3rd of December 2025

Dear Sir/Madam,

Invitation to Tender for the Development of a Frequency Domain Stability Analysis Toolbox for Offshore Wind project for the Carbon Trust's OWA Programme

You are invited to submit a Tender for the Development of a Frequency Domain Stability Analysis Toolbox for Offshore Wind project (the "FDSA project" or "Project") which is part of the Offshore Wind Accelerator (OWA) programme. The key objective of the Project is to develop a robust and adaptable software toolbox capable of performing Frequency-Domain Stability Analysis (FDSA) for power systems incorporating offshore wind farms. The toolbox will be implemented within an appropriate software environment, and will support both grid-following and grid-forming converter technologies. A key feature of the toolbox will be the standardisation of model formats for critical system components, including Wind Turbine Generators (WTGs), Static Synchronous Compensators (STATCOMs), and High Voltage Direct Current (HVDC) systems, ensuring accurate representation of operating-point dependencies such as active power, reactive power, and voltage. The solution must enable scalable, high-throughput analysis while maintaining the fidelity necessary to identify and characterise potential stability issues. Ultimately, the toolbox will be an efficient, user-friendly tool for the design and assessment of offshore wind farms, delivering accurate FDSA results within short timeframes.

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: james.inkpen@carbontrust.com and ciara.ritson-courtney@carbontrust.com

Tenders must be submitted before 21st of January 2026 17:00 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	7th of January 2026 17:00 GMT
Clarification Document published[1]	14th of January 2026

[1] A Clarification Document will not be published if no clarification questions are received in relation to this ITT.

Submission of full Tender	21st of January 2026 17:00 GMT
Bidder interviews	week commencing 2nd of February 2026
Successful Contractor announcement	1st of March 2026
Envisaged Contract award date	1st of April 2026

Please e-mail any clarification questions, including questions about the timing of this ITT, to james.inkpen@carbontrust.com and ciara.ritson-courtney@carbontrust.com any time before 7th of January 2026 17:00 GMT. The complete set of clarification questions and all answers to clarification questions will be published in the Clarification Document on our website by 14th of January 2026 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,

……..
James Inkpen and Ciara Ritson-Courtney
For and on behalf of **THE CARBON TRUST**

THE CARBON TRUST OFFSHORE WIND ACCELERATOR

Invitation to Tender for the "Development of a Frequency Domain Stability Analysis Toolbox for Offshore Wind " 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 Development of a Frequency Domain Stability Analysis Toolbox for Offshore Wind 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., TotalEnergies OneTech and bp Low Carbon Development Company 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 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 Electrical Systems.

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 Electrical Systems 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 FDSA project

2.1 The OWA TWG Electrical Systems would like to develop a robust and flexible toolbox within a suitable software environment (such as MATLAB/SIMULINK, PSCAD, DIgSILENT PowerFactory, and Python add-ins) capable of performing Frequency-Domain Stability Analysis (FDSA) for power systems incorporating one or more offshore wind farms. The toolbox must support both grid-following and grid- forming converter technologies, reflecting the evolving nature of renewable energy integration.

2.2 With the increasing contribution of offshore wind into the global energy mix, the transition from synchronous generation to converter-based resource is accelerating. This shift significantly increases the risk of power system stability issues. While traditional power system modelling methods such as time-domain simulations remain essential, the increasing complexity of generator connection conditions, rapid growth in generation units, and diverse local operating scenarios have highlighted the need for complementary approaches. Frequency Domain Stability Assessment (FDSA) is increasingly being used alongside conventional methods—both as a screening tool to identify potentially unstable operating points and as a means of diagnosing the root causes of oscillatory or stability issues observed in EMT studies.

To address these challenges, Frequency-Domain Stability Analysis (FDSA) is increasingly being adopted as a standard approach to power system modelling. FDSA facilitates large-scale scenario analysis, enabling scalable and time-efficient detection of system stability concerns. Once unstable cases are flagged through FDSA, they can be further examined using detailed time-domain simulations, ensuring both breadth and depth in system analysis. FDSA serves as an effective tool for narrowing down the scope of the detailed investigations required, enabling more efficient and effective identification of relevant scenarios to study.

2.3 A critical component of the toolbox development is the standardisation of model formats for key system elements, including Wind Turbine Generators (WTGs), Static Synchronous Compensators (STATCOMs) and High Voltage Direct Current (HVDC) systems. These models must reflect operating point dependencies—such as active power, reactive power, and voltage to capture the non-linear dynamics of power electronic converters.

The toolbox should enable scalable, high-throughput analysis while maintaining the fidelity required for identifying and characterising potential stability issues in the context of offshore wind.

This project intends to provide the OWA parties with a tool to be used for the design and assessment of offshore wind farms with the ability to accurately perform frequency domain stability analysis within a short time and with a simple user experience.

2.4 The expected benefits of this work are that it should:

- Improve system stability assessment by enabling early identification of unstable operating points in offshore wind systems, reducing risks associated with converter-based generation
- Provide scalable and efficient analysis that allows large-scale scenario screening with high throughput, saving time compared to traditional time-domain simulations

- Promote standardisation and interoperability through consistent model formats for WTGs, STATCOMs, and HVDC systems, improving compatibility across platforms

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 4 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 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 FDSA Project, any assumptions will be discussed with the TWG prior to the start of each Work Package.

WORK PACKAGES

Work Package	Description of work
WP1: Methodology Review and Assessment	The successful contractor will undertake a methodology review and assessment to establish a clear understanding of the current state of technology and methodological developments related to frequency-domain stability analysis (FDSA). This work package will underpin subsequent work by identifying key modelling approaches, software environments and knowledge gaps. The assessment should consider methods for systems dominated by converter-based generation, including both grid-following and grid-forming technologies. The contractor should evaluate the strengths and limitations of each approach, particularly in terms of scalability, accuracy, and compatibility with the types of models and operating conditions expected in offshore wind scenarios. As part of the methodology assessment, the contractor should review relevant academic and industry literature, including (but not limited to): • Evaluation of different methods/approaches for FDSA, including state-space, dq impedance, and phasor-based methods. • Evaluation of software environments commonly used for FDSA, such as MATLAB/Simulink, PSCAD, DIgSILENT PowerFactory, and Python-based platforms. This should include a comparison of modelling flexibility, computational performance, licensing considerations, and suitability for high-throughput analysis. • Identification and summary of key modelling requirements for offshore wind system components (e.g. WTGs, STATCOMs, HVDC systems), with a focus on capturing operating point dependencies (e.g. active/reactive power, voltage) and converter control modes (grid-following vs. grid-forming). • The review should also take into account existing open-source tools developed by organisations such as Energinet, and assess their applicability or potential integration into the proposed toolbox framework. • Review of relevant standards, guidelines, and regulatory developments that influence modelling practices or stability assessment requirements for offshore wind systems. • Gap analysis identifying areas where further investigation or stakeholder engagement may be required, particularly in relation to model standardisation, black-box model compatibility, and validation practices. The methodology assessment and review should be comprehensive yet concise, focusing on well-established research practices that have reached a high level of maturity. In-depth mathematical derivations or theoretical explorations should be avoided unless directly relevant to implementation or deployment decisions.

	Based on this review, the contractor should recommend a methodological framework to aid the development of the toolbox. This framework should be clearly justified and aligned with the project's objectives, including the need for high-throughput screening and integration with time-domain simulation tools. The output of this work package will guide the design and development of the toolbox in subsequent work packages.
Project Deliverables: - **D01: Methodology Assessment, including proposed framework for toolbox design** - **D02: Presentation to TWG-E**	
WP2: Model Definition and Design	In preparation for the development of the FDSA toolbox, the contractor should define the proposed toolbox methodology and design, building directly on the outputs and insights gained from the methodology review and assessment in work package 1. This includes outlining how the selected FDSA approach will be implemented in practice, how the models will be structured, and how the overall system will operate within the chosen software environment. As part of this work package, the contractor should develop models for key system components, including Wind Turbine Generators (WTGs), STATCOMs, and HVDC systems. These models must be suitable for frequency-domain analysis and capable of capturing the non-linear behaviour typical of power electronic converters. They should support both grid-following and grid-forming control schemes and include dependencies on key operating points such as active power (P), reactive power (Q), and terminal voltage (V). These should be informed by industry standard models and aligned with OEM input formats/ methodologies. In order to do this the contractor should engage with OEMs of the components identified to verify the model format and assumptions. The contractor should define standardised model formats to ensure consistency and interoperability with the toolbox and with external simulation tools. These formats should be designed to support scalability and ease of integration into automated analysis workflows. In cases where standardised models are not available for specific components, the contractor should identify these gaps explicitly. As part of Deliverable D07, the contractor will be required to provide a comprehensive list of all equipment types for which models are available, and those for which models are not. This will inform subsequent work and ensure transparency in model coverage Once the initial design concepts and modelling approach have been developed, the contractor will be expected to present their proposed methodology and model design in a workshop with TWG-E members. This session will be used to gather feedback, test assumptions, and ensure alignment with TWG-E requirements and expectations. Following the workshop, the contractor should refine their approach and produce a comprehensive model technical design document. This document should describe the modelling framework, assumptions, and

	implementation plan. This will be presented to TWG-E for approval prior to beginning the FDSA toolbox development in subsequent work packages.
Project Deliverables: - **D03: Model Design Recommendation Document** - **D04: TWG-E Workshop** - **D05: Model Technical Design Document** - **D06: TWG-E Presentation** - **D07: Standardised model templates for WTGs, STATCOMs, and HVDC systems**	
WP3: FDSA Toolbox development	The aim of this work package is to develop a modular, scalable, and user-friendly FDSA toolbox that enables efficient screening of offshore wind power system scenarios. The toolbox will implement the FDSA methodology recommended in Work Package 1 and integrate the standardised component models developed in Work Package 2. As part of the toolbox development, the contractor will be expected to design and implement the core FDSA algorithms, ensuring they are suitable for analysing systems with both grid-following and grid-forming converter technologies. The toolbox should be capable of performing frequency-domain analysis across a wide range of operating conditions and system configurations. The contractor should also develop functionality for batch processing, allowing users to run large sets of simulations across multiple operating points, specifically the tool should have the capability of analysing hundreds to thousands of test cases. This includes automated generation of input scenarios based on parameter ranges such as active power (P), reactive power (Q), and voltage (V). The toolbox should include robust logging and error-handling features to support high-throughput analysis and ensure traceability of results. In cases where standardised models are not available, as identified in WP2, the contractor will be expected to develop and implement a conservative modelling methodology for any relevant components. A basic user interface should be provided, either graphical or command-line based, to allow users to configure simulations and view results. The toolbox should include visualisation capabilities for key outputs, such as an automated report including information such as stability margin. These visualisations should be exportable in standard formats for reporting and further analysis. Compatibility with time-domain simulation tools such as DIgSILENT PowerFactory or PSCAD is essential. The toolbox should allow for export of model data and identified scenarios to these platforms for more detailed follow-up analysis. Standard data formats should be used to ensure interoperability and ease of integration. The contractor will be expected to conduct internal testing of the toolbox using representative test cases. Developer documentation should be provided to support future use and maintenance of the toolbox. The

	contractor should consider how the tool will be forwards compatible with new versions of underlying software.
Project Deliverables: - **D08: Technical specification document detailing model structure and dependencies** - **D09: Presentation to TWG-E**	
WP4: Model Validation and Documentation	The purpose of this work package is to validate the performance and accuracy of the FDSA toolbox and associated models developed in the earlier work packages, and to produce comprehensive documentation to support its use, maintenance, and future development. The contractor will be expected to carry out a structured validation process using a combination of synthetic test cases and realistic offshore wind scenarios. This will involve comparing the results of the frequency-domain analysis with time-domain simulations where appropriate, to ensure consistency and reliability. A clearly defined set of validation criteria, including pass/fail thresholds, should be established at the outset to guide this process. Any discrepancies identified during this process should be investigated and resolved, with refinements made to the models or algorithms as necessary. In parallel with the validation activities, the contractor should prepare detailed documentation covering all aspects of the toolbox. This should include a user manual explaining how to install, configure, and operate the toolbox, as well as technical documentation describing the underlying methodology, model structures, and assumptions. The Guideline Document should also include a summary on the design choices throughout the toolbox development process. The documentation should be written in a clear and accessible format suitable for both technical and non-technical users. A final project report should be produced, summarising the development process, validation outcomes, and any recommendations for future work or enhancements.
Project Deliverables: - **D10: FDSA Toolbox** - **D11: FDSA Toolbox Guideline Document and User Guide** - **D12: Presentation to TWG-E**	
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 production of a 3-10 pages Executive Summary Report for the entire Project (for dissemination within the OWA).

	○ the preparation of a Project Closeout Form (Carbon Trust template) which includes a short summary of areas for future research and a documentation of all Project Deliverables; ○ the preparation of a final presentation to the TWG; ○ 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 ○ the provision of inputs for the OWA Cost Model by completing the OWA Cost Model Input Sheet (Carbon Trust template) 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: - **D13: Monthly flash reports** - **D14: Executive Summary Report** - **D15: Final presentation** - **D16: Delivery of webinar** - **D17: Project Closeout Form** - **D18: Input sheet for OWA Cost Model**	
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 £90k and £100k.

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: 35%)

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
Experience in power system and electrical modelling	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.
Experience in and knowledge of offshore wind farm electrical design	
Experience in simulation tools such as MATLAB/Simulink, PSCAD, DIgSILENT PowerFactory, and Python-based platforms	

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 such as original equipment manufacturers (OEMs), offshore wind farm developers and wind turbine manufacturers as well as the OWA Technical Working Group 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%)

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 Development of a Frequency Domain Stability Analysis Toolbox for Offshore Wind or FDSA 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.