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Dear Claus,

# Indicative Transfer Value for the Burbo Bank Extension (BBE) project

## Introduction

The Electricity (Competitive Tenders for Offshore Transmission Licences) Regulations 2015 ('the Tender Regulations') provides the legal framework for the process which Ofgem runs for the grant of offshore electricity transmission licences. Regulation 4 of the Tender Regulations sets out the requirement for the Authority to calculate, based on all relevant information available to it, the economic and efficient costs which ought to be, or ought to have been, incurred in connection with the development and construction of the transmission assets. This process for calculating the economic and efficient costs includes a number of stages, starting with our confirmation of the initial transfer value, progressing to the indicative transfer value ('ITV'), and culminating in our determination of the final transfer value ('FTV') for the project.

We wrote to you on 11 March 2016, confirming that the £230.2m forecast of costs provided to us on 21 January 2016, for the development and construction (including financing) of the BBE project ('the Project'), would be taken as its initial transfer value. This value was included in the enhanced pre-qualification ('EPQ') document and the preliminary information memorandum for the commencement of the EPQ stage for the Project. Burbo Extension Ltd (the "Developer")<sup>1</sup>, submitted a revised cost assessment template ('CAT') on 4<sup>th</sup> of May indicating a project cost of £241.6m. We have now completed the review and analysis of that CAT and supporting information provided by you to calculate the ITV, i.e. an estimate of the economic and efficient costs that ought to be incurred in connection with the development and construction of the transmission assets for the Project. This letter sets out:

- an overview of the work that has been undertaken to inform our calculation of the ITV;
- our conclusion that £180.6m is the ITV for the Project; and
- the next steps in the cost assessment process.

<sup>&</sup>lt;sup>1</sup> Burbo Extension Ltd is indirectly owned 50% by DONG Energy A/S, 25% by KIRKBI A/S and 25% by PKA A/S.

## Overview of work to inform the calculation of ITV

We have engaged extensively with the Developer to understand the cost data and supporting information, and used these discussions to inform our view of what constitutes the economic and efficient cost for the development and construction of the Burbo Bank Extension transmission assets. We have set the ITV based on:

- information contained in the revised CAT;
- a forensic accounting review of the cost submissions;
- additional information provided by the Developer to substantiate costs; and
- our estimate of the allocation and efficiency of relevant cost areas, informed by a benchmark analysis of past projects.

## Forensic accounting review

To inform our calculation of the ITV, we employed independent consultants Grant Thornton (GT), who undertook a forensic accounting investigation to check the accuracy and completeness of the Project's revised CAT; in particular, matching reported CAPEX costs to contract documentation.

GT's work to inform the calculation of the ITV is now complete and the findings have been shared and discussed in detail with your team. GT's review resulted in a number of increases and decreases of cost figures from the revised CAT.

In summary, GT's work resulted in a total decrease of  $\pm 3.7$ m across certain cost categories. This decrease has been agreed with the Developer. We have incorporated the detail of these changes into the following sections.

## Findings of Ofgem's review

Our letter of 11 March 2016 set out views regarding the CAPEX elements of the Project's costs and explained how we would take this forward. We recognise that the costs that were submitted at the initial transfer value stage were best estimates of the costs at that time. As the Project has progressed, these cost estimates have now become more firm, or costs have actually been incurred. The May 2016 revised CAT submission reflects this updated position, so we have used this as the basis of our analysis. Where appropriate, we have also incorporated relevant updates to this CAT (see *Risk contingency* below).

In reviewing the individual cost categories, there were some common themes, which we set out below.

## Common Cost reallocations

During the course of our review, we have re-allocated costs (which in the main comprised project management costs) from Common Costs (CR8) to other cost categories. This is to ensure the costs included in each of the Project's cost categories are consistent with those across previously assessed projects. This decision aligned with the Developer's initial view, prior to submission. The reallocation included internal resource and travel costs that were known to be related directly to specific cost categories. We have not conducted a detailed review of the remaining elements of the Project's Common Costs but we intend to do this to inform the determination of the FTV. This may involve the use of independent consultants. We will discuss this with you when we start the assessment of the Project's FTV.

## Risk contingency

The overall risk contingency included in the submission totals £17.8m. Given the significant construction progress between the submission of the CAT and the end of this cost assessment process, we asked the Developer to submit an update on the risk allocation. Discussions have confirmed that the majority of the issues on which the contingency was originally based have not materialised and are no longer valid. On that basis, we have removed the entire contingency element from the included costs, with the exception of £0.6m which relates to a risk that is still live.

### Project management

As noted above, we reallocated costs from the Common Costs cost category where they were known to be directly related to specific cost categories. The project management component of these individual cost categories often exceeded the level of costs we would expect to see for this type of project based on our analysis of efficient costs in offshore and onshore projects (4-9% of the capital costs). Where this has happened, we have capped the project management element of the package at 9% of the capital cost, recognising the complexity of managing multiple interfaces in this Project. This has resulted in a number of reductions throughout the Project's cost submission.

### Parent Company Guarantee (PCG)

The Developer has submitted PCG costs related to indemnities required when installing the export cable. However, we consider that this is an internal reallocation of financial guarantees which has not resulted in a real cost to the Developer. Therefore, we have excluded £2.6m of submitted costs relating to PCGs from the Developer's submission.

## Ofgem's assessment of the individual cost categories

We have undertaken a detailed assessment of the submitted costs on a category-bycategory basis. The following sections discuss each of these in turn, namely:

- Offshore substation platform
- Onshore substation
- Subsea cable
- Onshore cable
- Connection costs
- Common costs
- Other costs
- Interest During Construction

## Offshore substation platform (OSP)

Our review compared the Project's OSP costs with those of other comparable projects. Including the electrical, design, contingency and internal resource re-allocation costs, the Developer's OSP cost submission was  $\pounds$ 60.4m.

The Developer has adopted a bulk design, purchase and installation strategy for a number of its projects. This is based on the expectation that savings could be made in the following ways:

- adopting a standard design for multiple platforms to save on average design costs; and
- bulk purchasing several OSPs from one manufacturer and placing the installation contract for those OSPs with the same installer to provide economies of scale on contract prices

Accordingly, the Projects' electrical components are rated at 330MW, even though the windfarm capacity is 258MW. In addition, the Developer noted that the jacket platform structure posed specific design considerations for the Project; it is located in shallow depths which necessitated the adoption of an 8-pile foundation design as against the normal 4 piles.

### Ofgem's position for the ITV

We have considered carefully the justification for the submitted costs. We note that the Developer has achieved bulk purchase savings in the supply and installation costs for the OSP, and these have been included in the submitted costs. We also note that the Developer had to employ a greater number of shallower piles than originally anticipated. This was to reduce the risk of offshore support vessels hitting the piles during low tide, and this added to its costs.

Our benchmarking indicates that the Project's OSP costs are above the range that would be expected on the basis of costs incurred by similarly-sized projects. In particular, the fabrication, design and installation costs for the jacket platform structure are significantly in excess of the expected cost levels for similar projects. We note that the Developer did achieve savings relative to the standalone cost of one bespoke 330MW OSP, but the price is noticeably in excess of the level indicated by our benchmarking for a 258MW project.

Project risks should sit with those best placed to manage them; in this case, the consequences of the standardisation approach should sit with the Developer. Based on the differential between the Project's cost for the OSP and our benchmark data, we have concluded that  $\pounds$ 5.3m should be removed from the OSP cost submission.

Additionally, we have removed amounts for risk contingency which is no longer needed ( $\pm 5.8$ m), and costs GT was unable to substantiate ( $\pm 0.7$ m). As previously indicated, we have capped project management costs at 9% of the capital element of this package, which results in a further deduction of  $\pm 4.3$ m.

The Developer has confirmed that the piling arrangement needed to be amended to avoid vessel collision with the structures at low tide; this has resulted in additional expenditure of  $\pounds 2.5m$ , which we have included in the cost.

In total, we have estimated the economic and efficient cost of developing the OSP as  $\pounds$ 46.8m, while the Developer's submission was  $\pounds$ 60.4m.

## Onshore substation

Our review compared the Project's Onshore Substation costs with those of other comparable high voltage (HV) projects. Including the electrical, design, contingency and internal resource re-allocation costs, the onshore substation cost of £58.9m compares against the average indexed cost from other comparable projects of £32.3m. Additional benchmarking suggested that the main drivers for the comparatively high costs were the civil engineering works, site running costs and internal resource costs. We also noted that the Developer incurred additional costs through a number of variation orders with the primary civil engineering contractor.

The Developer justified elements of its submission being greater than expected as follows:

- The location of the onshore substation required extensive civil engineering work (enabling works) to level the field to allow easier access and more efficient work for the build of the actual substation. This resulted in additional costs of £1.14m<sup>2</sup>.
- The project used an area owned by RWE and Siemens which required additional remediation work to be carried out to reinstate the area after completion of construction. The total cost of this work was £1.8 m.
- The HV connection (400kV) required a larger gas insulated switchgear (GIS) building, as well as additional compounds for 220kV and 400kV reactors to comply with NGET requirements.
- Engineering studies highlighted the need to obtain an additional circuit breaker3 relative to Dong Energy's original design.

The actual cost of contract + VOs amounts to  $\pm 1.2$ m. However, we consider that within the VO, costs of  $\pm 50$ K (bonus for early completion) and  $\pm 10$ K (late start) should not be borne by consumers.

<sup>&</sup>lt;sup>3</sup> From DE response: "400kV harmonic filter and reactor were planned to be connected by common single circuit breaker as per original plan to reduce cost. However from extensive engineering design studies and analysis zero miss risk was identified when 400kV filter and reactor are energized simultaneously via a single circuit breaker. Hence, it was decided to have separate circuit breaker bay for harmonic filter".

## Ofgem's position for the ITV

We have considered the costs submitted for the onshore substation and the justifications provided for their deviation against expected cost levels based on our benchmarks. We have noted that the contingency is no longer required due to the progress of construction since the submission of the revised CAT, and that the project management costs are above the levels we expect based on our understanding of similar infrastructure. These factors have resulted in deductions of  $\pounds$ 5.1m and  $\pounds$ 8.1m respectively from the cost submission. We have also reallocated  $\pounds$ 3.8m of connection costs to the appropriate cost category, to improve the accuracy of comparisons of Burbo Bank's onshore substation costs against other HV onshore substations. The Developer had to do an amount of enabling and remediation works. At this stage we have included these in the ITV. We may review the necessity of that work at the FTV stage to make sure this was an economic and efficient activity.

We are aware that there were logistical issues with the transformers and reactors, which resulted in additional costs through variation orders (VOs) with both BEST and Balfour Beatty. Further, the Developer paid acceleration payments to its contractor to ensure the project did not jeopardise the timetable agreed in its contract for difference with the Low Carbon Contract Company through late delivery. We consider that both of these represent costs that should not be borne by consumers; the first was a standard delivery risk for the Developer to manage, and for the latter the additional cost incurred brought no benefit to the transmission element of the Project. Finally, there was  $\pounds 1m$  of costs that were either unsubstantiated or represented post-construction operational costs, both of which have been removed from the submission.

In summary, we have estimated the economic and efficient cost of developing and constructing the onshore substation as  $\pounds$ 41.9m, while the Developer's submission (after reallocations to Common and Connection Costs) was  $\pounds$ 55.1m.

### Submarine cable

The submarine cable costs submitted by the developer are £43.9m. These include costs for cable supply and installation, contingency and internal resources assigned to developing and constructing the asset, which have been re-allocated from the common costs category.

Submarine cable costs have been examined by GT as part of their forensic review. GT reviewed a range of costs for cable crossing rock and mattresses, post cable lay survey and export cable drop-off which had been estimated at the time of the CAT submission. After reviewing the updated cost information provided by the Developer, GT has found the current level of these costs is lower than the estimate in the CAT. As such, our adviser suggests, and the Developer agrees, that submarine cable costs can be reduced by £2.0m.

### Ofgem's position for the ITV

The Project's ITV should align to the most up-to-date view of costs. Therefore, we agree with GT that submarine cable costs should be reduced by  $\pounds 2.0m$ . The Developer's team agrees with this deduction.

The Developer had submitted  $\pounds$ 6.2m of contingency and  $\pounds$ 2.1m of PCG costs in this cost category. Following discussion with the Developer, it is our view that only  $\pounds$ 0.6m of this contingency was still in use. We have removed  $\pounds$ 5.6m of contingency and the full amount of the PCG from the submission.

In addition, we are concerned with the level of installation costs observed, which appears to be high relative to historic data for projects of this size and complexity. During our review of the Project's costs, the Developer explained that compliance with specific marine licence obligations meant that it had to use mattresses instead of rocks in certain areas, and this had increased costs. While we have allowed £250K of additional cost for this, we are of the view the installation of extra mattresses alone does not explain the high level of costs observed. Based on historic data and cost information from technical advisors, the

installation costs are at least £1.5m in excess of what they should be and so we have made a deduction of this amount from the Developer submission.

In total, we have included  $\pm$ 33.0m as the economic and efficient cost of developing and constructing the submarine cables, while the Developer's submission was  $\pm$ 43.9m. This includes  $\pm$ 0.6m of contingency which will be reviewed at the FTV stage.

## Onshore cable

Our review compared the Project's onshore cable costs with those of other comparable projects. Including the design, installation and supply, contingency and internal resource re-allocation costs, the onshore cable cost of  $\pounds 17.8m$  is greater than the average indexed cost from other comparable projects of  $\pounds 12.2m$ .

The Developer highlighted two areas to explain the drivers for the higher cost: the HV connection and complicated horizontal directional drilling (HDD) work.

## Ofgem's position for the ITV

We acknowledge that both the complicated HDD and the HV connection involve additional levels of complexity, and hence cost, compared with many of the projects we have dealt with previously. We have made an allowance of  $\pounds$ 4.4m (which represents all of the additional cost the Developer has incurred on these activities) on top of our benchmark cost for standard cable to reflect this.

GT found £0.3m of unsubstantiated costs, which we have removed from the submission. Additionally, we have removed £0.3m of contingency (which is no longer needed) and £0.5m of PCG costs. In total, we have included £16.7m as the economic and efficient costs, while the Developer's submission was £17.8m in this cost category.

## Connection costs

The Developer carried out works on behalf of National Grid Electricity Transmission (NGET) in NGET's existing substation. This was done to avoid a potential risk of NGET not being able to meet the Developer's schedule due to its procurement lead times. The Developer has confirmed that the assets built by the developer in the substation are transferring to the OFTO and were procured on a single source contract to NGET's specification.

### Ofgem's position for the ITV

We acknowledge that these works were necessary to allow the efficient progress of the project and that the Developer was a price taker in that they were forced to single-source to comply with NGET's requirements. Accordingly, we have included the full  $\pm 3.8$ m submission in the ITV.

### Common costs

Offshore projects incur costs on services during development and construction that are shared between transmission and generation. As previously described, we reallocated costs from the Developer's submission where we could clearly identify that they relate to other cost categories. With the remaining costs, there are two aspects to be considered: the allocation rate between transmission and generation and the efficiency of the transmission cost elements once the allocation rate has been confirmed.

We require developers to submit details of the metrics that are used to split shared costs (including the supporting methodologies). Where no metric is supplied or can be agreed, our default position is to use the direct equipment costs of the transmission assets as a proportion of the direct equipment costs for the project as a whole. GT have reviewed the allocation rates applied and have verified that the calculations applied by the Developer in the CAT correctly reflect the Developer's methodology.

## Ofgem's position for the ITV

The Project has used a number of different rates to allocate shared costs. We have reviewed the basis for these allocations; whereas some of these are clear and we agree with the methodology, there are some which we have not yet verified. We will review these in more detail during the FTV process.

We have not yet conducted a detailed review of the efficiency of the Common Costs. Our view is that based on our experience from past projects, this cost category should be below 15% of total project costs. For the ITV, we have capped the included level of Common Costs at £25.4m, which represents this proportion, while the Developer's submission was  $\pounds$ 43.3m. We will review this in more detail at the FTV stage.

### Interest During Construction (IDC)

IDC refers to the cost of financing the development and construction of offshore transmission assets. Industry commonly recognises this financing cost as part of the capital expenditure. For the purposes of the cost assessment process, IDC is the rate of interest that ought to be incurred during the development and construction phase.

## Ofgem's position for the ITV

We reviewed the Developer's IDC submission. We discussed the rates applied and noted that the Developer's submission had used incorrect IDC rates over some of the periods relevant to the financing. Further, the Project has claimed IDC over an unusually long duration between the start of the project and pick up of construction activity. Based on comparison with development profiles from previous projects, we have taken a view as to what would be an efficient duration and also applied the appropriate rate for this period. The impact of this is to reduce the Developer's IDC entitlement by  $\pounds$ 426K.

The decisions that we have made with respect to deductions to the project's CAPEX costs for the ITV will also result in a consequential IDC reduction. The magnitude of this deduction will be dependent on detailed information relating to the spend profile of included costs, and so is subject to further review. Our current estimate of the IDC value for the ITV is £10.8m. We will keep this under review for the Project's FTV.

### Other costs

There are a number of smaller items that form part of the ITV assessment:

### Strategic Spares

The Project's transmission assets are expected to transfer with a number of strategic spare parts; for example, a spare cable spool to transfer the spare cable to the incoming OFTO and as yet undefined OFTO spares. The Developer submitted a cost of £0.6m for transmission related strategic spares. The Developer considers that these will be required by the incoming OFTO.

We reviewed the submitted costs of spares and compared the costs against spares that have transferred to the OFTO on similar sized projects. We will review this in more detail at the FTV stage, but have included the £0.6m in the Project's ITV.

### <u>Forex</u>

The Developer did not hedge against foreign exchange movements at the beginning of the Project, but did hedge as soon as practicable after receiving guidance from Ofgem. The CAT was submitted based on the actual spot exchange rate paid when invoices were settled. This is in line with Ofgem guidance. We expect that some of the outturn costs will be less than forecast, as a result of the hedging. Any such differences will be reconciled when setting the FTV.

### Transaction Costs

The Developer submitted Transaction costs of  $\pm 2.3$ m. We have included them in the ITV but will not review these until the FTV stage.

## Ofgem's decision on indicative transfer value for the Project

The ITV for the Project is set out in Table 1 below, which also sets out the initial transfer value at EPQ for comparison.

Table 1: Comparison of initial transfer value and ITV

Item	Initial Transfer Value at EPQ (£m)	Indicative Transfer Value (£m)
Capital expenditure and development costs	214.1	169.8
IDC	16.1	10.8
Indicative Transfer Value (with IDC)	230.2	180.6

## Next steps

The cost assessment process for the Project will proceed into the calculation of the FTV, based on further updates on costs to be provided by the Developer as the Project progresses. To inform our FTV assessment we intend to work closely with the Developer. The process will involve the following:

- a forensic accounting review;
- further review of issues as identified in this letter; and
- a further review of the Project's capital expenditure. This will be assisted by independent consultants, as appropriate.

If you have any questions regarding this letter, please contact Keren Maschler on 020 3263 9619 (or <u>keren.maschler@ofgem.gov.uk</u>) in the first instance.

Yours sincerely,

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Min Zhu Associate Partner, Electricity Transmission