Direct Air Capture and Greenhouse Gas Removal Programme

An SBRI Competition: TRN 4696/11/2020

Competition Guidance Notes

Updated 8 December 2020 to correct for errors made¹ in the original version

¹ Detailed description of the changes made can be found in the Question and Answer documentation published at https://www.gov.uk/government/publications/direct-air-capture-and-other-greenhouse-gas-removal-technologies-competition

December 2020
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Direct Air Capture and Greenhouse Gas Removal Innovation Programme – Overview

The aim of the Direct Air Capture and Greenhouse Gas Removal (GGR) Innovation Programme (the Programme) is to identify approaches to removing CO2 or other Greenhouse Gases (GHGs) from the atmosphere and drive innovation in these. While pilots and demonstrators are likely to be smaller in scale, the ultimate objective of this Programme is to identify one or more ways in which to achieve removals at the MtCO2e scale or greater, at a cost of <£200 per tonne CO2e removed, and undertake innovation activities that help to achieve this outcome.

The Programme will seek to identify and demonstrate GGR solutions that have the potential to be replicated at significant scale. The Programme will be technology-neutral and will take a portfolio approach to funding a range of solutions.

The proposed GGR solutions include, but are not limited to: direct air capture of CO2 (through mechanical capture of CO2 from well-mixed air), biochar (using biomass to generate a solid comprising principally of carbon), bioenergy with CCS (BECCS, where biomass combustion results in a stream of CO2 of appropriate concentration and purity, which can then be permanently sequestered), advanced weathering (where minerals applied to soil are used to capture and permanently sequester carbon) and removal of CO2 from seawater via chemical or electrochemical means. Technologies which remove non-CO2 Greenhouse Gases from the atmosphere, including methane, nitrous oxide and F-gases, are in scope. Solutions could be demonstrated whole, or in-part. Where only part of the solution is demonstrated a robust technical and commercial case demonstrating how end-to-end removals can be achieved affordably and at scale will need to be presented as part of any bid.

While it is recognised that afforestation has a role to play in meeting the net zero target, it is excluded from this competition, as are nature-based solutions.

Applicants need to be cognisant of the international and domestic legislative frameworks that could affect the implementation of their proposal.

A two-Phase Small Business Research Initiative (SBRI) pre-commercial procurement process will be used to deliver this competition. The Phases are described in “Competition Structure, Timetable, Application and Assessment Process” and the process for selecting projects is described in “Assessment Criteria”.
**Competition Context**

*This Competition is funded by the BEIS Net-Zero Innovation Programme. The aim of this programme is to reduce the UK’s carbon emissions and the cost of decarbonisation by accelerating the commercialisation of innovative mitigation technologies and processes into the mid-2020s and 2030s.*

We have planned a ~£70m Programme on Innovation on Direct Air Capture and other approaches to Greenhouse Gas Removal. This call represents the first Phase of this Programme. Our £70m funding for Direct Air Capture and GGR innovation complements wider activity by the government funded by UK Research and Innovation (UKRI). This government-funded landscape is illustrated in the diagram below. The research programme led by NERC (Natural Environment Research Council) began in 2017 and consists of 11 projects, most of which end in 2021; the Strategic Priorities Fund (SPF) Programme will consist of 5 “demonstrators” overseen by the Biotechnology and Biological Sciences Research Council (BBSRC) plus a co-ordinating “hub” overseen by the Natural Environment Research Council (NERC). Bids to the SPF programme have closed; the winners are expected to be announced early in 2021.

GGRs could play an important role, not only in tackling climate change and helping the UK to meet its commitment to reaching net-zero greenhouse gas emissions in 2050, but also in creating additional jobs in UK by adding an entirely new sector to the economy. However, for a market to grow the technology must be proven to work, be reliable, and able to operate at large scale and an affordable cost.
BEIS Greenhouse Gas Removal Programme: PHASE1 TRN 4696/11/2020 - Competition Rules and Guidance

A recent study from The Royal Society\(^2\) looked at a number of approaches to GGRs that could be used in the UK. Of particular note are direct air carbon capture and storage (DACCS), bioenergy with carbon capture and storage (BECCS), and biochar, which involves burning biomass in the absence of oxygen to create a highly stable form of carbon that can be used as a long-term store of carbon and may have some secondary agricultural benefits. Additionally, enhanced weathering and nature-based solutions were also considered, though the latter are not in scope for this work.

There is still significant uncertainty around many GGR technologies. For example, while direct air capture is proven to work at small scale, its performance at removing CO2 on the scale of millions of tonnes per annum has not yet been demonstrated. Similarly, there are uncertainties around the efficacy of biochar or advanced weathering as solutions to permanently remove CO2 from the atmosphere.

**Competition Objectives**

This Competition will be conducted in two Phases (see “Competition Structure, Timetable, Application and Assessment Process”). The specific objectives for the Competition are to:

1. In Phase 1, produce designs for GGR Projects which are of high quality and represent proposals which, if implemented, would advance the development of GGRs in the UK.

2. In Phase 2, apply the best of these designs to successfully construct, operate, test, refine and evaluate processes and technologies which can be used to remove GHGs from the atmosphere at scale.

3. In Phase 1, and in more depth in Phase 2, identify, in as much detail as possible, commercial and technical steps that could be taken forward by your organisation (in partnership with others, as appropriate) to commercially deploy your GGR technology in the UK, and overseas, such that GHGs could be removed from the atmosphere at the millions of tonnes per annum scale, at least cost.

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Competition Structure, Timetable, Application and Assessment Process

Competition structure

The Competition funding will be awarded using the Small Business Research Initiative (SBRI) approach. SBRI is a well-established pre-commercial procurement process that enables the development of innovative products and services in response to specific challenges faced by government departments and public sector bodies. Successful applicants receive finance to develop their innovative ideas, generating new business opportunities and routes to market.

This SBRI competition will have two phases:

**Phase 1 Design phase**: this phase will provide an opportunity for successful applicants to prepare detailed designs for piloting their proposed approach and establish the feasibility of those designs.

**Phase 2 Pilot phase**: this phase will result in the implementation and demonstration of a GGR supply solution in a real-world environment.

The deliverables for each Phase are set out in “Deliverables”.

The Competition will be split into 2 Lots, each of which will be assigned a maximum budget. Projects entering Lot 1 in Phase 1 will stay in this Lot if accepted into Phase 2, and Projects entering Lot 2 in Phase 1 will stay in this Lot if accepted into Phase 2.

**Lot 1**: “Early stage”. Up to £6m total funding in Phase 1, up to £250k per project in Phase 1, up to £3m per Project in Phase 2) – Approaches eligible for Lot 1 will need to demonstrate that they have already reached Technology Readiness Level 4 (TRL 4) and the application will need to demonstrate a plan to deliver innovation to take the approach to TRL 6 or higher by the end of Phase 2. Projects in Lot 1 can design and pilot part or parts of a GGR process or, where the applicant believes an end-to-end solution can be successfully piloted by March 2025, the entire process. The minimum capacity of a pilot in Lot 1 must be 100 tCO2e per annum.

**Lot 2**: “Mid-stage”. Up to £3m total funding in Phase 1, up to £250k per project in Phase 1, up to £5m per Project in Phase 2) – Approaches eligible for Lot 2 will need to demonstrate that they have already reached TRL 6 and the proposed application will need to demonstrate a plan to deliver innovation to take the approach to TRL 7 or higher by the end of Phase 2. Projects in Lot 2 must have a minimum capacity of 1000 tCO2e per annum. Proposed projects in Lot 2 will need to be able to demonstrate an end-to-end solution. See “Competition Eligibility Criteria” for the definition of boundaries of end-to-end solutions in this competition.
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Lot 1 projects will be funded in order of merit (from highest total score in descending order) up to a max of £4m and Lot 2 projects will be funded in order of merit (from highest total score in descending order) to a max of £3m unless there are insufficient successful bids in one Lot, in which case, the remaining funds will be transferred to the other Lot to fund any other successful bids up to the total sums listed above (£6m for Lot 1, £3m for Lot 2).

See Annex 3 for a description of TRLs.

**Competition Timetable**

The key dates applicable to the GGR Innovation Competition are:

**Phase 1 Design Phase:**

- **Publication**
  - Publication of ITT, **09 November 2020**

- **Application**
  - Submit registration email to ggr@beis.gov.uk by **2pm, 30 November 2020**
  - Participants **must** register by this date if their application is to be taken forward
  - Submit questions by **2pm, 30 November 2020**
  - BEIS will provide anonymised answers to questions on **8 December 2021**
  - Submit proposal by email to ggr@beis.gov.uk by **2pm, 5 February 2021**

- **Assessment**
  - Eligibility checks and technical assessment (February 2021 - March 2021)

- **Contract award**
  - Contract award and projects start (April 2021)
  - Completed Design Studies (Phase 1) (31 December 2021)
Phase 2 Pilot Phase (indicative timings):

- **Application**
  - Successful Phase 1 Design Studies (completed by 31 December 2021) to act as application for Phase 2 Demonstration Phase

- **Assessment**
  - Eligibility check and technical assessment, including project team clarification meetings if required (January - February 2022)

- **Contract award**
  - Project milestone discussion (March 2022)
  - Contract award & projects start (April 2022)
  - Projects complete no later than March 2025
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Application, Assessment and Award

As outlined in the diagram above, in both Phase 1 and Phase 2, the competition application process will be undertaken in three key stages: application, assessment and contract award.

Stage 1: Application

Bidders are asked to submit a Registration Email and to complete and submit a Competition application form, with supporting information. They should explain their proposed GGR approach, indicate the applicable Lot, and outline their proposed project which would be fully specified in Phase 1 and implemented, if chosen, in Phase 2. The notes below explain the details of the application process.

- Registration Email: Applicants must submit a registration email to ggr@beis.gov.uk using the title ‘Phase 1 – GGR Competition Registration’ in the email subject and containing the following information: the name of the lead project organisation (project co-ordinator); the project title; and confirmation of intention to submit an application. The deadline for submitting registration emails is:
  - Registration deadline, 2pm, 30 November 2020.
- BEIS Confirmation: Within two weeks of receipt of the Registration Email, BEIS will issue a confirmation email to the applicant with an individual reference number. Please use this reference number to submit any subsequent application or when submitting any questions about the Competition.
- Questions about the Competition: If you have any questions on the competition process after reading these guidance notes, please submit any queries to ggr@beis.gov.uk. All questions should be submitted by the registration deadline on 2pm on 30 November 2020, questions submitted after this date may not be answered. We will provide anonymised online replies to any questions which, in our judgement, are of material significance on 8 December on contracts finder and the GGR innovation programme website. All bidders should take these replies into consideration when preparing their own bids and we will evaluate bids on the assumption that they have done so.
- Complete application form, plus, copies of all declarations that should be completed and any other documentation we require as part of the application process are published alongside this Guidance.
- Submission of Proposal: The full proposal for the Competition must be submitted by the deadline:
  - Phase 1 proposal submission deadline, 2pm, 5 February 2021
  - File format and size: Completed Phase 1 application forms, declarations and any supporting information should be submitted electronically. Finance and technical spreadsheets should be submitted as an Excel (.xls) file and the completed application form plus declarations should be submitted in pdf format.

The required documents must be emailed to ggr@beis.gov.uk with ‘Phase 1 – GGR Competition (name of lead applicant)’, and the reference number provided, in the subject line.

The maximum size email you can send is 10 MB. If your application is larger than 10MB, please break the submission down into smaller sizes and ensure the subject line of each additional email takes the following format ‘Phase 1 – GGR Competition (name of lead applicant) – email x of y’.

- Submission Content: Each Phase 1 proposal must include the following documents:
  - Completed application form, including signed declarations, unsigned copies of which are provided alongside this guidance
  - Completed Finance Form
  - GGR Workbook, with Pilot costs, 2030 costs and Natural Capital Assessment tabs all completed.
  - Completed high level project Gantt chart or project plan for the Phase 1 Design Study, as a PDF.
  - Optional: additional letters of support or other supporting information can also be submitted where they add substantive information to the proposal. However, you should not assume that any additional information will be cross-referenced or reviewed as part of the selection process. The application form should include a list of any supporting documents.

Templates for the Finance Form and the GGR Workbook can be found alongside this Guidance. You should endeavour to answer all the questions on the application form in full. Incomplete applications and any containing incorrect information will very likely be rejected. However, BEIS may, at its discretion, request clarification before making a final decision.

Any applications or supporting documentation received after the application deadline will not be considered.

- Submission Costs: You will not be entitled to claim from the Department any costs or expenses that you may incur in preparing your bid, whether or not your proposal is successful.
- Consortium Bids: Bids from consortia are welcome. Only one submission should be submitted for each separate project bid but all consortium partners are required to sign the completed application form for their project(s) and Declaration 4, Parts 1 & 2.

If a consortium is not proposing to form a separate corporate entity, the project partners will need to complete a Consortium Agreement. Funding will not be provided by BEIS until a signed consortium agreement has been finalised between all its members. Please note that BEIS reserves the right to require a successful consortium to form a single legal entity in accordance with Regulation 28 of the Public Contracts Regulations 2006.
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A consortium agreement is a legal document between the project participants. It must at the very least contain: the duration of the agreement; a description of the governance structure and the roles and responsibilities within it; distribution and allocation of project resources; financial arrangements; arrangements for adding parties to the consortium (which must include getting the agreement of the GGR team in BEIS); the conditions under which a party may be removed from the consortium (which must include receiving the agreement of the GGR team in BEIS); a GDPR compliant data management process; agreements on handling intellectual properties; terms for termination of the consortium; and a dispute resolution process.

BEIS recognises that arrangements in relation to consortia and sub-contractors may (within limits) be subject to future change. Bidders should therefore respond in the light of the arrangements as currently envisaged and are reminded that any future proposed changes in relation to consortia and sub-contractors must be submitted in writing to BEIS for approval.

- Multiple Bids: No applicant can act as consortium lead for more than one bid. Applicants may be part of multiple consortia, for unique projects delivering different GGR solutions. BEIS reserves the right to assess the capability of the team to deliver multiple projects and whether the different projects are unique at the eligibility stage.
- Tender Validity: Phase 1 proposals shall be valid for a minimum of 120 calendar days from the submission deadline 5 February 2021.
- Phase 2 Submissions: For Phase 2, the completed Phase 1 Design Studies will be used to assess and select the projects to be funded. See Annex 2 for the format for the Phase 1 Design Studies. The design study will be expected to strengthen the evidence used for the Phase 1 application process. Phase 2 will use the same criteria as Phase 1, however it is expected that costs and performance can be better quantified and evidenced through Design Studies. No projects which were not part of Phase 1 can apply for funding at Phase 2. Successful Phase 1 applicants who do not wish to proceed to Phase 2 should notify BEIS at the earliest possible opportunity.
- BEIS may request additional information from successful Phase 1 Applicants, after the end of Phase 1, to assist in assessing which Projects should proceed to Stage 2.

Stage 2: Assessment

Applications will initially be assessed against the Eligibility Criteria under “Eligibility for Funding”. Applications which fail the Eligibility Criteria will not be assessed further, so it is essential to ensure that your project meets these criteria before you submit your application.

In Phase 1 the eligible projects will then be further assessed against the assessment criteria described below to determine an overall ranking list that will be used to allocate the funding for the Competition. To be eligible to receive funding, a project must also be allocated a minimum score of 40% under each criterion and a total average score of 60% against these assessment criteria.
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After the assessment stage, all applicants will receive a short summary of key feedback regarding their applications irrespective of whether they are successful or not. BEIS aims to have provided all feedback to applicants by 12th March. However, BEIS may receive a significant number of applications and the timing of the release of feedback will be at BEIS’s discretion.

Phase 2: The Design Studies completed for Phase 1 will be assessed using the Criteria set out below, alongside other information which BEIS may request from applicants, and alongside any information provided by applicants about changes to their project team, to decide which projects will progress to Phase 2. In addition, as part of the assessment process for Phase 2, BEIS may request applicants to attend clarification meetings in online fora.

BEIS’s decision on project funding is final.

Stage 3: Contract Award

The proposed contract award timing is:

**Phase 1 contracts are expected to be awarded in March 2021 for Project Start in April 2021.**

**Phase 2 contracts are expected to be awarded by March 2022 for Project start in April 2022.**

**Contract terms:** For both Phase 1 and 2, the contracts will be based on the BEIS pre-commercial procurement contract terms and conditions, which accompany this Guidance. No variation to these terms and conditions will be accepted.

Prior to the issue of the Phase 2 contracts, there will be an opportunity for the selected project teams to put queries to BEIS which the applicant may have at this stage. BEIS officials will also discuss and finalise the formal Phase 2 project milestones with the project team before issuing the contract. BEIS may involve an external technical adviser in these milestone discussions and in subsequent monitoring of the project.

**Consortium bids:** with consortium bids the lead company (project co-ordinator) will be the recipient of the contract (the supplier) and will be responsible for managing payment of the other project partners. If a consortium is not proposing to form a separate corporate entity, the project partners will need to complete a Consortium Agreement. Funding will not be provided by BEIS until a signed consortium agreement has been finalised between all of its members. BEIS will not involve itself in disputes between project partners. However, if such disputes arise BEIS may, at its discretion, require the project coordinator to pause project activity and then require the project co-ordinator to resolve these disputes before the project can be restarted.
Eligibility for Funding

Competition Eligibility Criteria

To be eligible for funding, proposed projects must meet all the following eligibility criteria:

Innovation and technology readiness

This Competition will support proposals that can develop and demonstrate GGR, within the timescales indicated. BEIS requires Lot 1 Projects to show at application that they are at least at TRL Level 4, and can, by the end of Phase 2 of the Project, show that TRL level 6 or higher has been achieved, and Lot 2 Projects must be able to show at application that they are at TRL Level 6, and can, by the end of Phase 2 of the Project, show that TRL level 7 or higher has been achieved.

Further information on TRLs is in 0 – Technology Readiness Levels (TRLs).

Technology scope

The Competition is interested in a broad range of GGR solutions, as described in “Overview”.

Exclusions: Funding will not be provided for:

- Forestry and other Land-Use and/or Land-Use Change projects
- Technologies and processes where the primary route to removal is through soil carbon sequestration delivered by improved soil management practices. However, the amendment of soil carbon via biochar and enhanced mineral weathering are in scope
- Fertilization of the oceans to stimulate take-up of CO2.

Project boundaries

For an end-to-end project the start point of the process is either (a) the input of sustainable biomass4 into a process which captures carbon dioxide or (b) dilute CO2 (in the atmosphere or seawater) or (c) some other dilute GHG in the natural environment. The use of flue gases or other concentrated streams of CO2 or other GHGs are not allowable as a start point in Lot 2 though these sources could be used to prove a GGR technology in Lot 1 so long as the applicant can demonstrate that the same approach can be used to remove dilute GHGs from the natural environment.

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4 For a definition of “sustainable biomass” please refer to the renewable fuels obligation here: https://www.ofgem.gov.uk/system/files/docs/2016/03/ofgem_ro_sustainability_criteria_guidance_march_16.pdf. To summarise: Harvesting must not decrease the carbon stock of the forest, i.e. the growth in a year has to be equal to or greater than the harvest; biodiversity and water quality must be protected and the biomass must be sourced from legal sources.
The end point of the end-to-end process is either (a) a stream of concentrated CO2 which meets the specifications set out in 0 or (b) a product in which carbon is chemically fixed permanently, and a proposal for storing or using that product or (c) for greenhouse gases other than CO2, reaction products with a lower Global Warming Potential (GWP). Examples of acceptable end products include building materials, biochar, carbonated minerals or forms of carbon permanently stored in seawater.

Technologies which produce synthetic fuels are not allowable in Lot 2 though these approaches could be used to prove a GGR technology in Lot 1 so long as the applicant can demonstrate that the same approach can be used to remove dilute GHGs from the natural environment permanently.

Projects in Lot 1 must sit within the boundaries described here but within Lot 1 the full end-to-end process does not need to be demonstrated.

Environmental acceptability

Applicants need to assess the potential environmental impacts of the GGR they propose to develop, in the eventuality that it was deployed at scale in the UK. A spreadsheet to report on potential environmental impacts, and guidance, is provided as part of the GGR Workbook in the application pack.

Project activity

Contracts will be awarded to secure pre-commercial development, and piloting (predominantly TRL 4 to 7), including detailed design of solutions, prototyping, field testing, trials and demonstrations and dissemination of knowledge obtained from the demonstration activity. The specific activities expected in each phase of the Competition are outlined in “Deliverables”.

SBRI is aimed at organisations working on research and development (R&D) of an innovative process, material, device, product or service prior to commercialisation. Funding is available for innovation activities only, including related dissemination activity.

Project status

BEIS is unable to fund retrospective work on projects.

Additionality

Projects can only be funded where evidence can be provided that innovation would not be taken forwards (or would be taken forwards at a much slower rate) without public sector funding.

Contract size

Contracts will be awarded in this Competition in 2 phases:
SBRI Phase 1 – Design study development: contracts for up to £250k per Design study, expected to take up to 40 weeks.

SBRI Phase 2 – Pilot phase: Contracts for between £1m and £5m per pilot project.

Eligible project costs

The full list of eligible project costs is set out in 0.

Project location

The activities for any Design study or pilot project procured in this Competition must be conducted largely in the UK (and the majority, over 50%, of the eligible project costs must be incurred in the UK).

Project end date

All Phase 1 Design Studies should be completed no later than 31 December 2021. Phase 2 Pilot Projects must be completed – including all reporting requirements – by 31 March 2025 at the latest.

Risk-Benefit sharing

The sharing of risks and benefits is an important aspect to the SBRI approach. Projects receive financial support and retain any intellectual property generated, with certain rights of use retained by BEIS. Project outputs are also required to be shared widely and publicly and project teams are not permitted to include profit in the eligible project costs (for Phase 1 or Phase 2).

Applicants will need to demonstrate where cost savings are being provided compared to exclusive development contracts. These cost savings form part of the eligibility conditions for the Competition, i.e. projects that do not offer justified cost savings will not be eligible for funding.

Applicants and project team make-up

Both phases of the Competition are expected to be delivered by a project team or consortium. A single project application must be submitted by the lead project member (the project coordinator).

Successful project teams for this Competition are likely to include:

- An expertise in developing innovation projects
- Technical experts who can develop the project and verify key performance metrics
- Technology supplier(s) who can implement the GGR solution

5 Exclusive development means that the public purchaser reserves all the results and benefits of the development (including Intellectual Property Rights or IPRs) exclusively for its own use.
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- Experts with sound project management skills and experience, who can deliver phases 1 and 2 to time and budget

Members of the project team can be:

- Private sector companies: both SMEs and large enterprises can apply as sole applicants or as part of a consortium with other private sector companies, or in a consortium with academic, research or public sector organisations.
- Academic, research, public, third sector or community organisations can also apply as the sole applicant, or as part of a project consortium with private sector, academic, research, public, third sector or community organisations.
- Individuals not attached to an organisation cannot apply to lead projects. We will contract with the organisation, not a private individual.

The project team co-ordinator can be a private sector company, academic, research, public, third sector or community organisation as long as they have the necessary skills and capacity to effectively lead the proposed Pilot project.

Participation in multiple projects

No applicant can act as consortium lead for more than one bid. Applications will be assessed in the order in which they are submitted, and only the first submitted bid would be considered eligible were two or more bids with the same consortium lead submitted.

Where multiple projects with the same participants are put submitted, applicants must set out – under “Project Delivery” – how, if successful in two or more bids, project work will be managed to ensure all deliverables for all projects are delivered successfully.

If different applications with substantially similar participants are submitted, and the work to be carried out is similar under each proposal, only the first proposal submitted will be eligible for funding.

General BEIS procurement conditions

There are five declaration forms which must be completed by each applicant, covering issues such as: conflict of interest, non-collusion, bribery, corruption and fraud, GDPR assurance and overall agreement to the terms of this pre-commercial procurement process. These declarations are supplied alongside the Competition Application Form and must be signed by the applicant.

Conflicts of interest: The BEIS standard terms and conditions of contract include reference to conflict of interest and require contractors to declare any potential conflict of interest to the Secretary of State. For innovation, conflict of interest is defined as the presence of an interest or involvement of the contractor, subcontractor (or consortium member) which could affect the actual or perceived impartiality of selection of which projects are supported.
Where there may be a potential conflict of interest, it is suggested that the consortium or organisation designs working arrangements such that the selection process cannot be influenced (or perceived to be influenced) by the organisation that owns a potential conflict of interest. For example, consideration should be given to the different roles which organisations play in bidding vs. other support to BEIS, and how these can be structured to ensure an impartial approach to the project is maintained.

This is managed in the procurement process as follows:

- During the bidding process, organisations may contact BEIS to discuss whether or not their proposed arrangement is likely to yield a conflict of interest.

- Contractors are asked to sign and return Declaration 3 to indicate whether or not any conflict of interest may be, or be perceived to be, an issue. If this is the case, the contractor or consortium should give a full account of the actions or processes that it will use to ensure that conflict of interest is avoided. In any statement of mitigating actions, contractors are expected to outline how they propose to achieve a robust, impartial and credible approach to the research.

- When tenders are scored, this declaration will be subject to a pass/fail score, according to whether, on the basis of the information in the proposal and declaration, there remains a conflict of interest which may affect the impartiality of the selection process.

Failure to declare or avoid conflict of interest at this or a later stage may result in exclusion from the procurement competition, or in BEIS exercising its right to terminate any contract awarded.
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Contract Size and Restrictions on Funding

Competition Budget and Availability

A maximum of £7m will be available for Phase 1 Design studies, with a maximum value of £250k per project. The funding will be split between Lots, as detailed in “Competition Structure, Timetable, Application and Assessment Process”. The number of Phase 1 projects funded depends on the range of solutions proposed and the quality of the proposals. BEIS may allocate more or less than the total budget depending on the quality of the applications.

We have not finalised the sum that will be allocated to Phase 2 Pilot projects and expect to make this decision in 2021. Phase 2 project costs are fixed in the range £1m to £5m for each project.

Funding under this Competition is only available until 31 March 2025. All project activities, including reporting and payments, for Phase 2 (should you be successful) will need to be completed by this date. All costs should be provided excluding VAT, though where VAT applies, bidders should specify the amount. Your total costs excluding VAT should not exceed the maximum allowable budget per project.

Note: Nothing in this funding call requires BEIS to award any applicant a contract of any particular amount or on any particular terms. BEIS reserves the right not to award any contracts, in particular if BEIS is not satisfied by the proposals received or if the funding assigned to the scheme is required for other, unforeseen, purposes. BEIS will not, under any circumstances, make any contribution to the costs of preparing proposals and applicants accept the risk that they may not be awarded a contract.

Eligible Costs

Applicants are instructed that the project costs quoted must reflect actual costs at a ‘fair market value’ and for this Competition, profit for the project team members must not be included. Assessors are required to judge each application in terms of value for money, i.e. does the proposed cost for effort and deliverables reflect a fair market price.

In Phase 1, eligible costs (those directly associated with preparation of the design study) will be considered.

In Phase 2, eligible costs are those directly associated with the development, implementation, operation, monitoring, evaluation and decommissioning (if necessary – see separate note below) of the GGR Pilot projects.

Further details of eligible and ineligible costs are provided in 0. Applicants must complete a Competition Finance Form (separate spreadsheet) to provide the necessary cost information.
for the assessment process; further itemisation of costs and methods of calculation may be requested to support the application.

For the selection of Phase 2 projects, proposals will also be assessed to determine whether the applicants have provided reasonable price reductions to reflect the risk-benefit sharing IPR conditions of the pre-commercial procurement contract for this competition. The sharing of risks and benefits is key to the pre-commercial procurement/SBRI approach and at Phase 2 applicants will be expected to offer a price reduction compared to the price applicable in the case of exclusive development.6

**Decommissioning Costs**

When the GGR solution in Phase 2 includes a physical asset, the chosen suppliers will have responsibility for decommissioning demonstration equipment when the project has been completed, if it is not feasible to continue to operate/develop the equipment. When bidding, suppliers need to include any decommissioning costs, at fair market value, in the total estimated costs for the Phase 2 Pilot Project.

**UKRI SPF: Greenhouse Gas Removal Programme**

The timeline for this innovation competition overlaps with the timeline for the UKRI SPF: Greenhouse Gas Removals Programme. Applicants bidding into UKRI SPF are welcome to apply into this competition. In the event that applicants are successful in both bids it will be necessary, before any contract is signed under this SBRI competition, for the applicant to (a) share details of the work to be funded under the SPF Programme and (b) demonstrate how work to be funded under this SBRI is entirely additional to work done under the SPF Programme. If necessary duplicated work can be struck from the SBRI proposal.

BEIS reserves the right to decide to not issue a contract under this SBRI where any bidder has been successful in the UKRI SPF competition and if, in BEIS’ view, it is impossible to satisfactorily demonstrate that a unique programme of work can be carried out under this SBRI.

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6 Exclusive development means that the purchaser reserves all the results and benefits of the development (including Intellectual Property Rights) exclusively for its own use.
Deliverables

It should be noted that SBRI contracts require that project outputs are shared publicly – therefore non-commercial information developed by this programme will need to be shared.

Phase 1

Phase 1 projects will be required to deliver a design study containing:

- A detailed description of the science and engineering underpinning the proposed GGR solution
- a detailed engineering design for a pilot project that could be taken forward between 2022 and 2025, within the cost envelope defined by the Lot in which you are operating
- a detailed and costed project plan setting out how and where the GGR solution will be piloted if selected for funding
- a programme and business plan detailing how the GGR solution could continue to be developed beyond the end of the pilot phase, should the pilot phase be funded.

More detailed requirements are provided in 0. The Phase 1 Design study will be used to assess which projects will go forward to Phase 2. Thus the report of the Design Study should contain sufficient information to enable this assessment.

Alongside the report, suppliers will need to deliver appropriate explanations of the analysis undertaken and the raw data used. The report will require a log of assumptions made when conducting the Design Study, along with an assessment of the impact that gaps in the data may have on viability of the project. We may ask for fully accessible copies of any models used and if requested, these must be provided.

Applicants will retain ownership of the intellectual property generated from the project. Applicants are required to identify and record any such intellectual property and to protect patentable knowledge. If within three years of the close of their Project applicants have not commercially exploited intellectual property generated from the work, then in line with the standard terms and conditions, BEIS may take ownership of such intellectual property.

The project teams will also be required to provide a version of the Phase 1 Design study which can be published (if there are aspects of the main report which are commercially confidential).

Phase 1: Reporting and dissemination milestones

- By 19 November 2021, a draft report detailing the finding on Phase 1 will need to be provided to BEIS
- A final report taking into account feedback provided from BEIS on the draft provided must be provided by 31 December 2021.
BEIS Greenhouse Gas Removal Programme: PHASE1 TRN 4696/11/2020 - Competition Rules and Guidance

- If the bidder wishes for BEIS to publish a version of this report with commercially sensitive information removed, this will also need to be provided by 31 December 2021.
- BEIS will publish the final project report on .gov.uk
- During January 2022 participants will be expected to attend a dissemination event to discuss Phase One project findings with other participants in this competition, and other interested parties, including the NERC Hub.

Phase 1 Stage Gate

Projects will be subject to a Stage Gate review around three-four months after the project inception. Projects’ progress and risks will be reviewed against the timescales, planned spend, and costs outlined in the projects’ bids, as well as technical progress towards a satisfactory Phase 1 report. Projects that are deemed to have no realistic chance of completion will be cancelled and future funding will be withheld. Projects which fail the Stage Gate but deemed to have a realistic chance of completion will be given 1 month to demonstrate to BEIS that they have undertaken remedial action and can satisfy the Stage Gate criteria. If such action is not undertaken, or is unsatisfactory the project will be cancelled and future funding will be withheld.

Final criteria for passing the stage gate review will be provided to winning bidders prior to the signing of the contract. Criteria may include:

- Total spend within 25% (over or under) of margins determined at project outset
- Predicted spend within 10% (over or under) of margins determined at project outset
- Project milestones set at project outset have not slipped by more than one month
- Technical work on pilot project design is progressing satisfactorily and required inputs to Phase 1 report are being developed such that report is likely to be complete by December.

Monitoring Officers

BEIS will appoint one or more monitoring officers to work with each project. Monitoring Officers will speak monthly with Project Teams and, Covid 19 permitting, visit you on site at least once during Phase 1. Project Teams are required to work constructively with Monitoring Officers to answer questions they might have about the progress the project is making, answer technical questions they might ask, and provide them with written information about project progress should they require it.
Phase 2

The final deliverables for Phase 2 will be agreed prior to Phase 2 contract signature but will, in all cases, include:

- Construction of a GGR pilot in a real-world environment. Laboratory-based studies are not in scope for funding in this competition.
- An evidence-based final project report for BEIS (and other government departments) detailing the design and development of the pilot system, demonstration and trials results, key successes, lessons learned, and next steps. This report should provide an estimate of the CAPEX costs of the pilot plant, and the OPEX cost per tonne CO2e captured/removed
- Excel Spreadsheets or CSV files containing all testing data collected during the pilot phase, with metadata that describes clearly each of the data fields collected, including units
- Copies of any models developed to validate test results, with documentation explaining the working of the model and the algorithms underpinning the model.
- A version of the Phase 2 project report that can be made publicly available.
- A more detailed requirement for Phase 2 reports will be drawn up once Phase 1 projects are completed.

Similar to Phase 1 and subject to the contract terms and conditions, applicants will retain ownership of the intellectual property and physical assets generated from the project.

Applicants are required to identify and record any such intellectual property and to protect patentable knowledge in accordance with Condition 28. If within three years of Project Closure applicants have not commercially exploited intellectual property generated from the work, then in line with the standard terms and conditions, BEIS may request ownership of such intellectual property.

Phase 2 Stage Gates

Stage gate reviews will be held every six months after project inception to assess the project’s deliverables, progress, costs, risks, and spend against the project plan. These will be used as an opportunity require remedial work to be undertaken, or, in certain circumstances, cancel projects that are deemed by BEIS to be undeliverable. Criteria for each project will be determined at the outset of Phase 2, as there are likely to be distinct differences in scope and timescale for each project.
Assessment Criteria

The eligible projects for Phase 1 will be assessed against the assessment criteria below to determine an overall ranking list which will be used to allocate the funding for the Competition.

To be eligible to receive funding, a project must receive a minimum score of 2 against each of these assessment criteria and a minimum total average score of 60%. Projects in each Lot will be ranked with the highest scoring projects funded until funding runs out. If two or more projects score identically, and we are unable to take forward all of those projects within our budget, those Projects scoring highest in Criterion 3 (Cost reduction and Technology development) will be taken forward. If two or more projects score identically and score identically on Criterion 3, and we are unable to take forward all of those projects within our budget, we would take forward none of these projects.

In assessing which projects are taken forward in Phase 2, the assessment criteria will be similar to Phase 1. The outputs of Phase 1, taking into account any changes to the make-up of bidder project team will be used as evidence to assess potential Phase 2 projects on these Criteria. The highest scoring projects at the end of Phase 1 will be offered the opportunity to receive funding to develop their projects in Phase 2 according to the principles outlined in “Deliverables: Phase 2”.

The application form we will provide, and these guidance notes, are designed to inform you about the types of information you should provide to BEIS for your proposal to be assessed. The individual questions listed under the headings below do not constitute assessment sub-criteria, but are an indication of the kinds of factors that will be considered in assessing each aspect of a proposal.

All BEIS Procurements must demonstrate Social Value. See Criterion 2.
## Criterion 1  Technology feasibility, applicability

<table>
<thead>
<tr>
<th>Weighting</th>
<th>10%</th>
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**Guidance**

This criterion will assess the overall technical feasibility of the proposed project and suitability of proposed technology for greenhouse gas removal in the UK. The applicant will required to demonstrate that their proposal is currently sufficiently developed to be able to remove GHG from the air and that a pilot with the removal capacity required in the competition (minimum capacities: Lot 1 – 100 tCO2e/annum, Lot 2 – 1000 tCO2e/annum) can be delivered by March 2025 or sooner given the current state of knowledge and availability of technologies and processes required. Also, the applicant needs to demonstrate that their technology can operate in a UK context and could reach MtCO2e-scale removals per annum in the UK in the 2030s.

Applicants should provide robust description of following information:

- Comprehensive description of the technology development status with reference to Technology Readiness Levels (TRLs)
- Evidence of GGR performance, such as outputs from previous R&D projects, previous prototypes, or demonstrators, either in the UK or elsewhere
- Outline path to technology reaching 50k tCO2e per annum by 2030 or sooner including main technical difficulties to be overcome and development milestones
- If relevant, path to permanent Transport & Storage. Storage location does not need to be identified at this stage, but if geological storage of captured GHG is the end point of removal this will need to be stated and an explanation of how the GHG will be produced in a form suitable for geological storage will need to be provided. See 0.

**Scoring**

Highest marks will be awarded to applicants with a sound technical proposal for GGR that can reach 50k tCO2e/annum in the UK setting by 2030.
Criterion 2  Social Value

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<th>Weighting</th>
<th>10%</th>
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Guidance

Applicants demonstrate Social Value by demonstrating how the proposal will (a) benefit the UK, (b) deliver jobs for UK citizens, and (c) bolster the UK’s reputation as a pioneer in green technologies. The method of GGR should be clearly described and you need to show how your proposed approach significantly advances the development of GGR technology in the UK.

Scoring

Highest marks will be awarded to applicants who most clearly demonstrate social value against (a), (b) and (c) in the context of technology proposal that advances the development of GGRs in a UK setting.

Criterion 3  Cost reduction and Technology development

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<th>Weighting</th>
<th>25%</th>
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Guidance

This criterion will assess the project’s technological capacity for GGR, potential to accelerate technology development, and facilitate cost reduction. Applicants are asked to demonstrate an understanding (via simple life-cycle analysis (LCA) in the provided GGR spreadsheet) of energy and fuel requirements of the proposed pilot, and to provide target inputs and costs based on future development of the technology. The applicant must state how cost reductions will be achieved, and how the pilot to be constructed in Phase 2 will help achieve these cost reductions and further technological development.

The application should provide the following information:

- Robust evidence on Life Cycle Analysis of GGR
- Quantification, per tonne CO2e removed, of any additional required inputs to the system (e.g. water use, land footprint, any other)
- A realistic and robust cost reduction plan until 2030, including a reasonable assessment of removal cost in 2030 in £/tCO2e using the provided GGR workbook
A description of any changes to additional resources needed as the technology is further developed (energy, feedstocks, land footprint, water, etc.)

Any further development of the approach, including commercial as well as technical steps, which is required to enable widespread commercialisation.

The spreadsheet template provided alongside this application should be completed. Information provided therein will be used to assess Criterion 3.

| Scoring | 10% of the score will be assessed on the basis of the robustness of the life-cycle analysis for the current technology, 10% of the score on the strength of the cost reduction plan to 2030 and 5% on the strength on long-term commercialisation plans. |

### Criterion 4  Project Team

<table>
<thead>
<tr>
<th>Weighting</th>
<th>10%</th>
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<tbody>
<tr>
<td>Guidance</td>
<td>Describe the skills you have in your team and assure BEIS that you have the team you need to deliver.</td>
</tr>
<tr>
<td>Scoring</td>
<td>Highest marks will be awarded to the applications with teams demonstrate the capacity to deliver technical and project management aspects of the Project. A strong commitment of all participating organisations will need to be demonstrated for consortium bids, and any skill gaps that will be addressed by subcontractors should be identified and stated.</td>
</tr>
</tbody>
</table>

### Criterion 5  Project delivery

<table>
<thead>
<tr>
<th>Weighting</th>
<th>25%</th>
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<tbody>
<tr>
<td>Guidance</td>
<td>This criterion will assess the proposed project plan. This will be assessed by looking at a range of factors, including the:</td>
</tr>
<tr>
<td></td>
<td>• completeness and quality of the proposed project delivery plan;</td>
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<td></td>
<td>• appropriateness and realism of the project milestones and deliverables;</td>
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</tbody>
</table>
• quality of risk assessment and contingency planning;
• approach to engineering design, research, quality assurance and data quality.
• Bidders must explicitly include in their risk assessment a description of how the risk of catching and transferring COVID-19 between, to, or from members of the project team will be minimised and controlled.

Scoring

Highest marks will be awarded to applicants that have taken all reasonable steps to maximise the likelihood of successfully delivering the projects aims (whilst recognising the innate technical risk in any Pilot project). High scoring applications will, for example:

• present well thought-out, robust, credible, project plans including Gantt chart (10% of the total marks)
• show a realistic and robust approach to risk management and data collection, with a comprehensive risk matrix, including mitigation methods for the risks mentioned within (10% of the total marks)
• guarantee access to any necessary specialist facilities, operational knowledge and skills, or other resources required to execute the project (5% of the total marks).

<table>
<thead>
<tr>
<th>Criterion 6</th>
<th>Project financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighting</td>
<td>20%</td>
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<tr>
<td>Guidance</td>
<td>This criterion will assess the:</td>
</tr>
<tr>
<td></td>
<td>Robustness of the project costs estimate – i.e. whether the proposed eligible project costs are realistic &amp; justified in terms of the project plan and sufficient to yield the deliverables sought;</td>
</tr>
<tr>
<td></td>
<td>This criterion will not be used to assess the overall cost of capture of the process, &amp; is focussed solely on the cost of delivering the Phase 1 project.</td>
</tr>
<tr>
<td>Scoring</td>
<td>Highest marks (up to 20%) will be awarded to projects that can demonstrate that the proposed SBRI contract will represent good use of the public money with realistic and justifiable costs, and that the project is likely to secure the expected project aims and deliverables.</td>
</tr>
</tbody>
</table>
Scoring Guidance

We will select projects that offer the best value for money based on their assessment against the criteria outlined above. The projects will be scored against these criteria using the following scoring guidance set out in Table 1. In order to be eligible for funding, projects must score at least 2 against each criterion, with a minimum total weighted score of 60%.

Table 1: Scoring Guidance

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No Evidence: Proposal contains significant shortcomings and does not meet the required standard.</td>
</tr>
<tr>
<td>1</td>
<td>Not Satisfactory: Proposal partially meets the required standard, with multiple moderate weaknesses or gaps. There is very little evidence that the question has been satisfactorily answered and major omissions are evident.</td>
</tr>
<tr>
<td>2</td>
<td>Partially Satisfactory: Proposal partially meets the required standard, with one or more moderate weaknesses or gaps. There is some evidence that the question has been satisfactorily answered and some omissions are evident. Much more clarification is needed.</td>
</tr>
<tr>
<td>3</td>
<td>Satisfactory: Proposal mostly meets the required standard, with one or more minor weaknesses or gaps. There is reasonable evidence that the question has been satisfactorily addressed but some omissions are still evident and further clarification is needed.</td>
</tr>
<tr>
<td>4</td>
<td>Good: Proposal meets the required standard, with moderate levels of assurance. The question has been well addressed with a good evidence base, with only minor omissions or lack of clarity.</td>
</tr>
<tr>
<td>5</td>
<td>Excellent: Proposal fully meets the required standard with high levels of assurance. There is clear evidence that the question has been completely addressed in all aspects, with question answered clearly, concisely with a strong evidence base.</td>
</tr>
</tbody>
</table>
Financial Information

Applicants are requested to provide a fixed price quotation for the work. A detailed cost breakdown is required to enable assessment of value for money.

Financial information should include costs for both phases of the project, detailing labour (including manpower rates), material and capital equipment costs, and any travel and subsistence requirements. Applicants are required to complete a detailed financial summary template (the Finance Form) as part of the application process.

Financial viability checks

BEIS will undertake financial viability checks on all successful applicants. These will include looking at the latest independently audited accounts filed on the Companies House database.

Where a business is not required to file accounts with Companies House, other financial information may be requested to enable an appropriate financial viability review to be undertaken. We will be looking for evidence of your ability to resource the cashflow for the project appropriately, so the information we request will be focused on understanding how your business operates in this respect.

Before your project starts, BEIS will ask for evidence that you have the funding mechanisms in place to manage your cash flow across the life of your project. This could include letters of credit or other such mechanisms.

BEIS will not make payments in advance of need. For this Project BEIS wishes to make quarterly payments to suppliers, made on evidence of eligible costs (see 0) incurred in that quarter. BEIS understands, however, the difficulties which small businesses may face when financing this type of project. BEIS will explore cash flow issues with the applicant as part of developing the financial profile during the Contract Award process. BEIS will offer flexibility in terms of profiles and payments, within the confines of the requirements for use of public money within which it operates.
Notification and Publication of Results

Notification

Applicants will be informed by email whether their application has been successful, subject to compliance with the terms and conditions of the Conditional Contract Offer.

On or after issuing a SBRI contract, BEIS will publish the following information:

- Identity of the participant and its partners
- Project summary information including aims and expected outcomes of the project and technology area
- Total award value.

You are not able to opt out of this project information being published. In addition, all funded projects must include reporting and dissemination milestones – agreed with BEIS – as part of their project deliverables.

Any organisation that wishes to publicise its project, at any stage, must contact the Competition Project Manager or their Project Monitoring Officer at BEIS and obtain written permission before doing so.

Publication of results

SBRI involves a high degree of risk–benefit sharing. In return for provision of funding and non-financial support during demonstration activities, BEIS expects to be able to use and share the results and outputs of the demonstration activities with other government departments. In addition to the publication of final reports from each project, which is non-negotiable, BEIS may also wish to publicise the results of the scheme, which may involve engagement with the media. Some organisations may want their activities to not be publicised and you will be given a chance to opt out of any involvement in media relations activity, should you see this as being necessary.

Following completion of the funded projects, BEIS will publish on its website a summary of the funded activities and the outcomes achieved. This will include a final summary report from each project detailing technical approach, and key achievements. BEIS may also revisit projects at a later date and publish an evaluation report for the scheme as a whole.

BEIS, however, recognises the need to maintain confidentiality of commercially sensitive information. We will consult applicants regarding the nature of information to be published, to protect commercially sensitive information.
Reporting, Knowledge Sharing, Evaluation and Intellectual Property Requirements

Reporting, Knowledge Sharing and Evaluation Requirements

There will be several requirements on contractors during the project, including after the final payment milestone.

Reporting: to track project progress and ensure payments are made according to a schedule of milestones to be agreed with selected projects. This reporting will be in confidence to BEIS and its technical advisers and will not be published. Any changes to schedules or project plans will need to be discussed with BEIS and applicants should expect significant interaction with the team during the project.

Evaluation of the scheme: Successful applicants will be expected to participate in an evaluation of the scheme during and after final contract payments, to assess the impact of the scheme, including value for money.

Knowledge sharing: effective dissemination and knowledge sharing are key requirements in this Competition – and applicants will be assessed on the scope and scale of their proposed knowledge sharing activities.

Intellectual Property

Suppliers will retain the intellectual property generated from the project, and will be expected to identify and protect patentable knowledge within three years of its creation. Costs associated with securing intellectual property arising from or associated with this project are not eligible for reimbursement and cannot be included in the contract price.

BEIS requires a world-wide, irrevocable, royalty-free, non-exclusive licence, together with the right to grant sub-licences, to use or publish information, data, results, outcomes or conclusions which are created in performing the project, for its internal non-commercial purposes.

For those projects selected to go through to Phase 2, project teams will be asked to identify the price reduction offered. This will form part of the selection criteria for Phase 2, by the bidder, compared to the price of the project if BEIS was retaining exclusive rights to IPR and other project results.

The proposed arrangements for intellectual property rights and exploitation are set out in the contract terms and conditions for this competition, which are provided alongside this Guidance.
Feedback, Re-application and Right of Appeal

A short summary of key feedback regarding the applications will be provided to all applicants. This feedback will be based on the comments of technical assessors and moderation panel. No additional feedback will be provided.

The feedback from the assessors is intended to be constructive. Comments are not a checklist of points which must be answered or argued in an application submitted to any future competition as the assessors may be different and it is your decision as to whether you act on the suggestions made.

BEIS & the assessors decision is final and there is no right of appeal and or re-application allowed.
Confidentiality and Freedom of Information

Where any request is made to BEIS under the Freedom of Information Act 2000 ("FOIA") for the release of information relating to any project or applicant, which would otherwise be reasonably regarded as confidential information, then BEIS will notify you of the request as soon as we become aware of it. An applicant must acknowledge that any lists or schedules provided by it outlining information it deems confidential or commercially sensitive are of indicative value only and that BEIS may nevertheless be obliged to disclose information which the applicant considers confidential.

As part of the application process all applicants are asked to submit a public description of the project. This should be a public facing form of words that adequately describes the project but that does not disclose any information that may impact on Intellectual Property (IP), is confidential or commercially sensitive. The titles of successful projects, names of organisations, amounts awarded and the description of the project may be published once the award is confirmed as final.

All assessors used during the assessment of applications will be subject to a confidentiality agreement.
Further Instructions to Bidders

The Department reserves the right to amend the enclosed Competition documents at any time prior to 21 November. Any such amendment will be numbered, dated and issued on the website (https://www.gov.uk/government/publications/direct-air-capture-and-other-greenhouse-gas-removal-technologies-competition). Where amendments are significant, the Department may at its discretion extend the deadline for receipt of tenders.

The Department reserves the right to withdraw this contract opportunity without notice and will not be liable for any costs incurred by contractors during any stage of the process. Contractors should also note that, in the event a proposal is considered to be fundamentally unacceptable on a key issue, regardless of its other merits, that proposal may be rejected. By issuing this Competition document, the Department is not bound in any way and does not have to accept the lowest, or any, proposal and reserves the right to accept a portion of any proposal unless the tenderer expressly stipulates otherwise.
Annex 1: Processing, Personal Data and Data Subjects

The contact details of the Authority’s Data Protection Officer are:

BEIS Data Protection Officer
Department for Business, Energy and Industrial Strategy
1 Victoria Street
London
SW1H 0ET

Email: dataprotection@beis.gov.uk

The contact details of the Contractor’s Data Protection Officer are:

[To be completed by the contractor upon contract award]

The Contractor shall comply with any further written instructions with respect to processing by the Authority.

Any such further instructions shall be incorporated into this Annex 1.

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
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</table>
| Subject matter of the processing | The processing is needed in order to ensure that the Contractor can effectively deliver the contract “Direct Air Capture and Greenhouse Gas Removal Innovation Programme”

The processing of names and business contact details of staff of both the Authority and the Contractor will be necessary to deliver the Services exchanged during the course of the Contract, and to undertake Contract and performance management.

The Contract itself will include the names and business contact details of staff of both the Authority and the Contractor involved in managing the Contract. |
| Duration of the processing    | Processing will take place from 5 April 2021 for the duration of the Contract. The Contract will end on 15 December 2021.                                                                                   |
### Nature and purposes of the processing
The nature of processing will include the storage and use of names and business contact details of staff of both the Authority and the Contractor as necessary to deliver the Services and to undertake Contract and performance management. The Contract itself will include the names and business contact details of staff of both the Authority and the Contractor involved in managing the Contract.

### Type of Personal Data
Names, business telephone numbers and email addresses, office location and position of staff of both the Authority and the Contractor as necessary to deliver the Services and to undertake Contract and performance management. The Contract itself will include the names and business contact details of staff of both the Authority and the Contractor involved in managing the Contract.

### Categories of Data Subject
Staff of the Authority and the Contractor, including where those employees are named within the Contract itself or involved within contract management.

### Plan for return and destruction of the data once the processing is complete
The Contractor will delete the Personal Data and erase the Personal Data from any computers, storage devices and storage media that are to be retained by the Contractor after the expiry of the Contract. The Contractor will certify to the Authority that it has completed such deletion.

### UNLESS requirement under European Union or European member state law to preserve that type of data
Where Personal Data is contained within the Contract documentation, this will be retained in line with the Department’s privacy notice found below.

### Privacy Notice
This notice sets out how we will use your personal data, and your rights. It is made under Articles 13 and/or 14 of the General Data Protection Regulation (GDPR).

#### YOUR DATA
We will process the following personal data:
Purpose

We are processing your personal data for the purposes of the tender exercise described within the remainder of this Invitation to Tender, or in the event of legal challenge to such tender exercise.

Legal basis of processing

The legal basis for processing your personal data is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the data controller, such as the exercise of a function of the Crown, a Minister of the Crown, or a government department; the exercise of a function conferred on a person by an enactment; the exercise of a function of either House of Parliament; or the administration of justice.

Recipients

Your personal data will be shared by us with other Government Departments or public authorities where necessary as part of the tender exercise. We may share your data if we are required to do so by law, for example by court order or to prevent fraud or other crime.

Retention

All tenders will be retained for a period of 6 years from the date of contract expiry, unless the contract is entered into as a deed in which case it will be kept for a period of 12 years from the date of contract expiry.

Your Rights

- You have the right to request information about how your personal data are processed, and to request a copy of that personal data.
- You have the right to request that any inaccuracies in your personal data are rectified without delay.
BEIS Greenhouse Gas Removal Programme: PHASE1 TRN 4696/11/2020 - Competition Rules and Guidance

- You have the right to request that any incomplete personal data are completed, including by means of a supplementary statement.
- You have the right to request that your personal data are erased if there is no longer a justification for them to be processed.
- You have the right in certain circumstances (for example, where accuracy is contested) to request that the processing of your personal data is restricted.
- You have the right to object to the processing of your personal data where it is processed for direct marketing purposes.
- You have the right to object to the processing of your personal data.

International Transfers

Your personal data will not be processed outside the European Union.

Complaints

If you consider that your personal data has been misused or mishandled, you may make a complaint to the Information Commissioner, who is an independent regulator. The Information Commissioner can be contacted at:

Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF

0303 123 1113 | casework@ico.org.uk

Any complaint to the Information Commissioner is without prejudice to your right to seek redress through the courts.

Contract Details

The data controller for your personal data is the Department for Business, Energy Industrial Strategy (BEIS).

You can contact the BEIS Data Protection Officer at: BEIS Data Protection Officer, Department for Business, Energy and Industrial Strategy, 1 Victoria Street, London SW1H 0ET. Email: dataprotection@beis.gov.uk.
Annex 2: Requirements for the Phase 1 Final Report

All funded projects must deliver a Phase 1 Report as specified below, which will be used to inform the decision about which projects move to Phase 2. If you wish to submit a second report, for publication, with sensitive commercial information removed, you may do so. If you only submit one report, that report will be published on .gov.uk once Phase 1 is completed.

Technical, commercial and financial requirements

The report should contain:

- A detailed description of the science and engineering underpinning the proposed GGR solution, including:
  - All chemical and physical processes used, materials and substances required, how they will be sourced and consumed or disposed of.
  - All energy and fuel requirements for each stage or process, how they will be sourced, and the reasons for their selection.
  - A description of its environmental impacts.

- A detailed engineering design for a pilot project that could be taken forward between 2022 and 2025, within the cost envelope defined by the Lot within which you are operating, including:
  - Sufficient detail that the credibility of the design and its costs can be assessed by independent experts.
  - Technical drawings of the pilot plant proposed.
  - Outputs of any modelling used to inform the design, and descriptions of the model(s) used.
  - Relevant data informing the design, in tabular form.
  - Cost savings compared with exclusive development contracts.

- A detailed and costed project plan setting out how and where the GGR solution will be piloted if selected for funding, including:
  - The site (give address) & the reasons for choosing it, its benefits & risks.
  - How the GGR solution interacts with current or proposed use of the site or activities undertaken at it.
BEIS Greenhouse Gas Removal Programme: PHASE1 TRN 4696/11/2020 - Competition Rules and Guidance

- Gantt chart.

- A programme and business plan detailing how the GGR solution could continue to be developed beyond the end of the pilot phase, should the pilot phase be funded, including:
  - What the next stage in the development of the GGR would be, including its scale and likely location.
  - How this development would be informed by information gained during Phase 2.
  - Dependencies – describe what your plan depends upon and any assumptions made.

**Stylistic requirements**

Reports should be free from typographical, spelling and grammatical errors, and comply with the Government Digital Service Style Guide:


Please take particular note of the referencing style set out in this guide. Final reports should clearly reference all evidence, assumptions and information which is based on both peer review and ‘grey’ literature.

**Accessibility requirements**

In order to comply with the Equality Act 2010, every document / publication that is made available online must be accessible.

The following check list is designed to maximise the reach of your publication by making it accessible to as many people as possible. This is not just about catering for the vision impaired but also ensuring that your document is formatted in a way that is legible to all.

- Use accessible sans serif typeface such as Arial, Verdana or Helvetica
- Minimum font size should be 12 points for onscreen.
- Always add metadata. Go to document properties and populate the fields with useful information, in particular the title field and the author (can be just BEIS). Set document language to English.
- Structure your text. Use Heading styles and bullet/number lists.
- Headings need to be nested i.e. don't jump from Heading 1 to Heading 3, should be in sequence e.g. 1,2,3,2,3,3,4. Heading 1 is usually Chapter heading.
- Add alternative (alt) text to images, charts, graphs
- Do not use underlines as online these look like hyperlinks
Use minimal italics as these are hard to read on screen

Avoid excessive use of upper case letters as these are also harder to read on screen in large amounts.

Left align paragraph text rather than justifying – it’s much easier to read.

Keep your file size to a minimum. Documents should be no more than 2MB ideally. If your document is very large, consider splitting it into separate PDFs.

Include a menu for long documents e.g. over 10 pages. This can be auto-generated based on the heading styles in the document.
Annex 3: Technology Readiness Levels (TRLs)

Technology readiness levels are an indication of the maturity stage of development of a technology on its way to being developed for an application or product. The table below defines TRLs 1 to 9.

<table>
<thead>
<tr>
<th>Research and development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRL 1 – Basic Research</strong></td>
</tr>
<tr>
<td><strong>TRL 2 – Applied Research</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applied research and development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRL 3 – Critical Function or Proof of Concept Established</strong></td>
</tr>
<tr>
<td><strong>TRL 4 – Laboratory Testing/Validation of Component(s)/Process(es)</strong></td>
</tr>
<tr>
<td><strong>TRL 5 – Laboratory Testing of Integrated/Semi-Integrated System</strong></td>
</tr>
<tr>
<td>Demonstration</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>TRL 6 – Prototype System Verified</td>
</tr>
<tr>
<td>TRL 7 – Integrated Pilot System Demonstrated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-commercial deployment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TRL 8 – System Incorporated in Commercial Design</td>
<td>Technology is proven to work - actual technology completed and qualified through test and demonstration.</td>
</tr>
<tr>
<td>TRL 9 – System Proven and Ready for Full Commercial Deployment</td>
<td>Actual application of technology is in its final form - technology proven through successful operations.</td>
</tr>
</tbody>
</table>
Annex 4: CO2 specification for end-to-end projects

A typical specification for geological storage is in the table below, taken from the Peterhead geological storage facility7.

<table>
<thead>
<tr>
<th>Composition</th>
<th>Units</th>
<th>Value (normal case)</th>
<th>Value (turn down case)</th>
<th>Value (design case)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2</td>
<td>Mol %</td>
<td>98.0903</td>
<td>98.0903</td>
<td>98.0902</td>
</tr>
<tr>
<td>H2O</td>
<td>Mol %</td>
<td>1.9018</td>
<td>1.9018</td>
<td>1.9028</td>
</tr>
<tr>
<td>O2</td>
<td>ppmv</td>
<td>19</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>N2</td>
<td>ppmv</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>NH3</td>
<td>ppmv</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

Specific use-cases may require slightly different specifications.

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Eligible and Ineligible Costs

Eligible Costs

Directly incurred costs:

These are costs that are specific to the project that will be charged to the project as the amount spent, fully supported by an audit record justification of a claim. They comprise:

- Labour costs for all those contributing to the project, broken down by individual
- Material costs (including consumables specific to the project)
- Capital equipment costs
- Sub-contract costs
- Travel and subsistence.

Indirect costs:

Indirect costs should be charged in proportion to the amount of effort deployed on the project. Applicants should calculate them, using their own cost rates. They may include:

- General office and basic laboratory consumables
- Library services / learning resources
- Typing / secretarial
- Finance, personnel and departmental services
- Central and distributed computing
- Overheads.
Ineligible Costs

Under no circumstances can costs for the following items be claimed:

- Profit (i.e. applicants should not include profit for themselves or the other project team members within indirect costs or include it as a separate project cost)
- Protection of IPR
- For activities of a political or exclusively religious nature
- In respect of costs reimbursed or to be reimbursed by funding from other public authorities or from the private sector
- In connection with the receipt of contributions in kind (a contribution in goods or services as opposed to money)
- To cover interest payments (including service charge payments for finance leases)
- For the giving of gifts to individuals, other than promotional items with a value no more than £10 a year to any one individual
- For entertaining (entertaining for this purpose means anything that would be a taxable benefit to the person being entertained, according to current UK tax regulations)
- To pay statutory fines, criminal fines or penalties
- In respect of VAT that you are able to claim from HM Revenue and Customs.