Cluster Sequencing: Greenhouse Gas Removal technologies

Expression of Interest

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# Cluster Plan Introduction

In November 2020, the Government published the Ten Point Plan for a Green Industrial Revolution[[1]](#footnote-2), with commitments focused on driving innovation, boosting export opportunities, and generating green jobs and growth across the country to level up regions of the UK. In doing so, government has set its agenda for a clean, resilient and sustainable economic recovery, as the UK builds back from the impacts of Covid-19.

Included in the Ten Point Plan was a commitment to deploy Carbon Capture, Usage and Storage (CCUS) in two industrial clusters by the mid-2020s, and a further two clusters by 2030 with an ambition to capture 10 MtCO₂ per year by 2030. In February this year, BEIS published a consultation[[2]](#footnote-3) seeking input on a potential approach to determine a natural sequence for locations to deploy CCUS in order to meet this commitment. In May, we published a government response to this consultation, alongside launching Phase-1 of the CCUS Cluster Sequencing Process[[3]](#footnote-4).

The purpose of Phase-1 is to identify at least two CCUS clusters whose readiness suggests they are most naturally suited to deployment in the mid-2020s, as part of our efforts to identify and support a logical sequence of deployment for CCUS Projects in the UK. We refer to these initial clusters as ‘Track-1’. On 19 October we announced the clusters which have been provisionally sequenced onto Track 1.

Phase-2 of the process focusing on individual Projects across three capture applications (industry, power, hydrogen) which could connect to the Track-1 clusters has been launched alongside this document. The relevant Greenhouse Gas Reduction (GGR) section (Section 7) of the Phase-2 Launch Document should be read in parallel with this document.

This document sets out some questions that GGR Projects should answer so Government can understand the scale of the potential GGR Projects with an interest in requesting access to Track-1. This document also seeks feedback on the published business model report. This document is an Annex to the Phase-2 Launch Document and should be read alongside it.

The CCUS Cluster Sequencing Process will be run by the Department for Business, Energy and Industrial Strategy (BEIS). If applicants have any general questions about the submission process or about filling in any part of the submission documentation, please email queries to [ggrccuseoi@beis.gov.uk](mailto:ggrccuseoi@beis.gov.uk).

## Important information regarding this process

* The deadline to respond to this Expression for Interest is 17:00 p.m. on 6 January 2022.
* This document should be read alongside the Phase-2 Launch Document, including the details of some initial eligibility criteria for GGR Projects.
* The information provided within this form will be used to assess the quantity and scale of GGR Projects within the Track-1 clusters.
* BEIS will not be responsible for any costs incurred in the preparation of any submission, irrespective of whether the project is sequenced for deployment in the mid-2020s.
* Projects should meet the eligibility criteria described in Section 7 of the Phase-2 Launch Document.
* This document is divided into 2sections:
  + Section 1, asks for project Information; this information will provide background and context to the submission.
  + Section 2, asks for evidence on why the project meets the eligibility criteria as laid out in the Phase-2 Launch Document
* As a next step, the EoI will be used to inform the design of a potential separate evaluation and selection process as a GGR specific part of Phase 2. Further information may be required to assist that assessment.
* BEIS reserves the right not to accept any EoI submission and reserves the right to cancel the process before it has completed or at any time before any support has been awarded.
* BEIS reserves the right not to consider an EoI submission further if an applicant fails to disclose information requested.
* Please note that the word limit does not cover the referencing sections. This is so projects can be specific as to where information can be found in any documents provided. If BEIS considers that a project has used referenced materials to continue an answer this content will not be considered.
* Any information provided above the word limits will be removed before information is considered.

## Disclosure of information

Reasons for decisions will be recorded at all stages for good administration and to ensure that there is a clear audit trail for all decisions. Administrative records will be maintained for all EoIs.

All information provided by respondents may be disclosed in accordance with BEIS’s legal obligations (including under the Freedom of Information Act 2000 (FOIA), the Data Protection Act 2018 (DPA), General Data Protection Regulation (GDPR) and the Environmental Information Regulations 2004 (EIR) in the event that a request for information is received). More information on the FOIA and EIR (including information on exemptions) can be found at: <https://ico.org.uk/for-organisations/>

To help BEIS deal with information requests and without prejudice to the paragraph above, in the box below, please set out the reasons why you consider any specific information should not be disclosed, including (if possible) by reference to the specific exemption contained in the relevant legislation (for example, because disclosure of the information would prejudice your commercial interests under section 43 of the FOIA), explaining why this is the case.

Where appropriate, please also state whether you consider your reasons for non-disclosure only apply for a particular time period. If we receive an information request, we will consider your views as stated on the submission form. However, BEIS will ultimately decide how to respond to an information request and whether any information should be withheld, subject to the Information Commissioner's Office decision in the event of the requestor appealing the decision.

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| Please detail what specific information, if any, within this EoI should not be disclosed and the reasons why. Please include (if possible) reference to the specific exemption contained in the relevant legislation. |
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## Glossary of terms

|  |  |
| --- | --- |
| Acronym | Meaning |
| CO₂ | Carbon dioxide |
| FEED | Front-End Engineering Design |
| GGRs | Greenhouse Gas Removal technologies |
| MRV | Monitoring, Reporting & Verification |
| MWh or MW | Mega-Watt Hour or Mega-Watt |
| Transport & Storage Network (T&S Network) | The network consisting (wholly or mainly) of:  • pipelines used for the transportation of carbon dioxide from one capture plant to a storage facility or to or from any CO₂ pipeline network; or  • routes used for the transportation of carbon dioxide from one capture plant to a storage facility or to or from any CO₂ pipeline network; and  • storage facilities for the permanent storage of carbon dioxide.  While transport and storage networks may comprise non-pipeline methods of transportation, it would be the activities concerned with pipeline transportation and storage that would be licensable activities. |

## Units

Where possible please use units of measurement defined by the International System of Units (SI) within your answers. For example:

* Electrical energy: MWh or MW.
* Thermal energy: MWh or MW.

## Project Summary

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| --- |
| 2. Executive Summary |
| 2.1 High-level project description (500 words)  Please provide a concise summary description of your project, including GGR technology employed, project size(s), CO2 capture capacity and the intended cluster. |
|  |
| 2.2. Which Track 1 or Reserve T&S Cluster do you wish to have access to? |
|  |
| 2.3. Do you wish to be considered for GGR-specific business model support when this becomes available? |
|  |
| 2.4 Project status and key metrics (500 words)  Please provide a concise description of the project stage of commercial & technical development, including any pre-feed activities and planning applications. Please also fill in the metrics within the table provided. |
|  |
| |  |  | | --- | --- | | Metric | Value | | Financial Investment Decision Date (m/y) |  | | Commercial Operation Date (m/y) |  | | Total CO2 stored volumes before 2050 (MtCO₂) |  | | Net emissions stored per year (MtCO₂) |  | | Capture Rate (if relevant) (% of CO2) |  | | Overall capital costs to end of 2050 (£m) |  | | Overall operational costs to end of 2050 (£m) |  | | Levelised Cost of Removal to end of 2050 (£/MtCO₂) |  | |
| References to supporting documentation for Section 2 |
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## Eligibility criteria assessment

This section requires GGR Projects to provide evidence to demonstrate that they meet the eligibility criteria as set out in the Phase-2 Launch document.

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| --- |
| 3. Eligibility criteria |
| 3.1 Is the project located in the UK?  Please select between Yes and No |
| Yes/No |
| 3.2 The project must meet the definition of an engineered GGR project  GGR Projects like BECCS and DACCS, which have the principal aim of permanent atmospheric CO2 removal through geological storage. Projects must have plans to deliver greenhouse gas removal through geological storage, alongside any plans for utilisation of CO2. For a GGR approach to be credibly ‘net-negative’ it must remove more GHGs from the atmosphere than it creates along its entire supply chain (both domestic and international) and store them for an effective period of time.  It is recognised that some forms of Carbon Capture and Utilisation (CCU) such as the production of sustainable aviation fuels (SAF) are key transitional elements of engineered GGR project’s business plans.  Please provide evidence that the project meets the definition of an engineered GGR project. |
|  |
| 3.3 The project must have access to a carbon transport solution and storage site  Please provide evidence that the project has access to a carbon transport and storage site. |
|  |
| 3.6 The project must not be considered under another carbon capture business model  Please select between Yes and No |
| Yes/No |
| 3.7. Please provide your feedback on the recent research report published on FOAK Business Models for Power BECCS?  This publication is available from: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1026637/investable-commercial-framework-power-beccs.pdf> |
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1. <https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution/title> [↑](#footnote-ref-2)
2. <https://www.gov.uk/government/consultations/carbon-capture-usage-and-storage-market-engagement-on-cluster-sequencing> [↑](#footnote-ref-3)
3. <https://www.gov.uk/government/publications/cluster-sequencing-for-carbon-capture-usage-and-storage-ccus-deployment-phase-1-expressions-of-interest> [↑](#footnote-ref-4)