

Monday 29 June 2026

Dear Sir/Madam,

**Invitation to Tender for the Grid Forming Performance at System Level project for the Carbon Trust's OWA Programme**

You are invited to submit a Tender for the Grid Forming Performance at System Level project (the "GFM-SL project" or "Project") which is part of the Offshore Wind Accelerator (OWA) programme. The key objective of the Project is to develop a systematic framework for assessing and managing the stability risks arising from the sequential integration of heterogeneous GFM/GFL offshore wind farms into high-penetration clusters, enabling evidence-based grid code compliance and secure connection of new assets under weak grid conditions.

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<sup>1</sup>);
- 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: [jack.borrett@carbontrust.com](mailto:jack.borrett@carbontrust.com)

Tenders must be submitted before 13:00 (BST) on Monday 27 July 2026. 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	Friday 10 July 2026
Clarification Document published <sup>1</sup>	Friday 17 July 2026
Submission of full Tender	13:00 (BST) on Monday 27 July 2026
Bidder interviews	Week commencing 17 August 2026
Successful Contractor announcement	Monday 7 September
Envisaged Contract award date	Monday 28 September

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 A Clarification Document will not be published if no clarification questions are received in relation to this ITT.

Please e-mail any clarification questions, including questions about the timing of this ITT, to [jack.borrett@carbontrust.com](mailto:jack.borrett@carbontrust.com) any time before Friday 10 July 2026. The complete set of clarification questions and all answers to clarification questions will be published in the Clarification Document on our website by Friday 17 July 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,



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Jack Borrett

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

# THE CARBON TRUST OFFSHORE WIND ACCELERATOR

## Invitation to Tender for the “Grid Forming Performance at System Level” Project

### Description of Tender

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## IMPORTANT INFORMATION FOR BIDDERS

### **Publishing**

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

### **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 Grid Forming Performance at System Level 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: 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 Electricals.
- 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 Electricals 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 GFM-SL project

- 2.1 The OWA TWG Electricals seeks to develop a systematic framework for assessing and managing the stability risks arising from the sequential integration of heterogeneous GFM/GFL offshore wind farms into high-penetration clusters, enabling evidence-based grid code compliance and secure connection of new assets under weak grid conditions.
- 2.2 Historically, power grids have relied on traditional, fossil fuelled synchronous generation, to establish and maintain stable frequency and voltage levels across their networks. Grid forming capability from offshore wind farms can be achieved by WTGs, STATCOMs, or integrated BESS, and it will enable their contribution to grid stability, reliability and allow the power system to move away from conventional power plants towards offshore wind with the ability to control voltage and frequency, maintaining a consistent power supply.

Previously the OWA Electricals working group (“the OWA”) has conducted studies to understand the practical capabilities and physical implications of designing and operating grid forming offshore wind farms. This included PSCAD EMT analysis to define the technology combinations, scenarios, methodologies, control strategies and OWF capabilities deemed necessary and most relevant to provide grid forming capability. This modelling then informed the development of a set of standardised guidelines and processes for developers.

- 2.3 The main objectives of this work are to quantify cross-farm stability margins in offshore clusters comprising a mix of grid-forming (GFM) and grid-following (GFL) devices operating in parallel across a range of grid strength conditions, and to characterise the inter-plant control interactions that arise from heterogeneous OEM control philosophies and unknown tuning parameters. The work will identify adverse interaction envelopes (including oscillatory modes, reduced damping, and voltage instability) as neighbouring farms are added sequentially to a cluster. It will also define the data and interface requirements necessary from nearby connected users and the TSO to support modelling and grid code compliance, and identify and scope the studies needed to support the development and secure connection of new assets in high-GFM offshore clusters.
- 2.4 The expected benefits of this work are reduced commissioning risk and curtailment, and fewer re-tuning iterations with a reduced need for additional hardware mitigation. It will support a reduction in commissioning delays linked to instability and control interactions, and a reduction in design and tuning iteration cycles between developers, OEMs, and TSOs. The findings are also expected to increase bankability by providing clearer evidence of operational stability under uncertain neighbour conditions, and to represent strong steps towards the standardisation of GFM parameters and performance expectations.

### 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 a small team of mixed seniority approximately 12 - 15 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 GFM-SL Project, any assumptions will be discussed with the TWG prior to the start of each Work Package.

## Background

Historically, power grids have relied on traditional, fossil fuelled synchronous generation, to establish and maintain stable frequency and voltage levels across their networks. Grid forming capability from offshore wind farms can be achieved by WTGs, STATCOMs, or integrated BESS, and it will enable their contribution to grid stability, reliability and allow the power system to move away from conventional power plants towards offshore wind with the ability to control voltage and frequency, maintaining a consistent power supply.

Previously the OWA Electricals working group (“the OWA”) has conducted studies to understand the practical capabilities and physical implications of designing and operating grid forming offshore wind farms. This included PSCAD EMT analysis to define the technology combinations, scenarios, methodologies, control strategies and OWF capabilities deemed necessary and most relevant to provide grid forming capability. This modelling then informed the development of a set of standardised guidelines and processes for developers.

## Objective of the Work

The OWA would like to:

- Quantify cross-farm stability margins in offshore clusters comprising a mix of GFM and GFL devices operating in parallel across a range of grid strength conditions.
- Characterise inter-plant control interactions arising from heterogeneous OEM control philosophies and unknown tuning parameters.
- Identify adverse interaction envelopes (e.g. oscillatory modes, reduced damping, voltage instability) as neighbouring farms are added sequentially.
- Define the data and interface requirements necessary from nearby connected users and TSO to support modelling and grid code compliance.
- Identify and scope the necessary studies to support the development and secure connection of new assets in high-GFM offshore clusters

## WORK PACKAGES

Work Package	Description of work
<b>WP1: Literature Review and Stakeholder Engagement Report</b>	<p>The successful contractor should possess a strong foundational understanding of the grid forming space. As such, the proposed approach should not include extensive literature review aimed at developing baseline knowledge, but should instead focus on the most relevant resources and analysis relating specifically to grid forming interactions. The successful contractor should review all documentation provided by OWA to understand the context of the projects and topics already studied. These documents should inform a light touch literature review, which pulls in relevant detail from the provided literature, and specifically focuses on system level interactions between GFM devices. This could include but is not limited to:</p> <ul style="list-style-type: none"> <li>• Modelling approaches for cross-farm stability margin quantification</li> </ul>

- Interaction phenomena between heterogeneous GFM control families
- Device-level dynamics and their influence on cluster-level behaviour
- Oscillatory mode identification and adverse interaction envelope characterisation
- TSO data provision practices and network equivalencing methodologies, including the availability and accessibility of network data for stability studies across relevant markets, and approaches used to construct network equivalents where full TSO data is unavailable or restricted.
- Grid code requirements for GFM in offshore applications across relevant jurisdictions, including compliance boundary conventions (e.g. OSS vs ONS measurement points) and how these vary between TSOs.
- Interconnection study methodologies and their adequacy for high-GFM cluster scenarios

Throughout the project, to assist with the completion of all work packages, the contractor should perform stakeholder engagement with WTG OEMs, TSOs, Universities, test/verification laboratories, and other innovators to assess modelling inputs and approaches. To perform this, the contractor is expected to provide a stakeholder engagement plan to the OWA partners, and this should be agreed with partners prior to proceeding with stakeholder engagement, including:

- List of stakeholders
- List of questions
- Method to approach stakeholders
- Information that will be shared/discussed

Findings from the literature review at shall directly inform the detailed study scope and methodology. Please note that the OWA parties may provide additional information to the background work already shared that is relevant for the completion of this work package; however, this should not be assumed during ITT.

The information contained in the background IP provided by the OWA to the contractor must not be shared with external stakeholders. The contractor should propose in their bid, and/or in the stakeholder engagement plan, the engagement they intend to carry out throughout the whole project, further to and including what’s defined in this scope, such as: interviews, workshops, and surveys etc.

**Project Deliverables:**

- D01: Stakeholder Engagement Plan
- D02: Literature Review
- D03: Presentation to TWG-E

**WP2: System Modelling  
Framework & Scenarios  
Definition**

Building on the outputs of WP1, the successful contractor shall develop and deliver a modelling framework and scenarios that underpin all subsequent technical work packages, ensuring all inputs and models are analysis-ready for use in later stages. The successful contractor should seek to incorporate models developed previously in OWA projects as part of the framework and approach. This should include but is not limited to:

**Modelling Framework**

- Selection and justification of simulation tools and model fidelity requirements for each study type.
- Definition of technologies to be studied, representing a realistic mix of GFM and GFL device types. This should include but is not limited to WTGs, BESS, E-STATCOM, HVDC converters, and GFL devices.
- Identification or development of black-box or generic device models where OEM models are unavailable, with justification of assumptions and uncertainty bounds
- Implementation of a test grid in EMT with a mix of GFM and GFL devices and to be reviewed by the partners.
- Outline of approach to appropriate aggregation approaches for multi-turbine arrays that preserve control interaction fidelity, pulling upon existing publications.
- Proposal for modelling approaches that are geography and market agnostic. The contractor should set out their proposed approach to device representation, including how they intend to handle the balance between generic functional models and OEM-specific implementations, and justify their selection.

**Scenario Definition**

- Definition of the grid strength range to be studied, from nominal down to realistic worst-case conditions, using appropriate metrics such as SCR, ESCR, or composite/weighted SCR as justified by the contractor
- Definition of device mix scenarios, including varying proportions of GFM and non-GFM devices at the onshore and offshore grid and sequential farm addition cases
- Definition of operating point scenarios spanning the full P/Q envelope of each device type
- Definition of contingency and disturbance cases to be applied consistently across all subsequent study work packages
- Investigation of active power based response of GFM devices (e.g., following phase jump or virtual inertia response)
- Definition of use cases

	<p>The modelling assumptions, scenario definition and prioritisation of cases shall be agreed with OWA prior to model build and commencing WP3 analysis. The contractor should note that the scenarios should reflect the most commercially and technically relevant cases, with reference to existing and planned offshore cluster developments where appropriate. The contractor should investigate active power-based response of GFM devices (e.g., following phase jump or virtual inertia response) and GFM behaviour that could influence traditional protection algorithm.</p>
<p><b>Project Deliverables:</b></p> <ul style="list-style-type: none"> <li>- D04: Modelling Methodology report</li> <li>- D05: Identification of scenarios to study and scope</li> <li>- D06: Test grid model in EMT with a mix of GFM and GFL devices</li> </ul>	
<p><b>WP3: System-Level Interaction Studies &amp; Screening Methodology</b></p>	<p>Building on the modelling framework and scenarios defined in WP2, the successful contractor shall conduct system-level interaction studies across the defined scenarios to characterise stability margins and adverse interaction envelopes within mixed GFM offshore clusters. This should include but is not limited to:</p> <p><b>Stability Margin Quantification</b></p> <ul style="list-style-type: none"> <li>• Small-signal stability analysis across the defined grid strength range, using grid strength metrics appropriate to the multi-device cluster context as proposed by the contractor</li> <li>• Large-signal / transient stability analysis under the defined contingency and disturbance cases</li> <li>• Quantification of stability margin degradation</li> </ul> <p><b>Interaction Screening</b></p> <ul style="list-style-type: none"> <li>• Screening of interaction between device types before a more detailed EMT investigation</li> <li>• Characterisation of interaction phenomena arising from heterogeneous GFM controls</li> <li>• Quantification of interaction metrics (e.g., oscillation amplitudes, damping levels) and acceptance thresholds.</li> <li>• Assessment of the sensitivity of interaction behaviour to unknown or variable OEM tuning parameters.</li> <li>• Development of an automated screening script for application to RMS network models, enabling systematic identification of interaction risks prior to detailed EMT investigation.</li> </ul> <p><b>Adverse Interaction Envelope Mapping</b></p>

	<ul style="list-style-type: none"> <li>• Definition of adverse interaction envelopes expressed in terms of grid strength metric, device mix, and operating point, providing a practically usable output for developers and network planners</li> <li>• Identification of any combinations of device type, control family and grid condition that present unacceptable stability risk and should be flagged as requiring mitigation</li> </ul> <p><b>Screening Methodology</b></p> <ul style="list-style-type: none"> <li>• Development of a repeatable screening methodology that can be applied by developers or network planners to classify scenarios and flag cases requiring deeper analysis and re-tuning</li> </ul> <p>The outputs of WP3 shall directly inform WP4 by identifying which device combinations and scenarios require deeper investigation, and shall contribute to the study scoping guidance for new asset connections developed in WP5. All findings shall be validated against available field data or published case studies where possible, and key results shall be sense-checked with relevant stakeholders as part of the ongoing engagement programme.</p>
<p><b>Project Deliverables:</b></p> <ul style="list-style-type: none"> <li>- D07: Modelling analysis and findings report</li> <li>- D08: Interaction screening methodology document</li> <li>- D09: Automated screening script for RMS network models</li> <li>- D10: Presentation to TWG-E</li> </ul>	
<p><b>WP4: Developer Study/Test Requirements &amp; Coordination Guidelines</b></p>	<p>Building on the findings of WP3, the successful contractor shall define the data and interface requirements necessary to support modelling, grid code compliance and secure connection of new assets in high-GFM offshore clusters. The contractor shall also develop best practice guidelines and an industry roadmap to support developers and network planners. This should include but is not limited to:</p> <p><b>Data &amp; Interface Requirements</b></p> <ul style="list-style-type: none"> <li>• Definition of data requirements from connected users and TSOs to support cluster-level interaction studies and grid code compliance, including model formats, validation tolerances and update obligations</li> <li>• Gap analysis of current TSO model submission standards and network equivalencing approaches against what is required for GFM cluster studies</li> <li>• Recommended model exchange formats and interface standards for multi-party cluster environments where OEM confidentiality constraints apply</li> </ul> <p><b>Best Practice Guidelines</b></p> <ul style="list-style-type: none"> <li>• Summary of methods to identify and characterise high-GFM cluster conditions and associated stability risks, including an</li> </ul>

	<p>assessment of existing frameworks for allocating responsibility and cost among interconnected systems where shared stability obligations arise.</p> <ul style="list-style-type: none"> <li>• Mitigation methods to manage adverse interaction risk, including control coordination, hardware changes and protection system design considerations</li> <li>• Best practice for operational monitoring of interaction risk, including re-study triggers following control changes or new asset connections</li> </ul>
<p><b>Project Deliverables:</b></p> <ul style="list-style-type: none"> <li>- D11: Data requirements and best practice guidelines report</li> </ul>	
<p><b>WP5: Final Guidelines, Synthesis &amp; Dissemination</b></p>	<p>Building on the outputs of all preceding work packages, the successful contractor shall synthesise findings into a consolidated set of final guidelines and disseminate key findings in relation to wider industry data sharing needs.. This should include but is not limited to:</p> <p><b>Final Guidelines, Recommendations &amp; Project Closeout</b></p> <ul style="list-style-type: none"> <li>• Consolidation of findings across all work packages into a single, practically applicable guidance document for developers, TSOs and network planners working in high-GFM offshore cluster environments.</li> <li>• Delivery of a project closeout webinar presenting key findings and learnings to TWG partners.</li> <li>• Identification and scoping of the necessary studies to support the development and secure connection of new assets in high-GFM offshore clusters</li> </ul> <p><b>Dissemination</b></p> <ul style="list-style-type: none"> <li>• Production of a public-facing summary report suitable for broad industry circulation. The report should disseminate outputs directly relevant to wider industry data-sharing needs, with a focus on identifying the information developers require regarding grid conditions, nearby assets, and system characteristics when designing and connecting grid forming WTG projects.</li> <li>• Delivery of a final industry workshop or webinar presenting key findings in relation to the public-facing summary report to , TSOs, OEMs and other relevant stakeholders</li> </ul> <p>The final guidelines shall be written for a developer and network planner audience, prioritising practical applicability. The contractor shall agree the dissemination approach with OWA prior to execution, ensuring outputs reach the most relevant industry audiences while respecting any confidentiality requirements around project IP.</p>

<p><b>Project Deliverables:</b></p> <ul style="list-style-type: none"> <li>- D12: Final guidelines document</li> <li>- D13: Project closeout webinar for developers</li> <li>- D14: Public facing summary report</li> <li>- D15: Industry workshop</li> </ul>	
<p><b>WPA. Project Management</b></p>	<p>The Bidder should stipulate how it will manage the Project efficiently and effectively.</p> <p>In particular, the following activities should be included (and hence budgeted for)</p> <ul style="list-style-type: none"> <li>• project management time (including sufficient time for review processes);</li> <li>• regular update calls with the Carbon Trust Project Manager and/or Technical Working Group as required;</li> <li>• the preparation of monthly flash reports (Carbon Trust template) containing key financial data and information of the delivery status of the Project; and</li> <li>• towards the end of the Project             <ul style="list-style-type: none"> <li>○ the production of a 3-10 pages Executive Summary Report for the entire Project (for dissemination within the OWA);</li> <li>○ 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;</li> <li>○ the preparation of a final presentation to the TWG;</li> <li>○ 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</li> <li>○ the provision of inputs for the OWA Cost Model by completing the OWA Cost Model Input Sheet (Carbon Trust template).</li> </ul> </li> </ul> <p>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.</p>
<p><b>Project Deliverables:</b></p> <ul style="list-style-type: none"> <li>- DA.1: Monthly flash reports</li> <li>- DA.2: Executive Summary Report</li> <li>- DA.3: Final presentation</li> <li>- DA.4: Delivery of webinar</li> <li>- DA.5: Project Closeout Form</li> <li>- DA.6: Input sheet for OWA Cost Model</li> </ul>	

<b>Expenses</b>	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.
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## 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. GridForm deliverables (WP1 – WP4)
  - b. Including GridForm WP3 PSCAD Models

## 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 £145k - £155k
- 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
<b>Proposed Approach</b>	<p>In the Main Bid Document, Bidders are required to provide a clear and detailed description on how they plan to deliver the work for this Project.</p> <p>The description should include an initial overview on the approach followed by a description on how each Work Package and task will be delivered.</p> <p>Also, Bidders need to justify how their proposed approach meets the objectives of the Project.</p>
<b>Additional Work</b>	<p>If there is any Additional Work proposed by the Bidder, these aspects will be evaluated separately. The suggestion of Additional Work by the Bidder will not have a negative impact on the evaluation of the Tender.</p>
<b>Project management</b>	<p>Bidders are required to describe how they will manage the Project utilising appropriate resources and describe how they will work with the various stakeholders, such as the relevant OWA TWG, to get information and manage potentially conflicting relationships.</p>

#### CRITERION 2: EXPERIENCE (WEIGHTING: 30%)

Description	Information required from Bidders
<b>Experience in grid forming</b>	<p>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.</p>
<b>Experience in advanced power system and interaction modelling</b>	<p>In addition, Bidders should provide at least two examples (with reference to specific roles, responsibilities and activities the Bidder undertook) of previous work which illustrates the Bidder's skills, capabilities, and experience in all of these areas (Bidders may wish to make reference to submitted examples of previous work for other clients).</p>
<b>Experience in Stakeholder engagement across OEMs, TSOs, and industry</b>	<p>Bidders are advised that experience is considered a key important criterion and partnerships with other companies to support certain areas of experience are welcomed. All experience / case studies should be attached as an appendix to the Main Bid Document.</p>

**CRITERION 3: STAFF SKILLS (WEIGHTING: 15%)**

Description	Information required from Bidders
<b>CVs/Resumes</b>	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.
<b>Applicable skills</b>	Bidders should elaborate on the most relevant skills of the key personnel that will be involved in the Project.
<b>Prior experience form involved staff</b>	Please include examples of similar work performed by the proposed staff members, explaining how is relevant to the Approach to Work.
<b>Expert engagement</b>	A close working relationship with key stakeholders such as original equipment manufacturers (OEMs), transmission system operators and regulators, 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: 25%)**

Description	Information required from Bidders
<b>Day rates and man hours (man-h) for all staff grades</b>	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.
<b>Price for the delivery of the Project</b>	<p>In the Bid Price Calculation Sheet, Bidders are required to provide a cost breakdown by Work Package, including man hours and day rates of personnel completing the work as specified in section 0.</p> <p>Bidders are required to specify expected expenses separate from the estimated budget for each Work Package.</p> <p>The Bid Price will be assessed on the price for the Approach to Work (which includes the price of the Work Packages in the Scope of Work and any Alternative Work proposed by the Bidder).</p> <p>If there is any Additional Work proposed by the Bidder, this will be evaluated separately. The suggestion of Additional Work by the Bidder will not have a negative impact on the evaluation of the Tender.</p> <p>Carbon Trust will reimburse reasonable expenses at cost and receipts may be requested. Pre-approval will be required for travel costs over £150 per return journey and combined hotels &amp; subsistence cost exceeding £200 per day.</p> <p>Bidders will be required to confirm or comment on their ability to carry out the activities detailed in the Scope of Work within the initial term of the Contract and provide an outline plan of work.</p>

## 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)<sup>2</sup>. 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.

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<sup>2</sup> <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 <sup>3</sup> ).
Main Bid Document	Has the meaning given in section 3.1. No template is provided.
Project	The Grid Forming Performance at System Level or GFM-SL 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

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<sup>3</sup> 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: <ul style="list-style-type: none"> <li>- Main Bid Document (proposal);</li> <li>- signed Tender Certificate; and</li> <li>- Bid Price Calculation Sheet</li> </ul>
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.