



**Ex-Post Cost Review of Walney Extension Wind Farm  
Transmission Assets**

**Report of Grant Thornton UK LLP  
dated 19 May 2020**

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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 of the ex-post cost information, prepared by Ørsted A/S (Ørsted /the Developer), for the transmission assets (the Transmission Assets) of the Walney Extension Wind Farm (WOW03+04/the Wind Farm), in accordance with our instructions set out in paragraph 1.3 below.
- 1.2 The Wind Farm is partly owned and operated by Ørsted through its subsidiary Ørsted Walney Extension Holding Ltd (50%) and Anno 2017 Joint Holding (UK) Ltd (50%), which in turn is owned 50% by PKA and 50% by PFA. Ørsted Wind Power A/S acts as the Construction Manager for the project under a [REDACTED]. The ownership structure has changed since our ex-ante report dated 20 October 2017 and we set out a revised ownership structure in paragraph 3.4.
- 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 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 20 December 2018 (the 19 December 2018 CAT). Further detail of our work is set out in Section 3, supplemented with **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 to the costs included on the invoice schedule to the 19 December 2018 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 costs between transmission and generation; and
  - compare the costs at 19 December 2018 to the Indicative Transfer Value (ITV) at May 2018 and obtain explanations for significant variances arising between the costs at the two dates.
- 1.4 This report reflects the 19 December 2018 CAT together with information and explanations received by Grant Thornton up to and including 23 May 2019. 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. We reviewed an earlier version of the cost template dated 10 March 2017 (the ex-ante review) which culminated in the submission of our report dated 20 October 2017. Our report was considered by Ofgem in establishing the project's ITV<sup>1</sup> (the May 2018 ITV).

1.6 The 19 December 2018 CAT is summarised below:

**Breakdown of Transmission Assets costs**

	CAT Reference	May 2018 ITV £	19 December 2018 CAT £	Movement £
Project common costs	CR8			
Other costs	CR9			
Offshore substation	CR2			
Submarine cable supply and installation	CR3			
Land cable supply and installation	CR4			
Onshore substation connection	CR5			
Reactive substation	CR6			
Connection costs	CR7			
Total capital costs		459,565,658	451,466,998	(8,098,660)
Interest during construction		44,516,184	42,742,572	(1,773,612)
		<b>504,081,842</b>	<b>494,209,570</b>	<b>(9,872,272)</b>

1.7 The 19 December 2018 CAT reflects a net decrease in the cost of the Transmission Assets of £9.87 million from the May 2018 ITV. In relation to the overall decrease in capital costs of £8.10 million (ie excluding the decrease in interest during construction of £1.77 million), the principal decreases and reasons are detailed below:

- OFTO related CAPEX contingency was released;
- there were lower costs for the Deep Ocean contract than predicted at ITV stage; and
- a hotel vessel was used for construction staff to stay on rather than vessel costs for transporting staff back and forth from shore.

<sup>1</sup> Letter from Ofgem to Ørsted Wind Power dated 12 June 2018 "Indicative Transfer Value for the Walney Extension Offshore Windfarm Transmission Assets"

- 1.8 The above decreases have been partially offset by the following reasons for increased costs:
- a large increase in the 220kV cable supply and termination contract with NKT/ABB due to cable damage as part of the works which has resulted in the submission of several insurance claims, which have not yet been reimbursed, and also unforeseen costs associated with the contract;
  - the Amey construction contract took a lot longer than expected as a result of numerous issues in the development including changes in scope, a fire on site and issues with the contractor. This also resulted in additional costs from the construction site being kept open longer, and another contractor had to be paid to undertake landscaping works, as it was de-scoped from the original contract; and
  - in relation to the subsea cable, resources and travel costs increased due to cable damage and a difficult inter-tidal repair.
- 1.9 The full analysis of the above variances is presented at **Appendix 8**.
- 1.10 Based upon our review of the variances, the following two adjustments to the value of the Transmission Assets have been identified and are included in the table at the end of this executive summary:
- As set out in **Appendix 8**, paragraph 8.33 in relation to the 400kV & 220 kV onshore export cable installation, the Developer has informed us that the reallocation of several variation orders had not been counted in CR3. Therefore, an adjustment to add £[REDACTED] is required to the FTV CAT;
  - As set out in **Appendix 8**, paragraph 8.34 in relation to resources and travel there was an onshore fire claim of £[REDACTED], which has now been recovered from the insurance company. It has been included in the FTV in error. The FTV CAT should therefore be adjusted accordingly.

## SUMMARY OF FINDINGS

### The Wind Farm's payment processes

- 1.11 Ofgem has instructed us to establish the Wind Farm's processes for making payments to suppliers for directly and indirectly incurred costs.
- 1.12 The Developer has confirmed that all large value contracts for the Wind Farm have been subject to a competitive tendering process. Based upon our discussions with the Developer, it appears to have 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

1.13 Ofgem has instructed us to carry out certain procedures (as detailed at paragraph 3.15) on the costs payable by the Wind Farm to:

- JV Cofely Fabricom-Iemants (JVFI) for the fabrication of the offshore substation and platform (OSP);
- SHL Offshore Contractors B.V. (SHL) for the transport and installation of the OSP;
- NKT ABB HV Cables Sweden AB (NKT/ABB) for the supply and termination of the 220kV subsea and land cables;
- Deep Ocean Limited (Deep Ocean) for the installation and burial of the subsea export cable; and
- Amey Utility Services Limited (Amey) for the onshore substation construction.

1.14 These five contracts totalled £ [REDACTED] million and represent [REDACTED]%<sup>2</sup> of the total capital costs, as follows:

#### Summary of directly incurred costs selected for testing

	CAT reference	19 December 2018 CAT £	% of total Transmission Asset capital costs
JVFI	CR2	[REDACTED]	[REDACTED]
SHL	CR2	[REDACTED]	[REDACTED]
NKT/ABB	CR3/CR4	[REDACTED]	[REDACTED]
Deep Ocean	CR3	[REDACTED]	[REDACTED]
Amey	CR5/CR7	[REDACTED]	[REDACTED]
		[REDACTED]	[REDACTED]

<sup>2</sup> [REDACTED]

1.15 We have verified that invoices totalling £[REDACTED] million have been paid, representing 99.2%<sup>3</sup> of the selected contracted costs included in the 19 December 2018 CAT. A further £[REDACTED] million (0.8%) relates to accrued amounts. Our testing is summarised below:

**Summary of direct costs testing**

	Invoices paid £	Accrued amounts £	Immaterial difference £	Total per CAT £
JVFI	[REDACTED] [REDACTED]%	-	[REDACTED]%	100.0%
SHL	[REDACTED] [REDACTED]%	-	[REDACTED]%	100.0%
NKT/ABB	[REDACTED] [REDACTED]%	[REDACTED]%	[REDACTED]%	100.0%
Deep Ocean	[REDACTED] [REDACTED]%	[REDACTED]%	[REDACTED]%	100.0%
Amey	[REDACTED] [REDACTED]%	[REDACTED]%	[REDACTED]%	100.0%
<b>Total</b>	[REDACTED] [REDACTED]%	[REDACTED]%	[REDACTED]%	100.0%

**Accrued amounts**

1.16 As further detailed in paragraph 3.18, there are two adjustments which need to be made in relation to the NKT/ABB and Deep Ocean contracts. These adjustments total £[REDACTED]. In addition, as mentioned in **Appendix 1** paragraph 1.17 there may be a further adjustment required to the remaining NKT/ABB accrual, which is still being agreed with the contractor. We have therefore recommended that Ofgem should obtain an update from the Developer in this regard before setting the FTV.

1.17 The £[REDACTED] accrued amount for the Amey contract is a final milestone payment which we have agreed to contract [REDACTED].

<sup>3</sup> [REDACTED]

**Indirectly incurred costs**

1.18 Ofgem has instructed us to carry out certain procedures (as detailed in paragraph 3.19) in relation to a sample of indirect costs payable by the Wind Farm.

**Project management support services costs**

1.19 We have been provided with a breakdown of project management support services costs and carried out a test of these costs to underlying records. Costs 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 worked on the Wind Farm development.

1.20 Our testing in relation to indirect costs (on a random sample of five employees) is summarised below:

**Summary of indirect costs testing**

Employee	Function [internal/ external]	Cost DKK	Cost £	Agreed to invoices	Agreed to ledger	Agreed to bank/interco account
[REDACTED]	Internal	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	External	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	Internal	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	Internal	[REDACTED]	[REDACTED]	✓	✓	✓
[REDACTED]	Internal	[REDACTED]	[REDACTED]	✓	✓	✓
		[REDACTED]	[REDACTED]			

1.21 Shared resource costs have been allocated to the Transmission Assets using the allocation rate of [REDACTED]%, derived from OFTO allocation percentages applied to each of the roles in the resource planner. This is an increase from the allocation rate used at the ITV stage of [REDACTED]%.

1.22 The [REDACTED]% allocation rate used in the 19 December 2018 CAT was originally derived from the calculation used for the Race Bank project. This has been updated since the 19 December 2018 CAT to [REDACTED]% based upon actual costs related to the Wind Farm. This results in a number of proposed adjustments to the CAT as shown below:

**Required change in allocated costs**

	Total costs to be allocated	Allocated at [REDACTED]%	Allocated at [REDACTED]%	Reduction in allocated costs
CR2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
CR3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
CR4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
CR8	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]



1.23 The Developer considers the allocation rate should be slightly higher than [REDACTED]%, namely [REDACTED]% as a result of the inclusion of costs related to the Transmission Assets within the generation totals of its calculation. However, we have not been provided with sufficient information to substantiate this. We therefore recommend that Ofgem discusses this with the Developer.

## CONCLUSIONS

1.24 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.

1.25 On the basis of our review of the information and the 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:

1.25.1 supported by invoices, ledgers and bank statements that indicate that they have been incurred or are due; and

1.25.2 that the relevant cost is included within the 19 December 2018 CAT.

1.26 This is subject to the cost of the Transmission Assets being adjusted as per the table below:

### Impact of cost assessment

	CAT Reference	Ref	£
Cost of Transmission Assets per CAT (excluding IDC)			494,209,570
Adjustments where the amount verified differs to the amount included in the CAT			
Reduction in installation and burial of the export cable - Deep Ocean contract	CR3	[REDACTED]	[REDACTED]
Reduction in 220kV supply and termination - NKT/ABB contract	CR3	[REDACTED]	[REDACTED]
Increase in 400kV & 220kV onshore export cable installation	CR4	[REDACTED]	[REDACTED]
Reduction in resources and travel	CR4	[REDACTED]	[REDACTED]
Reduction in allocation rate from [REDACTED]	CR2	[REDACTED]	[REDACTED]
Reduction in allocation rate from [REDACTED]	CR3	[REDACTED]	[REDACTED]
Reduction in allocation rate from [REDACTED]	CR4	[REDACTED]	[REDACTED]
Reduction in allocation rate from [REDACTED]	CR8	[REDACTED]	[REDACTED]
Total adjustments			[REDACTED]
Reallocations where the amount verified should have been allocated elsewhere in the CAT			
Reallocation to offshore substation resources and travel	CR2	[REDACTED]	[REDACTED]
Reallocation to submarine 220kV cable supply	CR3	[REDACTED]	[REDACTED]
Reallocation from onshore 220kV cable supply	CR4	[REDACTED]	[REDACTED]
Reallocation from onshore substation resources and travel	CR5	[REDACTED]	[REDACTED]
Reallocation to onshore substation 220kV GIS onshore	CR5	[REDACTED]	[REDACTED]
Reallocation from dynamic reactive comp, shunt reactors & harmonic filters	CR6	[REDACTED]	[REDACTED]
Total reallocations			-
<b>Revised cost of Transmission Assets</b>			<b>491,073,902</b>

1.27 This is also subject to our recommendations for follow-up being performed and accurate estimates being obtained as per the table below

		Ref	Budget item	Description
Offshore substation				
Submarine cable supply and installation	CR2, CR3, CR4 & CR8	3.24	N/A	Change in allocation rate
Onshore cable supply and installation				
Project common costs				
Submarine cable supply and installation	CR3	Appendix 8.28	Installation and burial (export cable)	Insurance claim
Submarine cable supply and installation	CR3	Appendix 8.26	Resources and travel	Insurance claim
Submarine cable supply and installation	CR3	Appendix 8.22	220kV cable supply and termination	Insurance claim
Submarine cable supply and installation	CR3	Appendix 1.17	220kV cable supply and termination	NKT/ABB contract
Other costs	CR9	Appendix 8.11	OFTO transaction costs	Estimated costs

*Grant Thornton UK LLP*

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**London**

**19 May 2020**

## 2 INTRODUCTION

### INSTRUCTIONS

- 2.1 Grant Thornton has been instructed by Ofgem to prepare a report on our review of the cost information and 19 December 2018 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 has 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 October 2017, we conducted reviews of the cost template for the Transmission Assets, based upon the cost template submitted to Ofgem dated 10 March 2017 (the ex-ante review). At this stage, although construction of the Transmission Assets was well under way, as there remained a degree of uncertainty over a number of costs, a contingency provision of £[REDACTED] million (which equated to [REDACTED]%<sup>4</sup> of the pre-contingency capital costs excluding IDC) was included in the Grant Thornton ex-ante report. The contingency cost remained unchanged at ITV.
- 2.4 Further to the ex-ante review, Ofgem set the ITV in May 2018. This was based upon the Transmission Assets costs included in our report (dated 20 October 2017), and adjusted for particular issues that had been highlighted in our draft report as follows:

		20 October 2017 Grant Thornton ex-ante report £	Adjustments per Grant Thornton ex-ante report £	Ofgem ex-ante adjustments £	May 2018 ITV £
Project common costs	CR8	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Other costs	CR9	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Offshore substation	CR2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Submarine cable supply and installation	CR3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Onshore cable supply and installation	CR4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Onshore substation connection	CR5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Reactive substation	CR6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Connection costs	CR7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total capital costs		485,116,697	(6,077,795)	(19,473,243)	459,565,658
Interest during construction		47,971,512	-	(3,455,328)	44,516,184
		<b>533,088,210</b>	<b>(6,077,795)</b>	<b>(22,928,571)</b>	<b>504,081,842</b>

<sup>4</sup> [REDACTED]

- 2.5 This report reflects the 19 December 2018 CAT together with information and explanations received by Grant Thornton up to and including 23 May 2019. Our report does not therefore reflect any information or the outcome of discussions held after that date.
- 2.6 The construction of the Transmission Assets is complete, and the Wind Farm became fully operational in November 2018.
- 2.7 The main purpose of the ex-post review of the Wind Farm's Transmission Assets is to determine whether a sample of costs, selected by Ofgem, which have been included within the 19 December 2018 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 Wind Farm 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, the invoice, the accounting ledgers of the Wind Farm, and to the bank statements, and reconcile the costs included on the invoice schedule to the 19 December 2018 CAT;
  - in relation to indirectly incurred costs, for a sample of transactions, trace from the 19 December 2018 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 19 December 2018 to the ITV and obtain explanations for variances between the costs at the two dates.
- 2.8 If further information is produced and brought to our attention after service of this report, we reserve the right to revise our opinions as appropriate.
- 2.9 This work does not constitute an audit performed in accordance with Auditing Standards.
- 2.10 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.
- 2.11 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.

## **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 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**

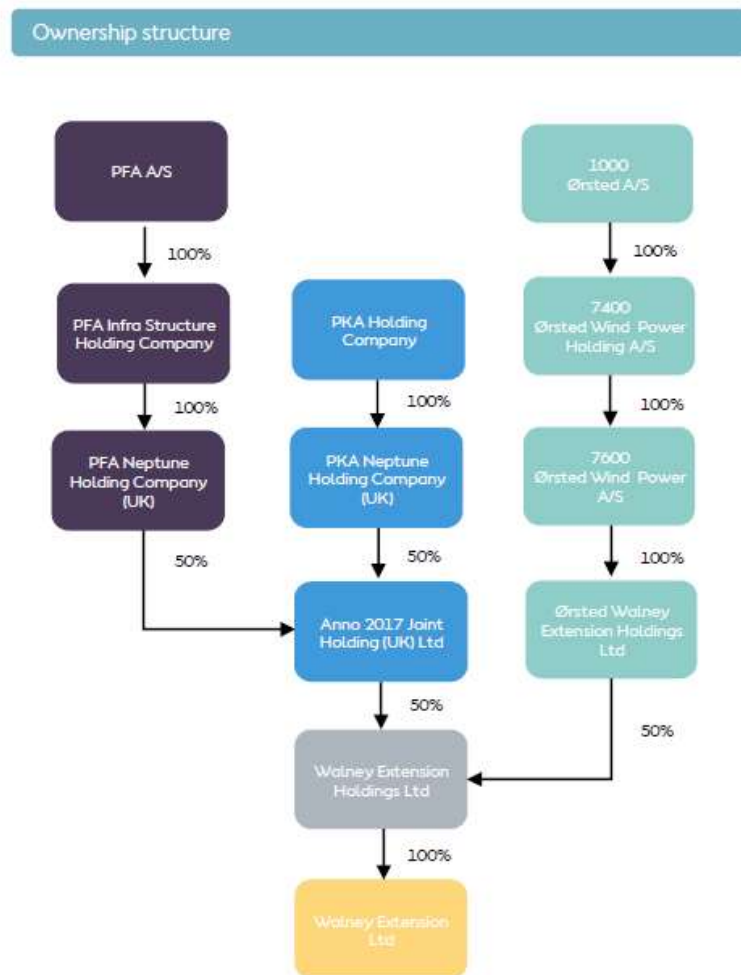
- 2.15 For your convenience, this report may have been made available to recipients in electronic as well as hard copy format. Multiple copies and versions of this report may therefore exist in different media and in the case of any discrepancy the final signed electronic copy should be regarded as definitive.

### 3 THE WOW03+04 EX-POST REVIEW

#### INTRODUCTION

- 3.1 The Wind Farm is situated to the north west of the existing Walney Offshore Wind Farm 01 and 02, around 19km off the Isle of Walney coast in Cumbria. National Grid Electricity Transmission plc (NGET) is the onshore transmission licensee, and the WOW03+04 Transmission Assets connect to the Middleton 400kV substation located at Heysham.
- 3.2 The Wind Farm consists of 40 8.25MW Wind Turbine Generators (WTGs) for WOW03 with an installed capacity of 330MW and 325MW at the Offshore Boundary Point. WOW04 utilises 47 7.0MW WTGs with an installed capacity of 329MW and 324MW at the Offshore Boundary Point. Each wind farm is connected to two Offshore Substations (OSS) located within the boundaries of the WOW03+04 Offshore Wind Farm. Both OSSs are connected to an onshore substation (ONSS), which connects to a NGET 400kV substation.
- 3.3 WOW 03+04 is a company partly owned and operated by Ørsted through its subsidiary Ørsted Walney Extension Holding Ltd. (50%) and Anno 2017 Joint Holding (UK) Ltd. (50%), which in turn is owned 50% by PKA and 50% by PFA. [REDACTED]
- [REDACTED]
- [REDACTED]

3.4 The Developer has confirmed that the ownership structure of the Wind Farm, has changed since our ex-ante report and we set out the new ownership structure below:



## 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 19 December 2018 CAT, which includes actual costs incurred up to 31 October 2018 and accrued costs that will be incurred from that date up to the closing out of all contracts, together with a list of variances between the May 2018 ITV (as detailed at paragraph 2.4 above) and the 19 December 2018 CAT;
- schedules of invoices prepared for the contracts selected for review by Ofgem, together with copies of contract documentation, invoices, bank statements and ledgers showing payments of the invoices recorded;
- schedules providing supporting information for the internal project management costs with copies of invoices and bank statements showing payments of the related invoices; and
- information and explanations provided to us by the Developer. This included a phone call with Ørsted on 12 April 2019 to discuss the Transmission Assets, and subsequent email correspondence with staff responsible for the preparation of the 19 December 2018 CAT.

## EX-POST REVIEW

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

3.7 The 19 December 2018 CAT for the Transmission Assets of the Wind Farm is summarised below:

### Breakdown of Transmission Assets costs

	CAT Reference	May 2018 ITV £	19 December 2018 CAT £	Movement £
Project common costs	CR8			
Other costs	CR9			
Offshore substation	CR2			
Submarine cable supply and installation	CR3			
Land cable supply and installation	CR4			
Onshore substation connection	CR5			
Reactive substation	CR6			
Connection costs	CR7			
Total capital costs		459,565,658	451,466,998	(8,098,660)
Interest during construction		44,516,184	42,742,572	(1,773,612)
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## THE WIND FARM'S FINANCIAL PROCESSES

### Accounting process

- 3.8 The Developer confirmed that there have been no changes in its accounting process since our ex-ante review.
- 3.9 All costs of the Wind Farm are posted to a Work Breakdown Structure (WBS) code in the 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 At FTV, the Developer stated that the portion of shared costs that are directly attributable to the Transmission Assets (as a proportion of the total wind farm direct CAPEX) is ██████% which is based on the allocation rate used for the Race Bank project as discussed in paragraph 3.23. This has been updated to ██████% since the 19 December 2018 CAT as shown in paragraph 3.25.

## Process for making payments

3.12 The main process used by the Developer 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 [REDACTED] or the [REDACTED];
- when a contract milestone has been met, the contractor sends a payment certificate for approval by the [REDACTED];
- 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;
- 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 approved by the [REDACTED] and [REDACTED];
  - over DKK [REDACTED] requires [REDACTED] and [REDACTED] approval; and
  - over DKK [REDACTED] requires approval from the [REDACTED].
- 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;
- 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. Any invoice not raised in UK sterling, will be paid on the spot rate on the date of payment and therefore this is likely to differ from the amount recorded in the CAT which is calculated by converting the SAP values into UK sterling using the monthly average exchange rate<sup>5</sup>.

<sup>5</sup> From Oanda.com

### Contract variations

- 3.13 The Developer has 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

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

#### Summary of directly incurred costs selected for testing

	CAT reference	19 December 2018 CAT £	% of total Transmission Asset capital costs
JVFI	CR2	████████	██████
SHL	CR2	████████	██████
NKT/ABB	CR3/CR4	████████	██████
Deep Ocean	CR3	████████	██████
Amey	CR5/CR7	████████	██████
		████████	██████

- 3.15 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.

3.16 Our testing in relation to these contracts is further detailed in **Appendix 1**, with the detailed testing for each of the suppliers in **Appendices 2 to 6**, and our findings are summarised in the following table:

**Summary of direct costs testing**

	Invoices paid £	Accrued amounts £	Immaterial difference £	Total per CAT £
JVFI	[REDACTED]	[REDACTED]	[REDACTED]	100.0%
SHL	[REDACTED]	[REDACTED]	[REDACTED]	100.0%
NKT/ABB	[REDACTED]	[REDACTED]	[REDACTED]	100.0%
Deep Ocean	[REDACTED]	[REDACTED]	[REDACTED]	100.0%
Amey	[REDACTED]	[REDACTED]	[REDACTED]	100.0%
<b>Total</b>	[REDACTED]	[REDACTED]	[REDACTED]	100.0%

**Invoices paid**

3.17 Our review of invoices paid by the Developer, relating to the five contracts selected by Ofgem, confirmed payment to the contractor and raised no areas of concern.

## Accrued amounts

3.18 Our review of accrued amounts in relation to the contracts identified the following issues:

- The accrued amounts of £[REDACTED] in relation to the NKT/ABB and Deep Ocean contracts relate to open purchase orders at the time the 19 December CAT was created, before the contracts were finalised. The NKT/ABB contract has not yet been concluded, and the Developer's current estimate of final costs payable under this contract is £[REDACTED]. Accordingly we consider a reduction in the 19 December 2018 CAT of £[REDACTED]<sup>6</sup> is required for the NKT/ABB contract, and recommend an update is obtained as to the current estimate of the settlement amount as per **Appendix 1** paragraph 1.17 prior to setting the FTV.
- The Deep Ocean contract is now concluded, and an adjustment has been proposed as per **Appendix 1** paragraph 1.25 to reduce the 19 December 2018 CAT by the total accrued amount of £[REDACTED].
- In relation to the Amey contract, we have agreed the £[REDACTED] final milestone payment to contract [REDACTED].

## REVIEW OF INDIRECTLY INCURRED COSTS

### Project management costs

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

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

3.20 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**

Employee	Function (internal/ external)	Cost DKK	Cost £	Agreed to invoices	Agreed to ledger	Agreed to bank/interco account
[REDACTED]	Internal	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	External	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	Internal	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	Internal	[REDACTED]	[REDACTED]	✓	✓	✓
[REDACTED]	Internal	[REDACTED]	[REDACTED]	✓	✓	✓

3.21 Our testing of project management support services costs demonstrated that costs have been paid as stated.

<sup>6</sup> [REDACTED]

- 3.22 For the avoidance of doubt, we have not verified the suitability of the hourly rates (as set out in the [REDACTED]) charged to the project by the Developer.
- 3.23 As part of our review, we have asked the Developer to provide corroboration for the shared costs allocation rates included in the CAT of [REDACTED]%. The Developer stated that the rate of [REDACTED]% was that used in relation to the Race Bank project.
- 3.24 Accordingly, we asked the Developer to calculate the shared costs allocation rate relevant to the Wind Farm, which shows a rate of [REDACTED]%. The Developer believes the rate should be slightly higher at [REDACTED]%, as it explained there is a small amount of OFTO costs included within the Generation Assets costs as part of its calculation. However, the Developer has provided no substantiation for this. Accordingly, we recommend that Ofgem should discuss this further with the Developer.
- 3.25 In light of the change of the shared costs allocation rate to [REDACTED]%, a change in the CAT is required as follows:

**Required change in allocated costs**

	Total costs to be allocated	Allocated at [REDACTED]%	Allocated at [REDACTED]%	Reduction in allocated costs
CR2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
CR3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
CR4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
CR8	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

**MOVEMENTS IN THE COST ASSESSMENT**

- 3.26 The movements between the ITV set in May 2018 and the most recent cost assessment of 19 December 2018 are summarised in the following table:

**Breakdown of Transmission Assets costs**

	CAT Reference	May 2018 ITV £	19 December 2018 CAT £	Movement £
Project common costs	CR8	[REDACTED]	[REDACTED]	[REDACTED]
Other costs	CR9	[REDACTED]	[REDACTED]	[REDACTED]
Offshore substation	CR2	[REDACTED]	[REDACTED]	[REDACTED]
Submarine cable supply and installation	CR3	[REDACTED]	[REDACTED]	[REDACTED]
Land cable supply and installation	CR4	[REDACTED]	[REDACTED]	[REDACTED]
Onshore substation connection	CR5	[REDACTED]	[REDACTED]	[REDACTED]
Reactive substation	CR6	[REDACTED]	[REDACTED]	[REDACTED]
Connection costs	CR7	[REDACTED]	[REDACTED]	[REDACTED]
Total capital costs		459,565,658	451,466,998	(8,098,660)
Interest during construction		44,516,184	42,742,572	(1,773,612)
		<b>504,081,842</b>	<b>494,209,570</b>	<b>(9,872,272)</b>

3.27 The 19 December 2018 CAT reflects a net decrease in the cost of the Transmission Assets of £9.87 million from the May 2018 ITV. In relation to the overall decrease in capital costs of £8.10 million (ie excluding the decrease in interest during construction of £1.77 million), the principal decreases totalling £[REDACTED] million and reasons are detailed below:

- a £[REDACTED] million decrease in relation to OFTO related CAPEX contingency which was released;
- a net £[REDACTED] million decrease in relation to installation and burial of the export cable due to lower costs for installation arising than predicted at ITV stage; and
- a £[REDACTED] million decrease in relation to construction costs of the offshore substation and a £[REDACTED] million decrease to construction costs relating to submarine cable supply and installation. These costs have fallen largely due to a hotel vessel being used for construction staff to stay on rather than large crew vessel costs for transporting staff back and forth from shore.

3.28 The above principal decreases have been partially offset by the following principal increased costs totalling £[REDACTED] million and reasons are detailed below:

- a £[REDACTED] million increase in costs for the 220kV cable supply and termination contract with NKT/ABB. This was due to cable damage as part of the works which resulted in several insurance claims being made which have not yet been reimbursed and there were also unforeseen costs relating to items such as spooling which led to further variation orders;
- a £[REDACTED] million increase in resource and travel costs and a £[REDACTED] million increase in civil works relating to the onshore substation – this mainly relates to the Amey construction contract taking a lot longer than expected, the timeline being extended resulting in additional costs from the construction site being kept open longer than expected and having to outsource landscaping works to another company as it was de-scoped from the Amey contract;
- a £[REDACTED] million increase in resource and travel costs relating to the subsea cable – this arises mainly from resources being required during the installation of the offshore cable during the latter half of 2017 and into 2018 due to cable damage. Additional support was also required to coordinate and manage offshore contractors who had to undertake a difficult repair. This cost was not foreseen at ITV, when the intention was to have the cable installed during 2017.

3.29 The full analysis of the above variances and other smaller variances is presented at **Appendix 8**.

## IMPACT OF COST ASSESSMENT REVIEW

3.30 Following our review of the 19 December 2018 CAT, as detailed above, we consider that the following adjustments should be made:

### Impact of cost assessment

	CAT Reference	Ref	£
Cost of Transmission Assets per CAT (excluding IDC)			494,209,570
Adjustments where the amount verified differs to the amount included in the CAT			
Reduction in installation and burial of the export cable - Deep Ocean contract	CR3		
Reduction in 220kV supply and termination - NKT/ABB contract	CR3		
Increase in 400kV & 220kV onshore export cable installation	CR4		
Reduction in resources and travel	CR4		
Reduction in allocation rate from 26.66% to 24.51%	CR2		
Reduction in allocation rate from 26.66% to 24.51%	CR3		
Reduction in allocation rate from 26.66% to 24.51%	CR4		
Reduction in allocation rate from 26.66% to 24.51%	CR8		
Total adjustments			
Reallocations where the amount verified should have been allocated elsewhere in the CAT			
Reallocation to offshore substation resources and travel	CR2		
Reallocation to submarine 220kV cable supply	CR3		
Reallocation from onshore 220kV cable supply	CR4		
Reallocation from onshore substation resources and travel	CR5		
Reallocation to onshore substation 220kV GIS onshore	CR5		
Reallocation from dynamic reactive comp, shunt reactors & harmonic filters	CR6		
Total reallocations			-
Revised cost of Transmission Assets			491,073,902

3.31 At **Appendices 1** and **8** and Section 3 of this report, we set out the detail regarding the above cost movements, along with the recommendations for follow-up included in paragraph 3.32 below.



### Recommendations for follow-up

3.32 As set out in the below table there are several items where we recommend that Ofgem should follow up with the Developer for an update prior to Closing:

		Ref	Budget item	Description
Offshore substation				
Submarine cable supply and installation	CR2, CR3, CR4 & CR8	3.24	N/A	Change in allocation rate
Onshore cable supply and installation				
Project common costs				
Submarine cable supply and installation	CR3	Appendix 8 8.28	Installation and burial (export cable)	Insurance claim
Submarine cable supply and installation	CR3	Appendix 8 8.26	Resources and travel	Insurance claim
Submarine cable supply and installation	CR3	Appendix 8 8.22	220kV cable supply and termination	Insurance claim
Submarine cable supply and installation	CR3	Appendix 1 1.17	220kV cable supply and termination	NKT/ABB contract
Other costs	CR9	Appendix 8 8.11	OFTO transaction costs	Estimated costs

# 1 INVOICE TESTING

## JVFI

- 1.1 The 19 December 2018 CAT includes an amount of £ [REDACTED] which was due to JVFI for the fabrication of the offshore substation, which is made up as follows:

JVFI		€
Invoices paid		[REDACTED]
Effective exchange rate (€:£)		[REDACTED]
Total (£)		[REDACTED]
Total JVFI costs per 19 December 2018 CAT (£)		[REDACTED]
Difference (not significant)		[REDACTED]

### Review of amounts paid

- 1.2 We obtained a schedule of all amounts paid under the JVFI contract which recorded 55 purchase invoices. This schedule is included at **Appendix 2**.

#### *Vouching to invoices*

- 1.3 We agreed all 55 invoices recorded on the schedule to the underlying invoice.

#### *Vouching to purchase ledger*

- 1.4 We agreed all 55 amounts to the purchase ledger.

#### *Vouching to bank statements*

- 1.5 We agreed the payment of all 55 amounts to bank statements.

## SHL

- 1.6 The 19 December 2018 CAT includes an amount of £ [REDACTED] which was due to SHL for the transport and installation of offshore substations, which is made up as follows:

SHL		€
Invoices paid		[REDACTED]
Effective exchange rate (€:£)		[REDACTED]
Total (£)		[REDACTED]
Total SHL costs per 19 December 2018 CAT (£)		[REDACTED]

### Review of amounts paid

- 1.7 We obtained a schedule of all amounts paid under the SHL contract which recorded 26 purchase invoices. This schedule is included at **Appendix 3**.

#### *Vouching to invoices*

- 1.8 We agreed all 26 invoices recorded on the schedule to the underlying invoice.

***Vouching to purchase ledger***

1.9 We agreed all 26 amounts to the purchase ledger.

***Vouching to bank statements***

1.10 We agreed the payment of all 26 amounts to bank statements.

**NKT/ABB**

1.11 The 19 December 2018 CAT includes an amount of £[REDACTED] which was due to NKT/ABB for the 220kV subsea and onshore cables supply and termination, which is made up as follows:

NKT/ABB	
	DKK
Invoices paid	[REDACTED]
Effective exchange rate (€:£)	[REDACTED]
Total invoices paid (£)	[REDACTED]
Accrued costs	[REDACTED]
Total (£)	[REDACTED]
Total NKT/ABB costs per 19 December 2018 CAT (£)	[REDACTED]
Difference (not significant)	[REDACTED]

**Review of amounts paid**

1.12 We obtained a schedule of all amounts paid under the NKT/ABB contract which recorded 102 purchase invoices. This schedule is included at **Appendix 4**.

***Vouching to invoices***

1.13 We agreed all 102 invoices recorded on the schedule to the underlying invoice.

***Vouching to purchase ledger***

1.14 We agreed all 102 amounts to the purchase ledger.

***Vouching to bank statements***

1.15 We agreed the payment of all 102 amounts to bank statements.

**Accrued costs**

1.16 At the time that the 19 December 2018 CAT was prepared, the Developer anticipated additional costs for this contract of DKK [REDACTED]. As of 15 March 2019, the Developer anticipated additional costs for this contract of DKK [REDACTED]), a difference of £[REDACTED].

1.17 Whilst we consider that an adjustment to the CAT of £[REDACTED] may be required in this regard, the Developer is yet to provide any documentation to support the additional costs of £[REDACTED]. Accordingly, we recommend that Ofgem should obtain an update from the Developer on the latest expected settlement of this contract prior to agreeing the FTV.

## DEEP OCEAN

- 1.18 The 19 December 2018 CAT includes an amount of £[REDACTED] which was due to Deep Ocean for the installation and burial of subsea cables, which is made up as follows:

Deep Ocean	
	£
Invoices paid	[REDACTED]
Accrued amounts	[REDACTED]
Total (£)	[REDACTED]
Total Deep Ocean costs per 19 December 2018 CAT (£)	[REDACTED]

### Review of amounts paid

- 1.19 We obtained a schedule of all amounts paid under the Deep Ocean contract which recorded 24 purchase invoices. This schedule is included at **Appendix 5**.

#### *Vouching to invoices*

- 1.20 We agreed all 24 invoices recorded on the schedule to the underlying invoice.

#### *Vouching to purchase ledger*

- 1.21 We agreed all 24 amounts to the purchase ledger.

#### *Vouching to bank statements*

- 1.22 We agreed the payment of all 24 amounts to bank statements.

### Accrued amounts

- 1.23 At the date of the 19 December 2018 CAT, there were open purchase orders relating to Deep Ocean totalling £[REDACTED]. The Developer has confirmed that this remaining amount will not be invoiced, and the final contract value is the amount invoiced and paid of £[REDACTED].
- 1.24 In addition, there was an amount of £[REDACTED] included by the Developer in the CAT in relation to the Deep Ocean contract in error.
- 1.25 Accordingly, a reduction in the amount of the Deep Ocean contract of £[REDACTED] is required<sup>7</sup>.

<sup>7</sup> [REDACTED]

## AMEY

- 1.26 The 19 December 2018 CAT includes an amount of £ [REDACTED] which was due to Amey for civil works relating to the onshore substation, which is made up as follows:

Amey	
	£
Invoices paid	[REDACTED]
Accrued amounts	[REDACTED]
Total	[REDACTED]
Total Amey costs per 19 December 2018 CAT (£)	[REDACTED]
Difference (not significant)	[REDACTED]

### Review of amounts paid

- 1.27 We obtained a schedule of all amounts paid under the Amey contract which recorded 66 purchase invoices. This schedule is included at **Appendix 6**.

#### *Vouching to invoices*

- 1.28 We agreed all 66 invoices recorded on the schedule to the underlying invoice.

#### *Vouching to purchase ledger*

- 1.29 We agreed all 66 amounts to the purchase ledger.

#### *Vouching to bank statements*

- 1.30 We agreed the payment of all 66 amounts to bank statements.

### Accrued amounts

- 1.31 We agreed the reconciling item of £ [REDACTED] to contract and confirmed [REDACTED].



























Invoice no.	Description	Invoice date	Net invoice value		Exchange rate	Net invoice value	Date paid	Agreed to invoice	Agreed to ledger	Agreed to bank
			DKK	DKK/£						
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	✓	✓	✓
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

## 5 DEEP OCEAN INVOICE REVIEW

Invoice no.	Description	Invoice date	Net invoice value £	Date paid	Agreed to invoice	Agreed to ledger	Agreed to bank/ credit note
[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]	✓	✓	✓











## 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:

- employees register their time, usually on a monthly basis, in SAP. Each posting has a document number;
- if an employee is based in Denmark then there is no invoice and the payment is agreed to the intercompany account
- if an employee is based in the UK the following process applies:
  - 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 which notes the payment document number.

7.2 As instructed by Ofgem, we selected a sample of five individuals for us to test the above 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 as follows:

Employee	Function [internal/ external]	Country	Jun-18 actual hours	Rate (day) DKK	Cost DKK	Cost £	Agreed to invoices	Agreed to ledger	Agreed to bank/interco account
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	N/A	✓	✓
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	✓	✓	✓
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	✓	✓	✓



## 8 MOVEMENTS BETWEEN THE COST TEMPLATES

- 8.1 We have been instructed to compare the total Transmission Asset costs as set out in the 19 December 2018 CAT with the total Transmission Asset costs included within the ITV at May 2018, and to obtain explanations for variances between the two dates. The movement is summarised in the table below:

### Breakdown of Transmission Assets costs

	CAT Reference	May 2018 ITV £	19 December 2018 CAT £	Movement £
Project common costs	CR8			
Other costs	CR9			
Offshore substation	CR2			
Submarine cable supply and installation	CR3			
Land cable supply and installation	CR4			
Onshore substation connection	CR5			
Reactive substation	CR6			
Connection costs	CR7			
Total capital costs		459,565,658	451,466,998	(8,098,660)
Interest during construction		44,516,184	42,742,572	(1,773,612)
		<b>504,081,842</b>	<b>494,209,570</b>	<b>(9,872,272)</b>

- 8.2 We have sought explanations from the Developer for the reasons for the significant movements (of individual amounts above £250,000) in each of the cost categories and these are summarised below:

### PROJECT COMMON COSTS

- 8.3 Project common costs have decreased by a net amount of £[REDACTED] million.

#### Insurance - increase of £[REDACTED] million

- 8.4 Insurance costs have increased by £[REDACTED] million as a result of the Construction All Risks (CAR) insurance policy being more expensive than that expected at the ITV stage and due to a change to the OFTO resources allocation rate from [REDACTED]% at the ITV stage to [REDACTED]% in the 19 December 2018 CAT.

#### OFTO related CAPEX contingency - decrease of £[REDACTED] million

- 8.5 The largest decrease within this cost category is the release of £[REDACTED] million in relation to contingency, which has been removed from the 19 December 2018 CAT as risks have either been mitigated, transferred or crystallised.

#### EPC and program management costs - decrease of £[REDACTED] million

- 8.6 EPC and program management costs have fallen by £[REDACTED] million due to the estimates made at ITV stage being very high level, and the Developer expected there may have been more costs for consultants than was needed.

### **Consents costs - decrease of £[REDACTED] million**

- 8.7 Consents costs have fallen by £[REDACTED] million, partially due to high provisions being made at ITV stage for prudence, but also due to a reduction in the allocation rates for some of the consents costs from [REDACTED]% to [REDACTED]%.

### **Internal resources - decrease of £[REDACTED] million**

- 8.8 Internal resources within project common costs fell by £[REDACTED] million, as the internal resources costs at ITV stage were very prudent and forecast more hours than were actually needed. These members of staff did not spend as long working on the Walney project and left the project earlier than expected to move onto other projects.

### **Travel - decrease of £[REDACTED] million**

- 8.9 Travel costs have fallen by £[REDACTED] million due to the Developer over budgeting for these costs at the ITV stage. The Developer uses a model that attempts to forecast how much travel people will do and the model tends to overbudget for travel costs, which is common throughout the whole project.

### **OTHER COSTS**

- 8.10 Other costs have increased by a net amount of £[REDACTED] million.

### **OFTO transaction costs - increase of £[REDACTED] million**

- 8.11 OFTO transaction costs have increased by £[REDACTED] million in the 19 December 2018 CAT, with the costs still being estimates, especially in reference to external consultants. The Developer has said that there will be a wrap-up at the end of the project to conclude on the actual costs incurred. Accordingly, we recommend that Ofgem should obtain an update from the Developer of expected costs prior to setting the FTV.

### **OFFSHORE SUBSTATION**

- 8.12 Offshore substation costs have decreased by a net amount of £[REDACTED] million.

### **Fabrication - increase of £[REDACTED] million**

- 8.13 Fabrication costs in relation to the offshore substation have increased by £[REDACTED] million due to the contract being finalised after the ITV stage, together with a further eight variation orders being made in light of unforeseen miscellaneous costs. We have seen copies of the underlying variation orders and we have checked the costs in the 19 December 2018 CAT back to invoices and to contract as part of our direct costs testing (see **Appendix 1** paragraph 1.1).

### **Installation - increase of £[REDACTED] million**

- 8.14 The offshore substation installation costs increased by £[REDACTED] million, which is largely due to the contract discount recorded at the ITV stage being overstated by €[REDACTED] million (£[REDACTED]<sup>8</sup>). We have agreed the discount to documentation where it states that the contractor installed all five platforms.
- 8.15 There were also several unforeseen costs such as offshore scaffolding and vessel inspection which had not been taken into consideration at ITV stage.

### **SCADA - increase of £[REDACTED] million**

- 8.16 SCADA costs have increased by £[REDACTED] million, as a result of scope changes in the SCADA package in light of the requirement to increase cyber security of the Wind Farm's systems. In addition, the commissioning of the network and telecoms system is taking longer than planned because of a technical issue.

### **Allocation of construction costs - decrease of £[REDACTED] million**

- 8.17 At the time of the ITV, the construction costs were reallocated from project common costs to the different aspects of the Transmission Assets, of which £[REDACTED] million related to the offshore substation. These costs have fallen by £[REDACTED] million as a result of the Developer changing its approach to use a hotel vessel on which the construction staff could stay, thereby creating savings in the crew vessel costs through less transportation of construction staff to and from the offshore substation.

### **Offshore transformers - decrease of £[REDACTED] million**

- 8.18 The cost of the offshore transformers has fallen by £[REDACTED] million, principally due to the application of a discount of £[REDACTED] due to the Developer bulk buying from the same contractor across a number of projects, which we have agreed to the contract amendment document.

### **Resources and travel - decrease of £[REDACTED] million**

- 8.19 Resources and travel costs associated with the offshore substation have fallen by £[REDACTED] million, this is due to some of the resources and travel costs (£[REDACTED]) being misallocated to CR6 from CR2 as discussed in paragraph 8.38. Without this erroneous reallocation the total variance would be £[REDACTED] which is not a significant movement and we have therefore not investigated any further.

<sup>8</sup> Translated to GBP at the rate of [REDACTED] as per the ITV CAT

### Design - decrease of £[REDACTED] million

- 8.20 Design costs have fallen by £[REDACTED] million, largely due to the provision for estimates to cover the rest of the design activities by Atkins Limited being double counted as the costs were transferred from DEVEX to CAPEX, as discussed in our ex ante report, with the full design costs being covered in DEVEX.

### SUBMARINE CABLE SUPPLY & INSTALLATION

- 8.21 Submarine cable supply and installation costs have increased by a net amount of £[REDACTED] million.

#### 220kV cable supply and termination – increase of £[REDACTED] million<sup>9</sup>

- 8.22 The cable supply and termination costs have increased by £[REDACTED] million. Part of the reason for the increase is due to three instances of cable damage (£[REDACTED] million), which the Wind Farm is currently trying to recover from its insurer. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. The corresponding insurance claim receipts are not included in the CAT, and accordingly we recommend that Ofgem should obtain an update from the Developer prior to setting the FTV and deduct the amount of the insurance claim receipts from these costs.

- 8.23 In addition, there was a number of supplementary variation orders and contract amendments following the creation of the ITV due to unforeseen costs relating to items such as spooling, power boosting, defect liability assurance and exchange cable which have been agreed as part of our direct cost testing in Appendix 4.
- 8.24 At the current time, the contract with NKT/ABB for cable supply is not yet concluded, as detailed further at **Appendix 1**, paragraph 1.16, and at the current time, the expected settlement amounts to £[REDACTED] million as opposed to the £[REDACTED] million included in the CAT. We have recommended that an adjustment be made to reflect this, but also that Ofgem should obtain an update from the Developer regarding settlement to this supplier before setting the FTV.

<sup>9</sup> Being £[REDACTED] million identified by the Developer and £[REDACTED] million that was incorrectly posted to onshore cable supply as set out at paragraph 8.32

### **Resources and travel – increase of £[REDACTED] million**

- 8.25 Resources and travel costs relating to the submarine cable have increased by £[REDACTED] million as a result of the installation schedule being impacted by several incidents and extended well into 2018 due to cable damage during operations. Additional support was required by the Developer throughout that time to coordinate and manage the offshore contractors who had to undertake a difficult repair in the inter-tidal zone, as well as seeing to the documentation and commercial aspects.
- 8.26 As a consequence of the cable damage and the additional time needed to resolve this the 19 December 2018 CAT includes £[REDACTED] million in resources and travel costs, which is in the process of being claimed from insurers. However, the insurers have not yet settled amounts payable regard the various incidents. Accordingly, we recommend that Ofgem should obtain an update from the Developer prior to agreeing the FTV.

### **Miscellaneous costs and installation and burial (export cable) – net decrease of £[REDACTED] million**

- 8.27 The installation and burial of the export cable costs have fallen by £[REDACTED] million overall, largely as a result of expected variations for the installation contract being lower than predicted at the ITV stage due to the Developer prudently reflecting the challenges of the installation and burial of the cables in the seabed. This decrease in costs is offset by the increased costs for operations such as rock dumping over the cable to ensure good burial, and the costs associated with the beach pull in issue described at paragraph 8.22 above.
- 8.28 In relation to the beach pull in issue, the Wind Farm has submitted a beach pull-in insurance claim which has not yet been reimbursed. The insurance claim receipt is not included in the CAT, and accordingly we recommend that Ofgem should obtain an update from the Developer prior to setting the FTV and deduct the amount of the insurance claim receipt from these costs.

### **Surveys - decrease of £[REDACTED] million**

- 8.29 The cost of surveys has fallen by £[REDACTED] million as a result of the Developer being prudent at the ITV stage given that the cost of surveying the seabed is usually expensive.

### **Reallocation from shared costs CR8 - decrease of £[REDACTED] million**

- 8.30 At the time of the ITV, the construction costs were reallocated from project common costs to the different aspects of the Transmission Assets, of which £[REDACTED] million related to submarine cable supply and installation costs. These costs have fallen by £[REDACTED] million for the same reasons as detailed at paragraph 8.17 above.

## ONSHORE CABLE SUPPLY & INSTALLATION

8.31 Onshore cable supply and installation costs have increased by a net amount of £[REDACTED] million.

### **220kV cable supply - increase of £[REDACTED] million**

8.32 The cost of the 220kV cable supply has increased by £[REDACTED] million principally as a result of a mis-posting of DKK[REDACTED] (£[REDACTED]) to onshore cable rather than submarine cable costs. Accordingly, an adjustment has been proposed of £[REDACTED] to transfer costs from onshore cable to submarine cable<sup>10</sup>.

### **400kV & 220 kV onshore export cable installation – increase of £[REDACTED] million**

8.33 The cost of the 400kV and 220kV onshore export cable installation has increased by £[REDACTED] million due the changes in the scope of the contract with J. Murphy and Sons Limited for drilling, and resulted in several variation orders for items such as additional working hours and the additional work needed as a result of the scope change. In addition, the Developer has explained that that the reallocation of variation orders 19, 27, 35 and part of 45, 46 and 47 have not been counted in CR3. These variation orders relate to ground stabilisation works and welfare facilities associated with the transition joint bay which is the concrete compound where the offshore cable meets the onshore cable. These variation orders were originally allocated to the Generation Assets costs and not included in the 19 December 2018 CAT. Therefore, an adjustment to add £[REDACTED] is required to the 19 December 2018 CAT.

### **Resources & travel - increase of £[REDACTED] million**

8.34 Resources and travel costs associated with the onshore cable have increased by £[REDACTED] million, which has been caused by to several reasons:

- Resources cost associated with the onshore fire claim amounted to £[REDACTED], which has now been recovered in full from the insurance company. Accordingly, an adjustment to the 19 December 2018 CAT of £[REDACTED] is required;
- In 2017, the project needed more resource time due to the volume of contract changes and variation orders which has led to increased costs due to documentation management and commercial claims handling with suppliers which had not been included in the ITV forecast;
- In 2018, increased resources costs were required as a result of the management of as-built documentation which had been delivered later than anticipated by NKT, as well as maintaining resources to participate in the delayed ITT Q&A phase.

<sup>10</sup> The Developer provided us with the GBP equivalent of the [REDACTED] DKK adjustment

### **Landowner costs - decrease of £[REDACTED] million**

- 8.35 Landowner costs have fallen by £[REDACTED] million, as a result of a large provision being made at the ITV stage as the Developer believed that it would incur higher legal costs regarding the cables crossing many different pieces of land. The cost ended up being less than initially thought because the internal lawyers conducted a lot of the work themselves rather than using external consultants following their experience on previous projects.

### **ONSHORE SUBSTATION**

- 8.36 Onshore substation costs have increased by a net amount of £[REDACTED] million.

### **Resources & travel - increase of £[REDACTED] million**

- 8.37 Resources and travel costs associated with the onshore substation have increased by £[REDACTED] million, which is principally due to the timeline of the Amey construction contract, where resource costs were forecast to significantly drop off after August 2017, ceasing completely after December 2017. However, as the construction site was active for longer, it required continued management and engineering input from Ørsted staff. This meant a higher resource spend from the period August to December 2017, and continued resource deployment until December 2018 when construction completed. Reasons for the extended timeline included additional ground improvement works, design maturation for electrical components requiring additional civil works, a fire incident at the onshore substation site and snagging/defect remediation.
- 8.38 Secondly, Ørsted have advised that a reallocation of £[REDACTED] from CR5 to CR6 which was included in the ITV CAT, was mistakenly not applied in the FTV CAT. Instead, the reallocation was made from CR2 to CR6 in the FTV CAT. This should be addressed by transferring £[REDACTED] from CR5 to CR2, and we have included this in the schedule of adjustments.

### **Onshore substation civil works - increase of £[REDACTED] million**

- 8.39 Onshore civil works increased by £[REDACTED] million. This is largely attributable to issues in the construction of the onshore substation as detailed at paragraph 8.37 above, and as a result of issues that the contractor had in managing the development works. As a result of issues with the contractor, the landscaping works were descoped from the Amey contract, and the Wind Farm subsequently has paid £[REDACTED] million to Jones Bros Ruthin Co for the landscaping work required. [REDACTED]

### **Onshore substation site costs - increase of £[REDACTED] million**

- 8.40 The onshore substation site costs have increased by £[REDACTED] million due to the additional time required on the construction of the onshore substation due to more scope and work than initially expected at the ITV stage. These additional costs included extra security on site and night watchmen (£[REDACTED]) as the construction site at Heysham remained open for a longer duration than expected.
- 8.41 Furthermore, £[REDACTED] was spent on the rent of additional land that was necessary to comply with Construction (Design and Management) regulations that obligated the Developer to provide suitable welfare and parking facilities for its contractors.

### **400kV AIS onshore - increase of £[REDACTED] million**

- 8.42 The cost of the 400kV AIS onshore has increased by £[REDACTED] million as a result of additional variation orders being incurred associated with the contract with Mitsubishi, which we have agreed to the underlying variation orders.

### **Miscellaneous installation related cost - increase of £[REDACTED] million**

- 8.43 Miscellaneous installation related costs have increased by £[REDACTED] million, principally due to the additional cost of electrical interface diagrams for £[REDACTED] million, which should have been included in the contract with Amey but as the Developer was dissatisfied with Amey's work it had to get another company to produce the interface diagrams, the cost of which had not been foreseen at the ITV stage.

### **SCADA - increase of £[REDACTED] million**

- 8.44 SCADA costs have increased by £[REDACTED] million as a result of scope changes in the SCADA package and delays to the commissioning of the network and telecoms system detailed at paragraph 8.16.

### **220kV GIS onshore - decrease of £[REDACTED] million**

- 8.45 The cost of the 220 kV GIS onshore has fallen by £[REDACTED] million, as a result of less variation orders for the contract with Siemens being incurred than were expected at the ITV stage due to the Developer being prudent in case design or technical changes to the contract agreement occurred. This is slightly offset by a misclassification between CR5 and CR6 where £[REDACTED] million (€[REDACTED] million<sup>11</sup>) should have been allocated to CR5 rather than under dynamic reactive comp in CR6. Accordingly, an adjustment to the CAT of £[REDACTED] million is required to transfer costs to onshore substation from reactive substation.

<sup>11</sup> £[REDACTED] - translated to GBP using a rate of [REDACTED] as used in the 19 December 2018 CAT



### **Landowner costs - decrease of £[REDACTED] million**

- 8.46 Landowner costs associated with the onshore substation have fallen by £[REDACTED] million. As previously discussed at paragraph 8.35 above, the reason for this variance is because there was a large provision made at the ITV stage to cover the cost of the work of external consultants, which was instead conducted largely by the internal teams.

### **REACTIVE SUBSTATION**

- 8.47 Reactive substation costs have increased by a net amount of £[REDACTED] million.

### **Dynamic reactive comp, shunt reactors & harmonic filters - increase of £[REDACTED] million**

- 8.48 The costs of the dynamic reactive comp, shunt reactors and harmonic filters have increased by £[REDACTED] million partly as a result of additional variation orders for items such as the reduction of the noise level, spare parts and change of hydrocal, which we have agreed to the underlying variation orders. The rest of this variance is attributable to a misclassification for a variation order<sup>12</sup> (£[REDACTED]<sup>13</sup>) which should have been recognised under CR5 rather than CR6 as discussed in paragraph 8.45.

### **CONNECTION COSTS**

- 8.49 Connection contract costs have increased by a net amount of £[REDACTED] million.

### **400kV cable - increase of £[REDACTED] million**

- 8.50 The cost of the 400kV cable supply increased by £[REDACTED] million due to additional unforeseen variation orders under the NKT/ABB contract being made following the ITV stage, and relate to items such as the reduction in the length of the cable, which we have agreed to the underlying variation orders.

### **INTEREST DURING CONSTRUCTION**

- 8.51 Interest during construction (IDC) has decreased by £[REDACTED] million. IDC is outside the scope of this review and therefore no further work has been performed in this area.

<sup>12</sup> VO.127.001 for €[REDACTED]

<sup>13</sup> ibid



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