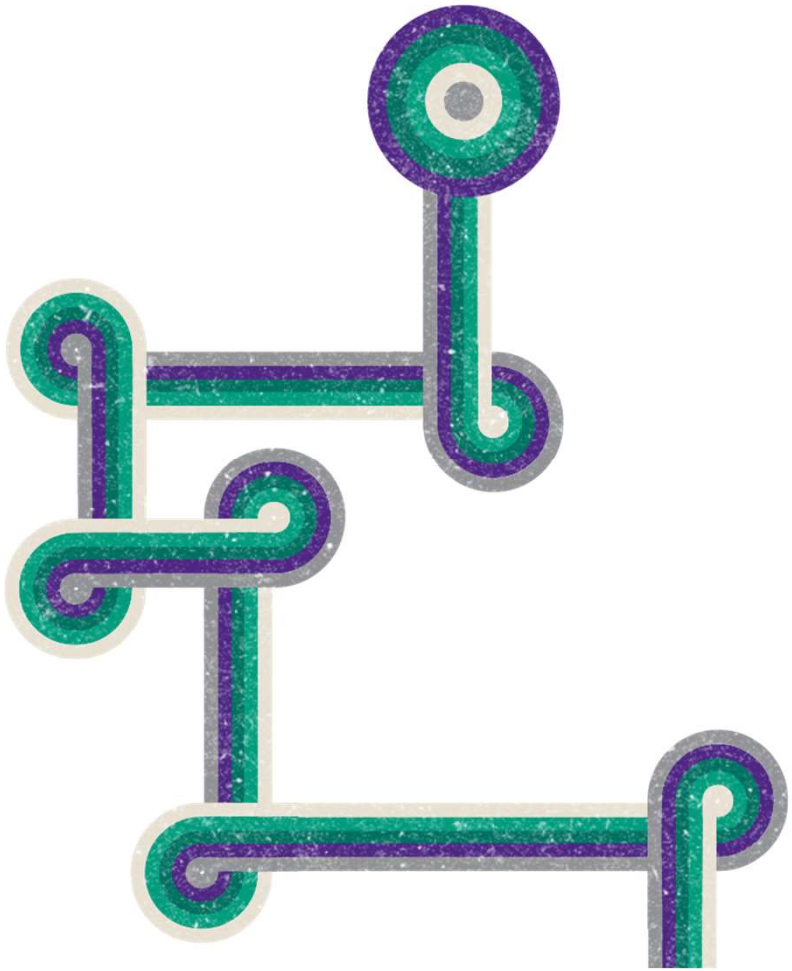
Grant Thornton

Seagreen Offshore Wind Farm Transmission Assets

Ex-Ante Cost Review

13 January 2023



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13 January 2023

Dear Sirs

Seagreen Offshore Wind Farm Transmission Assets

In accordance with the Call Off Order Form Reference CON/SPEC/2022-010 dated 8 March 2022 between Smith Square Partners LLP and Ofgem, associated task order and Sub-contractor agreement dated 8 March 2022 between Grant Thornton UK LLP and Smith Square Partners LLP, we enclose for your attention our report detailing our findings arising from the Ex-Ante Cost Review of the Seagreen Offshore Wind Farm Transmission Assets.

Our conclusions and recommendations are included within the Executive Summary set out in section one, however for a full understanding it is necessary to read this in conjunction with our detailed commentary set out in sections 2 to 12 and appendices A to J.

This report is confidential and has been prepared exclusively for Ofgem. Whilst other parties may be interested in receiving a copy of this report, we stress that, to the fullest extent permitted by law, we cannot accept any responsibility whatsoever in respect of any reliance that these parties may place on our report in any decision that they may make in relation to the Seagreen Offshore Wind Farm.

Yours faithfully

Grant Thornton UK LLP

Glossary

AfP	Application for Payment
BAFO	Best and final offer
Board	Board of Directors
CAT	Cost assessment template
CAT V1.0	CAT submitted by the Developer 17 May 2022
CMA	Construction Management Agreement
CTV	Crew Transfer Vessel
Developer	SSER as lead developer with support from Total Energies
EEZ	Exclusive Economic Zone
ESI	Electrical Systems Infrastructure
EPCI	Engineering, procurement, construction, installation
EPQ	Enhanced Pre-qualification
EUR	Euro
FX	Foreign exchange
GBP	Great British Pound
Generation Assets	The generation assets of Seagreen
Grant Thornton	Grant Thornton UK LLP
HVAC	High Voltage Alternating Current
IDC	Interest during construction
ITT	Invitation to tender
ITV	Indicative transfer value
LTA	Lender's Technical Advisor
NETS	National Electricity Transmission System
Nexans	Nexans Norway AS
NOK	Norwegian Krone
Ofgem	The Office of Gas and Electricity Markets
OSP	Offshore Substation Platform
OFTO	Offshore transmission owner
PB	Preferred Bidder
P&C	Procurement & Commercial
Petrofac/ PFML	Petrofac Facilities Management Limited
PO	Purchase order
QRA	Quantitative Risk Analysis
Seagreen	Seagreen Offshore Windfarm
SSER	SSE Renewables Services (UK) Limited (formerly, SSE RENEWABLES DEVELOPMENTS (UK) LIMITED)
SWEL	Seagreen Wind Energy Limited
Transmission Assets	The transmission assets of Seagreen
UR	Utilisation Request
USD	United States Dollar

Glossary

VOWD	Value of work done
WTG	Wind turbine generator

Contents

Section 1: Executive summary

Executive summary

Introduction

- This report relates to the Seagreen Offshore Wind Farm which is owned by SWEL, a joint venture owned by SSER (49%) and TotalEnergies (51%). SSER is managing the development and construction of the joint venture project, supported by TotalEnergies, and will operate Seagreen on completion
- Seagreen is a 1,075MW offshore wind farm, located in the North Sea approximately 27km off the coast of Angus, Scotland, at its nearest point
- The project is in construction with first power achieved in August 2022 and full commercial operations due to be achieved Q2 2023
- The Transmission Assets will include one offshore substation, three 220kV offshore export cables (each approximately 64k long), three 220kV onshore export cables (each 20k long) connecting to the onshore substation at Tealing, three 220kV AC onshore cable circuits (approximately 20km long) and three 275kV AC circuits approximately between 180m and 740m long connecting the new onshore Tealing Substation to exiting SSEN Tealing Substation

Grant Thornton review

- Our review and this report is based upon the CAT V1.0 and incorporates information and explanations provided regarding the costs in this version of the cost template, both from a virtual meeting and in correspondence with the Developer, up to 10 January 2023
- Grant Thornton has been instructed by Ofgem to review the ex-ante cost assessments prepared by the Developer for the Transmission Assets of the Wind Farm (Ex-Ante Cost Review)
- The Ex-Ante Cost Review has considered the accuracy, completeness and allocation of costs against the cost template prepared by the Developer for the Wind Farm Transmission Assets. The review is based on supporting information and methodology provided by the Developer
- The purpose of this review is to:
  - determine if the Developer's cost estimate requires updating for the next stage of the transfer process, ITT
  - assist in the identification of technical issues by noting areas where the cost information suggests that further technical review may be required to consider efficiency as part of determining the ITV for the ITT stage of the process
  - assist determination of the ITV for ITT by reviewing accuracy, allocation and completeness of cost information
- The Developer's estimate of the cost of the Wind Farm Transmission Assets, included in the CAT V1.0, amounts to £[redacted] million. This represents a £[redacted] million increase on the initial cost assessment by the Developer (issued in October 2021) that projected the original cost to be £[redacted] million. The Developer's estimated costs of the Transmission Assets, as set out in the CAT V1.0, are summarised in the table below

Transmission Assets cost summary

	CAT Reference	Direct costs £	Contingency £	Total £	%
Project common costs	CR8	[redacted]			[redacted]%
Offshore substation	CR2	[redacted]			[redacted]%
Submarine cable supply and installation	CR3	[redacted]			[redacted]%
Land cable supply and installation	CR4	[redacted]			[redacted]%
Onshore substation	CR5	[redacted]			[redacted]%
Reactive substation	CR6	[redacted]			[redacted]%
Connection costs	CR7	[redacted]			[redacted]%
Transaction costs	CR9	[redacted]			[redacted]%
Total capital costs		[redacted]			[redacted]%
Interest during construction		[redacted]			[redacted]%
Total		[redacted]		**677,433,443**	**100%**

Executive summary (continued)

Summary of findings

- The Developer has provided us with supporting documentation and/or explanations for the majority of items included within the CAT V1.0. Our review found that all major items of capital expenditure for Transmission Assets have either been procured under contracts specific to the transmission business, or have been procured under contracts specific to the Wind Farm as a whole and have been allocated between the Transmission and Generation Assets using a mix of allocation methodologies that will be considered further in this report
- As part of our line-by-line review of the CAT V1.0, as instructed, we have sought to agree the costs of the transmission business above £100,000 to supporting documentation, representing £[redacted] ([redacted]%) (excluding IDC) of the total costs of the CAT V1.0. This included:
  - confirming costs in the CAT to contracts and contract variations orders between the Developer and subcontractors, and to working schedules prepared by the Developer that set how estimated costs within the CAT have been calculated
  - gaining an understanding from the Developer about the determination of costs in the CAT, such as the approach to procurement of main items of expenditure, the allocation of shared costs between the transmission and generation businesses, and the treatment of costs incurred in foreign currencies
- In most cases, we were able to confirm that the costs included in the CAT V1.0 were appropriately stated. However, we identified that some costs were incorrectly stated, and as such, we propose adjustments for these costs within the 'Impact of cost assessment' table at the end of this executive summary
- A summary of our testing and cost coverage is set out in the 'Summary of testing' approach table at the end of this executive summary
- Furthermore, there are some areas which we draw to Ofgem's attention, and these are detailed in the table on the following pages

Conclusion

- Based upon our review, subject to the items included in the "Impact of cost assessment" table, the "unsubstantiated costs" table and the matters highlighted in the "Matters requiring further consideration by Ofgem" tables, we consider that the costs of the Transmission Assets included in the CAT V1.0 appear to be appropriately stated

Executive summary (continued)

Matters requiring further consideration by Ofgem

Area	Further information	Grant Thornton observations
Transaction costs – CR9 • Supporting information for an amount in the CAT	• We have not been provided with any supporting information for the legal costs of £[redacted] included within CR9.	• Whilst we consider the inclusion of transaction costs in the ITV to be reasonable, absent further information, we are unable to say whether the legal costs are reasonable • Accordingly, we recommend that Ofgem should obtain further information from the Developer before accepting these costs
Covid 19 Claims – CR2, CR5 • Supporting information for an amount in the CAT	• The total value included in the CAT for Covid 19 claims is £[redacted] within CR2 and £[redacted] in CR5 • We have been provided with an email from the Contract Manager explaining that the total capped value of £[redacted] was the correct value to include in the CAT • We have not seen any further supporting documentation in relation to the claims received (and note that the £[redacted] and £[redacted] do not add up to the full £[redacted])	• Although we have not been provided with supporting documentation, it is not within our expertise to establish whether such costs have been efficiently incurred and are allowable • Accordingly, we recommend that Ofgem should obtain further information from the Developer and consider instructing technical advisers to review the costs and determine whether these should be included in the Transmission Asset costs
Open Claims – CR2, CR3, CR4 • Supporting information for an amount in the CAT	• Total costs included in the CAT relating to outstanding claims are £[redacted] within CR2, £[redacted] in CR3 and £[redacted] in CR4 • We have been provided with an email from the Contract Manager explaining that the amount included in the CAT is 60% of the claims received up to December 2021. • However, we have not been provided with any further supporting documentation	• Whilst we consider the inclusion of costs for ongoing claims in the ITV to be reasonable, absent to further information, we are unable to say whether these costs are reasonable • Accordingly, we recommend that Ofgem should obtain further information from the Developer before accepting these costs
Open Variations – CR2, CR3, CR5 • Supporting information for an amount in the CAT	• Total costs included in the CAT relating to open variations are £[redacted] within CR2, £[redacted] in CR3 and £[redacted] in CR5 • We have not been provided with any further supporting documentation	• Whilst we consider the inclusion of open variations in the ITV to be reasonable, absent to further information, we are unable to say whether these costs are reasonable • Accordingly, we recommend that Ofgem should obtain further information from the Developer before accepting these costs

Executive summary (continued)

Matters requiring further consideration by Ofgem (continued)

Area	Further information	Grant Thornton observations
Spares – CR3 • Supporting information for an amount in the CAT	• We have not been provided with any supporting information for Spares costs totalling £[redacted] included within CR3	• We recommend that Ofgem should obtain further information from the Developer before accepting these costs
Fisherman Cooperation – CR3 • Supporting information for an amount in the CAT	• Total costs included in the CAT relating to Fisherman Cooperation costs are £[redacted] • However, the Developer has confirmed that only £[redacted] relates to the Transmission Assets and therefore we have proposed an adjustment to reduce the CAT costs by £[redacted] • The Developer has provided us with a spreadsheet which provides detail of the expected costs to be paid for each agreement totalling £[redacted]. This includes a forecast amount of £[redacted] for 'Future Mobile Fishing Gear claims'	• Whilst we consider the inclusion of costs relating to Fisherman Cooperation agreements in the ITV to be reasonable, without further information in relation to the forecast figure included in the CAT of £[redacted] we cannot say whether these costs are reasonable • Accordingly, we recommend that Ofgem obtain further information from the Developer before accepting these costs
Studies– CR7 • Supporting information for an amount in the CAT	• We have been provided with explanations from the Contract Manager for £[redacted] of the £[redacted] included in CR7 for costs relating to Studies. • The Developer has explained that the remaining £[redacted] relates to costs of £[redacted] for other potential studies which should be allocated as 100% OFTO rather than the 50% OFTO allocation as per the email from the Contract Manager	• We recommend that Ofgem obtain further information in order to determine the correct allocation of the Studies costs
Areas requiring technical input • Time spent by internal staff	• The Developer has provided the CMA which sets out the daily rates charged, along with a breakdown of actual and forecast staff costs	• We recommend that Ofgem should consider instructing technical advisors to review the time and rates in order to determine whether these costs (in terms of both days spent and the daily rates used) are being efficiently incurred, including whether they include any profit element

Executive summary (continued)

Matters requiring further consideration by Ofgem (continued)

Area	Further information	Grant Thornton observations
Cost allocation	• The majority of costs relating to the Transmission Assets are fully attributable to the Transmission Assets • However, where costs are not directly attributable to the Transmission Assets, the Developer has allocated costs either with 15% OFTO allocation or 50% OFTO allocation (where it is considered that the cost should be split equally between the Transmission and Generation Assets) depending on the cost type	• We have been provided with a high level calculation for the 15% allocation rate based on the funding structure of the project. As such, we are unable to comment further on the reasonableness of the rate • Accordingly, we recommend that Ofgem should consider the two allocation rates further before accepting
Contingency • Validation of contingency provision	• The CAT includes a contingency of £[redacted] (2.25% of pre contingency capital costs excluding IDC) which the Developer has calculated based upon its assessment of risks associated with the construction of the Transmission Assets, the likelihood of such risks being realised and an estimate of the costs involved in these circumstances • Whilst we have been provided with an explanation of the basis Monte Carlo model QRA analysis used by the Developer to calculate the contingency, we have not been provided with any further details of the risks or inputs	• Based upon our experience of similar projects, the approach taken for the calculation of contingencies is in line with what we have seen on previous projects • Likewise, in light of the level of completion of the Transmission Assets, the percentage of contingencies as a proportion of total capital costs is in line with what we have seen on similar projects • However, we note that the full contingency cost has been included in CR2 and the CAT V1.0 also includes a further £[redacted] for open claims and variations, including £[redacted] of unsettled COVID claims, which the Developer notes it treats as contingency • In any case, we consider that the assessment of the expected value of risks and of the likelihood of each event occurring fall within the scope of a technical assessment, rather than the Ex-Ante Review • We note that by the time of the ex-post cost assessment (the Ex-Post Review), the value of the contingencies is expected to fall to zero, as at this stage all costs will be known • Accordingly, we recommend that Ofgem should obtain further information in relation to the risks and an update of the contingency provision from the Developer prior to finalising the ITV

Executive summary (continued)

Summary of testing approach

	Total costs £	Substantiated £	Adjustments (costs to be removed from CAT) £	Unsubstantiated £	Under £100,000 £
Project common costs	[redacted]				
Offshore substation	[redacted]				
Submarine cable supply and installation	[redacted]				
Land cable supply and installation	[redacted]				
Onshore substation	[redacted]				
Reactive substation	[redacted]				
Connection costs	[redacted]				
Transaction Costs	[redacted]				
Total	[redacted]				
% of total costs	100%	[redacted]			

Impact of cost assessment

	CAT reference	Section	£
Cost of Transmission Assets per CAT dated May 2022 (Excluding IDC)			589,552,066
Adjustments where the amount verified differs to the amount included in the CAT			
Removal of the Land Agent costs from CR8 as this was double counting costs allocated	CR8		[redacted]
Removal of Pigtails Variation relating to non- OFTO assets	CR2		[redacted]
Removal of OSP J-Tube Repurposing and Additional Pigtail scope of work Variation relating to non- OFTO assets	CR2		[redacted]
Removal of non-OFTO Fisherman Co-operation costs	CR3		[redacted]
Discrepancy between costs in Petrofac payment plan and costs in the CAT	CR5		[redacted]
Total adjustments			(9,091,062)
Revised cost of Transmission Assets			**580,461,004**

Executive summary (continued)

The below unsubstantiated costs, are costs that are included in the CAT V1.0 which have not been verified by Grant Thornton due to the level of supporting documentation provided by the Developer being insufficient to form a view as to whether the costs and estimates are reasonable:

Unsubstantiated costs

	CAT reference	£
Covid Claims	CR2	[redacted]
Other Oustanding Claims	CR2	[redacted]
Open Variations	CR2	[redacted]
Contingency	CR2	[redacted]
Other Outstanding claims that have not been determined	CR3	[redacted]
Open Variations	CR3	[redacted]
Spares	CR3	[redacted]
Other outstanding claims that have not been determined	CR4	[redacted]
Covid Claims	CR5	[redacted]
Open Variations	CR5	[redacted]
Studies	CR7	[redacted]
Transaction Costs (Partially Substantiated)	CR9	[redacted]
Total		[redacted]

Section 2: Introduction and background

Instructions and background

Instructions

- Grant Thornton has been instructed by Ofgem to prepare an Ex-Ante Cost Review of the cost information and cost templates prepared for Ofgem by the Developer in relation to the Transmission Assets
- As instructed, in this review we established whether the costs greater than £100,000 provided in the Developer's cost template can be matched to specific contracts or other supporting information. Further, we ascertained whether appropriate metrics exist for cost allocation between transmission and generation assets
- Our work involved tracing the amounts stated in the CAT to supporting contracts, schedules and other supporting information that shows how costs have been derived. The review also involved a virtual meeting with the Developer in order to discuss the information provided, together with the basis for the cost allocation metrics used
- The purpose of a review at this stage is to:
  - determine if a developer's cost estimate requires updating for the next stage of the transfer process, ITT
  - assist in the identification of technical issues by noting areas where the cost information suggests that further technical review may be required to consider efficiency as part of determining the ITV for the ITT stage of the process
  - assist determination of the ITV for ITT by reviewing accuracy, allocation and completeness of cost information
- The Ex-Ante Cost Review is based upon the Developer's current estimates of the costs to be incurred in developing and constructing the Transmission Assets. Following construction of the Wind Farm, we expect to carry out a forensic review of the actual expenditure incurred by the transmission business (the Ex-Post Review)
- Grant Thornton's review of the Ex-Ante cost information prepared by the Developer is limited to the scope as set out above and does not include detailed cost verification or any review of technical or legal issues
- Our review and this report is based upon the cost template submitted to Ofgem on 17 May 2022 and incorporates information and explanations provided regarding the costs in this version of the cost template, both during our meeting with and correspondence with the Developer up to 10 January 2023
- 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
- This work does not constitute an audit performed in accordance with Auditing Standards
- 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 information we have relied upon are not established as accurate, it may be necessary to review our conclusions
- The report has been prepared using Microsoft Excel. The report may contain minor rounding adjustments due to the use of computers for preparing certain calculations

Background

- SWEL is a joint venture owned by SSER (49%) and TotalEngergies (51%). SSER is providing the services for the development and construction of the joint venture project under the CMA, supported by TotalEnergies , and will operate Seagreen as a Joint Venture on completion.
- A lease of the cable route is in place between the Crown Estate Scotland and SWEL dated 29 June 2021. The lease has a term of 50 years, and this is currently being extended to align with the windfarm lease. The onshore planning permissions were secured under the Town and Country Planning (Scotland) Act 1997
- Seagreen is located approximately 27 km (at its closest point) from the Angus coastline in the EEZ adjacent to Scotland

Background (continued) and purpose and method of the review

Background (continued)

- Seagreen will have a maximum export capacity of 1,075 MW, with an installed capacity of 1,140 MW, comprising 114 Vestas 10MW turbines on three-legged suction caisson jacket substructures. The power is collected via one Offshore Substation Platform (OSP), via 66kV array cables and associated equipment. Power is transformed to 220kV on the OSP and will be exported to the onshore substation at Tealing, close to Dundee via circa 84km of offshore and onshore export cables using three circuits. At the Onshore Substation, the power is stepped up to 275kV and connected to the adjacent SSEN Substation where it joins the NETS
- The Transmission Assets consist of an OSP supported by a six-legged jacket substructure. The OSP will collect all the power produced by the WTGs and step-up the voltage from 66kV to 220kV before transmitting it via three 220kV export cables. The offshore export cables are each 64km long and the onshore export cables are each approximately 20km long. The Onshore Substation is located in the immediate vicinity of the Tealing 275 kV Substation and steps the voltage up to 275 kV for connection to the transmission network at Tealing Substation
- The Transmission Assets have been delivered using two EPCI Contracts
  - the first EPCI contract with Petrofac is for the design, engineering, procurement, construction, installation, commissioning and testing of the offshore substation platform and onshore substation
  - the second EPCI contract with Nexans is for design, engineering, procurement, manufacture, installation, commissioning and testing of the offshore and onshore transmission cabling
- The project is in construction with first power achieved in August 2022 with full commercial operations due to be achieved Q2 2023

Purpose and method of the review

- The main purpose of the Ex-Ante Cost Review of the Wind Farm's Transmission Assets is to:
  - determine if a developer's cost estimate requires updating for the next stage of the transfer process, ITT
  - assist in the identification of technical issues by noting areas where the cost information suggests that further technical review may be required to consider efficiency as part of determining the ITV for the ITT stage of the process
  - assist determination of the ITV for ITT by reviewing accuracy, allocation and completeness of cost information. In particular:
    - whether the costs as set out in the Developer's cost template for the Transmission Assets are appropriately stated to use in the cost assessment
    - whether costs not directly attributable to either the Generation or Transmission Assets have been allocated to each on a reasonable basis
- The starting point in our review of the cost information was the CAT V1.0 which is based upon the Developer's estimates of the costs of the Transmission Assets for the reporting period
- Our review has considered confirmation that costs included in the CAT V1.0 relate to contracts that are either for the Transmission Assets or are for the Wind Farm in a broader sense but have a reasonable basis for allocation between Transmission Assets and other elements of the Wind Farm. The basis of allocation is different in some cases depending upon:
  - whether the costs can be directly attributed to either the transmission or generation businesses (as in the case of the main capital contracts)
  - what is considered the main driver behind the relevant development or project management cost (this is usually capital cost or the degree of time/activity required in relation to different components of the Wind Farm development)
- In each case where an allocation is involved we have considered if the proposed method and rate of allocation are appropriate for that particular cost. We have not at this stage sought to verify that any expenditure has actually been incurred by tracing the costs included in the CAT V1.0 to actual payments, as that will be done for selected contracts as part of the Ex-Post Cost Review

Section 3: Seagreen processes

Introduction, decision making process and procurement

Introduction

- In this section, we set out the processes that have been used by the Developer in relation to the procurement of, and the accounting for, the Wind Farm, and in particular, the Transmission Assets
- From our discussions with the Developer and our review of the cost information prepared by them in respect of the Transmission Assets, it is evident that there are systems in place which will help to ensure that the cost of the Wind Farm Transmission Assets represents value for money including:
  - competitive tendering
  - specific planning and budgeting tools, including building on experience obtained from similar projects
  - controls over variation orders and large expenditure items

Decision making process

- The decision governance in the Seagreen project is set out in the budget and approval document which ensures management oversight to all budget increases and drawdowns from contingency, in addition to interface, programme, legislative or other material changes
- The Delegation of Authority levels are:
  - [redacted] - Change Approvers (Senior Project Manager and Finance Director must both agree)
  - [redacted] – the Senior Manager is responsible for escalating change requests for approval to the Project Director
  - [redacted] – any costs greater than [redacted] are taken to the Board for approval

Procurement process

- The Seagreen Information Memorandum explains that the approach to the market and tender process was as follows:
  - an EPQ stage to identify a shortlist of Qualifying Bidders to progress to the ITT stage for each qualifying project
  - An ITT stage to selected the PB for each Qualifying project
  - If the criteria set out in the ITT document are met, a BAFO stage for the relevant Qualifying Project
- Following the review of tender returns, the agreed contracting strategy was to minimise the number of EPCI contracts. As there were no tenderers that had provided an offer to deliver the full ESI scope inclusive of all scopes it was decided to split the scope into two separate contracts, one contract for the export cables (both onshore and offshore) and one contract for the substations (both onshore and offshore that included the OSP foundation along with all transport and installation associated with the OSP and OSP foundation)
- This strategy was chosen as it minimises the interface risks and mitigates cost escalation during construction
- As detailed in Section 2, the Transmission Assets have been delivered using two EPCI contracts, with Petrofac and Nexans
  - Petrofac are an experienced supplier of offshore platforms in the oil and gas and offshore wind industry. The key subcontractors employed by Petrofac for the various elements include Linxon UK Ltd (onshore substation and HVAC scope of work of offshore substation), Saipem Ltd (transport and installation works) and Eversendai (OSP fabrication and OSP support structure fabrication)
  - Nexans are an experienced submarine cable manufacturer and installer, with extensive experience supplying and installing cables to offshore wind farms, oil and gas assets and inter-connectors. The key subcontractor employed by Nexans for the onshore civil works was Roadbridge Ltd

Procurement process (continued) and accounting and budgeting process

Procurement process (continued)

Tender Process

- We summarise the tender award process for the key capital components of the Transmission Assets in Appendix B

Contracting

- The project is governed by a range of documentation including the CMA, Shareholders Agreement and Common Terms Facility Agreement
- The project is defined into three periods for planning and budgeting purposes (1) development, (2) construction, operations and maintenance and (3) decommissioning. The project is currently in the construction phase
- The construction budget is the budget per Financial Close at June 2020

Accounting and budgeting process

- SSER are the CMA provider for the project and finance services are provided under the CMA by the dedicated SWEL Finance Team who are responsible for providing accounting and budget services through utilising SSER accounting systems
- Costs are capitalised in the project ledger with tasks codes assigned based on the relevant packages; marine installation, turbines, OFTO, project management and finance costs

Preparation of the CAT

- The project team identified key individuals (mainly finance and commercial) who would be involved in the CAT preparation and Ofgem CAT guidance was circulated to key individuals for guidance
  - CR2 to CR6 of the CAT was populated using the payment milestone plans provided by Petrofac and Nexans. A procurement weighting provided by Petrofac was also used to apportion Petrofac costs where a full breakdown was not included as part of the payment plan.
  - CR 7 of the CAT was populated with connection costs paid to National Grid using the project invoice log, with forecast for studies provided by the project Grid Engineer
  - CR 8 of the CAT was populated using the project invoice log, to include actual amounts received and paid for each category under 'other' with forecasts prepared by finance based on project budgets, PO values and estimated final costs
  - CR 9 of the CAT was populated with transaction costs estimated based on estimates from Ofgem and project legal, based on previous OFTO transactions
- Once populated the CAT was reviewed internally on a line by line basis the finance team, the Seagreen OFTO Transaction Team and a previous OFTO Lead, to ensure no items had been excluded. Following this review, the CAT was also reviewed by the project Finance Director and Seagreen OFTO Lead prior to submission to Ofgem

Cost controlling

- The P&C team maintain a cost report on a monthly basis that uses project ledger expenditure reports following month end finance processes. The cost report categorises each of the main cost assumptions from the Financial Close model and compares actuals incurred against the original budget and forecasts the remaining spend
- Each month a construction report is populated and circulated with the board using the outputs of the cost report which includes spend to date, variation to budget and estimated costs to complete

Cost report inputs

- Actuals recorded in the project ledger at month end by the finance team are based on invoices received and receipted plus any relevant accruals such as VOWD
- Monthly updates from the main suppliers drives the VOWD accrual and provide to P&C who provide to the finance team

Accounting and budgeting process (continued) and invoice and purchase order processes

Accounting and budgeting process (continued)

Forecast costs

- The profile of remaining spend is included in the cost report based on when costs are anticipated to be incurred. Forecasts for main suppliers are based on programme updates and anticipated achieved milestones, provided by suppliers to P&C
- The cost report compares actual costs versus the original Financial Close budget, utilised contingency, and estimated costs to complete
- Where the estimated costs are higher than the original budget this is reported
- The cost report is updated every month with the outputs used in the monthly construction report that is circulated to shareholders providing shareholders an update on the project as a whole

Drawdown preparations

- Each month the project funding requirements are assessed by the finance team. A funds flow file is updated each month based on, invoices received from suppliers and known estimated costs
- Once populated draft URs are submitted to the agent bank and LTA for review and comment
- Once confirmed by the agent bank and LTA the final drawdown requests are submitted (this is three days prior to the request UR date)
- Funds are received from lenders on the last working day of each month
- Once external funds are fully utilised, the OFTO assets will be funded by shareholders

Management Accounts

- Each month management accounts for SWEL (along with Seagreen Holdco 1 Limited consolidated management accounts) are prepared, circulated to shareholders and discussed at the monthly finance committee

Invoice and Purchase order processes

- The project maintains a robust invoicing and PO approval processes and has a designated finance admin who is responsible for managing all PO requests and receipt of project invoices

Purchase orders:

- Any PO requests are submitted using a purchase request template, known as a PR1, that is submitted to the project invoicing mailbox. Only PR1s submitted in this manner are processed. The PR1 forms contains information on the amount being requested, the project ledger codes that the cost should be coded to and the supplier for the requested amount
- Based on the value of the PR1 this is approved through the relevant approval processes in the finance system with approvers checking the amount is within budget
- Once the PR1 has been approved and converted into a PO the PO number is issued to the supplier to be quoted on invoices

Invoices:

- All invoices are submitted to the designated project mailbox where they are logged on the invoice log and sent to both a business and commercial approver. The approver is asked to provide the OFTO/Non OFTO allocation of the invoice.
- Once approved the invoice is receipted for payment and added to the project AP invoice log that is maintained on teams
- AP process invoices on weekly payment runs
- In relation to main OFTO suppliers (Petrofac & Nexans) under the terms of the contract there is an application window each month where the supplier submits their application for payment. This is reviewed and certified by the P&C team managing the contact. This ensures only achieved milestones are certified.
- Only once a signed payment certificated has been issued is the supplier eligible to submit an invoice. Invoices are issued to the mailbox and sent to the P&C contract manager and package manager to approve. Once approved the invoice is receipted for payment.
- Once the full PO amount has been invoiced and receipted against the PO is closed

Invoice and purchase order processes(continued) and cost accounting and allocation methodology

Invoice and Purchase order processes (continued)

Invoice requirements

- Invoices relating to main suppliers must tie with the amount certified as described in the certification process above
- Invoices are required to contain the following details, where these details are not included the supplier is asked to amend their invoice accordingly:
  - SWEL address
  - PO number
  - VAT registration number
  - Net amount and VAT amount
  - Bank details

Cost accounting and allocation methodology

- As detailed on page 19, the CAT has been prepared by populating costs (and forecasts) that relate to the transmission works from the payment plans from the two EPCI suppliers, the project invoice log and the project's cost system, with cost allocation to Transmission or Generation Assets, or to the Wind Farm as a whole (shared costs) being maintained (for the majority of costs) in the SSER accounting systems

Cost allocation methodology

- Where project costs are not fully attributable to the Transmission Assets, ie they relate to the Wind Farm as a whole (shared costs), estimates have been made of the proportion of costs that should be attributed to the Transmission Assets based on the nature of the shared costs
- Shared (or indirect) costs are typically indirect costs which are for the general benefit of the overall project and include:
  - general project management and administration
  - project support functions eg procurement, cost control and health and safety
  - general consultants eg legal, environment and consent
- Further detail on our review of cost allocation is set out in the next section

Section 4: Costs common to the Transmission Assets as a whole

Introduction, indirect costs and interest during construction

Introduction

- Whilst the CAT breaks down the costs of the Transmission Assets into distinct areas, largely based upon the separate components that make up the Transmission Assets, there are certain costs and cost principles which are common to the Transmission Assets as a whole
- As such, we have summarised the work that we have undertaken in relation to these costs and cost principles in this section and cross refer to our findings in relation to such costs and cost principles in later sections of this report

Indirect Costs

- In June 2020, as part of Financial Close processes, a CMA was entered into between SSER and SWEL. CMA costs are recharged via invoice from SSER and cash settled by SWEL

Staff costs

- Schedule 3 'Service Fee Arrangements' of the CMA details staff bandings, corporate service fees and rent. The day rates are detailed below:

Band	Job Title	Day Rate £
Band 1	Project Director	[redacted]
Band 2	2(a) Commercial Director/Finance Director/Technical Director and such other senior projects roles as are specifically agreed (up to an aggregate of 6 personnel) 2(b)Package Manager(s)/Engineering Manager/Legal Manager	[redacted] [redacted]
Band 3	Project controls/Procurement/Consenting/SHE/Senior Engineer	[redacted]
Band 4	Engineer/Quality Advisor/Risk Manager/Site Supervisor/Project Developer	[redacted]
Band 5	Administration Assistant	[redacted]
Band 6	Consultants and non-SSE staff	[redacted]

- Each month, a project timesheet is populate by each individual working on the project. Once complete, the number of days worked by each individual is multiplied by the relevant rate in the CMA to determine the total monthly cost
- The timesheet is approved by the Senior Project Manager and Finance Director and submitted to SSER for recharging. SSER raise an invoice based on the timesheet and issue to SWEL
- The CAT includes approximately £[redacted] relating to staff and contractor costs (being £[redacted] included in 'Other' for SSER staff and £[redacted] of development spend for staff costs including contractors and consultants)
- The Developer has provided a breakdown of staff costs, including forecast costs, and we have agreed incurred costs of £[redacted] to invoice and £[redacted] to the LTA report at Financial Close
- Overall, whilst we can confirm the incurred amounts appear reasonable, we do not have the technical expertise to determine whether the time spent or rates used are economically or efficiently incurred. We recommend that Ofgem's technical advisers should review the breakdowns provided and the day rates used in order to assess whether the time spent and the rates are efficiently incurred

Other indirect costs

- As detailed in the CMA, Corporate Services are rechargeable from SSER to SWEL based on £[redacted] per quarter, ie total annual amount of £[redacted]
- Rent, for office space, is also rechargeable from SSER to SWEL based on £[redacted] per annum (quarterly equivalent £[redacted]). Both corporate services and rent are billed by SSER to SWEL for the quarters ending March, June, September, and December
- Ancillary costs and expenses are also eligible for recharge from SSER under the CMA where these costs are reasonable. Such costs, primarily include travel, accommodation and legal costs

Interest during construction

- Interest should be included within the Transmission Assets costs up to the end of construction (after which, the project is expected to be generating power)
- The Developer's current interest cost for the construction period of the Transmission Assets totals approximately £[redacted]. For the avoidance of doubt, we have not verified the Developer's assessment of interest during development (charged on shareholder loans at 8%) or construction, as this is outside the scope of our review

Boundaries, contingencies, global discounts, related party transactions and cost allocation

Boundaries used for the purposes of cost allocation

- The Seagreen Information Memorandum confirms the boundary points of the Transmission Assets proposed by the Developer, as follows:
  - Onshore (Transmission Interface Point) – located at the 275kV cable sealing ends spigots within SSEN Tealing Substation
  - Offshore (Grid Entry Point) - 66kV switchgear incomer circuits on the offshore substation platform on busbar side

Contingencies

- The CAT V1.0 includes a contingency provision of £[redacted] ([redacted]% of pre contingency capital costs excluding IDC). The full contingency amount has been included in CR2, in relation to the OSP, as the Developer considers that this is the area most of the risk, especially in relation to risk of offshore vessel delays
- The CAT V1.0 also includes around £[redacted] for open claims and variations, including £[redacted] of unsettled COVID claims, which the Developer notes it treats as contingency
- The Developer has explained that contingency included in the CAT is based on the outputs of P80 Monte Carlo - QRA analysis. QRA is run every quarter during the construction phase of the project and this drives the estimated contingency figure to completion
- These risks include events such as adverse weather conditions impacting installation and additional skirt sleeve height on the substation. As these values are still under commercial negotiation, they are therefore subject to change
- The QRA addressed each package individually and assessed the risk exposure against the current programme. A range of values were assigned to each risk associated with each package. Based on these scenarios, each of these were ran through the Monte Carlo simulation to address the likelihood of these risks. The Developer has noted that the QRA is deemed commercially sensitive and therefore further details have not been provided
- By the time of the Ex-Post Review, the value of the contingencies will fall to zero, as all costs will be known by this stage

Application of overriding global discounts

- The Developer has confirmed that no global discounts have been obtained in the course of the project

Related party transactions

- The Developer has confirmed that, other than the cost charged under the CMA between SWEL and its related party, SSER, there have been no related party transactions in the course of the project

Cost allocation

- The majority of costs are 100% attributable to the Transmission Assets. However, where costs are not directly attributable to either the transmission or generation business (shared/indirect costs), the Developer has allocated these costs as 15% OFTO and 85% Non-OFTO, based on the funding structure of the project
- The Developer has explained that the 15:85 OFTO-Generator split is derived from the relationship between the transmission facilities available at Financial Close and the total sources available at Financial Close. [redacted]
- Other costs, such as the Fisheries Liaison costs are allocated 50:50

Foreign exchange

Foreign exchange

- As detailed above, SWEL has two main EPCI contracts relating to the OFTO assets. These require the following currencies:
  - Petrofac (delivery of onshore and offshore substations, grid connection, OSP topside and foundation by Petrofac Facilities Management Limited) – GBP, EUR and USD
  - Nexans (delivery of onshore and offshore export cables) – GBP, EUR, USD and NOK
- As part of the Financial Close process, SWEL entered into FX hedges in relation to the project's FX requirements. The executed FX hedges were based on the payment plans provided by EPCI suppliers as part of contract award and signing
- [redacted]

Currency	Amount hedged relating to Transmission Assets	Rate	Blended model rate
GBP	-	-	-
EUR	[redacted]	[redacted]	[redacted]
USD	[redacted]	[redacted]	[redacted]
NOK	[redacted]	[redacted]	[redacted]

- [redacted]
- [redacted]

Section 5: Project common costs and development costs

Project common costs and development costs

CR8 – project common costs

Costs overview	£
Other Costs	[redacted]
Development Costs	[redacted]
Total	[redacted]

CR8 adjustments

	£	Adjustment £	Reasons for adjustment	Revised CAT amount £
Other Costs - Land Agent	[redacted]		[redacted]	
Total	[redacted]			

Overview

- The table above summarises the costs that are common to the project as a whole, which have been allocated to the Transmission Assets, together with the early development costs related to the Transmission Assets

Verification work

- Our verification work in relation to the project common costs is set out in Appendix C
- Based upon our review, we have been able to agree project common costs and development costs totalling £[redacted] ([redacted]%) to supporting documentation
- The remaining £[redacted] ([redacted]%) of project common costs and development costs comprises costs below £100,000 which fall outside the scope of our review
- Whilst most project common costs appear to be appropriately stated, the table opposite has highlighted one item where the amount included in the CAT V1.0 requires amendment

Conclusion

- Based upon our review, subject to the amendment highlighted in the table opposite and our comments as detailed in the executive summary, the project common costs and development included in the CAT V1.0 are appropriately stated

Section 6: Offshore substation

Offshore substation costs

CR2 – Offshore substation costs

Costs overview	£
Project Management	[redacted]
Instrumentation	[redacted]
Mechanical	[redacted]
OSP Jacket	[redacted]
OSP Topside	[redacted]
Electrical systems contract	[redacted]
Commissioning	[redacted]
Safety / snagging	[redacted]
Installation	[redacted]
Contingency / Forecast Fuel	[redacted]
HVAC	[redacted]
Total	[redacted]

CR2 adjustments

	£	Adjustment £	Reasons for adjustment	Revised CAT amount £
Pigtails (variation)	[redacted]			
OSP J-Tube Repurposing and Additional Pigtail Contract (Variation)	[redacted]			
Total	[redacted]			

Overview

- The table above summarises the costs of construction of the offshore substation and associated works

Verification work

- Our verification work in relation to the offshore substation costs is set out in Appendix D
- Based upon our review, we have been able to agree offshore substation costs totalling £[redacted] ([redacted]%) to supporting documentation
- The Developer has been unable to provide supporting documentation for onshore substation costs in relation to contingencies, open variations and unsettled claims totalling £[redacted] ([redacted]%). As such, these are included within the list of unsubstantiated costs set out in the executive summary
- The remaining £[redacted] ([redacted]%) of offshore substation costs comprises costs below £100,000 which fall outside the scope of our review
- Whilst most offshore substation costs appear to be appropriately stated, the table above has highlighted two items where the amount included in the CAT V1.0 requires amendment

Conclusion

- Based upon our review, subject to the amendment highlighted in the table above and the unsubstantiated costs, as detailed in the executive summary, the offshore substation costs included in the CAT V1.0 appear to be appropriately stated

Section 7: Submarine cable supply and installation

Submarine cable supply and installation costs

CR3 – Submarine cable supply and installation costs

Costs overview	£
Main Contract	[redacted]
Cable burial	[redacted]
Protection	[redacted]
Offshore Services	[redacted]
Vessels	[redacted]
Project Management & Engineering	[redacted]
Spares	[redacted]
Land	[redacted]
Other	[redacted]
Total	[redacted]

CR3 adjustments

	£	Adjustment £	Reasons for adjustment	Revised CAT amount £
Fisherman Co-operation	[redacted]			
Total	[redacted]			

Overview

- The table above summarises the costs associated with the supply and installation of the submarine cable

Verification work

- Our verification work in relation to the submarine cable supply and installation costs is set out in Appendix E
- Based upon our review, we have been able to agree submarine cable supply and installation costs totalling £[redacted] ([redacted]%) to supporting documentation
- The Developer has been unable to provide supporting documentation for of submarine cable supply and installation costs in relation to the settled claims and open variations and spares totalling £[redacted] ([redacted]%). As such, these are included within the list of unsubstantiated costs set out in the executive summary
- The remaining £[redacted] ([redacted]%) of submarine cable supply and installation costs comprises costs below £100,000 which fall outside the scope of our review
- Whilst most of submarine cable supply and installation costs appear to be appropriately stated, the table above has highlighted one item where the amount included in the CAT V1.0 requires amendment

Conclusion

- Based upon our review, subject to the amendment highlighted in the table above and the unsubstantiated costs, as detailed in the executive summary, the submarine cable supply and installation costs included in the CAT V1.0 appear to be appropriately stated

Section 8: Land cable supply and installation costs

Land cable supply and installation costs

CR4 – Land cable supply and installation costs

Costs overview	£
Onshore Export Cable	[redacted]
Project Management	[redacted]
Total	[redacted]

Overview

- The table above summarises the costs associated with the supply and installation of the land cable

Verification work

- Our verification work in relation to the land cable supply and installation costs is set out in Appendix F
- Based upon our review, we have been able to agree land cable supply and installation costs totalling £[redacted] ([redacted]%) to supporting documentation
- The Developer has been unable to provide supporting documentation for offshore cable variations, outstanding claims and land costs of £[redacted] ([redacted]%). As such, these are included within the list of unsubstantiated costs set out in the executive summary

Conclusion

- Based upon our review, subject to the unsubstantiated costs, as detailed in the executive summary, the land cable supply and installation costs included in the CAT V1.0 appear to be appropriately stated

Section 9: Onshore substation costs

Onshore substation costs

CR5 – Onshore substation costs

Costs overview	£
Civil	[redacted]
Electrical	[redacted]
OSS	[redacted]
Commissioning	[redacted]
Additional items	[redacted]
Project Management	[redacted]
Total	[redacted]

CR5 adjustments

	£	Adjustment £	Reasons for adjustment	Revised CAT amount £
Commissioning	[redacted]			[redacted]
Total	[redacted]			

Overview

- The table above summarises the costs of construction of the onshore substation and associated works

Verification work

- Our verification work in relation to the onshore substation costs is set out in Appendix G
- Based upon our review, subject to our observations in relation to resources costs as further detailed in section 4, we have been able to agree onshore substation costs totalling £[redacted] ([redacted]%) to supporting documentation, with no issues arising
- The Developer has been unable to provide supporting documentation for onshore substation costs in relation to open variations, settled ground condition claims and covid 19 claims £[redacted] ([redacted]%) and this is included within the list of unsubstantiated costs set out in the executive summary
- The remaining £[redacted] ([redacted]%) was below the threshold of review
- Whilst most project common costs appear to be appropriately stated, the table above has highlighted one item where the amount included in the CAT Rev A requires amendment

Conclusion

- Based upon our review, subject to the unsubstantiated costs, as detailed in the executive summary and the adjustment noted above, the onshore substation costs included in the CAT V1.0 appear to be appropriately stated

Section 10: Reactive substation costs

Reactive substation costs

CR6 – Reactive substation costs

Costs overview	£
Electrical	[redacted]
Total	[redacted]

Overview

- The table above summarises the costs incurred for the reactive substation

Verification work

- Our verification work in relation to the reactive substation costs is set out in Appendix H
- Based upon our review, we have been able to agree reactive substation costs totalling £[redacted] ([redacted]%) to supporting documentation, with no issues arising

Conclusion

- Based upon our review, the reactive substation costs included in the CAT V1.0 appear to be appropriately stated

Section 11: Connection costs

Connection costs

CR7 – Connection costs

Costs overview	£
Connection Agreement	[redacted]
Total	[redacted]

Overview

- The table above summarises the costs incurred connecting the Transmission Assets to the National Grid

Verification work

- Our verification work in relation to the connection costs is set out in Appendix I
- Based upon our review, we have been able to agree connection costs totalling £[redacted] ([redacted]%) to supporting documentation
- The Developer has been unable to provide supporting documentation for onshore substation costs in relation to studies costs of £[redacted] ([redacted]%). As such, this is included within the list of unsubstantiated costs set out in the executive summary
- The remaining [redacted] ([redacted]%) of connection costs were below the review threshold of £100,000

Conclusion

- Based upon our review, subject to the unsubstantiated costs, as detailed in the executive summary, the connection costs included in the CAT V1.0 appear to be appropriately stated

Section 12: Transaction costs

Transaction costs

CR9 – Transaction costs

Costs overview	£
Transaction costs	[redacted]
Total	[redacted]

Overview

- The table above summarises the transaction costs incurred in connection with the Transmission Assets

Verification work

- Our verification work in relation to the transaction costs is set out in Appendix J
- Based upon our review, we have been able to agree transaction costs totalling £[redacted] ([redacted]%) to supporting documentation.
- However the Developer has been unable to provide supporting documentation for forecasted transaction costs of £[redacted] ([redacted]%). As such, this is included within the list of unsubstantiated costs set out in the executive summary

Conclusion

- Based upon our review, subject to our observations above regarding the unsubstantiated costs, the transaction costs included in the CAT V1.0 appear to be appropriately stated

Appendices

A.	Restrictions on circulation, disclosures of interest, forms of report and information relied on
B.	Summary of key contracts tender process and award
C.	Project common costs and development costs verification work
D.	Offshore substation costs verification work
E.	Submarine cable supply and installation costs verification work
F.	Land cable supply and installation costs verification work
G.	Onshore substation costs verification work
H.	Reactive substation costs verification work
I.	Connection costs verification work
J.	Transaction costs verification work

A. Restrictions on circulation, disclosures of interest, forms of report and information relied on

Restriction on circulation

- 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
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Disclosures of interest

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

Forms of report

- 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

Information relied on

- Grant Thornton has relied upon the following information in reviewing the cost assessment for the Wind Farm:
  - Seagreeen Information Memorandum (provided in draft)
  - information contained in the Ofgem developer data room for the Seagreen project
  - information and explanations provided to us by the Developer. This includes an initial virtual meeting with the Developer on 12 May 2022 and further calls and email correspondence with the Developer to discuss the Transmission Assets up to 10 January 2023

B. Summary of key contracts tender process and award

Introduction

- As set out in section 3, one of the main tools used by the Developers in achieving value for money and highest compliance to requirements is the use of a competitive tendering process for the main elements of construction of the Wind Farm
- In this section, we summarise the tender award process (as explained by the Developer) for the key capital components of the Transmission Assets

Overview

- The ESI works package was originally split up into five separate sub-packages (lots) and tendered separately with the tenderers provided (November 2018) with the option to bid for one sub-package, multiple sub-packages or all sub-packages. The five sub-packages were:
  - Supply & Install of Onshore Substation
  - Supply & Install of Offshore Substation
  - Supply & Install of Onshore Export Cables
  - Supply & Install of Offshore Export Cables
  - Supply & Install of Inter-Array Cables
- Prior to the return of the tenders, the project agreed to remove the inter-array cables package from the ESI package as this scope falls outside of the OFTO scope and so was considered best placed in another package
- The tender lists were developed based on contact with a number of suppliers to understand their capability and interest in each of the specific lots
- The initial tenders returned (January 2019) were based on a 275kV/1500MW solution, with selected tenderers requested to provide updated prices based on a 220kV/1075MW solution

Offshore Export Cables

	[redacted]

- The following inclusions and exclusions in the table were considered to achieve a like for like comparison of the tenderers pricing

	[redacted]

- Further to the tender pricing, Nexans provided a pricing range (March 2019) based on the 220kV/1075MW solution, for both Open Cut and HDD installation method

Landfall Installation Method	Nexans 220kV/ 1075MW
Open Cut	[redacted]
HDD	[redacted]

Onshore Export Cables

Supplier	LS Cables	Nexans	NKT	Prysmian
Total Price	[redacted]			

B. Summary of key contracts tender process and award (continued)

Onshore Substation

Supplier	STDL	GE	Linxon
Total Price	[redacted]		
Updated offer (April 2019)	[redacted]		

Offshore Substation

Supplier	STDL	GE	Petrofac	IV
Total Price	[redacted]			
Updated Offers Including T&I for OSP, OSP Foundation & T&I	[redacted]			
Final Updated Offers Including T&I for OSP, OSP Foundation & T&I for OSP Foundation (April 2019)	[redacted]			

Contract Award

- Following review of the tender returns and clarification with individual tenderers to establish the actual tendered price for the specified scope for the 220kV/1075MW, the agreed contracting strategy was to minimise the number of EPCI contracts for the package. There were no tenderers that had provided an offer to deliver the full ESI scope inclusive of all scopes therefore a decision was made to split into two separate contracts. One contract for the export cables (both onshore and offshore) and one contract for the substations (both onshore and offshore that included the OSP foundation along with all transport and installation associated with the OSP and OSP foundation)
- The Developer explained that this strategy minimises the interface risks and mitigates against cost escalation during construction
- Further, if SWEL had chosen separate contractors for onshore and offshore, then the substations contractor (Petrofac) would have two contractors to interface with, one at the Offshore Substation Platform and one at the Onshore Substation, as well as the additional interface between the onshore and offshore cable contractors. This would have required two sets of project management teams in addition to more employer costs to manage the contracts along with the interfaces
- Nexans were considered the most economically advantageous offer for both the onshore export cables and offshore export cables therefore Seagreen entered into a preferred supplier agreement with Nexans to secure the factory slot in order to achieve the proposed timescales
- Seagreen then entered into a FEED contract, further followed by an early works agreement to ensure the programme was met whilst the projected awaited Financial Close. All of these costs were included in the contract price of the EPCI contract with Nexans
- Linxon and Petrofac had proposed a joint offer to deliver both the onshore and offshore substations therefore the Developer progressed a FEED with both for these scopes, early works agreements following to ensure the programme was met whilst the Developer awaited Financial Close. All of these costs were included in the contract price of the EPCI contract with Petrofac. Later on in the negotiation process, Linxon backed out of working directly with Seagreen as an EPCI contractor therefore Petrofac took on the whole scope for substations with Linxon operating as a sub-contractor to Petrofac
- Further development of the design progressed alongside negotiations on the terms and conditions of the contract, along with the supporting contract schedules. The final contract price and terms and conditions with both Nexans and Petrofac were concluded and the two EPCI contracts awarded

C. Project common costs and development costs verification work

Other costs

Cost overview	£ Documentation seen	Cost verified
Insurance	[redacted]	✓
SSE Staff	[redacted]	✓
Land - Agent	[redacted]	X
Certification	[redacted]	✓
Lenders Technical Advisor	[redacted]	N/A
Advisory	[redacted]	✓
Engineering Services	[redacted]	✓
ECOW & Environment Services	[redacted]	✓
Safety	[redacted]	N/A
Total	[redacted]	

Development costs

Cost overview	£ Documentation seen	Cost verified
Staff (Including contractors and consultants)	[redacted]	✓
Transmission design	[redacted]	✓
LiDAR	[redacted]	N/A
Advisory	[redacted]	✓
Consenting (including Land)	[redacted]	✓
Shareholder Interest	[redacted]	✓
Total	[redacted]	

D. Offshore substation costs verification work

Project Management

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Project Management	[redacted]			✓
10% of Project Management for OFTO	[redacted]			✓
Documentation & Plans	[redacted]			✓
Engineering	[redacted]			✓
10% of Engineering for OFTO	[redacted]			✓
Total	[redacted]			

Instrumentation

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
OFTO Auxiliary SCADA	[redacted]	[redacted]	[redacted]	✓
Total	[redacted]			

Mechanical

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Pedestal Crane	[redacted]		[redacted]	✓
HOT Crane	[redacted]		[redacted]	✓
Total	[redacted]			

D. Offshore substation costs verification work (continued)

OSP Jacket

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Supply of Jacket and piles	[redacted]		[redacted]	✓
Pigtails (variation)	[redacted]		[redacted]	X
OSP J-tube Repurposing and Additional Pigtail Scope of Work (variation)	[redacted]		[redacted]	X
Welded Tubulars - Lot1; Priority 1 (Along with Topside)	[redacted]		[redacted]	✓
Welded Tubulars - Lot1; Priority 2 - Piles & Pile Sleeves	[redacted]		[redacted]	✓
Seamless Tubulars (along with Topside)	[redacted]		[redacted]	✓
Plates (along with Topside)	[redacted]		[redacted]	✓
Sections (along with Topside)	[redacted]		[redacted]	✓
Total	[redacted]			

D. Offshore substation costs verification work (continued)

OSP Topside

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Supply of topsides	[redacted]			✓
OSP Topside Variations	[redacted]			✓
Plates (Stockist)	[redacted]			✓
Seamless Tubulars (Stocklist)	[redacted]			✓
Structural Steels Rolled Sections- Lot - 1 (Stocklist)	[redacted]			✓
Total	[redacted]			

D. Offshore substation costs verification work (continued)

Electrical systems contract

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
AC UPS System	[redacted]		[redacted]	✓
400V Low Voltage Switchboards	[redacted]		[redacted]	✓
Primary (Offshore)- 220kV GIS Switchgear	[redacted]		[redacted]	✓
Primary (Offshore)- 220/66 kV 400MVA Transformer (integrated coolers) X 3	[redacted]		[redacted]	✓
Primary (Offshore) - 66kV GIS Switchgear	[redacted]		[redacted]	✓
Primary (Offshore)- 66/0.4kV Earthing/ Auxiliary transformer 800KVA	[redacted]		[redacted]	✓
Primary (Offshore)- 66kV Surge Arrester (within Transformer Cable Box)	[redacted]		[redacted]	✓
Primary (Offshore)- 200kV Cable between GIS and Tx	[redacted]		[redacted]	✓
Primary (Offshore)- 66kV Busduct Between GIS and Tx	[redacted]		[redacted]	✓
Primary (Offshore)- 66kV Busduct between T-off Point on busduct and EAT	[redacted]		[redacted]	✓
Primary (Offshore)- 66kV Busduct between GIS and Connection box	[redacted]		[redacted]	✓
Primary (Offshore)- 66kV Busduct between GIS and Interconnectors	[redacted]		[redacted]	✓
Primary (Offshore)- Mechanical Interlocking	[redacted]		[redacted]	✓
Primary (Offshore)- HV Plant Labelling	[redacted]		[redacted]	✓

D. Offshore substation costs verification work (continued)

Electrical systems contract (continued)

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
COVID 19 Claims	[redacted]		[redacted]	X
Other outstanding claims that have not been determined	[redacted]		[redacted]	X
Open Variations	[redacted]		[redacted]	X
Total	[redacted]			

Commissioning

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Commissioning	[redacted]		[redacted]	✓
Total	[redacted]			

Safety / snagging

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Compressor Air Foam	[redacted]	[redacted]	[redacted]	✓
Inert Gas System	[redacted]	[redacted]	[redacted]	✓
Snagging List	[redacted]		[redacted]	✓
Total	[redacted]			

D. Offshore substation costs verification work (continued)

Installation

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Installation of topsides	[redacted]			
Installation of OSP Jacket	[redacted]			
Total	[redacted]			

Contingency / Forecast Fuel

	[redacted]			
CTV Charter, Fuel and port Fees	[redacted]			N/A
Total	[redacted]			

HVAC

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
HVA/C Package 1 (AHU, ACCU, FAN, DAMPERS, HEATERS, LOUVERS, MIST ELIMINATORS, SILENCERS, GRILLES, FCU, CONTROL SYSTEM, INSTRUMENTS)	[redacted]	[redacted]	[redacted]	✓
Total	[redacted]			

E. Submarine cable supply and installation costs verification work

Main contract sum breakdown

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Manufacture Submarine Cable	[redacted]			✓
Manufacture Landfall Cable	[redacted]			✓
Material test, electrical test, FO test	[redacted]			✓
Spare Cable	[redacted]			✓
Cable Installation	[redacted]			✓
Offshore Joint for cable nr 3	[redacted]			✓
Operational Spares: Schedule of spares offshore 220 kV	[redacted]			✓
Accessories - contractor to detail in line with scope	[redacted]			✓
Testing and Commissioning	[redacted]			✓
DTS	[redacted]			✓
Landfall Open Trench	[redacted]			✓
Open Cut Variation	[redacted]			✓
Spare Cable Variation (onshore and offshore)	[redacted]			✓
Metals and Fuels Adjustment Variation	[redacted]			✓
Offshore Cable Variations	[redacted]			N/A
Additional costs for offshore export cable	[redacted]			✓
Settled Claims	[redacted]			✓
Other Outstanding claims that have not been determined	[redacted]			X
Open Variations	[redacted]			X
Total	[redacted]			

E. Submarine cable supply and installation costs verification work (continued)

Cable Burial

	[redacted]				
	[redacted]				

Protection

	[redacted]				
Total	[redacted]				

Offshore services

Cost overview	£	Supplier	Contract number	Documentation seen	Cost verified
Pre-lay Survey	[redacted]				✓
Prelay Grapnel Run	[redacted]				✓
Total	[redacted]				

Vessels

Cost overview	£	Supplier	Contract number	Documentation seen	Cost verified
Guard Vessels	[redacted]				✓
Total	[redacted]				

E. Submarine cable supply and installation costs verification work (continued)

Project Management & Engineering

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Project Management & Engineering	[redacted]			✓
Total	[redacted]			

Spares

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Spares	[redacted]			X
Total	[redacted]			

Land

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Land	[redacted]			✓
Total	[redacted]			

Other

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Fisheries Liaison Officer	[redacted]			✓
Fisherman Co-operation	[redacted]			✓
Total	[redacted]			

F. Land cable supply and installation costs verification work

Onshore Export Cable

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Supply of cable (220kV scope - TJB Substation)	[redacted]			✓
Supply of Cable (275kV Scope- Between Substations)	[redacted]			✓
Transition Joint Bay	[redacted]			✓
Additional Diversion	[redacted]			✓
Installation Works	[redacted]			✓
Civil Early Works	[redacted]			✓
Tempory Accesses & Traffic Management	[redacted]			✓
General Cable Route Installation	[redacted]			✓
Directional Drill	[redacted]			✓
Substation works	[redacted]			✓
Preliminary & Indirect Costs	[redacted]			✓
Onshore Export Cables Variations	[redacted]			✓
Other outstanding claims that have not been determined	[redacted]			X
Land (including land advisory/ services)	[redacted]			✓
Total	[redacted]			

F. Land cable supply and installation costs verification work (continued)

Project Management

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Project Management (Installation)	[redacted]			✓
Total	[redacted]			

G. Onshore substation costs verification work

Civil

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Primary (onshore)- Support Structures	[redacted]			✓
Civils (Onshore)- Civil Contractor	[redacted]			✓
Installation (Onshore) - Installation contractor	[redacted]			✓
Total	[redacted]			

Electrical

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Primary (Onshore)- 275/220/23kV 400MVA Super Grid Transformer	[redacted]			✓
Primary (Onshore)- 220/275kV VTs	[redacted]			✓
Primary (Onshore)- 220/275kV 3PH Circuit	[redacted]			✓
Primary (Onshore)- 220/275kV 3PH RCP Disconnector	[redacted]			✓
Primary (Onshore)- 220/275kV 3PH Pantograph	[redacted]			✓
Primary (Onshore)- 220/275kV 3PH	[redacted]			✓
Primary (Onshore)- 220/275kV Post CTs	[redacted]			✓
Primary (Onshore)- 220/275kV Surge Arrester	[redacted]			✓
Primary (Onshore)- 220/275kV Post	[redacted]			✓
Primary (Onshore)- 220/275kV Auxiliary Transformer	[redacted]			✓
Primary (Onshore)- LV Cables/ Multicores/ Fos	[redacted]			✓
Primary (Onshore)- Earthing Connections for Main Equipment's to designated Earth Points	[redacted]			✓

G. Onshore substation costs verification work (continued)

Electrical (Continued)

Cost overview	£	Supplier	Contract number	Documentation seen	Cost verified
Primary (Onshore)- HV Plant Labelling	[redacted]				✓
Primary (Onshore)- Busbar Connectors & Clamps	[redacted]				✓
Primary (Onshore)- Aluminium Busbars & Flexible Conductors	[redacted]				✓
Primary (Onshore)- Mechanical Inrtlocking	[redacted]				✓
Engineering Contractors (Onshore)- Technology Support	[redacted]				✓
Engineering Contractors (Onshore)- Civil Design Contract	[redacted]				✓
Engineering Contractors (Onshore)- Earthing Design	[redacted]				✓
Engineering Contractors (Onshore)- Impressed Voltage Study	[redacted]				✓
Total	[redacted]				

OSS

Cost overview	£	Supplier	Contract number	Documentation seen	Cost verified
Offshore Substation Construction	[redacted]				✓
OSS Variations	[redacted]				N/A
Covid 19 claims	[redacted]				X
	[redacted]				
	[redacted]				
Total	[redacted]				

G. Onshore substation costs verification work (continued)

Commissioning

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Commissioning	[redacted]	[redacted]	[redacted]	
Total	[redacted]			

Additional items

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Settled Claims (Ground conditions)	[redacted]			✓
Snagging List	[redacted]			N/A
Settled Claims	[redacted]			✓
Open Variations	[redacted]			X
Land (Including land advisory/services)	[redacted]			✓
Total	[redacted]			

Project Management

Cost overview	£ Supplier	Contract number	Documentation seen	Cost verified
Project Management	[redacted]			✓
10% of Project Management for OFTO	[redacted]			✓
Engineering	[redacted]			✓
10% of Engineering for OFTO	[redacted]			✓
Documentation & Plans	[redacted]			N/A
Total	[redacted]			

H. Reactive substation costs verification work

Electrical

Cost overview	£	Supplier	Contract number	Documentation seen	Cost verified
Primary (Onshore)- 220/275kV 197 MVAR Shunt Reactor	[redacted]				✓
Primary (Onshore) 220/275kV 3PH 25MVAR Harmonic Filter Bank	[redacted]				✓
Primary (Onshore)- DRC1	[redacted]				✓
Primary (Onshore)- DRC2	[redacted]				✓
Primary (Onshore)- DRC3	[redacted]				✓
Total	[redacted]				

I. Connection costs verification work

Connection Agreement

Cost overview	£ Supplier	Documentation seen	Cost verified
Acceleration	[redacted]		✓
Firth of Forth Intertrip	[redacted]	[redacted]	✓
3rd Bay at Tealing	[redacted]		✓
Mod App	[redacted]		N/A
Admin Change	[redacted]		N/A
Modd App	[redacted]		N/A
Modd App	[redacted]		N/A
Studies	[redacted]		X
		[redacted]	
		[redacted]	
		[redacted]	
		[redacted]	
		[redacted]	
		[redacted]	
Total	[redacted]		

J. Transaction costs verification work

Transaction costs

Cost overview	£ Documentation seen	Cost verified
Transaction costs	[redacted]	X
Total	[redacted]