Dear Sir/Madam,

Invitation to Tender for the Type Test of Screen Connections project for the Carbon Trust's OWA Programme

You are invited to submit a Tender for the Type Test of Screen Connections project (the "ScreenConnect project" or "Project") which is part of the Offshore Wind Accelerator (OWA) programme. The key objective of the Project is to advance cable accessory testing protocols, fill existing gaps, and align standards with the evolving needs of the industry, ultimately contributing to more reliable and resilient cable accessories across various applications and voltage levels.

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

- Description of Tender (this document);
- OWA Stage IV Contractors' Conditions;
- Tender Certificate (Word template);
- Bid Price Calculation Sheet (Excel template);
- Clarification Document (if applicable[1]);
- Project Closeout Form (for information purposes only – no need to complete now); and
- OWA Cost Model Input Sheet (for information purposes only – no need to complete now).

Unless informed to the contrary, tenders and communications shall be sent by e-mail to the following e-mail address: karolina.zieba@carbontrust.com

Tenders must be submitted before 17 May 2024 17:00 BST. 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	30 April 2024
Clarification Document published[1]	3 May 2024
Submission of full Tender	17 May 2024 17:00 BST
Bidder interviews	W/C 27 May 2024
Successful Contractor announcement	Early June 2024
Envisaged Contract award date	Late June 2024

Please e-mail any clarification questions, including questions about the timing of this ITT, to karolina.zieba@carbontrust.com any time before 30 April 2024. The complete set of clarification questions and all answers to clarification questions will be published in the Clarification Document on our

[1] A Clarification Document will not be published if no clarification questions are received in relation to this ITT.

website by 3 May 2024 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 website: https://www.carbontrust.com/our-projects/offshore-wind-accelerator-owa

We look forward to receiving your Tender.

Yours sincerely,

…….
Karolina Zieba
For and on behalf of **THE CARBON TRUST**

THE CARBON TRUST OFFSHORE WIND ACCELERATOR

Invitation to Tender for the "Type Test of Screen Connections" Project

Description of Tender

Contents

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.

Tender evaluation

The received tenders will be evaluated by the Carbon Trust and the OWA Partners against the criteria provided in section 7 and the Bidder authorises the Carbon Trust to share its submitted Tender with the OWA Partners for this purpose. 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, a Final 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 Final Scope of Work is agreed, Your offer will be formally accepted by the Carbon Trust issuing an Award Letter, the Final Scope of Work, the OWA Stage IV Contractors' Conditions, and any clarifications agreed in writing. The Award Letter, the Final Scope of Work, the OWA Stage IV Contractors' Conditions, and any clarifications agreed in writing will establish the Contract for the Type Test of Screen Connections project (the "**Contract**") between You and the Carbon Trust. With the exception of any minor amendments to the OWA Stage IV Contractors' Conditions which may be requested by the Bidder, the submission of a Tender shall constitute unqualified acceptance of the OWA Stage IV Contractors' Conditions. In the event that minor amendments to the OWA Stage IV 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 submit a Tender. 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 Offshore Wind GmbH, ScottishPower Renewables (UK) Limited, Equinor ASA, Vattenfall Vindkraft A/S, EnBW Energie Baden-Württemberg AG, Shell Global Solutions International B.V. and TotalEnergies OneTech.

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 Research under the OWA currently falls into five research areas: Cables, Electricals, Foundations, Logistics and O&M, and Energy Yield & Performance. Research, development and demonstration projects are carried out in each of the five research areas to address technology challenges. This Invitation to Tender is related to the OWA research area cables.

1.4 Each of the five research areas is managed by the Carbon Trust and governed by a Technical Working Group ("**TWG**") consisting of technical experts appointed by the OWA Partners. The TWG cables will supervise the Project, provide technical direction and guidance to the Contractor (where needed) and review the Project Deliverables, findings and other outcomes.

1.5 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 ScreenConnect project

2.1 The OWA TWG cables would like to advance cable accessory testing protocols, fill existing gaps, and align standards with the evolving needs of the industry, ultimately contributing to more reliable and resilient cable accessories across various applications and voltage levels.

2.2 Cable accessories continue to experience failures within the industry, impacting all developers. This challenge emphasises the need for comprehensive testing protocols. Currently, there is no universally recognised standard to qualify the long-term performance of cable screen connections, and even at high voltage (HV), the heat cycling aspect may not be adequately addressed, with a predominant focus on partial discharge (PD) during testing.

2.3 The CIRED Working Group 17-1 (WG17-1) Test Recommendations for Ground Screen Power Cable Connections is considered the most relevant, although it does have some identified gaps:

a. This test recommends thermal cycling and short-circuit tests. However, original equipment manufacturers (OEMs) often vary this scope with respect to heat cycles, impulse, HVAC, short-circuit tests, and partial discharge (PD) tests. Further efforts should aim to explore additional tests that can complement the CIRED scope and build upon its existing findings.

b. Investigation of new acceptance criteria / range of approval for example:

   i. Contact resistance for different screen designs. For example, “shall not increase more than 100% compared with the initial measurement (before first thermal cycle); the resistance factor ratio λ defined in CIRED recommendation shall not be higher than X.”

   ii. Section 4 of the testing regimen outlines two primary goals: 1. assessing the creepage of materials and 2. understanding chemical processes. Notably, issues related to radial thermo-mechanical (TM) forces and changes in conductor material are not currently deemed problematic within the approved range. Especially as the bulk of the industry failures are happening through radial rather than longitudinal forces, continued research and refinement of testing methodologies are crucial to understanding and addressing the impact of the expansion of the conductor due to heat through its load cycles.

   iii. Outer core plastic sheath and metallic screen combinations with respect to the plastic sheath providing mechanical strength until the core sheath is stripped back, as the design should be consistent to an agreed extent.

c. CIRED testing has predominantly focused on 33 kV cables, with corresponding classes within CIRED to suit the voltage levels. This leaves a clear gap for standards up to higher voltages. Especially as higher wind farm loads demand the use of larger cross sections, leading to higher conductor current and higher screen currents. It is important to capture the impact this jump might have on the cable.

2.4 By investigating and building upon CIRED recommendations (50Hz, line frequency heating cycle), the project aims to streamline and optimise testing practices. This seeks to evaluate and optimise the number of cycles required for standardising robust type tests, ultimately leading to more efficient and cost-effective processes.

2.5 The main objectives of this work are to:

a. Develop updated test requirements for type testing of cable screen connections, addressing the inadequacies identified in existing standards, for example, in thermal cycling, short-circuit, heat cycles, impulse, HVAC, and partial discharge tests.

b. Establish a singular type test applicable to 33 kV, 66 kV and 132 kV, ensuring a universal standard for cable accessory testing. This test should be agnostic of the way in which screen connection is made, providing a holistic approach. However, it may be helpful to specify the expected differences between different approach such as welded/bonded foil/laminated screens. Every screen design other than stranded copper wires should be considered.

c. Investigate and recommend new connection design agnostic acceptance criteria. Qualitatively, the contractor should establish contact resistance and temperature functional pass/fail trends and determine which should be included in standard acceptance criteria. For instance, criteria may include restrictions on contact resistance increase post-thermal cycling and limitations on the resistance factor ratio λ, as defined in CIRED recommendations.

d. Expand the scope of testing goals and revisit the range of qualification beyond the current CIRED framework by incorporating considerations for radial TM forces, changes in conductor, screen and outer sheath materials, load cycle applicability etc., and other emerging challenges in cable accessories.

e. (Optional) Explore the feasibility and benefits of modelling of steady state screen/sheath-loads (zero sequence currents) as well as short-circuit loads in screen/sheath (single-pole short-circuit in cable screens for HVDC interconnections where the wye point of transformers is solidly bonded). The primary goal is to agree on general test parameters and inputs.

2.6 The expected benefits of this work are:

a. Ideally, this work would result in an optimised, suitably conservative and, ideally, standardised load cycle or load cycle determination methodology (load levels, cycle characteristics and number of cycles), including consideration of commissioning and operational phases and consideration and/or allowance for load profiles typically encountered in OWFs. The outcome would also establish the same for transient events such as phase to phase/phase to earth short circuit conditions and where they sit in the test programme.

b. By proposing a type test applicable to all voltages and screen designs, the project seeks to establish testing standards that are universally applicable and adaptable across diverse applications and voltage levels.

c. The establishment of refined and screen-design-specific acceptance criteria for contact resistance, contributing to improved performance standards, adaptability to diverse cable designs, and a comprehensive approach to testing. This work should be different to the test method development. These outcomes collectively aim to enhance the reliability and longevity of cable screen connections in diverse applications.

d. The project delves beyond addressing symptoms to ensure a comprehensive and long-term solution to enhance the reliability of cable accessories.

e. Establishing reliable and agreed-upon test parameters for modelling of steady state and single-pole short-circuit loads in cable screens will contribute to a more comprehensive understanding of electrical stress of connections between the screen and the termination under specific conditions and will show potential gaps in standards. The outcome aligning with industry standards and ensuring the reliability of cable accessories in scenarios involving HVAC interconnections and HVDC applications.

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). 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;
   - specify any input data, background IP, hardware or other inputs that the Bidder requires the Carbon Trust and/or the OWA Partners to provide;
   - specify 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
   - specify 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 5 Work Packages. 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 Project Deliverables to the TWG. The Carbon Trust and TWG shall review and provide feedback on each Project Deliverable. There will be at least one round of review comments to be accommodated by the Contractor for each Project Deliverable.

4.4 The Final Scope of Work will be agreed between the Carbon Trust and the Contractor when entering into the Contract. The Final 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.

4.5 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 Tender 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 team of mixed seniority approximately 10 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 ScreenConnect Project, any assumptions will be discussed with the TWG prior to the start of each Work Package.

4.9 The Scope of Work includes 1 Optional Work Package. This is a Work Package that the TWG will reserve the right to execute or dismiss in the course of the Project. The Bidder's Approach to Work should address this Optional Work Package, but it should be kept and highlighted as optional in the Bidder's Approach to Work.

WORK PACKAGES

Work Package	Description of work

WP1: Literature review	• Determine where in literature – and to what extent – cable screen connections are covered.
	• Conduct an extensive review of CIRED WG 17-1 and other industry standards relevant to cable screen connections. At a minimum, the following should be considered:
	  • IEC 63026 and 60840, neither of which cover screen connections, however, this is the gap that needs filling.
	  • IEC 61442, with consideration of load profiles.
	  • IEC 61238-1-3
	  • CIGRE TB 758
	• Integrate other relevant literature on this topic to evaluate the efficiency of current best-practice recommendations in cable accessory testing.
	  • Consider the testing technologies, both well-known and more innovative, and analyse the sensitivity, limitations, and benefits of testing technologies.
	  • Assess the suitability of existing standards, especially CIRED recommendations, for up-scaling to 66 kV and 132 kV/loads.
	  • Identify shortcomings, discrepancies, and areas where existing standards fall short.
	• This review should specifically consider the screen connection.
	
	Note: The overarching objective is to present not just an assortment of relevant literature or description of standards, but to weave together the findings into a cohesive narrative that provides a comprehensive understanding of cable screen connections and their assessment in contemporary standards and practices.

Project Deliverables: - **D01: Industry standards review report of cable screen connections. This should include an overview of current best-practice and analysis of efficiency and gaps.** - **D02: Presentation to the TWG-C.**	

WP2: Stakeholder engagement and GAP analysis	• Engage with key stakeholders in the supply chain to understand current testing practices, particularly tests beyond CIRED WG 17-1 such as additional heat cycles, impulse, HV AC and PD tests etc.
	• Identify industry trends and emerging testing methodologies employed by the supply chain.
	• Key stakeholders include:
	  • Wind farm operators (the TWG members);
	  • Cable suppliers;
	  • Cable accessory manufacturers and installers.
	• Perform a comprehensive GAP analysis between current testing methodologies (explored in WP1) and a comprehensive qualification procedure for the long-term performance of screen connections, which is the goal of this project.

<table>
<tr><td colspan="2">Project Deliverables:
- D03: Stakeholder engagement summary report and GAP analysis assessment. This should include further recommendations on cable screen connection best-practice.
- D04: Presentation to the TWG-C.</td></tr>
<tr><td>WP3: Development of updated type test requirements for cable screen connections</td><td>• Develop proposed standard type testing protocol (voltage agnostic) for welded / bonded/ foil / laminated screens. The proposed type tests will address the gaps identified from the review of CIRED WG17-1 and insights from the supply chain engagement. The proposed standard type tests will address the following areas:
  • The conductor should be considered to heat up from ambient to maximum operating temperature (and back to ambient) and the screen should maintain a continuous current. Both components are expected to heat up at the same time.
  • Consider scenarios where the cable is initially cold and then experiences a sudden load, especially in windy conditions. When transitioning from negligible current to full power, there is a risk of differences in the time constants for heating: bonding connection may heat up quickly; when the cable is cold, the screen currents can be higher; beneath the screen, the core of the cable also heats up.
  • Identify the worst-case test conditions. Determine what can be tested in a controlled lab environment. Understand any limitations.
  • Understand and address the impact of the expansion of the conductor due to heat through its load cycles (and proposal of any additional research needed).
  • Consider the ageing of the connection when establishing the test protocol.
  • Determine and optimise the test programme including continuous load cycles required while maintaining or improving testing rigor (see objectives).
  • Explore additional tests (e.g. heat cycles, impulse, HVAC and PD tests) that can complement and build upon the CIRED scope.
  • Proposed new acceptance and range of approval criteria (see objectives).
• Provide rationale for proposed improvements to type tests.
• Propose a comprehensive qualification procedure and range of qualification for the long-term performance of screen connections, which addresses identified gaps in testing protocols.</td></tr>
<tr><td colspan="2">Project Deliverables:
- D05: Report setting out proposed type testing protocols for screen connections, including all the considerations specified above.
- D06: Presentation to the TWG-C.</td></tr>
</table>

WP4: Guidelines document and dissemination	• The contractor will integrate the proposed improvements to type tests resulting from previous work packages into a synthesised guidelines report, to be published on the Carbon Trust website. The Contractor will work with the Carbon Trust to ensure the appropriate details are captured.
	• This report is expected to include the following:
	  • Document recommendations, and proposed improvements to build upon existing standard type tests.
	  • Recommendations on any gaps identified in previous work packages that require further research or development from the supply chain for this testing to be feasible (including availability of equipment).
	  • Provide clear and actionable insights for the industry to implement. Specify how offshore wind developers, cable manufacturers, and testing equipment providers can each action the recommendations.
	• The contents of this report will be disseminated, to develop acceptance and uptake within the industry. This may include:
	  • Ensuring CIGRE and CIRED are made aware of this publication.
	  • Some outcomes may be disseminated to the relevant parts of the supply chain to help provide focus on any areas requiring further development or investment. This aspect will be coordinated by the Carbon Trust.
	  • Presentation of findings at a relevant conference. This aspect will be coordinated by the Carbon Trust but may require some input from the Contractor.

Project Deliverables: - **D07: Guidelines report synthesising proposed improvements to type tests. This report should be practical and actionable.** - **D08: Presentation to the TWG-C.**	
(Optional) WP5: Modelling steady-state as well as single-pole short-circuit loads	• Explore the feasibility of modelling steady state as well as single-pole short-circuit loads in cable screens for HVDC interconnections. • Investigate the potential benefits and implications of including this optional modelling aspect in cable accessory testing. • Provide recommendations for setting-up a project specific calculation study. Consider how to calculate screen currents for testing input. • Understand general test parameters (screen current and short circuit is necessary as input to the CIRED profile design.
Project Deliverables: - **D09: Report that provides a description of the mathematical/physical model of the cable suitable for the given issue (see objectives) explicitly. Further, the report shall contain all results of the case studies, summary of the main outcomes, identification of the main sources for the screen loads, suggestion for damping that load.** - **D10: Presentation to TWG-C.**	
WPA. Project Management	The Bidder should stipulate how it will manage the Project efficiently and effectively. In particular, the following activities should be included (and hence budgeted for)

	• project management time (including sufficient time for review processes); • regular update calls with the Carbon Trust Project Manager and/or Technical Working Group as required; • the preparation of monthly flash reports (Carbon Trust template) containing key financial data and information of the delivery status of the Project; and ○ towards the end of the Project, the time dedicated to presenting the main results, findings and outcomes of the Project in the form of a 1-hour webinar to OWA Partners; and Bidders should be aware that the Carbon Trust and TWG usually require 2-3 weeks to review and provide feedback on each Project Deliverable, with at least one round of review comments to be accommodated. This should be considered when calculating Your Bid Price.
Project Deliverables: - **D11: Monthly flash reports** - **D12: Delivery of close out webinar**	
Expenses	The Bidder should detail the amount of expenses it expects to incur throughout the Project. Expenses will be paid as incurred up to the amount specified and any unused balance will not be paid.

5. Intellectual Property, Knowledge and Input Data

5.1 Full details of the intellectual property requirements and conditions can be found in the attached OWA Stage IV Contractors' Conditions.

5.2 The Carbon Trust and/or the OWA Partners are able to make available the following input data, background IP or other resources to the successful Bidder for the purposes of the completing the Project, subject to the confidentiality conditions in the OWA Stage IV Contractors' Conditions:

a. None.

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 for the delivery of this Project is expected to range between £115k and £125k.

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 range of the 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

7.1. Technical & Financial Evaluation

Bidders should take the following evaluation criteria into account when preparing and submitting their tenders. In the event of equivalent scores of two or more received Tenders, suppliers and sub-contractors who have committed to decarbonisation targets (see end of this section) will be preferred.

CRITERION 1: APPROACH TO WORK (WEIGHTING: 30%)

Description	Information required from Bidders
Proposed Approach	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. The description should include an initial overview on the approach followed by a description on how each Work Package and task will be delivered. Also, Bidders need to justify how their proposed approach meets the objectives of the Project.
Additional Work	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.
Project management	Bidders are required to describe how they will manage the Project utilising appropriate resources and describe how they will work with the various stakeholders, such as the relevant OWA TWG, to get information and manage potentially conflicting relationships.

CRITERION 2: EXPERIENCE (WEIGHTING: 30%)

Description	Information required from Bidders
Cable testing laboratory experience.	In the Main Bid Document, Bidders should elaborate on experience of the criteria described to the left and explain how these past experiences are relevant for this Tender. 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). 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.
Electrical as well as thermos-mechanical background.	
Experience in root cause analysis.	

CRITERION 3: STAFF SKILLS (WEIGHTING: 15%)

Description	Information required from Bidders
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 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: 25%)

Description	Information required from Bidders
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	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. 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). 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. 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 & subsistence cost exceeding £200 per day. 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.

7.2. Contractual Evaluation

Bidders are required to state any requested amendments to the OWA Stage IV Contractors' Conditions in their Tender Certificate. Any requests for amendments made after submission of the offer (i.e. not included in the Tender Certificate) shall not be considered by the Carbon Trust. On the basis of any changes requested in the Tender Certificate, the Carbon Trust may reject any bids where they consider there to be a high risk of not agreeing a contract in a timely manner.

The Carbon Trust has committed to reaching Net Zero by 2050. Our associated targets have been validated by the Science Based Targets Initiative (SBTi)[2]. To meet the initial targets that we have set for ourselves, we encourage all our suppliers and sub-contractors to have equivalent plans in place by 2026 at the latest. Measuring your emissions, setting targets, and encouraging others to do so will help push the needle on decarbonisation together.

Accordingly, we have included climate change commitment clauses in the OWA Stage IV Contractors' Conditions. Bidders may submit Tenders even if they cannot meet the defined conditions now, but if this is the case this should be clearly flagged in the Tender Certificate as a requested change to the OWA Stage IV Contractors' Conditions. Please reach out if you need more information on this.

[2] https://sciencebasedtargets.org/

8. Glossary

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 Final Scope of Work and the OWA Stage IV 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 the delivery of 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 Final Scope of Work, the OWA Stage IV 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.
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.
Executive Summary Report	A 3-10 pages report containing a high-level description of the Work Programme and a summary of the relevant results, findings and conclusions of the Project. Information can be taken from summaries written for previous Work Packages
Final 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.
Flash Report	A template provided by the Carbon Trust at Project start.
Invitation to Tender (ITT)	The following group of documents: Description of Tender (this document); OWA Stage IV Contractors' Conditions; Tender Certificate template; Bid Price Calculation Sheet template; and Clarification Document (if applicable[3]).
Main Bid Document	Has the meaning given in section 3.1. No template is provided.
Project	The Type Test of Screen Connections or ScreenConnect project.
Project Closeout Form	A template provided by the Carbon Trust towards the end of the Project.
Project Deliverables	The individual deliverables including, but not limited to, any reports, technical notes, documents, drawings, models, data, webinars to be produced by the Contractor according to the Scope of Work (see section 4) or as otherwise agreed in the Final Scope of Work.
OWA	Offshore Wind Accelerator

[3] A Clarification Document will not be published if no clarification questions are received in relation to this ITT.

OWA Partners	A group of leading offshore wind farm developers supporting the OWA.
OWA Cost Model	The Contractor is not expected to produce a cost model of its own, but rather provide an estimate, with appropriate explanation, for potential cost implications of the research undertaken within the frame of the delivered project. The Carbon Trust will provide a template to assist the Contractor in this process.
OWA Cost Model Input Sheet	A form (to be provided by Carbon Trust) which the Contractor should complete in WPA to provide input into the OWA Cost Model.
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 Final Scope of Work.
Technical Working Group (TWG)	A group consisting of technical experts appointed by the OWA Partners. The TWG will supervise the Project.
Tender	Bidder's response to this ITT consisting of the following elements: - Main Bid Document (proposal); - signed Tender Certificate; and - Bid Price Calculation Sheet
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 OWA programme to the Contractor for the delivery the Project.
Work Package	A group of related tasks to be delivered under the Project.
Work Programme	The entirety of all Work Packages.