



**Ex-Post Cost Review of Burbo Bank Extension Offshore Wind  
Farm Transmission Assets**

**Report of Grant Thornton UK LLP  
dated 8 December 2017**

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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 Orsted A/S<sup>1</sup> (Orsted), for the transmission assets (the Transmission Assets) of the Burbo Bank Extension Offshore Wind Farm (BBW02/ the Wind Farm), as set out in further detail at paragraph 2.9.
- 1.2 The Wind Farm is owned by Burbo Extension Limited, a SPV owned by Orsted (50%), PKA A/S (25%) and KIRKBI A/S (25%) (collectively the Developers).
- 1.3 The review has sought to determine whether the Developers have procedures in place for managing directly and indirectly incurred costs, and to carry out certain testing on whether the Developers' latest assessment of the costs of the Transmission Assets have been incurred as stated. Our review and this report is based upon the costs recorded in the cost assessment template (CAT) provided to Ofgem on 18 September 2017 (the 18 September 2017 CAT). Further detail of our work is set out in Section 3, supplemented in **Appendices 1 to 8**, and is summarised as follows:
  - establish the processes 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 18 September 2017 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 18 September 2017 to the Indicative Transfer Value at February 2017 (ITV), and obtain explanations for significant variances arising between the costs at the two dates.

<sup>1</sup> On 6 November 2017, DONG Energy A/S changed its name to Orsted A/S

- 1.4 This report reflects the 18 September 2017 CAT<sup>2</sup> together with information and explanations received by Grant Thornton up to and including 17 October 2017<sup>3</sup>. Our report does not therefore reflect any information or the outcome of discussions held after that date.
- 1.5 The Developers have prepared cost templates setting out its assessment of the costs of the Transmission Assets throughout the development of the Wind Farm project. We reviewed earlier versions of cost templates submitted between 15 January 2016 and 4 May 2016 (the ex-ante review) which culminated in the submission of our report dated 16 November 2016. Our report was considered by Ofgem in establishing the project's ITV<sup>4</sup>.
- 1.6 The Developers have submitted the 18 September 2017 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 18 September 2017 CAT is summarised below:

**Breakdown of Transmission Assets costs**

	February 2017 ITV (Revised) <sup>4</sup> £	18 September 2017 CAT £	Movement £
CR2 - Offshore substation			
CR3 - Submarine cable supply & Install			
CR4 - Onshore cable supply & Install			
CR5 - Onshore substation			
CR6 - Reactive substation			
CR7 - Connection contract costs			
CR8 - Common costs			
CR9 - Other costs (transaction costs, hedging gains)			
<b>Total capital costs</b>			
Interest during construction			
	180,645,583	196,128,873	15,483,290

<sup>2</sup> We understand that the Developers submitted an updated CAT (dated 10 October 2017) to Ofgem. As a result of an adjusted allocation rate for shared costs, total capital costs in the updated CAT are £[REDACTED], ie £[REDACTED] lower than capital costs in the 18 September 2017 CAT as set out in the table at paragraph 1.6 above

<sup>3</sup> Letter from Ofgem to DONG Energy (now Ørsted) dated 10 February 2017 "Indicative Transfer Value for the Burbo Bank Extension (BBE) project"(the Ofgem ITV letter)

<sup>4</sup> We note that the ITV costs included in this table are as set out by the Developers in the 18 September 2017 CAT. As explained in paragraph 2.5, the Developers have reallocated some of the ITV costs, including costs in relation to the reactive substation (CR6), which was not originally utilised in previous cost templates

- 1.7 The 18 September 2017 CAT reflects an increase in the cost of the Transmission Assets of £15.48 million from the February 2017 ITV. The reasons for the increase between cost assessments are set out in more detail at paragraph 3.30 and **Appendix 8**, with the principal reasons being cost increases of approximately £[REDACTED] million in relation to the contract with Jan De Nul for the installation and burial of the subsea cable and a £[REDACTED] million increase in common costs<sup>5</sup>. There has also been a £[REDACTED] million increase in interest during construction. The full analysis of the above variances is presented at **Appendix 8**.

## SUMMARY OF FINDINGS

### The Wind Farm's payment processes

- 1.8 Ofgem has instructed us to establish the Wind Farm's processes for making payments to suppliers for directly and indirectly incurred costs.
- 1.9 The Developers have confirmed that all large value contracts for the Wind Farm have been subject to a competitive tendering process. Based upon our review it appears the Developers have suitable systems in place for the approval and payments 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

- 1.10 Ofgem has instructed us to carry out certain procedures (as detailed at paragraph 3.16) on the costs payable by the Wind Farm to:
- ABB AB for the supply of the offshore cable;
  - SHL Offshore Contractors B.V. (SHL) for the installation of the offshore substation and platform;
  - JV Cofely Fabricom-Iemants (JVFI) for the fabrication of the offshore substation and platform;
  - Jan De Nul NV (Jan De Nul) for the installation and burial of the subsea cable; and
  - Balfour Beatty Civil Engineering Ltd (Balfour Betty) for the civil works construction of the onshore substation.

<sup>5</sup> The increase in common costs of £[REDACTED] million primarily relates to movements between ITV and the 18 September 2017 CAT totalling £[REDACTED] million due to the Developers removing a cost cap applied by Ofgem at ITV and instead updating the allocation rate for shared costs. At ITV, common costs were capped at 15% of capital items, resulting in an adjustment by Ofgem of £[REDACTED] million. In the 18 September 2017 CAT, the Developers have included the full pre-ITV value and applied a lower standard allocation rate, resulting in a decrease of £[REDACTED] million – see paragraph 3.31

- 1.11 These five contracts amounted to £[REDACTED] and represent [REDACTED]% of the overall capital cost excluding interest during construction. These 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 £	Amounts not submitted in 18 September 2017 CAT £	Foreign exchange difference £	Total per 18 September 2017 CAT £
ABB AB	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
SHL Offshore Contractors B.V	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
JV Cofely Fabricom-Iemants	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Jan De Nul NV	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Balfour Beatty Civil Engineering Ltd	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<b>Total</b>	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

- 1.12 We have verified that invoices totalling £[REDACTED] have been paid, representing 99.5% of the contract costs included in the 18 September 2017 CAT.
- 1.13 Accrued amounts represent an outstanding milestone payment and a contract amendment. These are final amounts which we have agreed to the [REDACTED] contract and settlement and contract amendment agreement respectively.
- 1.14 Amounts not submitted in the 18 September 2017 CAT represent amounts paid to [REDACTED] in relation to costs which were disallowed by Ofgem in setting the ITV. The Developers agree and therefore these costs have not been included in the 18 September 2017 CAT.
- 1.15 Foreign exchange differences of £[REDACTED], arising from the reversal of invoices, are further explained in paragraph 3.23. The 18 September 2017 CAT includes hedging gains of £[REDACTED]. We understand that, independent to our review, Ofgem are to make a decision on the foreign exchange rates used in the Final Transfer Value (FTV) CAT and therefore no further work has been performed in this area.

**Indirectly incurred costs**

- 1.16 Ofgem has instructed us to carry out certain procedures (as detailed in paragraph 3.24) in relation to a sample of indirect costs payable by the Wind Farm. Our work and findings in relation to these costs are summarised below:

**Summary of indirect costs testing**

	DE function	September 2015 cost DKK	September 2015 cost £	Agreed to invoice	Agreed to ledger	Agreement to bank
	Internal		-	n/a	✓	n/a
	Internal		-	n/a	✓	n/a
	External	-		✓	✓	✓
	External	-		✓	✓	✓
	External	-		✓	✓	✓

- 1.17 As explained in **Appendix 7** (paragraphs 7.2 and 7.3), the costs for internal employees are posted to the same company code as the time (hours), ie are both accounted for in the same company, and therefore no intercompany invoice is raised nor payment required.

**Project management support services costs**

- 1.18 We have been provided with a breakdown of project management support services costs, and carried out a test of these costs to underlying records as specified by Ofgem. Costs have been allocated to the Transmission Assets based upon the time spent between the transmission and generation businesses by DONG Energy's staff and the external contractors who have worked on the Wind Farm development.
- 1.19 In the 18 September 2017 CAT, shared costs have been allocated at █%, based on 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. On other wind farm projects we have seen, the CAPEX method of cost allocation applies a ratio calculated using only directly attributable costs. As noted in paragraph 2.7, since our review the Developers have submitted an updated CAT with an adjusted allocation rate based on this common method of 'direct' CAPEX cost allocation.

**CONCLUSIONS**

- 1.20 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.

- 1.21 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 they are supported by invoices, ledgers and bank statements that indicate that they have been incurred or are due and that the relevant cost is included within the 18 September 2017 CAT.

Grant Thornton UK LLP

**Grant Thornton UK LLP**

**London**

8 December 2017



## 2 INTRODUCTION

### INSTRUCTIONS

- 2.1 Grant Thornton has been instructed by Ofgem, to prepare a report on our review of the cost information and 18 September 2017 CAT for the Transmission Assets of the Wind Farm, prepared for Ofgem by the Developers (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 Developers 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 June 2016, we conducted reviews of cost templates for the Transmission Assets prepared between 15 January 2016 and 4 May 2016 (the ex-ante review). At this stage, although construction of the Transmission Assets had begun, as there remained a degree of uncertainty over a number of costs, a contingency provision of £[REDACTED] (which equated to [REDACTED]%<sup>7</sup> of the pre-contingency Transmission Asset capital costs) was included in the Grant Thornton ex-ante report. However, prior to setting the ITV (see paragraph 2.4 below), as significant construction progress had been made since the submission of the 4 May 2016 CAT, Ofgem obtained an update on the risk allocation. This resulted in the removal of the entire contingency provision, with the exception of £[REDACTED] relating to risks in respect of the offshore export cable.

- 2.4 Further to the ex-ante review, Ofgem set the ITV for the Transmission Assets in February 2017. This was based upon the Transmission Assets costs included in our report, and adjusted for particular issues that had been highlighted in our report as follows:

	16 November 2016 Grant Thornton ex-ante report £	Reallocations £	Adjustments per Grant Thornton ex-ante report £	Ofgem ex-ante adjustments £	February 2017 ITV £
CR2 - Offshore substation					
CR3 - Submarine cable supply & install					
CR4 - Onshore cable supply & install					
CR5 - Onshore substation					
CR7 - Connection contract costs					
CR8 - Common costs					
CR9 - Other costs (transaction costs, hedging gains)					
Total capital costs					
Interest during construction					
	241,635,432	-	(3,752,951)	(57,236,898)	180,645,583

- 2.5 The above table sets out the February 2017 ITV as approved by Ofgem in the Ofgem ITV letter. The 18 September 2017 CAT presents a revised ITV (February 2017 ITV (Revised)), in which the total remains the same but consents and reactive substation costs have been reallocated, as per the table below:

	February 2017 ITV £	Reallocation of consents and asset management (landowner costs) £	Reallocation of Reactive Compensation Plant costs (CR6) £	February 2017 ITV (Revised) £
CR2 - Offshore substation				
CR3 - Submarine cable supply & install				
CR4 - Onshore cable supply & install				
CR5 - Onshore substation				
CR6 - Reactive substation				
CR7 - Connection contract costs				
CR8 - Common costs				
CR9 - Other costs (transaction costs, hedging gains)				
Total capital costs				
Interest during construction				
	180,645,583	-	-	180,645,583

- 2.6 This report reflects the 18 September 2017 CAT together with information and explanations received by Grant Thornton up to and including 17 October 2017. Our report does not therefore reflect any information or the outcome of discussions held after that date.

- 2.7 We understand that since our review, the Developers have submitted an updated CAT (dated 10 October 2017) to Ofgem (the updated CAT), to reflect an adjusted allocation rate of common costs. The Developers have recalculated the allocation rate based on directly attributable CAPEX only and therefore the rate has decreased from [REDACTED]%<sup>8</sup> to [REDACTED]%. As a result, capital costs in the updated CAT are £[REDACTED]<sup>9</sup> lower than in the 18 September 2017 CAT. We do not comment on the updated CAT further in this report.
- 2.8 The construction of the Transmission Assets is complete. The Wind Farm achieved first power on 20 November 2016, and became fully operational on 11 April 2017, with the final wind turbine generator (WTG) completing its 240hr performance test on 17 May 2017.
- 2.9 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 18 September 2017 CAT prepared by the Developers 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 Developers 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 18 September 2017 CAT;
  - in relation to indirectly incurred costs, for a sample of transactions, trace from the 18 September 2017 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 Developers have indicated, using appropriate metrics in respect of the allocation of costs between transmission and generation; and
  - compare the costs at September 2017 to the ITV and obtain explanations for variances between the costs at the two dates.
- 2.10 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.

<sup>8</sup> See paragraph 3.12 below

<sup>9</sup> £[REDACTED] in relation to CR8 (common costs) and £[REDACTED] in relation to CR5 (onshore substation)

- 2.11 This work does not constitute an audit performed in accordance with Auditing Standards.
- 2.12 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.
- 2.13 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.
- 2.14 No responsibility is accepted to anyone other than Ofgem.

## **RESTRICTION ON CIRCULATION**

- 2.15 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.
- 2.16 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 (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**

- 2.17 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.

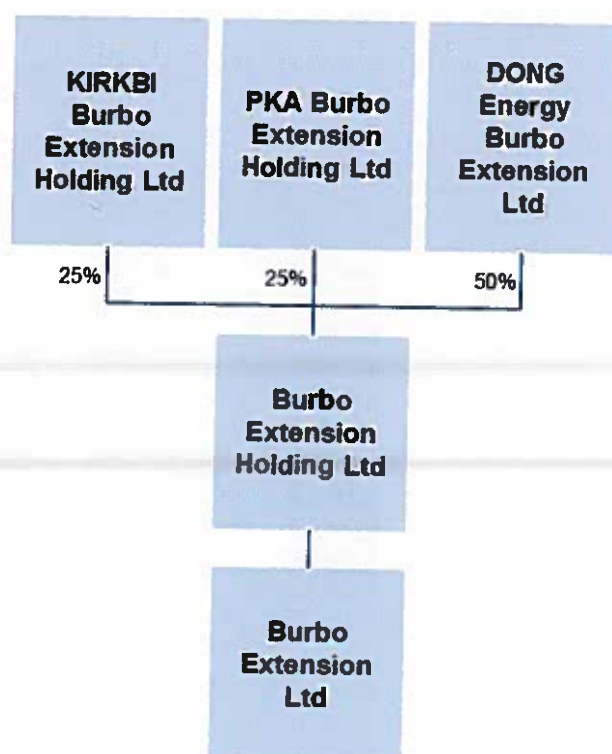
## **FORMS OF REPORT**

- 2.18 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.

### 3 THE BURBO BANK EXTENSION EX-POST REVIEW

#### INTRODUCTION

- 3.1 BBW02 is situated in the Bay of Liverpool, approximately 20 km off the coast of Liverpool, and is located entirely within UK territorial waters. The onshore licensing body is National Grid Electricity Transmission plc (NGET) and the Transmission Assets connect to the Bodelwyddan 400kV substation in North Wales.
- 3.2 The Wind Farm is the first commercial UK wind farm to utilise 8MW wind turbines generators (WTGs) and consists of 32 8MW WTGs with a Transmission Entry Capacity (TEC) of 254.2 MW, which will be connected to an offshore substation platform (OSP) located within the boundaries of the BBW02 Offshore Wind Farm.
- 3.3 The Wind Farm is owned by Burbo Extension Limited, an SPV ultimately jointly-owned by Orsted, KIRKBI A/S and PKA A/S.
- 3.4 The Developers confirmed that the ownership structure of the Wind Farm, as set out below<sup>10</sup>, has remained unchanged since our ex-ante report (with the exception of the rebranding of DONG Energy to Orsted):



<sup>10</sup> Source: Preliminary Information Memorandum, dated April 2016, page 8

## 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 18 September 2017 CAT, which includes actual costs incurred up to April 2017 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 May 2016 (as set out in the Grant Thornton ex-ante report) to the revised ITV (as detailed at paragraphs 2.4 and 2.5 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 Developers. This included a visit to Ørsted's offices on 27 July 2017 to discuss the Transmission Assets, and subsequent telephone calls and email correspondence with staff responsible for the preparation of the 18 September 2017 CAT.

## EX-POST REVIEW

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

3.7 The 18 September 2017 CAT for the Transmission Assets of the Wind Farm is summarised below:

**Breakdown of Transmission Assets costs**

	February 2017 ITV (Revised <sup>11</sup> ) £	18 September 2017 CAT £	Movement £
CR2 - Offshore substation			
CR3 - Submarine cable supply & install			
CR4 - Onshore cable supply & install			
CR5 - Onshore substation			
CR6 - Reactive substation			
CR7 - Connection contract costs			
CR8 - Common costs			
CR9 - Other costs (transaction costs, hedging gains)			
<b>Total capital costs</b>			
Interest during construction			
	<b>180,645,583</b>	<b>196,128,873</b>	<b>15,483,290</b>

<sup>11</sup> See paragraph 2.5

## THE WIND FARM'S FINANCIAL PROCESSES

### Accounting systems

- 3.8 The Developers confirmed that there have been no changes in its accounting system since our ex-ante review.
- 3.9 All costs of the Wind Farm are posted to a Work Breakdown Structure (WBS) code in the SAP accounting system. Costs have been grouped dependent on the cost activity that they relate to and whether they relate entirely to Transmission or Generation Assets, or to the Wind Farm as a whole (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 e.g. procurement, cost control, health and safety;
  - general consultants e.g. legal/environment and consent;
  - offices – London, Copenhagen and on site; and
  - SCADA equipment benefiting both the Transmission and Generation Assets.
- 3.11 As identified in our ex-ante report, for BBW02, shared costs were assigned to the Transmission Assets using a number of different rates to allocate the costs. In setting the ITV, Ofgem capped the level of shared costs at 15% of capital items and therefore reduced the common costs in the 4 May 2016 CAT (and our ex-ante report) by £[REDACTED] million.
- 3.12 Within the 18 September 2017 CAT, the portion of shared costs that are directly attributable to the Transmission Assets has been set to [REDACTED]%, based on 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. Whilst, we have seen the CAPEX method of cost allocation on other wind farm projects, the ratio has previously been calculated using only directly attributable CAPEX costs<sup>12</sup>.

<sup>12</sup> As noted in paragraph 2.7 above, since our review the Developers have submitted an updated CAT with an adjusted allocation rate of common costs to reflect the common method of cost allocation, ie based on 'direct' CAPEX only

### Process for making payments

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

- as identified in our ex-ante report, one of the tools used by the Wind Farm in achieving value for money is the use of a competitive tendering process which was reviewed in that report;
- once the contract has been signed, a purchase order is set up by either the Package Manager or the Contract Manager;
- when a contract milestone has been met, the contractor sends a payment certificate for approval by the Contract Manager;
- after the payment certificate has been approved, the contractor submits an invoice;
- the invoice is scanned and sent to the SAP co-ordinator who sends the invoice to the purchase order raiser, the first approver, to check the details;
- after first approval has been completed, the invoice is sent automatically by SAP to the second approver;
- the approval thresholds for contracts and invoices are as follows
  - up to DKK [REDACTED] can be agreed by the project managers or EPC director;
  - up to DKK [REDACTED] require programme director approval; and
  - over DKK [REDACTED] require Executive Vice President approval;
- if, at either stage, the invoice has not been approved SAP will send automatic reminders to the approvers. Additionally, the SAP co-ordinator performs manual checks of the status in workflow;
- once the invoice has received second stage approval, it is released for payment to the payment department, to be paid when the time is due;
- the payment terms are inputted into SAP by the SAP co-ordinator when the invoice is received and this drives the date on which the payment is made. No further approvals are required at this stage, as approval of the invoice is deemed to be approval of the payment. However, even if an invoice has been approved, the payment can be stopped if required by the Package Lead/Manager; and



- as BBW02 has a Danish company as the legal entity, the 'local currency' in SAP and for the project is DKK. All payments are paid in the currency stated on the invoice and any costs not in DKK are translated at the spot rate on the "actual" date, being the day that the invoice is approved by the second approver (and therefore released for payment), for the purposes of recording the "actual" costs in SAP<sup>13</sup>. Any invoices not raised in DKK can be converted to the spot rate on the date of payment, this is likely to differ from the "actual" amount per SAP which was calculated on the day of release.

### Contract variations

- 3.14 The Developers have confirmed that the process for payment of contract variations is the same as for the general invoice system set out above.

### 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

	CAT Reference	18 September 2017 CAT £	% of total Transmission Asset capital costs
ABB AB	CR3		%
SHL Offshore Contractors B.V	CR2		%
JV Cofely Fabricom lemans	CR2		%
Jan De Nul NV	CR3		%
Balfour Beatty Civil Engineering Ltd	CR5		%
			%

- 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 account.

<sup>13</sup> The costs included the CAT are converted to Sterling (within Excel) using monthly average spot exchange rates for the month the "actuals" are booked in SAP.

- 3.17 Our detailed testing in relation to these contracts is set out in **Appendices 1 to 6**, and our findings are summarised in the following table:

**Summary of direct costs testing**

	Invoices paid £	Accrued amounts £	Amounts not submitted in 18 September 2017 CAT £	Foreign exchange difference £	Total per 18 September 2017 CAT £
ABB AB	██████	██████	██████	██████	██████
SHL Offshore Contractors B.V	██████	██████	██████	██████	██████
JV Cofely Fabricom-Iemants	██████	██████	██████	██████	██████
Jan De Nul NV	██████	██████	██████	██████	██████
Balfour Beatty Civil Engineering Ltd	██████	██████	██████	██████	██████
<b>Total</b>	██████	██████	██████	██████	██████

**Invoices paid**

- 3.18 Our review of invoices paid by DONG Energy, relating to the five contracts selected by Ofgem, confirmed payment to the contractor and raised no areas of concern.

**Accrued amounts**

- 3.19 Our review of accrued amounts in relation to the ██████ contract raised no areas of concern.

**Amounts not submitted**

- 3.20 Amounts not submitted in the 18 September 2017 CAT represent amounts paid to ██████ in relation to costs which were disallowed by Ofgem in setting the ITV. The Developers agree and therefore costs totalling £██████ have not been included, as detailed in **Appendix 1** paragraph 1.31.

### **Foreign exchange**

- 3.21 The 18 September 2017 CAT includes actual costs to the end of April 2017 (converted into Sterling using the average monthly spot exchange rates for the month the "actuals" are booked in SAP) and forecast costs (at forecast hedged foreign exchange rates) from May 2017<sup>14</sup> till the end of the project.
- 3.22 As a result, included in "Other costs" (CR9) are hedging gains of £[REDACTED]. We understand that, independent to our review, Ofgem are to make a decision on the foreign exchange rates used in the FIV CAT and therefore no further work has been performed in this area.

### **Foreign exchange difference**

- 3.23 Included in the contract costs for [REDACTED] are foreign exchange differences totalling £[REDACTED] arising from the reversal of invoices. As the posting of the invoices and the subsequent reversal are in different months, different exchange rates have been used to convert the costs into Sterling, such that the Sterling amounts do not net off and an exchange difference arises. These amounts should have been recognised under "Other costs", in addition to the amount mentioned in paragraph 3.22 above. However, as there is no overall impact on the value of the Transmission Assets (since this is only a difference in cost category within the 18 September 2017 CAT), no adjustment has been proposed in respect of these differences.

## **REVIEW OF INDIRECTLY INCURRED COSTS**

### **Project management costs**

- 3.24 Ofgem has directed that our work in relation to project management costs covers the following:
- select a sample of employees;
  - agree costs from each individuals timesheet to the system; and
  - agree corresponding payment from the project.

<sup>14</sup> With the exception of any variances over £250,000 between May 2017 and submission of the 18 September 2017 CAT which have been adjusted using the foreign exchange rate of the month in which the actual cost incurred.

- 3.25 Our detailed testing in relation to project management costs is set out in **Appendix 7**, and our findings are summarised in the following table:

**Summary of indirect costs testing**

	DE function	September 2015 cost DKK	September 2015 cost £	Agreed to invoice	Agreed to ledger	Agreement to bank
	Internal		-	n/a	✓	n/a
	Internal		-	n/a	✓	n/a
	External	-		✓	✓	✓
	External	-		✓	✓	✓
	External	-		✓	✓	✓

- 3.26 Our testing of project management support services costs has identified no areas of concern.

- 3.27 For the avoidance of doubt, we have not verified the suitability of the hourly rates charged to the project by DONG Energy.

**Allocation rate for shared costs**

- 3.28 Shared costs have been included in the 18 September 2017 CAT at an allocation percentage of %.

**MOVEMENTS IN THE COST ASSESSMENT**

- 3.29 The movements between the ITV set in February 2017 and the most recent cost assessment of September 2017 are summarised in the following table:

**Breakdown of Transmission Assets costs**

	February 2017 ITV (Revised <sup>15</sup> ) £	18 September 2017 CAT £	Movement £
CR2 - Offshore substation			
CR3 - Submarine cable supply & install			
CR4 - Onshore cable supply & install			
CR5 - Onshore substation			
CR6 - Reactive substation			
CR7 - Connection contract costs			
CR8 - Common costs			
CR9 - Other costs (transaction costs, hedging gains)			
Total capital costs			
Interest during construction			
	180,645,583	196,128,873	15,483,290

<sup>15</sup> See paragraph 2.5

- 3.30 The principal reasons for the increase in costs between the February 2017 ITV (Revised) and the 18 September 2017 CAT are cost increases of approximately £[REDACTED] million in relation to the contract with [REDACTED] for the installation and burial of the subsea cable and a £[REDACTED] million increase in common costs (see paragraph 3.31 below). Additionally, interest during construction has increased by £[REDACTED] million.
- 3.31 The common costs increase primarily relates to movements between ITV and the 18 September 2017 CAT totalling £[REDACTED] million due the Developers removing a cost cap applied by Ofgem at ITV and instead updating the allocation rate for shared costs. At ITV, common costs were capped at 15% of capital items based on experience from past projects, reducing common costs by £[REDACTED] million. However, this adjustment has not been included within the 18 September 2017 CAT. Rather, as per paragraph 3.12 above, the Developers have applied a lower standard allocation rate of [REDACTED]%, resulting in a cost reduction of £[REDACTED] million, and an overall cost movement between the ITV and 18 September 2017 CAT of £[REDACTED] million<sup>16</sup>.
- 3.32 The full variance analysis of the above variances is presented at **Appendix 8**.

#### **IMPACT OF COST ASSESSMENT REVIEW**

- 3.33 Following our review of the 18 September 2017 CAT, as detailed above, we do not propose any adjustments (with the exception of any foreign exchange adjustment which is to be determined by Ofgem).

<sup>16</sup> £[REDACTED] million adjustment to decrease common costs in setting the ITV less £[REDACTED] million decrease in common costs included in the 18 September 2017 CAT = £[REDACTED] million

# 1 INVOICE TESTING

## ABB AB

- 1.1 The 18 September 2017 CAT includes an amount of £[REDACTED] which was due to ABB AB for work carried out in respect of the supply of the offshore cable which is made up as follows:

	DKK
Invoiced amounts	[REDACTED]
Effective exchange rate (DKK:£)	[REDACTED]
Total (£)	[REDACTED]
Foreign exchange difference (£)	[REDACTED]
Total ABB AB costs per 18 September 2017 CAT (£)	[REDACTED]

### Review of amounts paid

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

### Vouching to invoices

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

### Vouching to purchase ledger

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

### Vouching to bank statements

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

### Foreign exchange difference

- 1.6 The total ABB AB costs per the 18 September 2017 CAT includes an exchange rate difference of £[REDACTED] arising from the reversal of an invoice in relation to the ABB contract for onshore cable (ie CR4). The invoice was booked in SAP in January 2016 (at an exchange rate of [REDACTED]) and then reversed in February 2016 (at an exchange rate of [REDACTED]). This cost has been included under "CR3" in error, however we do not propose an adjustment for this small difference (which would have no overall impact on the value of the Transmission Assets).

## SHL

- 1.7 The 18 September 2017 CAT includes an amount of £[REDACTED] payable to SHL for work carried out on the installation of the offshore substation and platform, which is made up as follows:

	€
Invoiced amounts	[REDACTED]
Effective exchange rate (€:£)	[REDACTED]
Total (£)	[REDACTED]
Foreign exchange difference (£)	[REDACTED]
Total SHL costs per 18 September 2017 CAT (£)	[REDACTED]

### Review of amounts paid

- 1.8 We obtained a schedule of all invoices received under the SHL contract which recorded 15 purchase invoices. This is included at **Appendix 3**.

### Vouching to invoices

- 1.9 We agreed all 15 invoices recorded on the schedule to the underlying invoice.

### Vouching to purchase ledger

- 1.10 We agreed all 15 invoices to the purchase ledger.

### Vouching to bank statements

- 1.11 We agreed the payment of all 15 invoices to bank statements.

### Foreign exchange difference

- 1.12 The total SHL costs per the 18 September 2017 CAT includes an exchange rate difference of £[REDACTED] as a result of an additional €[REDACTED] being booked in SAP in May 2016 (at an exchange rate of [REDACTED] ie £[REDACTED]) and reversed in June 2016 (at an exchange rate of [REDACTED] ie £[REDACTED]). This resulted in a small difference of £[REDACTED] being included in the cost in the CAT of variation order 03. We note that this cost should have been recognised under "Other costs", however we do not propose an adjustment for this small difference (which would have no overall impact on the value of the Transmission Assets).

## JVFI

- 1.13 The 18 September 2017 CAT includes an amount of £[REDACTED] payable to JVFI for the fabrication of the offshore substation and platform, which is made up as follows:

	€
Invoiced amounts	[REDACTED]
Accrued costs	[REDACTED]
Total amounts paid/payable	[REDACTED]
Effective exchange rate (€:£)	[REDACTED]
Total (£)	[REDACTED]
Foreign exchange difference (£)	[REDACTED]
Total JVFI costs per 18 September 2017 CAT (£)	[REDACTED]

## Review of amounts paid

- 1.14 We obtained a schedule of all invoices received under the JVFI contract which recorded 30 purchase invoices. This is included at **Appendix 4**.

## Vouching to invoices

- 1.15 We agreed all 30 invoices recorded on the schedule to the underlying invoice.

## Vouching to purchase ledger

- 1.16 We agreed all 30 invoices to the purchase ledger.

## Vouching to bank statements

- 1.17 We agreed the payment of all 30 invoices to bank statements.

## Accrued amounts

- 1.18 Two amounts have been accrued for, totalling €[REDACTED] (£[REDACTED]), for completion of snagging works on the offshore substation. These are €[REDACTED] (£[REDACTED]) in relation to milestone 19 of the main contract and €[REDACTED] (£[REDACTED]) in relation to amendment 02. These amounts are still to be invoiced and paid, however they are final amounts which we have agreed to the JVFI contract and settlement and contract agreement respectively.

- 1.19 The Developers expect these costs to be invoiced in November 2017, with payment being made in December 2017/ January 2018.



**Foreign exchange difference**

- 1.20 The total JVFI costs per the 18 September 2017 CAT includes an exchange rate difference of £[REDACTED] arising from the reversal of a booking error. Milestone 2 and milestone 12 have the same value (€[REDACTED]) and the invoice for milestone 2 (no. 2015024) was booked in SAP under milestone 12 in August 2012 by error (at an exchange rate of [REDACTED]). This was then reversed in September 2015 (at an exchange rate of [REDACTED]) resulting in an exchange rate difference of £[REDACTED] being included in the JVFI contract cost in the CAT. We note that this cost should have been recognised under "Other costs", however we do not propose an adjustment for this difference (which would have no overall impact on the value of the Transmission Assets).

**JAN DE NUL**

- 1.21 The 18 September 2017 CAT includes an amount of £[REDACTED] payable to Jan De Nul for work carried out on the installation and burial of the subsea cable which is made up as follows:

	€
Invoiced amounts	[REDACTED]
Effective exchange rate (€:£)	[REDACTED]
Total (£)	[REDACTED]
Total Jan De Nul costs per 18 September 2017 CAT (£)	[REDACTED]

**Review of amounts paid**

- 1.22 We obtained a schedule of all invoices received under the Jan De Nul contract which recorded eight purchase invoices. This is included at **Appendix 5**.

**Vouching to invoices**

- 1.23 We agreed all eight invoices recorded on the schedule to the underlying invoice.

**Vouching to purchase ledger**

- 1.24 We agreed all eight invoices to the purchase ledger.

**Vouching to bank statements**

- 1.25 We agreed the payment of all eight invoices to bank statements.

## BALFOUR BEATTY

- 1.26 The 18 September 2017 CAT includes an amount of £[REDACTED] payable to Balfour Beatty for work carried out on the construction of the onshore substation which is made up as follows:

	£
Invoiced amounts	[REDACTED]
Amounts not submitted in 18 September 2017 CAT	[REDACTED]
Total Balfour Beatty costs per 18 September 2017 CAT	[REDACTED]

### Review of amounts paid

- 1.27 We obtained a schedule of all invoices received under the Balfour Beatty contract which recorded 32 purchase invoices. This is included at **Appendix 6**.

### *Vouching to invoices*

- 1.28 We agreed all 32 invoices recorded on the schedule to the underlying invoice.

### *Vouching to purchase ledger*

- 1.29 We agreed all 32 invoices to the purchase ledger.

### *Vouching to bank statements*

- 1.30 We agreed the payment of all 32 invoices to bank statements.

**Amounts not submitted**

- 1.31 As noted above, we have agreed the payment of Balfour Beatty invoices totalling £[REDACTED], however only £[REDACTED] has been submitted in the 18 September 2017 CAT. Amounts not submitted represent costs which were disallowed by Ofgem in setting the ITV. The Developers agree that these are costs that should not be borne by the consumers and therefore have not submitted variation orders totalling £[REDACTED], as detailed in the table below, in the 18 September 2017 CAT.

	Invoiced costs £	Amounts not submitted £	Total per 18 September 2017 CAT £
Principle contractor - Main contract	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO1	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO2	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO3	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO4	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO5	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO6	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO7	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO8	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO9	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO10	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO11	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO12	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO13	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO14	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO15	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO16	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO17	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO18	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO19	[REDACTED]	[REDACTED]	[REDACTED]
Principle contractor - VO20	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]

## 2 ABB AB INVOICE REVIEW

Invoice no.	Description	Invoice date	Date paid	Net invoice value (relating to CR3) DKK	Exchange rate DKK/£	Net invoice value (relating to CR3) £	Agreed to invoice	Agreed to ledger	Agreed to bank
[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]	[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]	>	>	>
Paid to date							>	>	>

### 3 SHL INVOICE REVIEW

[illegible]



Invoice no.	Description	Invoice date	Date paid	Net invoice value €	Exchange rate €/£	Net invoice value £	Agreed to invoice	Agreed to ledger	Agreed to bank
							✓	✓	✓
							✓	✓	✓
							✓	✓	✓
Paid to date									









## 7 INDIRECT COSTS REVIEW

### PROJECT MANAGEMENT COSTS

- 7.1 The Developers have outlined the process for allocating project management costs to the Transmission Assets. The process is as follows:
- employees register their time in SAP. Each posting has a document number;
  - the document number is linked to an invoice
  - the invoice is paid as part of the total monthly payment to the vendor; and
  - the total monthly vendor payment is shown on the bank statement/ IHC (in-house cash) statement which notes the payment document number.
- 7.2 The above outlines the process for external consultants however for internal employees, the document number for each SAP posting is linked to the intercompany payment (ICP) report (rather than an invoice). As explained in paragraph 7.3 below, no payment will be made as the costs are already in Ørsted (company code 7600) and Ørsted does not use self-billing.
- 7.3 As the time (hours) and the costs are posted to the same company code (7600), there will be no intercompany invoice or payment for internal employees.
- 7.4 Ofgem selected a sample of five individuals for us to test the above processes.
- 7.5 The Developers have provided details from these five employees' timesheet records. We have traced these to the invoices being raised, posted on the system and paid as follows:

#### Project management costs

Employee	DE function	September 2015 hours	Rate DKK	Cost DKK	Cost £	Agreed to invoices	Agreed to ledger	Date paid	Agreed to bank
	Internal					n/a	✓	n/a	n/a
	Internal					n/a	✓	n/a	n/a
	External					✓	✓	18-Oct-15	✓
						✓	✓	15-Nov-15	✓
	External					✓	✓	14-Oct-15	✓
	External					✓	✓	14-Oct-15	✓
						✓	✓	13-Nov-15	✓

## 8 MOVEMENTS BETWEEN THE COST TEMPLATES

- 8.1 We have been instructed to compare the total Transmission Asset costs as set out in the 18 September 2017 CAT<sup>17</sup> with the total Transmission Asset costs included within the ITV at February 2017, and to obtain explanations for variances between the two dates. The movement is summarised in the table below:

**Breakdown of Transmission Assets costs**

	February 2017 ITV (Revised <sup>17</sup> ) £	18 September 2017 CAT £	Movement £
CR2 - Offshore substation			
CR3 - Submarine cable supply & install			
CR4 - Onshore cable supply & install			
CR5 - Onshore substation			
CR6 - Reactive substation			
CR7 - Connection contract costs			
CR8 - Common costs			
CR9 - Other costs (transaction costs, hedging gains)			
Total capital costs			
Interest during construction			
	180,645,583	196,128,873	15,483,290

- 8.2 We have sought explanations from the Developers for the reasons for the significant movements<sup>18</sup> in each of the cost categories and these are summarised below:

### OFFSHORE SUBSTATION

- 8.3 Offshore substation costs have increased by £[REDACTED] million.
- 8.4 The largest increase within this cost category is an increase of £[REDACTED] million in relation to the JVFI contract for the fabrication of the offshore substation and platform. At the ITV stage the cost was reduced by a net amount of £[REDACTED] million to reflect the outcome of Ofgem's benchmarking exercise (removal of £[REDACTED] million) and the additional allowed expenditure in relation to amending the piling arrangement to avoid vehicle collision with the structures at low tide (additional expenditure of £[REDACTED] million). However, the Developers disagree with the approved ITV cost and the 18 September 2017 CAT includes the full pre-ITV value. In addition, there has been a £[REDACTED] million increase due to foreign exchange movements (ie a change in the exchange rates used to convert the main contract costs of €[REDACTED] million into Sterling).

<sup>17</sup> See paragraph 2.5

<sup>18</sup> Cost movements greater than £250,000 in any individual line item of the CAT

- 8.5 A second significant increase is for offshore substation resource costs (£ million). Additional costs have been incurred due to the extended time spent on snagging works as a consequence of the onshore substation 400kV GIS flashover, which resulted in a delay in the offshore substation back-feed power, of approximately six weeks, and energisation. The Developers note that the original offshore substation resource costs total £ million, however this has been reduced by £ million (to £ million) to 'cap' project management costs at % of the capital costs of the offshore substation.
- 8.6 An additional increase of £ million relates to the Nexans contract for the 34kV IPC cable supply and termination, which was not included in the ITV, but has not been included due to a change in the demarcation of the Offshore Transmission Owner (OTTO)/generator boundary offshore. We have agreed these costs to the schedule of prices of the underlying contract.
- 8.7 The above increases (totalling £ million) have been reduced by the following decrease in costs (totalling £ million):
- 8.7.1 a decrease of £ million as a result of the pile cutting option in relation to the SHL contract for the installation of the offshore substation and platform not being exercised;
- 8.7.2 £ million of cost savings in relation to HV/MV offshore resource costs which were also budgeted for under offshore substation resource costs and have subsequently been removed following clarification of the interface;
- 8.7.3 a decrease of £ million in relation to the updated position for the estimated future costs of the SHL contract. The ITV included a budgeted costs of £ million in relation to estimated future costs. Following the ITV, variation orders and miscellaneous cost totalling £ million have been incurred. We have agreed the costs for variation order 03 of £ million (£ million) to supporting documentation; and
- 8.7.4 £ million of Atkins Limited design costs (DEVEX and CAPEX) relate to the ROW and WOW projects and therefore these costs have been removed from the 18 September 2017 CAT and transferred to the two projects to which they relate.

## SUBMARINE CABLE SUPPLY AND INSTALLATION

- 8.8 Submarine cable supply and installation costs have increased by £ million. This is principally as a result of increased costs in relation to the contract with Jan De Nul for the installation and burial of the subsea cable, described in paragraphs 8.9 to 8.11 below.

8.9 An increase of £[REDACTED] million relates to the second supplemental deed to the Jan De Nul contract, which we have agreed to the interim payment certificate setting out total supplemental deed payments of €[REDACTED] million (£[REDACTED] million). Furthermore, we have agreed these contract amendments to the relevant invoices and subsequent payment, as set out in **Appendix 5**. The Developers explained the additional costs included settlement of several items, which were not foreseeable at tender stage<sup>19</sup>, including:

- a change of installation methodology;
- installation of additional supplied mattresses;
- additional vessel lubricant, proportional to the additional fuel usage;
- extended duration of guard vessel charter due to weather down time delays;
- meeting Marine Warranty Surveyor (MWS) safety and insurance requirements in relation to sea-trials of installation trenching vessels and alternative design of cable-deployment chute on installation-lay vessel; and
- and offshore substation '2nd end' cable pull-in due to weather delays.

8.10 The Jan De Nul main contract costs have also increased by £[REDACTED] million. At the ITV stage the cost was reduced by a net amount of £[REDACTED] million to reflect the outcome of Ofgem's review of historic data and cost information from technical advisors in relation to installation costs (removal of £[REDACTED] million) and the additional allowed expenditure of £[REDACTED] million in relation to the installation of extra mattresses to comply with marine licence obligations. However, the Developers disagree with the approved ITV cost and the 18 September 2017 CAT includes the full pre-ITV value, ie £[REDACTED] million increase in costs compared to the ITV. In addition, there has been a £[REDACTED] million increase due to foreign exchange movements (ie a change in the exchange rates used to convert the main contract costs of €[REDACTED] million into Sterling).

<sup>19</sup> As per paragraph 2.3, the entire contingency provision (with the exception of £[REDACTED] million) was removed when setting the ITV, including £[REDACTED] million in relation to submarine cable supply and installation. The Developers note that the additional costs of the Jan De Nul supplemental deed would have been "offset" against the contingency that was submitted at ITV.

- 8.11 We have agreed three variations to the Jan De Nul contract totalling £[REDACTED] million to supporting documentation. The cost increases for these three variations, relating to the supply of additional mattresses, fuel costs and weather down time costs, are offset by decreases relating to the release of the remaining budget at ITV, ie updated to reflect the final costs. These estimates, totalling £[REDACTED] million (to give a net decrease in costs of £[REDACTED] million<sup>20</sup>) comprise £[REDACTED] million for cable crossings requiring more rock or mattresses, £[REDACTED] million for [REDACTED] weather down time cost estimates and £[REDACTED] million for fuel costs for the installation vessel.
- 8.12 An increase of £[REDACTED] million in respect of the ABB AB contract for the supply of the subsea cable is due to foreign exchange movements (ie a change in the exchange rates used to convert the main contract costs of DKK [REDACTED] into Sterling).
- 8.13 A further increase of £[REDACTED] million relates to the contract with Bibby Hydropmap for the cable burial depth survey. This cost is offset by the release of the remaining budget at ITV of £[REDACTED] million<sup>21</sup> for the cost of the post lay burial survey. Additional cost increases of £[REDACTED] million are also offset by the remaining budget, resulting in a net decrease of £[REDACTED] million.
- 8.14 The above increases are reduced by decreases of £[REDACTED] million contingency costs, which was released as the costs materialised, and £[REDACTED] million of saved resources costs.

### LAND CABLE SUPPLY AND INSTALLATION

- 8.15 Land cable supply and installation costs have increased by £[REDACTED] million. The overall movement is not considered material to the value of the Transmission Assets however we have reviewed the cost category breakdown to identify any significant movements.
- 8.16 The two main movements are an increase of £[REDACTED] million in relation to variations<sup>22</sup> to the contract with Volkerinfra Limited for the installation of the 400kV & 220kV onshore export cable, which is largely offset by the release of the budget for estimated future cost of £[REDACTED] million.

<sup>20</sup> £[REDACTED] million variation orders less £[REDACTED] million remaining budget for estimated costs. This additional budget "offsets" the weather down time costs included in the second supplemental deed costs described in paragraph 8.9.

<sup>21</sup> We note that an adjustment of £[REDACTED] million was put through when setting the ITV to reduce the remaining budget to £[REDACTED] million, however the adjustment should have been for £[REDACTED] million to reduce the remaining budget to £[REDACTED] million. This has no effect on the 18 September 2017 as all of the remaining budget has been released to reflect the final costs incurred.

<sup>22</sup> We have agreed variation order 11 for £[REDACTED] million and variation order 12 for £[REDACTED] million to supporting documentation.

## ONSHORE SUBSTATION

- 8.17 Onshore substation costs have increased by a net amount of £[REDACTED] million. The significant movements are explained in paragraphs 8.18 to 8.24 below.
- 8.18 At ITV, based on Ofgem's understanding of similar infrastructure, project management costs were capped at 9% of the capital costs for the onshore substation, reducing the cost submission by £[REDACTED] million. In the 18 September 2017 CAT, the Developers have submitted project management costs of [REDACTED]%<sup>23</sup> of the capital costs for the onshore substation, a cost reduction of £[REDACTED] million. The difference between the cost reductions of £[REDACTED] million is reflected as an increase between the February 2017 ITV and 18 September 2017 CAT.
- 8.19 There has been a cost increase of £[REDACTED] million in respect of the contract with Balfour Beatty for the construction of the onshore substation. We have agreed costs of £[REDACTED] million to variation order 09 in relation to site facilities and £[REDACTED] million to variation order 10 to cover preparation and utilisation of additional laydown and temporary works 'side' access areas around the site, as well as additional plant (eg forklift, driver, banksman) for general use. The Developers have explained that that site running costs (totalling £[REDACTED] million) were originally budgeted for separately, but the above costs were subsequently procured from the Principal Contractor (Balfour Beatty). We note that £[REDACTED] million of site running costs were removed at ITV on the basis that the costs were unsubstantiated or represented post construction operational costs. However, a further £[REDACTED] million in relation to site set up and demobilisation and office supply and site facilities has been included in the 18 September 2017 CAT. As a result, we recommend that Ofgem review all of the site running costs included in the 18 September 2017 CAT.
- 8.20 A further increase of £[REDACTED] million is attributable to landowner agreements. Higher payments for crop compensation and site access are expected due to extended onshore cable works as a result of significant bad weather.

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<sup>23</sup> Project management costs of £[REDACTED] million divided by total asset value of £[REDACTED] million = [REDACTED]%



- 8.21 The above increases, along with additional increases totalling approximately £[REDACTED] million<sup>24</sup>, have been offset by a £[REDACTED] million decrease in relation to enabling and reinstatement works. The ITV included additional allowed costs of £[REDACTED] million in relation to civil engineering work to level the site to allow easier access to build the substation (enabling costs of £[REDACTED] million) and additional remediation work to reinstate an area, previously occupied by the Gwynt Y Mor offshore wind farm, which the Developers took over for the construction of BBW02, after completion of construction (reinstatement works of £[REDACTED] million). However, it appears as if the majority of these costs were already included in the ITV submission.
- 8.22 The ITV submission included £[REDACTED] million in relation to the enabling works contract with Jones Bros Ruthin Co. Ltd and £[REDACTED] million of estimated costs to establish the retention area and the Siemens/ RWE areas after construction. It therefore appears that the additional £[REDACTED] million should not have been included in the ITV.
- 8.23 The 18 September 2017 CAT includes £[REDACTED] million of costs incurred for reinstatement works (for both Siemens/RWE areas and the retention area) under the contract with Jones Bros Ruthin Co. Ltd. As the actual costs were significantly less than the £[REDACTED] million budgeted for this work at ITV, there is a decrease of £[REDACTED] million between the ITV and 18 September 2017 CAT. Together with the 'release' of the £[REDACTED] million of additional allowed costs, as these costs were already included in the ITV, this results in a total decrease of £[REDACTED] million.
- 8.24 A further decrease of £[REDACTED] million relates to the updated position of the remaining budget for estimated security costs included in the ITV. The Developers explained the security work is included in the contract scope with Balfour Beatty and Jones Bros Ruthin Co. Ltd and therefore the 18 September 2017 CAT reflects that the budget is no longer required.

## REACTIVE SUBSTATION

- 8.25 As set out in paragraphs 2.4 and 2.5, the CR6 cost category was not utilised in the ITV CAT, however in the 18 September 2017 CAT, the Developers have reallocated some of the ITV costs, including "splitting-out" £[REDACTED] million of costs in relation to the reactive compensation plant from CR5.

<sup>24</sup> The individual movements which total approximately £[REDACTED] million are all below £250,000 and therefore no further work has been performed in relation to these amounts.

- 8.26 The Developers note the reactive plant is necessary to comply with NGET grid code requirements (given the characteristics and configuration of the transmission system) and have explained the costs have been “split-out” because the reactive plant costs have artificially inflated the ITV CR5 cost submission when compared to Ofgem’s benchmark, resulting in unnecessarily disallowed contract costs. This is a matter for Ofgem and the Developers.
- 8.27 The reactive substation costs have increased by £[REDACTED] million. The movement relates primarily to foreign exchange movements, ie a change in the exchange rates used to convert the Rongxin Power Electronic contract costs of €[REDACTED] million into Sterling, causing an increase of £[REDACTED] million.

### CONNECTION CONTRACT COSTS

- 8.28 Connection contract costs are consistent between the ITV and the 18 September 2017 CAT and therefore no further work has been performed in this area.

### PROJECT COMMON COSTS

- 8.29 Project common costs have increased by £[REDACTED] million. This is primarily due to the Developers removing a cost cap applied by Ofgem at ITV and instead using an adjusted allocation rate for shared costs of [REDACTED]%. At ITV, common costs were capped at 15% of capital items based on experience from past projects, reducing common costs by £[REDACTED] million. However, this adjustment has not been included within the 18 September 2017 CAT. Rather, as per paragraph 3.12, the Developers have applied a lower standard allocation rate of [REDACTED]%. Common costs with the adjusted allocation rate have decreased by a net amount of £[REDACTED] million including a decrease of £[REDACTED] million in relation to internal resources and a £[REDACTED] million decrease in DEVEX costs. As a result, there is a movement of £[REDACTED] million<sup>25</sup> (increase in costs) between the ITV and 18 September 2017 CAT.
- 8.30 Site operating vessel costs have increased by £[REDACTED] million. The ITV costs were calculated from estimated daily rates multiplied by estimate duration as no quote was available for chartering the vessels at the time the ITV was set. The costs included in the 18 September 2017 have been updated for actuals<sup>26</sup>, and due to higher actual market rates for the vessels than estimated, the costs have increased.

<sup>25</sup> £[REDACTED] million adjustment to decrease common costs in setting the ITV less £[REDACTED] million decrease in common costs included in the 18 September 2017 CAT = £[REDACTED] million

<sup>26</sup> As set out in the memorandum prepared by the Developers - 4.2.52 BBW02 - Explanation on increase in site operating vessel cost [DOK2895638]

- 8.31 A decrease of £[REDACTED] million relates to estimated site and commissioning costs for marine management and coordination (£[REDACTED] million) and crane, diving and fall arrester (£[REDACTED] million). These costs were included in the ITV but have since been removed from the 18 September 2017 CAT as have been identified as relating only to the generators.
- 8.32 A further decrease in estimated site and commissioning costs relates to a decrease of £[REDACTED] million in relation to cost savings on site facilities costs (leasing, pontoon upgrade and demolition of site).

### OTHER COSTS

- 8.33 Other costs have decreased by £[REDACTED] million as a result of hedging gains of £[REDACTED] million (and an net increase in transaction costs of £[REDACTED] million). We understand that, independent to our review, Ofgem are to make a decision on the foreign exchange rates used in the ITV CAT and therefore no further work has been performed in this area.

### INTEREST DURING CONSTRUCTION

- 8.34 Interest during construction has increased by £[REDACTED] million. We note that an adjustment to decrease costs by £[REDACTED] million included in the ITV has not been reflected in the 18 September 2017 CAT. However, this is outside the scope of this review and therefore no further work has been performed in this area.



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