █████% to OFTO and █████% to the Developer. This allocation, including the percentages, was based on the breakdown provided by CG Power to the Developer.

REVIEW OF INDIRECTLY INCURRED COSTS

Project management costs

3.23 Ofgem has directed that our work in relation to project management costs covers the following:

- select a sample of employees;
- agree costs from each individual's timesheet to the system; and
- agree corresponding payment from the project.

3.24 Our findings are summarised in the following table:

Summary of indirect costs testing

	September 2014 cost £	Agreed to invoice	Agreed to ledger	Agreed to bank / intercompany ledger
████	████	n/a	✓	✓
████	████	✓	✓	✓
████	████	n/a	✓	✓
████	████	✓	✓	✓
████	████	n/a	✓	✓
29,496.76				

3.25 From our discussions with the Developer, we understand that there has been no allocation to the Transmission Assets relating to the costs of some employees/contractors who work for the project as a whole (for example, [REDACTED]), rather than specifically for the transmission or non-transmission businesses, as we would have expected, under the method described in paragraph 3.11.3. As such, the Developer and Ofgem may wish to consider whether an adjustment should be made to the 6 October 2015 CAT.

3.26 For the avoidance of doubt, we have not verified the suitability of the hourly rates charged to the project by the Developer.

Allocation rate for shared costs

3.27 From our discussions with the Developer during our site visit, we understand that shared costs which have been allocated under the method described in paragraph 3.11.3 have been included within the 6 October 2015 CAT at an allocation percentage of 23.0%. However, we understand that based on actual direct costs incurred, the allocation percentage should have been revised to 21.9%.

3.28 We have proposed an adjustment to reduce the value in the 6 October 2015 CAT by £[REDACTED]⁹ to reflect the percentage based on actual costs incurred.

MOVEMENTS IN THE COST ASSESSMENT

3.29 The movements between the ITV set in March 2015 and the most recent cost assessment of October 2015 are summarised in the following table:

Breakdown of Transmission Asset costs

	March 2015 ITV £	6 October 2015 CAT £	Movement £
CR2 - Offshore substation	[REDACTED]	[REDACTED]	[REDACTED]
CR3 - Submarine cable supply and install	[REDACTED]	[REDACTED]	[REDACTED]
CR4 - Onshore cable supply and install	[REDACTED]	[REDACTED]	[REDACTED]
CR5 - Onshore substation	[REDACTED]	[REDACTED]	[REDACTED]
CR6 - Reactive substation	[REDACTED]	[REDACTED]	[REDACTED]
CR7 - Connection contract costs	[REDACTED]	[REDACTED]	[REDACTED]
CR8 - General development (contingency, development costs)	[REDACTED]	[REDACTED]	[REDACTED]
Total capital costs	[REDACTED]	[REDACTED]	[REDACTED]
Interest during construction	[REDACTED]	[REDACTED]	[REDACTED]
	173,388,639	184,550,837	11,162,198

⁹ [REDACTED]

- 3.30 The principal reasons for the increase in the cost of the Transmission Assets are an increase in offshore substation costs as a result of chartering a jack-up vessel to provide accommodation and re-instating costs to their value prior to a benchmarking exercise undertaken by Ofgem at the ITV stage, offset by a release of contingencies, within general costs, as costs became known.
- 3.31 The full variance analysis of the above movements is presented at **Appendix 8**.

IMPACT OF COST ASSESSMENT REVIEW

- 3.32 Following our review of the 6 October 2015 CAT, as detailed above, we consider that the following adjustments may be required to the CAT:
- 3.32.1 a reduction of £[REDACTED] in shared costs due to a lower allocation rate, as detailed at paragraph 3.28
- 3.32.2 potential adjustments to the [REDACTED] as further detailed in the executive summary and **Appendix 1**
- 3.32.3 further allocation of staff costs as detailed in paragraph 3.25.

Grant Thornton UK LLP
London

12 May 2016

1 INVOICE TESTING

ABB

- 1.1 The 6 October 2015 CAT includes an amount of £[REDACTED] which was due to ABB for work carried out in respect of the offshore export cable supply which is made up as follows:

	£
Invoiced amounts	[REDACTED]
Less amounts not related to the Transmission Assets	[REDACTED]
Total amounts paid in relation to the Transmission Assets	[REDACTED]
Total ABB costs per the 6 October 2015 CAT	[REDACTED]
	-

Review of amounts paid

- 1.2 We obtained a schedule of all invoices received under the ABB contract which recorded 11 purchase invoices. This is included at **Appendix 2**.

Vouching to invoices

- 1.3 We agreed all 11 invoices recorded on the schedule to the underlying invoice.

Vouching to purchase ledger

- 1.4 We agreed all 11 invoices to the purchase ledger.

Vouching to bank statements

- 1.5 We agreed the payment of all 11 invoices to bank statements.

Amounts not related to the Transmission Assets

- 1.6 The invoiced ABB contract costs relate to 28.0 kilometres of cable of which 19.5 kilometres relate to the Transmission Assets. The invoiced amounts of £[REDACTED] have therefore been apportioned in relation to the length of cable, with the amount of £[REDACTED]¹⁰ being allocated to the Transmission Assets and included in the 6 October 2015 CAT.

¹⁰ Being [REDACTED]

BALFOUR BEATTY

1.7 The 6 October 2015 CAT includes an amount of £ [REDACTED] which was due to Balfour Beatty for work carried out in respect of the onshore cable supply and installation which is made up as follows:

	£
Invoiced amounts	[REDACTED]
Accrued amounts	[REDACTED]
Estimated amounts	[REDACTED]
Total amounts paid/payable	[REDACTED]
Total Balfour Beatty costs per the 6 October 2015 CAT	[REDACTED]
	-

Review of amounts paid

1.8 We obtained a schedule of all invoices received under the Balfour Beatty contract which recorded 20 purchase invoices. This is included at **Appendix 3**.

Vouching to invoices

1.9 We agreed all 20 invoices recorded on the schedule to the underlying invoice.

Vouching to purchase ledger

1.10 We agreed all 20 invoices to the purchase ledger.

Vouching to bank statements

1.11 We agreed the payment of all 20 invoices to bank statements.

Accrued amounts

1.12 [REDACTED]

1.13 [REDACTED]

1.14 [REDACTED]

Estimated amounts

1.15 The estimated amounts in relation to the Balfour Beatty contract are not significant for the purpose of this review and therefore no further work has been performed in relation to them.

11 [REDACTED]

CG POWER

- 1.16 The 6 October 2015 CAT includes an amount of £ [REDACTED] which was due to CG Power for work carried out in respect of the onshore and offshore substations which is made up as follows:

	£
Invoiced amounts	[REDACTED]
Accrued amounts	[REDACTED]
Estimated amounts	[REDACTED]
Total amounts paid/payable	[REDACTED]
Less amounts to related to the non-transmission assets	[REDACTED]
Total amounts paid/payable in relation to the Transmission Assets	[REDACTED]
Total CG Power costs per the 6 October 2015 CAT	[REDACTED]
	-

Review of amounts paid

- 1.17 We obtained a schedule of all invoices received under the CG Power contract which recorded 10 purchase invoices. This is included at **Appendix 4**.

Vouching to invoices

- 1.18 We agreed all 10 invoices recorded on the schedule to the underlying invoice.

Vouching to purchase ledger

- 1.19 We agreed all 10 invoices to the purchase ledger.

Vouching to bank statements

- 1.20 We agreed the payment of all 10 invoices to bank statements.

Accrued amounts

1.21 The accrued amounts in relation to the CG Power contract are set out in the table below:

Summary of accrued amounts for the CG Power contract

Description	Accrued amount included with the 6 October 2015 CAT £
Milestone 7b - █████%	█████
Milestone 8B - █████%	█████
Milestone 9b - █████%	█████
Milestone 10 - █████%	█████
█████	█████
█████	█████
█████	█████
█████	█████
	█████

1.22 We have agreed the outstanding milestone payments totalling £█████ to the contract.

1.23 █████

1.24 We have asked for, but have not been provided with sufficient detail to agree any of the other accrued amounts to supporting documentation, and as such would recommend that Ofgem obtain an update from the Developer regarding the status of these payments before the FTV is agreed. An adjustment for the unverified amount of £█████ may be required.

Estimated amounts

1.25 The estimated amounts in relation to the CG Power contract are not significant for the purpose of this review and therefore no further work has been performed in relation to them.

Amounts not related to the Transmission Assets

1.26 Whilst the bulk of the CG Power contract relates to the Transmission Assets, a small proportion of the onshore and offshore substations relate to the non-transmission assets. As such, a small proportion of the CG Power costs have not been allocated to the Transmission Assets.

- For the costs initially included within the contract price, they have been allocated to either OFTO or the Developer on a line by line basis, with the exception of project management and, engineering and design costs which have been allocated █████% to OFTO and █████% to the Developer. This allocation was done based on a breakdown provided by CG Power to the Developer.

- Variation orders, totalling £[REDACTED] and £[REDACTED] for the onshore and offshore substations respectively, have been entirely allocated to OFTO with the exception of £[REDACTED] for the onshore substation and £[REDACTED] for the offshore substation.

HARLAND AND WOLFF

- 1.27 The 6 October 2015 CAT includes an amount of £[REDACTED] which was due to Harland and Wolff for work carried out in respect of the offshore substation foundation supply which is made up as follows:

	£
Invoiced amounts	[REDACTED]
Estimated amounts	[REDACTED]
Total amounts paid/payable	[REDACTED]
Total Harland and Wolff costs per the 6 October 2015 CAT	[REDACTED]
	-

Review of amounts paid

- 1.28 We obtained a schedule of all invoices received under the Harland and Wolff contract which recorded 20 purchase invoices. This is included at **Appendix 5**.

Vouching to invoices

- 1.29 We agreed all 20 invoices recorded on the schedule to the underlying invoice.

Vouching to purchase ledger

- 1.30 We agreed all 20 invoices to the purchase ledger.

Vouching to bank statements

- 1.31 We agreed the payment of all 20 invoices to bank statements.

Estimated amounts

- 1.32 The estimated amounts in relation to the Harland and Wolff contract are not significant for the purpose of this review and therefore no further work has been performed in relation to them.

VISSER & SMIT

- 1.33 The 6 October 2015 CAT includes an amount of £ [REDACTED] which was due to Visser & Smit for work carried out in respect of the offshore export cable installation which is made up as follows:

	£
Invoiced amounts	[REDACTED]
Total Visser & Smit Marine Contracting costs per the 6 October 2015 CAT	[REDACTED]
	-

Review of amounts paid

- 1.34 We obtained a schedule of all invoices received under the Visser & Smit contract which recorded 38 purchase invoices. This is included at **Appendix 6**.

Vouching to invoices

- 1.35 We agreed all 38 invoices recorded on the schedule to the underlying invoice.

Vouching to purchase ledger

- 1.36 We agreed all 38 invoices to the purchase ledger.

Vouching to bank statements

- 1.37 We agreed the payment of all 38 invoices to bank statements.

7 INDIRECT COSTS REVIEW

PROJECT MANAGEMENT COSTS

7.1 The Developer has outlined the process for allocating project management costs to the Transmission Assets. The process is as follows:

- for internal staff, their time is recorded on a timesheet under a code linked to the project;
- time on the employee's timesheet is recorded as a percentage of their total time for that month;
- separate timesheet codes exist for work done in relation to the Transmission Assets and for other aspects of the Wind Farm;
- the cost is allocated to the project based on the number of hours recorded on these codes;
- for external staff, their timesheet is recorded on a timesheet which generates an invoice;
- an invoice is issued with the associated timesheets attached; and
- the cost of these staff is allocated based on the time recorded in relation to the Transmission Assets.

7.2 We have selected a sample of five individuals on which to test this process.

7.3 The Developer has provided details from these five employees' timesheet records. We have traced these to the invoices being raised, posted on the system and paid or transferred to an intercompany liability account as follows:

Internal project management costs

Employee	September 2014 time ¹	Cost £	Agreed to invoice	Agreed to ledger	Date paid	Agreed to bank / intercompany ledger
█	█	█	n/a	✓	30/09/2014	✓
█	█	█	✓	✓	21/11/2014	✓
█	█	█	n/a	✓	30/09/2014	✓
█	█	█	✓	✓	21/11/2014	✓
█	█	█	n/a	✓	30/09/2014	✓
		29,497				

¹ For internal staff a percentage of their time is charged to the Wind Farm Project

8 MOVEMENT BETWEEN THE COST TEMPLATES

- 8.1 We have been instructed to compare the total Transmission Asset costs as set out in the 6 October 2015 CAT with the total Transmission Asset costs included within the ITV at March 2015, and to obtain explanations for variances between the two dates. These movements, prior to any adjustments detailed in this report, are summarised in the table below.

Breakdown of Transmission Asset costs

	March 2015 ITV £	6 October 2015 CAT £	Movement £
CR2 - Offshore substation	██████████	██████████	██████████
CR3 - Submarine cable supply and install	██████████	██████████	██████████
CR4 - Onshore cable supply and install	██████████	██████████	██████████
CR5 - Onshore substation	██████████	██████████	██████████
CR6 - Reactive substation	██████████	██████████	██████████
CR7 - Connection contract costs	██████████	██████████	██████████
CR8 - General development (contingency, development costs)	██████████	██████████	██████████
Total capital costs	██████████	██████████	██████████
Interest during construction	██████████	██████████	██████████
	173,388,639	184,550,837	11,162,198

- 8.2 We have sought explanations from the Developer for the reasons for the significant movements in each of the cost categories and these are summarised below:

OFFSHORE SUBSTATION

- 8.3 Offshore substation costs have increased by £██████████. The largest increase within this cost category is for vessel hire (£██████████). At the ITV stage the cost was reduced by £██████████ to reflect the outcome of Ofgem's benchmarking exercise, however the 6 October 2015 CAT includes the full pre-ITV value. This also applies to the supply and fabrication of steel and components which has increased by £██████████.
- 8.4 A second significant increase is for the offshore substation commissioning of a jack-up vessel (£██████████) which was used to provide accommodation during the commissioning of the offshore substation. When the ITV was prepared, this cost was not envisaged, however it was felt that incurring these additional costs would prevent delays in using transfer vessels due to the poor weather and hence the additional costs associated with these delays. We recommend that Ofgem review the approach taken by the Developer to confirm whether it was technically efficient as this is outside the scope of our review. We have agreed the cost of €██████████ in relation to the jack-up vessel to supporting invoices.

- 8.5 Additional increases are for the installation crew (£■■■■■); welding, grouting, equipment and tools (£■■■■■); and unexploded ordnance disposal (£■■■■■) which were estimated costs when the ITV was established and have been updated to reflect the actual costs incurred.
- 8.6 For unexploded ordnance disposal, it was initially assumed for the ITV that the OFTO occupied 10% of the total area. For the 6 October 2015 CAT a detailed analysis was conducted of the final work performed associated with OFTO-related unexploded ordnance disposal.
- 8.7 The costs for the installation crew have increased due to higher staffing levels working for a shorter installation period.
- 8.8 The initial estimate of the cost for welding, grouting, equipment and tools prior to establishing the ITV was £■■■■■. When finalising the ITV, E.ON applied a £■■■■■ deduction to this cost as part of the £■■■■■ reduction arising from Ofgem's benchmarking exercise as detailed in paragraph 8.3, with the amount included in the ITV being set at £■■■■■. Actual costs incurred were £■■■■■, £■■■■■ higher than the ITV value. This was lower than the initial estimate as a result of the installation period reducing from ■■■■■.
- 8.9 The above increases have been offset by decreases that were also estimated for the ITV and have been subsequently updated to reflect the final costs: the loading of the electrical equipment deck for the offshore substation from the dockside at Sunderland onto the installation vessel (a decrease of £■■■■■), which was absorbed in the jack-up vessel costs as discussed in paragraph 8.4 and the substation foundation design management (a decrease of £■■■■■) where the estimated cost was overstated.
- 8.10 The CG Power claim for additional costs has decreased by £■■■■■ as a result of ■■■■■.
- 8.11 The jack-up vessel referred to in paragraph 8.4 was used to assist ■■■■■. This represents a decrease in costs within the 6 October 2015 CAT.

SUBMARINE CABLE SUPPLY AND INSTALL

- 8.12 Submarine cable supply and installation costs have increased by £■■■■■. The largest increase within this cost category is from weather delay payment applications for £■■■■■ as the costs have been varied to reflect the actual contract price breakdown provided by the contractor. Also included within this reallocation is an increase of £■■■■■ for high density polyethylene duct installations; an increase on £■■■■■ for temporary cable storage and a decrease of £■■■■■ for installation. The total contract price has not changed from the ITV stage.

8.13 There are further increases for the burial of the export cable (£[REDACTED]), other costs relating to the submarine cable supply and installation (£[REDACTED]) and jointing costs (£[REDACTED]) as these costs were estimated at the ITV stage and have been updated to reflect the actual costs incurred.

8.14 These increases are offset by a decrease in the offshore end temporary lay down costs of £[REDACTED] for the same reason as described in paragraph 8.13 above.

ONSHORE CABLE SUPPLY AND INSTALL

8.15 Onshore cable supply and installation costs have decreased. The movement relates primarily to variation orders on the Balfour Beatty contract. In the March 2015 ITV, £[REDACTED] was included for proposed variation orders not yet undertaken. The final costs included in the 6 October 2015 CAT for these variation orders is £[REDACTED]. The overall movement is not significant to the valuation of the Transmission Assets and therefore no further review has been performed on this variance.

ONSHORE SUBSTATION

8.16 Onshore substation costs have decreased by £[REDACTED]. The overall movement is not considered to be material to the value of the Transmission Assets and from our review of the cost category breakdown we have not identified any individually significant movements.

REACTIVE SUBSTATION

8.17 There has been no variation in the reactive substation costs between the ITV and the 6 October 2015 CAT.

CONNECTION CONTRACT COSTS

8.18 [REDACTED]

GENERAL DEVELOPMENT (CONTINGENCY, DEVELOPMENT COSTS)

8.19 General development costs have decreased by £[REDACTED]. The largest decrease within this cost category is the release of £[REDACTED] contingency costs, as the costs have materialised below expectations.

8.20 E.ON staff and contractor costs have decreased by £[REDACTED] to reflect the actual amount spent, compared to the forecasted amount included in the ITV.

8.21 Other costs, and engineering and design costs included within general development have decreased by £[REDACTED] and £[REDACTED] respectively as the pre-construction development costs have been reviewed in light of the actual amount spent and additionally to remove any double counted items.

8.22 These decreases are offset by an increase in salaries and staff costs of £[REDACTED], which were reviewed from the pre-construction development costs to reflect the actual costs that were spent.

8.23 Land agent fees increased by £[REDACTED] as land agent works have lasted longer and have been more detailed than was expected at the ITV stage, partly due to the Balfour Beatty delays in completing the installation of the land cables.

INTEREST DURING CONSTRUCTION

8.24 Interest during construction costs have increased by £[REDACTED]; this is outside the scope of this review.



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