

14 July 2022

Dear Sir/Madam,

**Invitation to Tender for Work Package 9 of the OWA High Voltage Array Systems (Phase 1) project for the Carbon Trust's OWA Programme**

You are invited to submit a tender for Work Package 9 of 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 overall 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 [conclusions from the work completed in Phase 1 to date](#) are that 132 kV will be the next array operating voltage and that there is urgency for the industry to transition to 132 kV. However, uncertainty remains regarding some of the 132kV array components, in particular the optimal 132 kV array cables. In order to address this uncertainty, Phase 1 has been extended to include this additional Work Package 9. The key objectives for Work Package 9 are to develop industry-wide consensus (developers + supply chain) on the requirements for 132kV cables.

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

1. Description of Tender (this document);
2. OWA Hi-VAS (Phase 1) Contractors' Conditions
3. Tender Certificate (Word template);
4. Bid Price Calculation Sheet (Excel template); and
5. 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), [bethany.white@carbontrust.com](mailto:bethany.white@carbontrust.com) and [owa@carbontrust.co.uk](mailto:owa@carbontrust.co.uk)

Tenders must be submitted before 1200 BST Thursday 8 September 2022. 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	18 August 2022
Clarification Document published <sup>1</sup>	25 August 2022
Submission of full tender	8 September 2022
Bidder interviews	w/c 19 September 2022
Successful Contractor announcement	w/c 19 September 2022
Envisaged Contract award date	w/c 19 September 2022

Please e-mail any clarification questions, including questions about the timing of this ITT, to [robert.keast@carbontrust.com](mailto:robert.keast@carbontrust.com), [bethany.white@carbontrust.com](mailto:bethany.white@carbontrust.com) and [owa@carbontrust.co.uk](mailto:owa@carbontrust.co.uk) any time before 18 August 2022. The complete set of clarification questions and all answers to clarification questions will be published in the Clarification Document on our website by 25 August 2022 and will hence be visible to all potential Bidders: <https://www.carbontrust.com/news-and-events/tenders>

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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.



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.

Yours sincerely,

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

# The Carbon Trust Offshore Wind Accelerator

## Invitation to Tender for Work Package 9 of 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 nine 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, Shell Global Solutions International B.V., and TotalEnergies E&P UK Limited.

- 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 all nine OWA Partners plus Ocean Winds (the OWA Hi-VAS (Phase 1) Project Participants). OWA Hi-VAS (Phase 1) is 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 supervise the Project, will provide technical direction and guidance to the Contractor (where needed), and will 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 WP9 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 66 kV providing the most cost-effective solution. However, to achieve the optimal solution, more cost-effective 66 kV cables had to be developed.
- 2.2 Consequently, the OWA decided to launch a 66 kV array cable competition in 2013. The competition supported the design, manufacture and qualification of four new designs for 66 kV 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 7 MW+ WTGs and has played a very important role in the continued growth of the offshore wind industry.
- 2.3 The East Anglia One (7 MW WTGs), Borssele I&II (8 MW WTGs) and the EOWDC (8 MW+ WTGs) OWFs were amongst the first adopters of 66 kV array cables. Since then, 66 kV has been established as the standard inter-array voltage worldwide.
- 2.4 The OWA Hi-VAS (Phase 1) project commenced in November 2020 and is currently ongoing, having been extended to accommodate the additional work package covered by this tender (WP9). Phase 1 is expected to run until December 2022.
- 2.5 The OWA Hi-VAS (Phase 1) project set out to investigate the optimal array voltage for the next generation of turbines (>14 MW). The aim of the Project is to build industry consensus on increasing the array voltage and to identify and address challenges in the transition to the higher array voltage.
- 2.6 The Project’s conclusions so far can be found in the published summary report, which we recommend Bidders familiarise themselves with.
- 2.7 However, in summary, over the past 18 months, the Project conducted detailed stakeholder engagement with the array system supply chain, as well as TSOs and research/academia. Over 70 organisations were engaged. Building on this, the Project conducted detailed market and

regulatory reviews. The purpose of these exercises was to gain views and insights into the challenges (or lack thereof) of increasing the array voltage.

- 2.8 Building on this, the Project conducted a number of engineering design studies. A detailed engineering design study of higher voltage array systems was produced. This focused on the equipment size / construction / spacing / O&M / replacement within the WTG transition piece and offshore substation. Further, two cable suppliers were engaged to produce a range of higher voltage array cable designs (110 kV, 132 kV, 150 kV, wet, dry, Al, Cu), and inform the Project of their costs.
- 2.9 Building on the design studies, CBA and risk analysis work was conducted. These analyses considered every component in the array system, and how increasing its rating above 66 kV may impact the economics and risk profile of various offshore wind farm scenarios. These analyses showed that 132 kV is the optimal higher voltage level, and offers significant cost saving potential over 66 kV, even for wind turbines of 14 MW, and that the benefits increase with increasing turbine size.
- 2.10 Building on the risk analysis, the Project then produced roadmaps for the next standard array voltage for both wet and lead-free dry cables, which are included in the published summary report. The roadmaps highlighted the critical and non-critical developments required from developers and the supply chain.
- 2.11 The conclusion from the Project is that 132 kV should be the next cost-optimal array operating voltage. It was also found that there is urgency for the industry to make this transition. To ensure the most efficient voltage level is used for future offshore wind farms, the industry must focus on 132 kV technology development to ensure the dramatic cost savings that 132 kV will bring are realised as soon as possible. Further work is required in order to obtain clarity on 132 kV cable requirements and align the supply chain to meet these requirements.
- 2.12 As a result, the Project has been extended to include an additional work package (WP9), to be carried out by the Contractor. The aims of WP9 are:
  - i. To build understanding and consensus amongst the OWA Hi-VAS Project Participants regarding the requirements for 132 kV array cables (“OWA 132kV cable requirements”).
  - ii. To build a picture of what the supply chain envisages as possible or optimal in terms of 132kV array cable design, and undertaken gap analysis to identify the differences between the OWA 132 kV cable requirements and the expected supply chain offering.
  - iii. In parallel with the consensus building, to have the OWA 132 kV array cable requirements fed into standards for lead-free subsea cables >66kV, potentially via a new Cigré working group.
  - iv. To develop a project scope for follow-on work to be conducted in Hi-VAS Phase 2, by building on the gap analysis and identifying whether signals need to be sent from the OWA Hi-VAS Project Participants to the supply chain to encourage the supply chain to design to the OWA 132 kV array cable requirements.
- 2.13 Following completion of WP9, Hi-VAS Phase 1 is expected to conclude, and Phase 2 will commence based on the project scope developed during WP9. It should be noted that there is possibility to extend this Contract into Hi-VAS (Phase 2), depending on the scope of work devised for Phase 2 in task 9.3 and the performance of the Contractor in WP9. This decision will rest solely with the Project Participants.

### **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). No template is provided for the Approach to Work. However, the Approach to Work should:
    - include a Gantt chart which describes the timeline for the Project, showing when each task 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 one Work Package, Work Package 9 (Work Packages 0 and 1 have been conducted by the Carbon Trust, Work Packages 2 to 7 have been conducted by TNEI and Petrofac, and Work Package 8 has been conducted by Hellenic Cables and Orient Cable, none of which 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 The Carbon Trust will lead the delivery of WP9, with the Contractor assisting by contributing specialist knowledge.
- 4.4 The Scope of Work set out below would be suited to a cable specialist (an impartial consultancy or research institute). This Invitation to Tender is not seeking applications from organisations within the supply chain (e.g. cable suppliers), as it is important for the work to be impartial.
- 4.5 It is expected that the Contractor will report on Deliverables 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.
- 4.6 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.
- 4.7 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.
- 4.8 The Carbon Trust appreciates that it will take a small team of mixed seniority approximately 3 months to complete Work Package 9.
- 4.9 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.
- 4.10 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 Work Package 9, any assumptions will be discussed with the Project Technical Committee prior to the start of the Work Package.
- 4.11 There is no expectation of physical meetings or travel required to execute the Scope of Work.

## 5 Work Package 9

- 5.1 *Prior to the Contractor commencing work on WP9, WP1 will have been completed by Carbon Trust, WP2-7 will have been completed by TNEI and Petrofac, and WP8 will have been completed by Hellenic Cables and Orient Cable.*
- 5.2 *The deliverables from all of these previous WPs will be made available to the Contractor after contract signature.*
- 5.3 *It should be noted that there is possibility to extend this Contract into Hi-VAS (Phase 2), depending on the scope of work devised for Phase 2 in task 9.3 and the performance of the Contractor in WP9. This decision will rest solely with the Project Participants.*
- 5.4 **Task 9.1 – Definition of OWA 132 kV array cable requirements** - led by Carbon Trust, assisted by Contractor – October to November 2022
- i. The Contractor will review all OWA Hi-VAS (Phase 1) deliverables, particularly those relevant to 132 kV cable design standards, in order to gain an understanding of the project findings to date. These deliverables will include the 132kV wet and dry cable designs produced in WP8 by the two cable suppliers, and will include a report produced by TNEI in WP7 that included a detail review of design standards, and the need for improved standards.
  - ii. The Contractor will assist the Carbon Trust to work with the OWA Project Participants to gather their individual views on the requirements for 132 kV array cables. This will include assisting the Carbon Trust to define a questionnaire to gather views from the OWA Hi-VAS Project Participants and conducting one-to-ones with the Project Participants' cable experts. The Contractor will provide impartial feedback on the OWA Project Participants' opinions that are gathered through this process.
  - iii. The Contractor will conduct literature reviews where needed to fill in any gaps from the on-to-ones.
  - iv. "Draft OWA 132 kV cable requirements" will be produced by the Contractor, in collaboration with Carbon Trust, by collating the OWA Hi-VAS Project Participants' views. (Cable suppliers' views will also be fed into this following completion of task 9.2).
  - v. The Contractor will present these draft OWA 132 kV cable requirements at a Project Technical Committee meeting for review and assessment, and to build consensus within the group.
  - vi. Following the feedback from this meeting, the Contractor will produce a finalised version of the OWA 132 kV cable requirements, which includes the rationale for their selection.
  - vii. The OWA 132 kV cable requirements may be defined in broad functional requirements (e.g. performance, lifetime, etc.), or may include more specific requirements (e.g. materials, design, testing standards, etc.). The requirements will seek to build consensus on whether array cables should be wet, dry, semi-wet and/or semi-dry designs. In this regard, existing assumptions in the electric field limit of insulation materials (particularly wet TR-XLPE) should be investigated to see what work has been performed to determine this limit. The requirements should be developed for both static and dynamic. For dynamic cables, understanding needs to be built on the impact of cable movement and flexing on reliability. The requirements may also specify the need for cables to be lead-free. The requirements may be developed by taking existing requirements for 66 kV array cables and scaling them up to 132 kV, and/or by taking existing requirements for 220 kV export cables and stripping them down. Of particular urgent interest (due to its necessarily long duration) is the need for a wet-aging test, and whether the 66 kV requirement is still sufficient at 132 kV. Also, requirements for sheathing materials, and their qualification with respect to water diffusion, should be considered, which may include consideration of polymer sheathing materials that delay water intrusion or take up water. Cost limit / boundaries (i.e. the limits at which 132 kV is no longer

cost beneficial over 66 kV) may also be considered in the requirements. Further details of the requirements will be determined in the course of task 9.1.

5.5 **Task 9.2 – Gap analysis between OWA 132 kV requirements and supply chain’s proposed 132 kV offering** - led by Carbon Trust, assisted by Contractor – October to November 2022

- i. The Contractor will assist the Carbon Trust to engage across the supply chain, particularly with cable suppliers, but also possibly cable accessory suppliers and cable material suppliers (particularly insulation), in order to gain their individual views on 132 kV array cable design. The purpose of this will be to:
  - establish their development activities to date and future development plans, with regard to 132 kV cables and any other higher voltage array cables they may already have been developing,
  - understand the art of the possible,
  - determine the practical implications of various cable design options (in terms of cost, materials, speed to market, reliability, ability to manufacture, etc.).
- ii. These engagements will likely be held under confidentiality – the responses will be collated and shared with the OWA Hi-VAS Project Participants’, but the individual responses will likely not be attributed to the respective cable supplier.
- iii. This will involve assisting the Carbon Trust to define a questionnaire (in collaboration with the Project Technical Committee) to gather views from the supply chain, particularly cables suppliers. and conducting one-to-ones with the supply chain to discuss the results of the questionnaire. The Contractor will conduct an impartial review of the supply chains’ opinions that are gathered through this process.
- iv. Following this engagement, gap analysis will be led by the Contractor to identify where the OWA 132 kV array cable requirements differ from the supply chains’ views.
- v. The Carbon Trust, assisted by the Contractor, will then run a workshop with OWA Hi-VAS Project Participants and supply chain to review the OWA 132 kV array cable requirements and the gap analysis. The aim of this will be to drive consensus between the developers and the supply chain regarding the OWA 132 kV array cable requirements.

5.6 **Task 9.3 – Hi-VAS (Phase 2) Scoping** - led by Carbon Trust, assisted by Contractor – November to December 2022

- i. The Carbon Trust, with assistance from the Contractor, will use the outcomes from tasks 1 and 2 to inform the development of the project scope for Hi-VAS Phase 2, an envisaged follow-on piece of work to Hi-VAS (Phase 1).
- ii. It may be that Hi-VAS (Phase 2) seeks to address the gaps identified in the gap analysis of task 2, and to encourage the supply chain to design to the OWA 132 kV array cable requirements for their commercial offerings. This may take the form of a competition to the

supply chain, to design, develop and type test 132 kV array cables designed to the OWA 132 kV array cable requirements.

- iii. The Phase 2 scope will include budget, timescales, possible interested partners, funding routes and a business case for OWA partner investment into the project
- iv. It should be noted that there is possibility to extend this Contract into Hi-VAS (Phase 2), depending on the scope of work devised for Phase 2 in task 9.3 and the performance of the Contractor in WP9. This decision will rest solely with the Project Participants.

5.7 **Task 9.4 – Standards development** - led by Carbon Trust, assisted by Contractor – October to December 2022

- i. The Carbon Trust is working with Cigré representatives to ensure that they submit a proposal for a new Cigré working group in June 2022 to define standards for >66 kV lead-free subsea cables, which Hi-VAS (Phase 1) has shown as critical, and to try to ensure that the new working group receives enough international support to be taken forward by Cigré in the Cigré decision in September 2022.
- ii. Should a new Cigré working group be set up, the Carbon Trust, with the assistance of the Contractor, will ensure that the Cigré representatives on the working group are kept up to date with the progress of WP9, and that the OWA 132 kV array cable requirements are fed in to the Cigré working group discussions.
- iii. Should a new Cigré working group not be set up, the Project Steering Committee will discuss what other options are possible to pursue new standards development and decide a route forward.

5.8 **Task 9.5 Dissemination activities** – led by Carbon Trust, assisted by Contractor – October to December 2022

- i. Within WP9, there is envisaged to be two external workshops. External workshop 1 will be used to inform the supply chain of the key findings in WP1-8 and to set out what the project is doing in WP9, highlighting where further input is required. External workshop 2 will be used to build consensus on the OWA 132 kV array cable requirements between the Hi-VAS (Phase 1) partners and the cable suppliers.
- ii. The Contractor will attend and assist the Carbon Trust in hosting these workshops, impartially capturing views and conversations, and contributing to discussions
- iii. The workshops (and all project meetings) will be held online – there is no expectation for the Contractor to travel to execute the Scope of Work.

5.9 **Deliverables**

5.10 **D9.1: OWA 132 kV Cable Requirement Report** – to be drafted by Contractor with input from Carbon Trust

- i. A report that contains the defined OWA 132 kV cable requirements, including the rationale for their selection, and including the outcomes of the gap analysis – *not to be kept*

*confidential – to be shared with supply chain companies and standards bodies to build consensus on 132 kV cable requirements.*

- 5.11 **D9.2:** Scope of Work for Hi-VAS (Phase 2) – to be drafted by Carbon Trust with input from Contractor
- i. A report that sets out the scope, budget, duration and challenges for Hi-VAS (Phase 2) – *to be kept confidential to OWA Hi-VAS (Phase 1) Project Participants.*

## **6 Intellectual Property and Knowledge**

- 6.1 Full details of the intellectual property requirements and conditions can be found in the attached OWA Hi-VAS (Phase 1) Contractors' Conditions.
- 6.2 Should You intend to provide any Background Intellectual Property, please indicate this with a high-level description in Annex C of the Tender Certificate. However, there is no expectation or requirement for Contractors to provide Background Intellectual Property to the Project in carrying out Work Package 9.

## **7 Bid Pricing**

- 7.1 To provide Bidders with greater clarity on the nature, level and type of work involved in the Work Package, the Total Budget available for the delivery of WP9 is around £40,000. As a guide, we would suggest the following breakdown: task 9.1 - £17,500; task 9.2 - £17,500; task 9.3 - £2,000; task 9.4 - £2,000; task 9.5 - £1,000.
- 7.2 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 shall be stated separately to the Bid Price in the Main Bid Document.
- 7.3 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.
- 7.4 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.
- 7.5 Any expenses must be separately included under Expenses.

## 8. 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 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 high-voltage offshore wind array cables – 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>
Experience in engaging with the supply chain, preferably cable suppliers – 10%	<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>
Experience of undertaking technical gap analysis, in the context of offshore wind – 10%	<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>

### 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 in the array cable supply chain, such as cable manufacturers, cable accessory suppliers and cable material suppliers (particularly insulation). 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 task.
Price for the delivery of the Project	<p>In the Bid Price Calculation Sheet, Bidders are required to provide a cost breakdown by task, including man hours and day rates of personnel completing the work as specified in section 6.</p> <p>Bidders are required to specify expected expenses separate from the estimated budget.</p> <p>The Bid Price will be assessed on the price for the Approach to Work (which includes the price of the Work Package 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>

## 9. **Glossary**

Agreed Scope of Work	The agreed work for Work Package 9, based on the Scope of Work and the Approach to Work, which is mutually agreed between the Carbon Trust and the Contractor.
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 tasks 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) scope for Work Package 9 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 Work Package 9.
Work Package	A group of related tasks to be delivered under the Project.

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