

15 October 2020

Dear Sir/Madam,

**Invitation to Tender for the OWA High Voltage Array Systems (Phase 1) project for the Carbon Trust's OWA Programme**

You are invited to submit a tender for the OWA High Voltage Array Systems (Phase 1) project (the "OWA Hi-VAS (Phase 1) project" or "Project") which is part of the Offshore Wind Accelerator (OWA) programme. The key objective of the Project is to develop industry-wide consensus on the optimal future array voltage level and how the change in voltage can best be made.

The Invitation to Tender (ITT) consists of the following documents:

- Description of Tender (this document);
- OWA Hi-VAS (Phase 1) Contractors' Conditions;
- Tender Certificate (Word template);
- Bid Price Calculation Sheet (Excel template); and
- Clarification Document (if applicable<sup>1</sup>).

Unless informed to the contrary, tenders and communications shall be sent by e-mail to the following e-mail address: [robert.keast@carbontrust.com](mailto:robert.keast@carbontrust.com) and [owa@carbontrust.co.uk](mailto:owa@carbontrust.co.uk)

Tenders must be submitted before 13 November 2020, 1800 (GMT). Any tenders received after this date and time will be deemed non-compliant.

Your tender must consist of the following, the contents of which are described further below:

- Main Bid Document (pdf) – template not provided;
- Signed Tender Certificate (pdf) – template provided; and
- Bid Price Calculation Sheet (xls) – template provided.

The timeline of this procurement process is as follows:

Deadline for clarification questions	27 October 2020
Clarification Document published <sup>1</sup>	30 October 2020
Submission of full tender	13 November 2020, 1800 (GMT)
Bidder interviews	1 December 2020
Successful Contractor announcement	7 December 2020
Envisaged Contract award date	14 December 2020

Please e-mail any clarification questions, including questions about the timing of this ITT, to [robert.keast@carbontrust.com](mailto:robert.keast@carbontrust.com) and [owa@carbontrust.co.uk](mailto:owa@carbontrust.co.uk) any time before 27 October 2020. The complete set of clarification questions and all answers to clarification questions will be published in the Clarification Document on our website by 30 October 2020 and will hence be visible to all potential Bidders: <https://www.carbontrust.com/news-and-events/tenders>

For information about the OWA programme, please see the Carbon Trust's web site: <https://www.carbontrust.com/our-projects/offshore-wind-accelerator-owa>

We look forward to receiving Your tender.

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<sup>1</sup> A Clarification Document will not be published if no clarification questions are received in relation to this ITT.

Yours sincerely,

Robert Keast  
For and on behalf of **THE CARBON TRUST**

## The Carbon Trust Offshore Wind Accelerator

### Invitation to Tender for the "OWA High Voltage Array Systems (Phase 1)" Project

## Description of Tender

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## **IMPORTANT INFORMATION FOR BIDDERS**

### Publishing

Neither this document, nor any part of it nor any other information supplied in connection with it may, except with the prior written consent of the Carbon Trust, be republished, reproduced, copied, distributed or disclosed to any person for any purpose other than consideration by the recipient of whether or not to submit a tender.

### Bid evaluation

The received bids will be evaluated by the Carbon Trust and the OWA Hi-VAS (Phase 1) Project Participants against the criteria provided in section 7. A shortlist of Bidders will be created and invited for interview. Carbon Trust will do a vetting of the shortlisted bidders. Carbon Trust may request shortlisted bidders to fill-in a Due Diligence Questionnaire to supply additional information prior to being invited for an interview.

### Contracting

Bidders should note that the Scope of Work contained in section 4 of this document does not constitute an offer to contract with the Carbon Trust. It only represents a definition of specific requirements and an invitation to submit a tender addressing these requirements.

Issuance of this Invitation to Tender and the subsequent receipt and evaluation of the tenders by the Carbon Trust does not commit the Carbon Trust to enter into a Contract with any Bidder.

Should Your tender be successful, an Agreed Scope of Work that builds upon the Scope of Work contained in section 4 of this document and Your Approach to Work will be mutually agreed between You and the Carbon Trust. Once the Agreed Scope of Work is agreed, Your offer will be formally accepted by the Carbon Trust issuing an Award Letter, the Agreed Scope of Work, the OWA Hi-VAS (Phase 1) Contractors' Conditions, and any clarifications agreed in writing. The Award Letter, the Agreed Scope of Work, the OWA Hi-VAS (Phase 1) Contractors' Conditions, and any clarifications agreed in writing will establish the Contract for the OWA High Voltage Array Systems (Phase 1) project (the "**Contract**") between You and the Carbon Trust.

Carbon Trust may make amendments to the OWA Hi-VAS (Phase 1) Contractors' Conditions between the issuance of this Invitation to Tender and the issuance of the Contract. These amendments will be mutually agreed with the Contractor prior to the issuance of the Contract.

With the exception of any minor amendments to the OWA Hi-VAS (Phase 1) Contractors' Conditions which may be requested by the Bidder and any amendments to the OWA Hi-VAS (Phase 1) Contractors' Conditions made by Carbon Trust, the submission of a tender shall constitute unqualified acceptance of the OWA Hi-VAS (Phase 1) Contractors' Conditions. In the event that minor amendments to the OWA Hi-VAS (Phase 1) Contractors' Conditions are requested, such amendments must be clearly stated and the exact alternative wording must be provided in Annex A of the Tender Certificate. Please note that it is at the sole discretion of the Carbon Trust to accept any of the proposed amendments and that the Carbon Trust reserves the right to require the provision of further information in relation to any such request. No minor changes other than those contained in Annex A of the Tender Certificate at the time of submitting the tender will be considered. No material changes will be considered at any time.

## Mechanics of the tender process

Bidders should note that:

- it is at the discretion of the Carbon Trust whether to accept any non-compliant tender or whether to reject any non-compliant tenders without progressing such tenders through the evaluation phase;
- the Carbon Trust reserves the right not to accept the lowest priced tender or any tender whatsoever;
- the Carbon Trust reserves the right to accept more than one tender;
- unless a Bidder makes a formal statement to the contrary, the Carbon Trust reserves the right to accept any part of a Bidder's tender without accepting the remainder;
- formal notification that a tender has been successful will be communicated in writing by the Carbon Trust;
- the costs of tendering are the full responsibility of the Bidder; and
- the pricing set by Bidders shall be valid for a minimum of 90 days.

Bids may be submitted by individuals, companies, organisations or consortia.

Bidders should be aware that dates referred to in this Invitation to Tender may be subject to change where this is necessary in the interests of the Project (such changes will be notified in advance).

The Tender Certificate, Main Bid Document and any correspondence must be written in English. This Invitation to Tender, the Contract, its formation, interpretation and performance is subject to and in accordance with the law of England and Wales.

## Conflicts of interest

Bidders should be free of any commercial interests, partnership arrangements or contracts underway or other matters which may present a conflict or potential conflict of interest in respect of the provision of these services. As set out in section 3, if a Bidder thinks that it may have any conflict or potential conflict of interest, the Bidder shall describe the details of this conflict and provide details of whether and how it would propose to manage such a conflict in a satisfactory and robust manner in Annex B of the Tender Certificate. The Carbon Trust reserves the right to require the provision of further information in relation to any conflict or potential conflict of interest.

## Disclaimer

The information contained in this Description of Tender document and in any documents or information it refers to or incorporates (the "**Disclosed Information**") has been prepared to assist interested parties in deciding whether to make a bid. The Disclosed Information is not a recommendation by the Carbon Trust. It does not purport to be all inclusive or include all the information that a Bidder may require.

Neither the Carbon Trust nor any of its directors, employees, agents or advisers makes any representation or warranty (express or implied) as to the accuracy, reasonableness or completeness of the Disclosed Information. All such persons or entities expressly disclaim any and all liability (other than in respect of fraudulent misrepresentation) based on or relating to the Disclosed Information or any subsequent communication. The Bidder should conduct its own due diligence and seek its own professional, legal, financial and other advice as appropriate. The only information which will have any legal effect and/or upon which any person may rely will be such information (if any) as has been specifically and expressly represented and/or warranted in writing to the successful Bidder in any written contract that may be entered into with the Carbon Trust.

## **1. Introduction to the Offshore Wind Accelerator**

- 1.1. The Offshore Wind Accelerator (“**OWA**”) is an industry-driven collaborative research, development and demonstration programme which was initially launched by the Carbon Trust in 2008 in collaboration with five offshore wind developers. The programme has since expanded during OWA Stages I, II, III and IV to include currently eight offshore wind developers from various countries within the European Economic Area (the “**OWA Partners**”). At the time of issue of this Invitation to Tender the OWA Partners are: SSE Renewables Developments (UK) Limited, Ørsted Wind Power A/S, RWE Renewables GmbH, ScottishPower Renewables (UK) Limited, Equinor ASA, Vattenfall Vindkraft A/S, EnBW Energie Baden-Württemberg AG and Shell Global Solutions International B.V..
- 1.2. OWA Stage IV aims to continue the cost reduction of offshore wind to make it cost competitive with other sources of energy generation, overcome market barriers, develop industry best practice, trigger the development of new industry standards and support the international expansion of offshore wind.
- 1.3. OWA Hi-VAS (Phase 1) is a joint industry project set up under OWA Stage IV. It is funded separately to the core OWA Stage IV programme by a subset of OWA Partners (the OWA Hi-VAS (Phase 1) Project Participants). OWA Hi-VAS (Phase 1) will be governed by a Project Steering Committee and a Project Technical Committee, consisting of representatives from each of the OWA Hi-VAS (Phase 1) Project Participants and the Carbon Trust. These parties will supervise the Project, provide technical direction and guidance to the Contractor (where needed) and review the Deliverables, findings and other outcomes.
- 1.4. Please note, the term “Contractor”, where used within this document, refers only to the successful Bidder or, in the event that the Contract is awarded to a consortium, the successful Bidders.

## **2. Background and objective of the OWA Hi-VAS (Phase 1) project**

- 2.1. In 2010, the Carbon Trust commissioned an Offshore Wind Accelerator study which undertook a holistic review of the benefits and challenges of moving to a higher array cable voltage for Offshore Wind Farms (OWFs). This initial work was followed by a detailed engineering design study which evaluated the benefits and technical challenges at a range of different voltage levels, with 66kV providing the most cost-effective solution. However, to achieve the optimal solution, more cost-effective 66kV cables had to be developed.
- 2.2. Consequently, the OWA decided to launch a 66kV array cable competition in 2013. The competition supported the design, manufacture and qualification of four new designs for 66kV array cables. Four cable designs from three international cable manufacturers were type tested and became market available in 2015/2016. This provided a critical new technology for OWFs consisting of 7MW+ WTGs and has played a very important role in the continued growth of the offshore wind industry.
- 2.3. The East Anglia One (7MW WTGs), Borssele I&II (8MW WTGs) and the EOWDC (8MW+ WTGs) OWFs were amongst the first adopters of 66kV array cables. Since then, 66kV has been established as the standard inter-array voltage worldwide.
- 2.4. As the rated capacity of WTGs is now developing beyond 14MW, a further step up in the array cable voltage could enable a more efficient and cost-effective method of

power collection from larger turbines and ultimately lead to further reduction in LCOE for OWFs.

- 2.5. Considering that 66kV was preferred to 33kV for WTGs as low as 7MW, expectations are that the higher array voltage will prove to be worthwhile for >14MW WTGs. Whilst there are many considerations that need to be taken into account for the next set up in voltage, we can take learnings from the work done in the step up to 66kV.
- 2.6. The identification of the optimal voltage level for higher voltage array systems may start from or make use of existing voltage levels and associated technology from onshore transmission and distribution networks. Several European countries operate networks at 110kV, while 132kV is used in both Norway, Denmark and the UK and as an export cable voltage for multiple OWFs. However, although 110kV and 132kV are possible options, this does not mean the study should only assess these two voltage levels. It is expected that a range of different voltage levels will form part of the analysis.
- 2.7. Current regulation in many European countries would denote some higher voltage levels as a transmission asset. This differs from country to country and is an important consideration for the higher voltage array level. Current regulation needs to be assessed, and European TSOs need to be consulted to discuss whether Grid Codes should be amended. Industry standards also need to be considered as these differ for different voltage levels.
- 2.8. The overarching aim of the Hi-VAS (Phase 1) Project is to develop industry-wide consensus on the optimal future array voltage level and how the change in voltage can best be made.
- 2.9. In more detail, Hi-VAS (Phase 1) aims to:
  - I. Enable the industry to collectively and intelligently decide on the optimum higher array voltage level, and the timing for making the switch. This will be achieved through thorough stakeholder engagement, and considering engineering and regulatory factors.
  - II. Identify the technical and regulatory developments required to enable the increase in array voltage. For instance, this could be the need to develop cables, switchgear, transformers, installation vessels, regulations, standards or guidelines.
  - III. Send a clear message to the supply chain and regulators about the need and intention to raise the array voltage. Due to the industry-wide approach, the Project will provide the supply chain and regulators a clear view of what voltage level is best, where development is required and the timing for doing so.
  - IV. Enable more efficient array cable layouts by driving an increase in the array voltage. These layouts will have reduced electrical losses, cable length and ecological footprint.
  - V. Lay the basis for the Hi-VAS (Phase 2) project. Hi-VAS (Phase 1) will lay the foundations for further work (if deemed necessary) to support development of new technologies necessary for accelerating the switch to optimal high

array voltage. This further work may be realised in a future project, Hi-VAS (Phase 2).

2.10. It is expected that the switch to a Higher Voltage Array System will enable the following benefits:

- I. Optimised array cable layouts (such as cost-effective loops) with reduced cable length, ecological footprint, higher availability and electrical losses;
- II. Reduced offshore installation time through faster cable laying process;
- III. Reduced number of cable entries to the offshore substations (OSS) for HVAC or HVDC transmission;
- IV. Reduced weight & number of OSS transformers;
- V. Optimised OSS designs (layout - specifically cable entries, footprint, weight and any implications for platform structural design, manufacture and installation); and
- VI. OWFs without requirement for OSS; higher voltage array cables could transmit power direct to shore for smaller, nearshore OWFs

### **3. Tender documents for submission**

3.1. In response to this Invitation to Tender, Bidders are required to submit

- i. A Main Bid Document (pdf) – no template provided;
- ii. The signed Tender Certificate (pdf) – template provided; and
- iii. The filled-in Bid Price Calculation Sheet (xls) – template provided.

3.2. The Main Bid Document should be no more than 20 pages excluding appendices and no more than 40 pages including appendices. Font should be clearly legible, and be at least font size 11. The Main Bid Document shall as a minimum include the following information:

- i. The Bidder's proposed detailed Approach to Work (see section 4 and criterion 1 for more details). Bidders shall provide Work Package descriptions in the format set out in Annex 2 to this document. The Approach to Work should:
  - include a Gantt chart which describes the timeline for the Project, showing when each Work Package will start and finish;
  - outline how the Bidder will deliver the Scope of Work and do so on budget and within the allocated time;
  - any Alternative Work (i.e. substitute activities to take place instead of certain activities outlined in the Scope of Work in section 4). If Alternative Work forms part of the Approach to Work, the Bidder is expected to highlight, explain and justify the intended deviation from the Scope of Work. Alternative Work will be considered as non-optional when the tender is evaluated; and
  - any Additional Work (i.e. activities to take place in addition to the activities outlined in the Scope of Work in section 4). If Additional Work forms part of the Approach to Work, the Bidder is expected to explain and justify why the Additional Work would be beneficial and to provide a separate quotation for these activities. It is at the



discretion of the Carbon Trust to consider Additional Work in the evaluation of the tender.

- ii. a pdf copy of the filled-in Bid Price Calculation Sheet;
  - iii. the offered Bid Price, including any cost assumptions deemed relevant by the Bidder – see section 6 and criterion 4 for more details;
  - iv. an explanation of experience and staff skills, and how these are relevant to the Approach to Work – see criteria 2 and 3 for more details; and
  - v. supplementary information to provide experience evidence and skills evidence (e.g. CVs) – see criteria 2 and 3 for more details. This information should be provided as appendices to the Main Bid Document.
- 3.3. The Tender Certificate must be signed by an authorised signatory. Bidders must fill in the provided template.
- 3.4. The filled-in Bid Price Calculation Sheet must be provided in Excel format in addition to the information provided in the Main Bid Document. See section 6 and criterion 4 for more details.
- 3.5. The failure by a bidder to submit either the Main Bid Document, the signed Tender Certificate or the filled-in Bid Price Calculation Sheet shall mean that such tender is a non-compliant tender.

#### **4. Scope of Work**

- 4.1. The Scope of Work is provided in this section 4.
- 4.2. The Scope of Work comprises 6 Work Packages, from Work Package 2 to Work Package 7 (Work Packages 0 and 1 will be conducted by the Carbon Trust and do not form part of this ITT). The Scope of Work sets out the initial ideas on the key activities that the Contractor is expected to deliver for the Project.
- 4.3. It is expected that the Contractor will report on Deliverables (if applicable) to the Project Technical Committee. The Project Technical Committee shall review and provide feedback on each Deliverable. There will be at least one round of review comments to be accommodated by the Contractor for each Deliverable.
- 4.4. The Agreed Scope of Work will be agreed between the Carbon Trust and the Contractor when entering into the Contract. The Agreed Scope of Work may reflect any updates, changes or improvements to the Scope of Work as proposed by the Contractor in its Alternative Work or Additional Work and as agreed by the Carbon Trust, and may include additions brought forward by the Carbon Trust from Carbon Trust's work in Work Package 1.
- 4.5. Due to the breadth of skills and experience required for the Project bidders may decide to build a consortium to successfully meet the objectives of the Project. If a bid is submitted by a consortium it is expected that, in the case that the consortium is selected as the preferred Bidder, Carbon Trust will only enter into a Contract with

the Project Coordinator, and that the Project Coordinator will subcontract the other members of the consortium.

- 4.6. The Carbon Trust appreciates that it will take a small team of mixed seniority approximately 12 months to complete the Project.
- 4.7. Bidders should use the Scope of Work as set out below to create the Approach to Work. Any Alternative Work or Additional Work shall be stated in the Approach to Work at the end of the relevant Work Package description.
- 4.8. It is expected that simplifying assumptions will be required to complete the work in the given timeframe. These assumptions should, to the extent possible at the time of tender submission, be clearly stated in the Approach to Work. It is expected that during the execution of the OWA Hi-VAS (Phase 1) Project, any assumptions will be discussed with the Project Technical Committee prior to the start of each Work Package.
- 4.9. The Scope of Work includes three Optional Work Packages, Work Packages 5-7. These are Work Packages that the Project Steering Committee will reserve the right to execute, dismiss or modify in the course of the Project (at the Project Milestone mentioned below). The Bidder's Approach to Work should address these Optional Work Packages, but they should be kept and highlighted as optional in the Bidder's Approach to Work.

## Work Packages

*N.B WP1 will have been completed by Carbon Trust prior to the Contractor commencing work on WP2-7.*

Work Packages / Deliverables	Description of Services
<p>WP2 - Detailed market, literature &amp; regulatory review</p>	<p>The overall aim of this work package is to determine the critical technology and auxiliary equipment requirements needed for the implementation of a Higher Voltage Array System in an OWF. It is expected that a range of different voltage levels (at least 3) will be considered in the analysis of the different technologies e.g. cables, cable terminations, wind turbine transformers, switchgear etc.</p> <p>The Contractor shall identify available equipment, confirm design viability and current maturity of the possible enabling technologies through engagement with relevant industry and academic stakeholders, and through consultation with the PTC members.</p> <p>Although Carbon Trust will provide support with stakeholder engagement, the Contractor is expected to devote significant time to this activity. Prior to WP2 commencing, in WP1 Carbon Trust will have run an initial Stakeholder Workshop with industry representatives covering the technical supply chain. Key stakeholders should already therefore be aware of the Project and its aims, and will have provided the Project their initial views on the overall aims and objectives of the Project.</p> <p>On the technology and supply chain side the Contractor is expected to interview: cable manufacturers, cable termination manufacturers, cable installers, testing equipment suppliers, WTG OEMs, TP/foundation suppliers, switchgear suppliers, wind turbine transformer suppliers and any other relevant auxiliary equipment suppliers.</p> <p>The Contractor shall determine design, cost and schedule impact of moving the wind farm array system to higher voltages and identify risks and further developments required to accommodate this move. The capability of the supply chain to provide the equipment required for the realisation of higher voltage arrays shall be assessed in detail.</p> <p>Academic and research institutions that have carried out work in this area shall also be interviewed.</p> <p>The Contractor (in co-ordination with relevant stakeholders) shall evaluate design viability and current maturity of the enabling technologies, and shall assess the possible impact that a Higher Voltage Array System voltage will have on these technologies and associated processes. The assessment shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Cabling (physical properties of cables incl. dry/wet type cables, lead-free options, any impacts on handling, installation, commissioning and WTG/OSS entry, cable length, layout, impact on seabed, electrical losses etc.);</li> <li>• Cable terminations;</li> <li>• WTG transformer (considering weight, size, safety etc.);</li> </ul>

	<ul style="list-style-type: none"> <li>• WTG switchgear (considering weight, size, safety and SF6 free options);</li> <li>• OSS transformers and switchgear;</li> <li>• System effects of higher voltage array system such as reactive power balance, energisation and stability;</li> <li>• Transition piece/foundation design;</li> <li>• Operation and maintenance considerations and replacement strategies in the event of a failure of large electrical equipment e.g. transformer;</li> <li>• OSS design (layout, footprint, weight and any implications for platform structural design, manufacture and installation).</li> </ul> <p>The Contractor shall conduct a regulatory review to determine the changes required to realise the implementation of Higher Voltage Array Systems in offshore wind farms. As part of this, the Contractor should engage with regulators and TSOs from the main European offshore wind markets (UK, Ireland, Germany, the Netherlands, Denmark, France and Belgium) and US. Through this process, the grid codes of relevant typical countries shall be evaluated and any regulation that would need to be adapted/updated to enable Higher Voltage Array Systems (for the different voltage levels considered in the analysis) shall be identified. The use of higher voltage cables to transmit power direct to shore (without an OSS) shall also be assessed.</p> <p>Relevant technical standards and industry guidelines also need to be assessed and the implications these will have on a Higher Voltage Array System need to be identified. The Contractor is required to make an initial assessment of the following;</p> <ul style="list-style-type: none"> <li>• Adaption of technical standards</li> <li>• Requirements for compliance with environmental standards</li> <li>• Health &amp; safety requirements</li> </ul> <p>The Contractor shall prepare a report detailing the results and findings of the market and literature review and including all stakeholder responses, (D2.1). Based on the findings in the work package, the report shall also include an insight into the possible design parameters of a Higher Voltage Array System and make initial recommendations for the most promising options going forward.</p> <p>The Contractor shall prepare a separate report comprising the results and findings of the regulatory, technical and HSE standards review (D2.2).</p> <p>Towards the end of WP2, the Contractor shall present the findings to the Project Technical Committee (PTC) of the OWA Hi-VAS (Phase 1) Project.</p>
<p><b>Deliverable D2.1:</b> Market and Literature Review Report</p>	<p>For Deliverable D2.1, the Contractor shall</p> <ul style="list-style-type: none"> <li>• <i>Elaborate on the key lessons learnt from the step-up to 66kV and how they can be addressed for a higher voltage array system.</i></li> <li>• <i>Determine the critical technology and auxiliary equipment requirements needed for the implementation of a Higher Voltage Array System;</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Review relevant publications and engage with key stakeholders to inform a detailed technology review to assess the current maturity and viability of the possible enabling technologies;</i></li> <li>• <i>Assess the expected impact of the changes on existing technologies and associated processes;</i></li> <li>• <i>Conduct a constraints analysis;</i></li> <li>• <i>include all stakeholder responses in an annex to the report;</i></li> <li>• <i>Determine the expected design parameters of the most promising voltage level; and</i></li> <li>• <i>Identify areas which require specific focus and attention in the subsequent work packages.</i></li> </ul>
<p><b>Deliverable D2.2:</b> Regulatory and Standards Review Report</p>	<p>For Deliverable 2.2, the Contractor shall:</p> <ul style="list-style-type: none"> <li>• <i>Conduct a regulatory review for named European offshore wind markets;</i></li> <li>• <i>Conduct a technical standards and guidelines review;</i></li> <li>• <i>Conduct an environmental standards review; and</i></li> <li>• <i>Conduct a Health &amp; Safety standards review.</i></li> </ul>
<p>WP3 - Preliminary Design and Equipment Specification incl. Preliminary Cost-Benefit and Risk Analysis</p>	<p>Following consultation with key industry stakeholders and the PTC, the Contractor shall prepare a preliminary design basis and equipment specification incorporating all data and assumptions required to undertake a full Engineering Design Study (for details see WP5).</p> <p>At least five base case scenarios shall be agreed with the PTC and these will be compared to Higher Voltage Array System configurations (with at least 3 different voltage levels) for three different WTG ratings at or above 14MW.</p> <p>The below scenarios are given by way of example only, and the Contractor may deviate from these should there be plausible reasons. The Contractor is expected to further detail the scenarios and agree the final scenarios with the PTC. The Contractor shall determine the optimal array configuration in each case.</p> <p>Base Case Scenarios - OWFs between ~ 1,300 - 2,000 MW capacity with the following characteristics:</p> <ol style="list-style-type: none"> <li>1. 66kV array cables connected to 3 x offshore substations (OSS) with 220kV cables to shore (~ 1,300MW)</li> <li>2. 66kV array cables connected to 3 x OSS with 275kV cables to shore (~ 1,500MW)</li> <li>3. 66kV array cables connected to a single modular platform with 275kV cables to shore (~ 1,500MW)</li> <li>4. 66kV array cables connected to a single modular HVDC converter platform with 525kV cable to shore (~ 2,000MW)</li> <li>5. 66kV array cables connected to 3 x offshore substations (OSS) connected to a HVDC converter station with 320kV cable to shore (~ 1,300MW)</li> </ol>

	<p>The OWF capacity will be agreed with the PTC for each of the base case scenarios and may deviate from what is stated above. However, it is expected that the OWF capacity will not be the same across the five scenarios.</p> <p>The base case scenarios shall be studied for 14, 16 and 18 MW WTGs.</p> <p>The Contractor shall also conduct a preliminary Cost Benefit and Risk analysis to assess the impact of moving to a Higher Voltage Array System. At least 3 different voltage levels should be assessed. This should detail expected capital costs, operating costs and other economic impacts such as redundancy, availability etc. The model for this analysis should be completed in Microsoft Excel and provided to the PTC.</p> <p>In all Work Packages, Hi-VAS (Phase 1) Project Participants may be able to provide relevant information, but the Contractor should not rely on this and should directly engage with stakeholders and rely on its own knowledge.</p> <p>Towards the end of WP3, the Contractor shall present the findings to the Project Technical Committee (PTC) of the OWA Hi-VAS (Phase 1) Project.</p>
<p><b>Deliverable D3.1 - Preliminary Design and Equipment Specification Report</b></p>	<p>For Deliverable D3.1, the Contractor shall</p> <ul style="list-style-type: none"> <li>• <i>Evaluate the various array configurations for higher voltages and determine any impact on the design of the associated technologies, equipment and associated processes (as detailed in the project background section at the beginning of this document &amp; WP1).</i></li> <li>• <i>Prepare initial design for key electrical equipment and interfaces to WTG and any required alterations to TP/foundation and/or tower design. Detailed equipment specifications shall be defined in this context.</i></li> <li>• <i>Evaluate alternative transformer and switchgear configurations for the offshore substation and their potential impact on layout, weight and structural design. Equipment specifications should be defined.</i></li> <li>• <i>The preliminary engineering design is to be presented to and agreed with the PTC.</i></li> </ul>
<p><b>Deliverable D3.2 - Preliminary Cost-Benefit and Risk Analysis Report</b></p>	<p>For Deliverable 3.2, the Contractor shall:</p> <ul style="list-style-type: none"> <li>• <i>Develop initial capital cost model to highlight all costs affected by the move to a higher voltage.</i></li> <li>• <i>Describe, analyse and interpret the results and findings of a preliminary Cost-Benefit and Risk analysis which is comparing several (at least 3) higher voltage array voltages to the 66kV base case scenarios.</i></li> <li>• <i>Elaborate on technological, engineering, financial, supply chain, construction, HSE, regulatory/consenting and operational risks and potential mitigating strategies.</i></li> <li>• <i>Engage with the PTC to get approval of key design and costing assumptions and agreement on risk assessment and mitigation strategies.</i></li> </ul>

<b>Deliverable D3.3 - CBA model</b>	<ul style="list-style-type: none"> <li>• <i>Microsoft Excel CBA model used for D3.2 to be provided to PTC.</i></li> <li>• <i>Adequate description (documentation) of the CBA model.</i></li> </ul>
<b>WP4 - Stakeholder Workshop &amp; Specification for further work</b>	<p>The Contractor shall plan, promote and organise a workshop with industry representatives covering the entire value chain (e.g. cable manufacturers, electrical system manufacturers, WTG manufacturers, certification and standardisation authorities, research institutes, academia, etc.). In particular, the Contractor shall</p> <ul style="list-style-type: none"> <li>• advise on the appropriate attendees, identifying contacts where necessary,</li> <li>• ensure the right people are aware of the workshop and can attend;</li> <li>• prepare a draft workshop agenda and agree it with the PTC;</li> <li>• facilitate the workshop sessions and round table discussions; and</li> <li>• take detailed workshop minutes of all sessions.</li> </ul> <p>The stakeholder workshop will provide an opportunity for the Contractor to present the results from previous work packages to inform the industry and ensure that stakeholder buy-in is secured for the steps forward for this critical technology.</p> <p>The Contractor will be required to locate the venue and cover the workshop setup costs.</p>
<b>Deliverable D4.1 - Mid-term stakeholder workshop documentation (open sessions)</b>	<p>For Deliverable 4.1, the Contractor shall:</p> <ul style="list-style-type: none"> <li>• <i>Prepare a workshop documentation including the relevant results of the open workshop sessions and round table discussions as well as the workshop presentations.</i></li> </ul>
<b>Deliverable D4.2 - Updated WP3 deliverables</b>	<p>Based on the insights gained at the stakeholder workshop, the Contractor is expected to update Deliverables D3.1, 3.2 and 3.3, where the PTC deems this to be required.</p>
<b>Deliverable D4.3 - Specification for further work</b>	<ul style="list-style-type: none"> <li>• <i>At the end of WP4, the Contractor shall reflect on the main results and findings of WP2 to 4. The Contractor shall prepare a specification for further work which would detail an alternative scope to the provided scope for WP5-WP7 which may better address the key challenges identified in the earlier work packages.</i></li> <li>• <i>The scope could still follow a similar focus to what is already outlined, but for example, if certain aspects are identified as a particular challenge, WP5-WP7 could be altered to focus on these particular challenges as opposed to an all-encompassing engineering design study &amp; cost benefit analysis.</i></li> <li>• <i>The detailed scope should provide an overall approach to the proposed next steps broken down in to work packages, with each work package fully scoped in terms of aims, objectives, methodology and deliverables. Furthermore, a project timeline, Gantt chart and breakdown of expected man-hours and costs to deliver should be produced.</i></li> </ul>

	<ul style="list-style-type: none"> <li><i>The scope of work will be reviewed by the PTC and will be updated based on their comments.</i></li> </ul>
<b>OPTIONAL</b> <b>Deliverable D4.4 – Project Final Report (WP2-4)</b>	In the event that the Project is to be terminated after the completion of WP4 (see Project Milestone below), the Contractor shall produce a final report of their work for the Project which summarises the main results and key findings of the work packages WP2-4.
<b>OPTIONAL</b> <b>Deliverable D4.5 – Summary Report (WP2-4)</b>	In the event that the Project is to be terminated or discontinued with the Contractor after the completion of WP4, the Contractor shall produce a high level approx. 3-7 pages Summary Report including a high-level description of the Project and selected relevant results and findings of WP2-4. The Summary Report shall be written as if intended for publication.
<b>OPTIONAL</b> <b>Deliverable D4.6 – Webinar</b>	In the event that the Project is to be terminated after the completion of WP4, webinar slides shall be prepared and a presentation will be given covering the main results and findings of WP2-4 and including a Q&A session
WPX – Project Management for WP2-4	The Contractor shall stipulate how they will manage the delivery of their services in respect of WP2-4 efficiently and effectively. This should include specific costs for their project management time; quarterly financial and technical progress updates to Carbon Trust Project Manager; and regular (at least bi-weekly) update calls with the Carbon Trust Project Manager and/or PTC and/or PSC as required.
Expenses for WP2-4	The Bidder should detail the amount of expenses it expects to incur throughout WP5-7. Expenses will be paid as incurred up to the amount specified and any unused balance will not be paid.
<b>PROJECT MILESTONE: DECISION POINT (Stage Gate)</b>	<p>On completion of WP4, Project Steering Committee approval is required. The PSC will review the findings of the previous work packages and facilitate a decision whether to proceed with or terminate the Hi-VAS (Phase 1) Project. This may have the following consequences:</p> <ol style="list-style-type: none"> <li>1. The Hi-VAS (Phase 1) Project is continued with the original scope for WP5-7 with the existing Contractor.</li> <li>2. The Hi-VAS (Phase 1) Project is continued with a modified scope for WP5-7, which is to be agreed by the PSC. In this event, the PSC may decide to award the modified scope to the existing Contractor, or to launch a public tender process to identify and select a new contractor.</li> <li>3. The Hi-VAS (Phase 1) Project is terminated after the completion of WP4. In this event, the Contractor is expected to prepare a draft Summary Report, which shall include a high-level description of the Project and selected results.</li> </ol> <p>For the preparation of the bid, the Bidder shall assume that they will deliver the full scope of work, including the optional work packages WP5-7</p>



	and WPY. The bid price shall separately state the costs for WP2-4 & WPX and WP5-7 & WPY, respectively.
<p><b>OPTIONAL</b></p> <p>WP5 – Engineering Design Study (EDS)</p>	<p>The Contractor is required to carry out a detailed Engineering Design Study for a Higher Voltage Array System which includes:</p> <ul style="list-style-type: none"> <li>• a full detailed bill of materials;</li> <li>• delivery schedules;</li> <li>• engineering drawings; and</li> <li>• a documentation for all affected equipment together with complete capital cost estimates for higher voltage development.</li> </ul> <p>The Contractor is required to make two presentations to the Project Technical Committee (PTC) of the OWA Hi-VAS (Phase 1) Project, one in the middle of the work package to present interim findings and the other towards the end of WP5 to present final results.</p>
<p><b>OPTIONAL</b></p> <p><b>Deliverable D5.1 - Engineering Design Study Report</b></p>	<p>Deliverable 5.1 requirements:</p> <ul style="list-style-type: none"> <li>• <i>Determination of the ‘optimum’ array configuration for higher voltages and cost impact of moving to alternative array configuration considering potential adverse effects on availability and electrical losses with a greater number of turbines per string and longer string lengths.</i></li> <li>• <i>Detailed evaluation of all the elements of an offshore wind farm that change as a result of the move to a higher array voltage.</i></li> <li>• <i>Development of a 3D model to show layout and viability of higher voltage equipment within the nacelle, TP/foundation and/or tower. Identify any significant impacts on TP (if applicable) interface to either WTG or foundation.</i></li> <li>• <i>Identification of any construction, installation and equipment replacement changes resulting from the higher voltage design.</i></li> <li>• <i>Investigate the merit of satellite substations (before connection to OSS).</i></li> <li>• <i>Investigation of the potential for dry type cable designs at higher voltages. If dry type cables are required, these cables should be lead-free (common imperfections of glued or welded metallic screens shall be considered and discussed if applicable).</i></li> <li>• <i>Cables with a larger outer diameter and minimum bending radius may prove problematic for handling, installation and WTG entry, this should be studied in detail.</i></li> <li>• <i>Assessment of requirements for new cable termination designs.</i></li> <li>• <i>Assessment of loop rather than radial arrays.</i></li> <li>• <i>Investigation of the implications for installation vessel requirements, including vessel costs, cable carousel size, etc.</i></li> <li>• <i>Location of WTG transformers and switchgear due to weight, size, safety (particularly with regard to flexible tower cabling) and any implications on the TP layout (if applicable), turbine interfaces and foundation design. O&amp;M/replacement requirements.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Investigation of innovative higher voltage transformer designs such as dry/hybrid type and lightweight, low loss compact transformers.</i></li> <li>• <i>Investigation of higher voltage SF6 free switchgear</i></li> <li>• <i>Investigate the potential need for additional reactive power compensation for the array cables considering the increase in charging current</i></li> <li>• <i>Impact/additional requirements for OSS transformers &amp; switchgear</i></li> <li>• <i>Impact on OSS designs (layout, footprint, reduced cable entries, weight and any implications for platform structural design, manufacture and installation)</i></li> <li>• <i>Assess potential for OWFs without requirement for OSS; higher voltage array cables could transmit power direct to shore for smaller, nearshore OWFs.</i></li> <li>• <i>Provide a detailed assessment of the impact on final system design, layout, construction, installation, operations and maintenance;</i></li> <li>• <i>Determine the capital and operating cost implications and any potential impact on delivery schedule.</i></li> <li>• <i>Investigate the potential supply chain constraints and assess the manufacturing capability of existing array cable suppliers to provide these higher voltage arrays.</i></li> <li>• <i>Include consideration of environmental standards, Health &amp; Safety requirements (particularly with regards to electrical safety), energy regulation, and technical standards and guidelines.</i></li> </ul>
<p><b>OPTIONAL</b></p> <p>WP6 - Cost Benefit and Risk Analysis to determine business case for optimal cable voltage and Industry Roadmap</p>	<p>Towards the end of WP6, the Contractor shall present the findings to the Project Technical Committee (PTC) of the OWA Hi-VAS (Phase 1) Project.</p>
<p><b>OPTIONAL</b></p> <p><b>Deliverable D6.1 - Cost-Benefit and Risk Analysis Report</b></p>	<p>Deliverable 6.1 requirements:</p> <ul style="list-style-type: none"> <li>• <i>Undertake a detailed Cost/Benefit Assessment of the impact of moving to higher voltage arrays covering all capital costs, operating costs and other economic impacts including but not limited to bankability/insurability, redundancy, expected effect on OWF downtime etc. resulting from this design change.</i></li> <li>• <i>Consider all the design changes required; evaluate the technological, engineering and supply chain risks; identify potential mitigation strategies to provide confidence to industry partners of the wider technical viability of higher voltage arrays and confirmation of their cost benefit potential.</i></li> <li>• <i>Explore the sensitivity of the resulting Cost Benefit to the key design parameters and engineering assumptions documented in the Engineering Design Basis to build confidence that the conclusions drawn are valid for a broad range of wind farm developments</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Identify all technological, engineering, financial, supply chain, construction, HSE, regulatory/consenting and operational risks and developing mitigating strategies where necessary.</i></li> <li>• <i>Specific technological and engineering risks that should be assessed in detail; ageing test in seawater (quite time consuming), novel insulation technologies and testing procedure, cable hotspots and any other significant risks.</i></li> <li>• <i>Cost-Benefit and Risk Analysis Excel Model – detailing expected capital costs, operating costs and other economic impacts such as redundancy, availability etc. This should be completed in Microsoft Excel and provided to the PTC.</i></li> <li>• <i>Extensive engagement with the PTC to ensure acceptance of key design and costing assumptions and agreement on risk assessment and mitigation strategies.</i></li> </ul>
<p><b>OPTIONAL</b></p> <p><b>Deliverable D6.2 - CBA model</b></p>	<p>Deliverable 6.2 requirements:</p> <ul style="list-style-type: none"> <li>• <i>Microsoft Excel CBA model used for D6.1 to be provided to PTC.</i></li> <li>• <i>Updated adequate description (documentation) of the CBA model if required.</i></li> </ul>
<p><b>OPTIONAL</b></p> <p><b>Deliverable D6.3 - Industry Roadmap</b></p>	<p>Deliverable 6.3 requirements:</p> <ul style="list-style-type: none"> <li>• <i>Develop and Industry Road Map to support the acceptance of a Higher Voltage Array System within the offshore wind industry. Identify further technology advancements or supply chain developments required to gain industry support.</i></li> <li>• <i>Required updates to current regulation (see WP2).</i></li> <li>• <i>Required updates to technical standards &amp; guidelines (see WP2).</i></li> </ul>
<p><b>OPTIONAL</b></p> <p>WP7 - Recommended qualification procedures &amp; Specification for further work</p>	<p>Towards the end of WP7, the Contractor shall present the findings to the Project Technical Committee (PTC) of the OWA Hi-VAS (Phase 1) Project.</p>
<p><b>OPTIONAL</b></p> <p><b>Deliverable D7.1 - Qualification Procedures Report</b></p>	<p>Deliverable 7.1 requirements:</p> <ul style="list-style-type: none"> <li>• <i>The Contractor shall engage with cable manufacturers, certification and standardisation authorities, PTC and any other key stakeholders to define an adequate and rigid test procedure for higher voltage array cable qualification and associated timelines. This will be particularly important in the case where a higher voltage wet design is the preferred solution. (Offshore testing and commissioning is not a requirement of this study but information regarding this may be passed to the Contractor for review)</i></li> <li>• <i>In addition, the Contractor (with input from the PTC) shall specify the scope of work for a subsequent phase of this Project that would support the implementation of higher voltage arrays.</i></li> </ul>

	<ul style="list-style-type: none"> <li><i>If deemed necessary by the PTC in coordination with the Contractor, the Contractor will also specify the scope of work for an additional side project which will be focussing on overcoming a specific technological challenge (this will build on the industry road map).</i></li> </ul>
<b>OPTIONAL</b> <b>Deliverable D7.2</b> Specification for Hi-VAS (Phase 2)	Deliverable 7.2 requirements: <ul style="list-style-type: none"> <li><i>Technical specification(s) for a cable/system design competition (optimised for arrays) including cable terminations and/or switchgear/transformer design competition.</i></li> <li><i>Recommendations and, where relevant, technical specifications for the manufacturing and type-testing of cables including cable terminations (by competition winners) and/or the demonstration of new switchgear and/or transformer designs.</i></li> <li><i>Dissemination.</i></li> </ul>
<b>OPTIONAL</b> <b>Deliverable D7.3 –</b> Project Final Report (WP2-7)	Report summarising the findings of WP 2 to 7 and including the industry roadmap as well as a specification of the scope of work for Hi-VAS (Phase 2).
<b>OPTIONAL</b> <b>Deliverable D7.4 –</b> Summary Report (WP2-7)	At the end of WP7, the Contractor shall produce a high level approx. 5-10 pages executive summary (Summary Report) including a high-level description of the Project and selected relevant results and findings of WP2-4 for the whole Project. The Summary Report shall be written as if intended for publication.
<b>OPTIONAL</b> <b>Deliverable D7.5 -</b> Project Final Webinar	In addition, the budget should also accommodate production of a final presentation and time dedicated to presenting this in the form of a short webinar to invitees from the Hi-VAS (Phase 1) Project Participants
<b>OPTIONAL</b> WPY - Project Management for WP5-7	<p>The Contractor shall stipulate how they will manage the delivery of their services in respect of WP5-7 efficiently and effectively. This should include specific costs for their project management time; quarterly financial and technical progress updates to Carbon Trust Project Manager; and regular (at least bi-weekly) update calls with the Carbon Trust Project Manager and/or PTC and/or PSC as required.</p> <p>Bidders should be aware that the Carbon Trust and Project Technical Committee usually require 2-3 weeks to review and provide feedback on each Deliverable, with at least one round of review comments to be accommodated. This should be considered when calculating Your Bid Price.</p>
<b>OPTIONAL</b> Expenses for WP5-7	The Bidder should detail the amount of expenses it expects to incur throughout WP5-7. Expenses will be paid as incurred up to the amount specified and any unused balance will not be paid.

## 5. Intellectual Property and Knowledge

Full details of the intellectual property requirements and conditions can be found in the attached OWA Hi-VAS (Phase 1) Contractors' Conditions.

## 6. Bid Pricing

- 6.1. To provide Bidders with greater clarity on the nature, level and type of work involved in the various Work Packages, the Total Budget available for the delivery of WP2-7 is £395,000, with a suggested split as follows. This suggested budget split is a guide only – Bidders are welcome to deviate from the suggested budget split.

<b>Work package</b>	<i>Suggested budget (k£)</i>
2	40
3	80
4	35
X	5
5	160
6	60
7	10
Y	5

- 6.2. The Bid Price submitted with the tender must be derived from the cost breakdown in the Bid Price Calculation Sheet, and must include all expenses. The Bid Price is the price for the activities that will address the Scope of Work (and any Alternative Work proposed by the Bidder). The Bid Price Calculation Sheet and the Bid Price shall not include the price of any Additional Work suggested by the Bidder. Instead, the price for such Additional Work Packages shall be stated separately to the Bid Price in the Main Bid Document.
- 6.3. If the Bid Price exceeds the expected Total Budget as stated under section 6.1, to avoid receiving a lower score for criterion 4, in the Main Bid Document the Bidder should provide a clear and justified reason why the Bid Price exceeds the expected budget.
- 6.4. All costs and rates quoted in the Main Bid Document and Bid Price Calculation Sheet must be in GBP (£) and all staff rates quoted in the tender must represent the **Day Rate** for employment of staff members.
- 6.5. Any expenses must be separately included under Expenses.

## 7. Tender Evaluation Criteria

Bidders should take the following evaluation criteria into account when preparing and submitting their tenders.

### **Criterion 1: Approach to Work (Weighting: 30%)**

<i>Description</i>	<i>Information required from Bidders</i>
Proposed Approach	<p>In the Main Bid Document, Bidders are required to provide a clear and detailed description on how they plan to deliver the work for this Project.</p> <p>The description should include an initial overview on the approach followed by a description on how each Work Package and task will be delivered.</p> <p>Also, Bidders need to justify how their proposed approach meets the objectives of the Project.</p>
Additional Work	<p>If there is any Additional Work proposed by the Bidder, these aspects will be evaluated separately. The suggestion of Additional Work by the Bidder will not have a negative impact on the evaluation of the tender.</p>
Project management	<p>Bidders are required to describe how they will manage the Project utilising appropriate resources and describe how they will work with the various stakeholders, including the Project Technical Committee, to get information and manage potentially conflicting relationships.</p>

### **Criterion 2: Experience (Weighting: 30%)**

<i>Description</i>	<i>Information required from Bidders</i>
Experience in electrical systems for offshore wind – 10%	<p>In the Main Bid Document, Bidders should elaborate on experience of the criteria described and explain how these past experiences are relevant for this tender.</p> <p>In addition, Bidders should provide at least two examples (with reference to specific roles, responsibilities and activities the Bidder undertook) of previous work which illustrates the Bidder's skills, capabilities, and experience in all of these areas (Bidders may wish to make reference to submitted examples of previous work for other clients).</p> <p>Bidders are advised that experience is considered a key important criterion and partnerships with other companies to support certain areas of experience are welcomed. All experience / case studies should be attached as an appendix to the Main Bid Document.</p>
Experience in design and optimisation of electrical equipment – 10%	
Experience and knowledge of regulation and grid codes specific to offshore wind – 10%	

### Criterion 3: Staff Skills (Weighting: 20%)

<i>Description</i>	<i>Information required from Bidders</i>
CVs/Resumes	Bidders are required to provide detailed CVs/Resumes for any key personnel who will be involved with this Contract together with proposed Project structure, intended position of the key personnel in the Project, and main responsibilities. CVs should include professional memberships of proposed staff working on this Project.
Applicable skills	Bidders should elaborate on the most relevant skills of the key personnel that will be involved in the Project.
Prior experience form involved staff	Please include examples of similar work performed by the proposed staff members, explaining how is relevant to the Approach to Work.
Expert engagement	A close working relationship with key stakeholders such as cable manufacturers, cable termination manufacturers, cable installers, testing equipment suppliers, WTG OEMs, TP/foundation suppliers, switchgear suppliers, wind turbine transformer suppliers, any other relevant auxiliary equipment suppliers, transmission system operators (TSOs), and regulators, are seen relevant to the success of this Project. Please supply ideas of how these groups can be engaged and leveraged.

### Criterion 4: Bid Price (Weighting: 20%)

<i>Description</i>	<i>Information required from Bidders</i>
Day rates and man hours (man-h) for all staff grades	In the Bid Price Calculation Sheet, Bidders are required to provide day rates for all staff grades and to input the man-h involved in each Work Package.
Price for the delivery of the Project	<p>In the Bid Price Calculation Sheet, Bidders are required to provide a cost breakdown by Work Package, including man hours and day rates of personnel completing the work as specified in section 5. Bidders are required to specify expected expenses separate from the estimated budget for each Work Package.</p> <p>The Bid Price will be assessed on the price for the Approach to Work (which includes the price of the Work Packages in the Scope of Work and any Alternative Work proposed by the Bidder).</p> <p>If there is any Additional Work proposed by the Bidder, this will be evaluated separately. The suggestion of Additional Work by the Bidder will not have a negative impact on the evaluation of the tender.</p> <p>Carbon Trust will reimburse reasonable expenses at cost and receipts may be requested. Pre-approval will be required for travel costs over £150 per return journey and combined hotels &amp; subsistence cost exceeding £200 per day.</p> <p>Bidders will be required to confirm or comment on their ability to carry out the activities detailed in the Scope of Work within the initial term of the Contract and provide an outline plan of work.</p>

## 8. Glossary

Agreed Scope of Work	The agreed Work Programme for the Project, based on the Scope of Work and the Approach to Work, which is mutually agreed between the Carbon Trust and the Contractor. The outcomes of WP1 (stakeholder engagement led by Carbon Trust) will feed into the agreement of the Agreed Scope of Work.
Approach to Work	Has the meaning set out in section 3.1.
Additional Work	Any activities that are proposed by the Bidder in addition to those in the Scope of Work. It is at the discretion of the Carbon Trust to consider Additional Work in the evaluation of the tender. The suggestion of Additional Work by the Bidder will not have a negative impact on the evaluation of the tender.
Alternative Work	Deviations from the Scope of Work that are proposed by the Bidder, which replace work or tasks in the Scope of Work. Alternative Work will be treated as non-optional in the evaluation of the tender.
Award Letter	A letter, issued by Carbon Trust, informing the Contractor about the award of the Contract. The Award Letter is issued together with the Agreed Scope of Work and the OWA Hi-VAS (Phase 1) Contractors' Conditions.
Bidder	An individual, a company, an organisation or a consortium submitting a bid for the Project.
Bid Price	The total price for the Bidder to complete the Project in line with the Approach to Work. The Bid Price shall include the price for all Work Packages described in the Scope of Work and any Alternative work proposed by the Bidder. The Bid Price shall not include the price of any Additional Work suggested by the Bidder.
Bid Price Calculation Sheet	An Excel template provided by the Carbon Trust that is to be provided by the Bidder in addition to the Main Bid Document.
Carbon Trust Project Manager	The Carbon Trust employee who serves as first point of contact in relation to this ITT and the Project.
Clarification Document	A document containing all received clarification questions and Carbon Trust's responses to these questions.
Contract	A document consisting of the Award Letter, the Agreed Scope of Work, the OWA Hi-VAS (Phase 1) Contractors' Conditions, and any clarifications agreed in writing.
Contractor	The Bidder (or in the case of a consortium, Bidders) selected for the delivery of the Project.



Deliverables	All data, documentation, reports, minutes and other deliverables produced by the Contractor according to the Scope of Work (see section 4) or as otherwise agreed in the Agreed Scope of Work
Description of Tender	This document.
Due Diligence Questionnaire	A questionnaire that is to be completed by shortlisted Bidders should Carbon Trust's bidders vetting process give reason to conduct a due diligence. In case of a consortium, the Due Diligence Questionnaire is to be filled-in by the designated Project Coordinator.
Invitation to Tender (ITT)	The following group of documents: Description of Tender (this document); OWA Hi-VAS (Phase 1) Contractors' Conditions; Tender Certificate template; Bid Price Calculation Sheet template; and Clarification Document (if applicable <sup>1</sup> ).
Main Bid Document	Has the meaning given in section 3.1. No template is provided.
Project	The OWA High Voltage Array Systems (Phase 1) or OWA Hi-VAS (Phase 1) project.
Project Steering Committee	A group consisting of representatives from each of the OWA Hi-VAS (Phase 1) Project Participants and the Carbon Trust, which govern the Project.
Project Technical Committee	A group consisting of technical experts from each of the OWA Hi-VAS (Phase 1) Project Participants and the Carbon Trust, which will supervise the Project.
OWA	Offshore Wind Accelerator
OWA Hi-VAS (Phase 1) Project Participants	A group of leading offshore wind farm developers participating in the Project.
Scope of Work	The (preliminary) Work Programme for the Project as defined in section 4 of this document. At Contract award, the Scope of Work will be replaced by the Agreed Scope of Work.
Tender Certificate	A declaration that is to be provided by the Bidder (in case of a consortium: by the designated Project Coordinator) in addition to the Main Bid Document.
Total Budget	The expected amount of money available that will be made available from the Project to the Contractor for the delivery of WP2-7.

<sup>1</sup> A Clarification Document will not be published if no clarification questions are received in relation to this ITT.

Work Package	A group of related tasks to be delivered under the Project.
Work Programme	The entirety of all Work Packages.