Department for
Business, Energy
& Industrial Strategy

Direct Air Capture and Greenhouse Gas Removal Programme – Phase 2

An SBRI Competition: TRN 4696/11/2020(2)

Competition Guidance Notes

December 2021

Any enquiries regarding this publication should be sent to us at:
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2 Direct Air Capture and Greenhouse Gas Removal Innovation Programme Phase 2 – Overview

The aim of the Direct Air Capture and Greenhouse Gas Removal (GGR) Innovation Programme (the Programme) is to identify approaches to removing CO_2 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 $MtCO_2e$ scale or greater, at a cost of <£200 per tonne CO_2e 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 CO_2 (through mechanical capture of CO_2 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 CO_2 of appropriate concentration and purity, which can then be permanently sequestered), enhanced weathering (where minerals applied to soil are used to capture and permanently sequester carbon) and removal of CO_2 from seawater via chemical or electrochemical means. Technologies which remove non-CO_2 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”.

3 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 GGR. This call represents the second 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 ended in 2021; the Strategic Priorities Fund (SPF) Programme consists of 5 "demonstrators" overseen by the Biotechnology and Biological Sciences Research Council (BBSRC) plus a co-ordinating "hub" overseen by NERC.

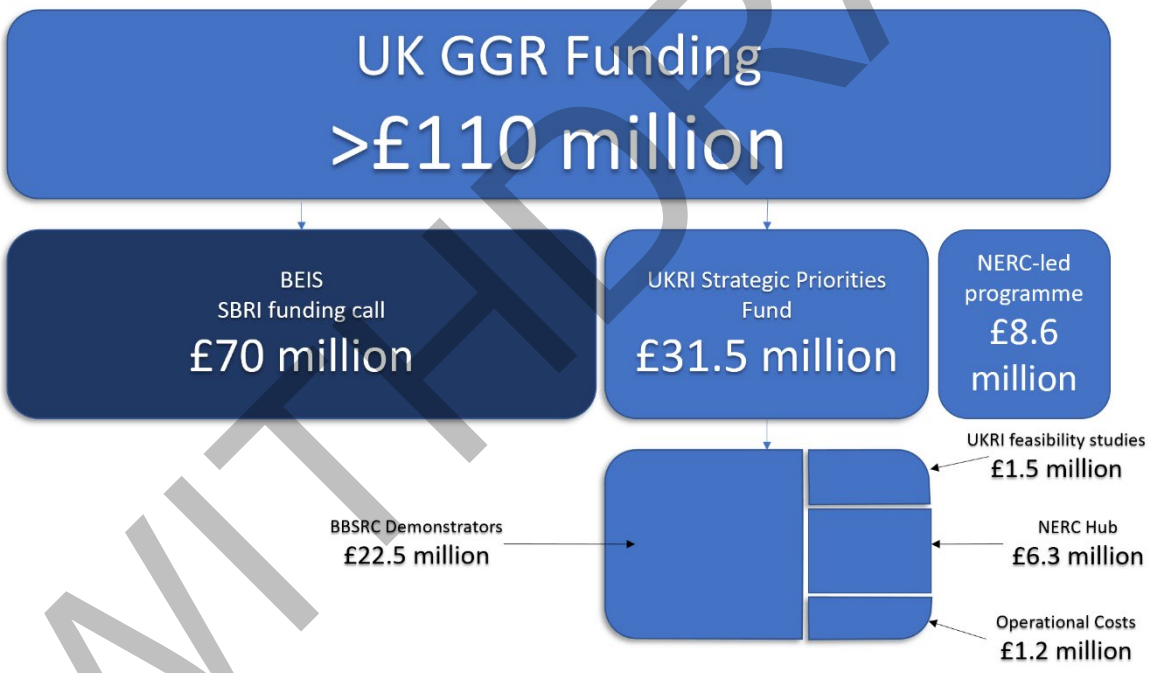

Figure 1 UK GGR Funding

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 the 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.

The UK's Net Zero Strategy has set the ambition of deploying at least 5 $MtCO_2$/year of engineered removals by 2030, in line with the Climate Change Committee (CCC, 2021)[1] and National Infrastructure Commission assessments (National Infrastructure Commission, 2021)[2]

A recent study from The Royal Society[3] 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 competition.

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 CO_2 on the scale of millions of tonnes per annum has not yet been demonstrated. Similarly, there are uncertainties around the efficacy of biochar or enhanced weathering as solutions to permanently remove CO_2 from the atmosphere.

3.1 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.

[1] 2021 Progress Report to Parliament', https://www.theccc.org.uk/wp-content/uploads/2021/06/Progress-in-reducing-emissions-2021-Report-to-Parliament.pdf)
[2] 'Engineered greenhouse gas removals', https://nic.org.uk/app/uploads/NIC-July-2021-Engineered-Greenhouse-Gas-Removals-UPDATED.pdf)
[3] Royal Society and Royal Academy of Engineering, 2018, Greenhouse Gas Removal. Available from: https://royalsociety.org/topics-policy/projects/greenhouse-gas-removal/

4 Competition Structure, Timetable, Application and Assessment Process

4.1 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. This will be completed by January 2022.

Phase 2 Pilot phase: this phase will result in the implementation and demonstration of a GGR supply solution in a real-world environment. This Guidance has been updated for Phase 2.

The deliverables for Phase 2 are set out in “Deliverables”.

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

Lot 1: Up to £3m per Project – Approaches eligible for Lot 1 will need to demonstrate that they have already reached Technology Readiness Level (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 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 the pilot in Lot 1 must be 100 tCO_2e per annum.

Lot 2: Up to £5m per Project – 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 1,000 tCO_2e 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.

Projects will be funded in order of merit (from highest total score in descending order). Projects will need to achieve a score of 60% or over to be successful and there is no minimum number of project awards for each Lot.

See Annex 3 for a description of TRLs.

4.2 Competition Timetable

The key dates applicable to the GGR Innovation Competition Phase 2 are:

Phase 2 Pilot Phase:

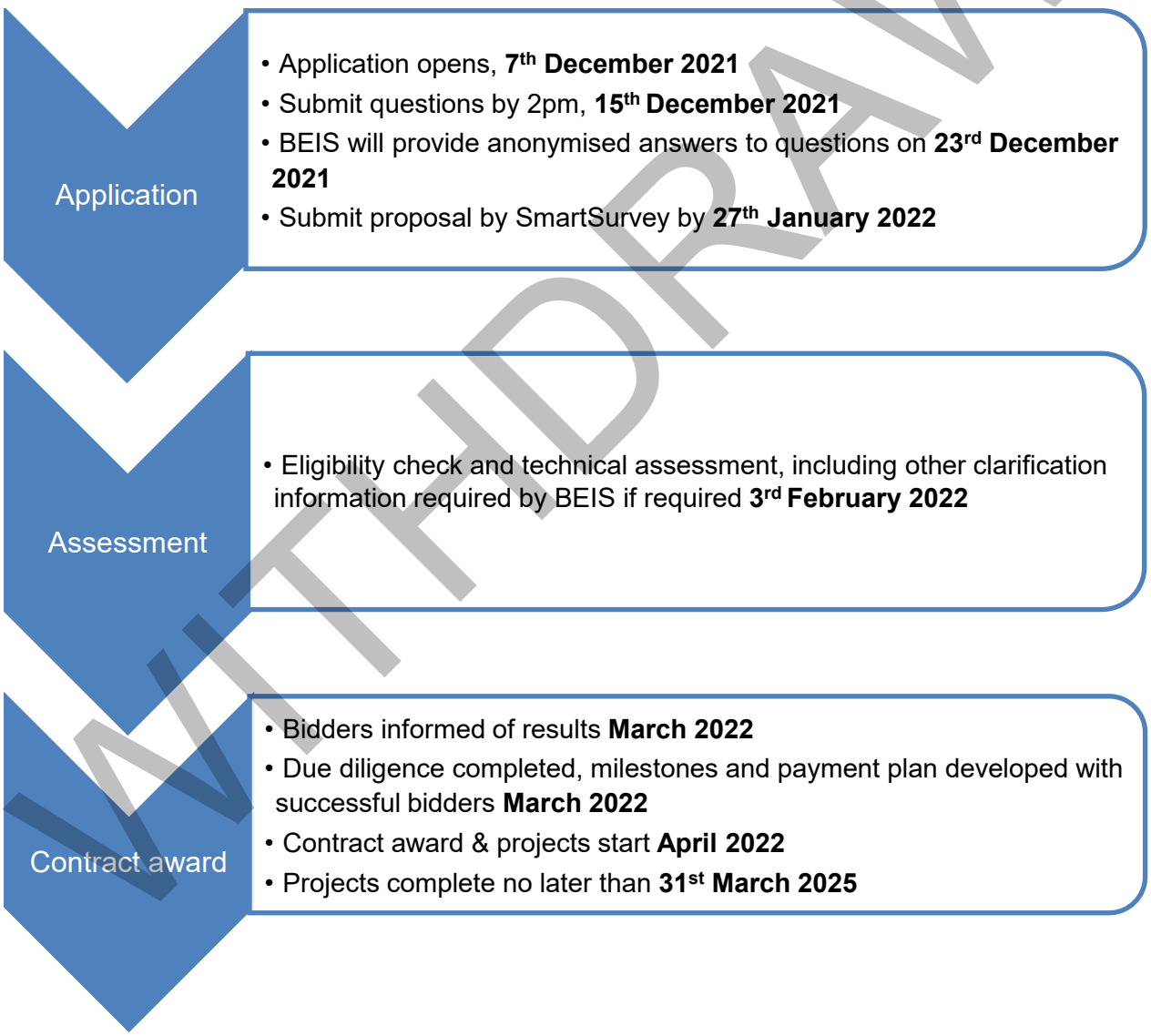

Figure 2 Phase 2 Timeline

4.3 Acceleration Support

This section is for information regarding support for SMEs.

This scheme will offer acceleration support to successful applicants that meet the definition of Small & Medium Enterprise (SME). This is highly recommended for SME SBRI awardees to help develop their business. This Acceleration Support is 100% funded by BEIS. This support will focus on helping the applicant to prepare commercial plans and actions that will increase the chance of successfully bringing the innovation to market or reduce the time to market.

The starting point for acceleration support is to consider the current stage of commercial preparation and identify (with the applicant) critical next steps, business strengths and gaps, benchmarked for the stage of the individual business across all key Acceleration Support focus areas:

- Market engagement and proposition
- Strategy and sales
- Team and board
- Funding and investment
- Product-service design, development and launch
- Business processes and controls

Specialist advisers will be assigned by BEIS to support the company in the development of the appropriate knowledge and skills. Three types of support will be available dependant on company need:

1. Tailored support, including coaching and specialist support across the six focus areas
2. Group training and learning resources, including sector specific masterclasses and techno-market workshops
3. Access to industry and finance networks, providing companies with investor engagement opportunities, pitch training sessions, facilitated market engagement and networking opportunities

All SME-led proposals that are awarded funding and wish to receive Acceleration Support will need to participate in an Acceleration Support Planning meeting. This planning session will be conducted by The Carbon Trust who have been appointed to deliver Acceleration Support Services on behalf of BEIS. Following the planning meeting an acceleration plan will be created outlining the task delivery plan. These plans will be bespoke and based on company needs identified.

BEIS have historically offered Acceleration Support to help grant recipients achieve maximum commercial impact from the grant. From the experience of the Energy Entrepreneur’s Fund (EEF) scheme managed by BEIS, there is a clear distinction between projects that received Acceleration Support and those companies who were high-scoring applications but did not receive funding and Acceleration Support, through the EEF scheme.

It is highly recommended that SBRI recipients take up the offer of Acceleration Support Services and co-operate with both the Acceleration Planning Session and the Acceleration Manager, who will oversee the delivery of the acceleration support. However, unlike the EEF scheme, receiving the identified acceleration support is not a condition of the SBRI contract award.

Participants will also be asked to collaborate in monitoring and evaluation activities and to provide feedback on support provided through the programme.

4.4 Application, Assessment and Award

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

4.4.1 Stage 1: Application

Bidders are asked to complete and submit a Competition application form, with supporting information. Only projects in Phase 1 can apply for Phase 2 and projects cannot change Lots between Phase 1 and Phase 2. The notes below explain the details of the application process.

- **Link to online application form**: The online application form can be found using this link (https://www.smartsurvey.co.uk/s/DAC_GGR_Phase2/). Current Phase 1 applicants will be sent a password to allow them access.
- **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 **15th December**. 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 **23rd December.** 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.
- **Submission of Application:** The full application for the competition must be submitted online by the deadline **27th January**. The online application form will be closed for submissions after this time
- **Application Documents:** All applications documents must be submitted via the **online application form** (SmartSurvey). Please ensure you provide sufficient time to complete the online application form ahead of the application submission deadline. Applicants will be able to save their form and continue from their last saved location. In the form there are opportunities to upload relevant supporting documents. In some sections we specify the supporting information we would like to see uploaded.
- **Submission Content:** Each online application must include the following documents:
    - Completed Application Form (The online application form can be found using this link (https://www.smartsurvey.co.uk/s/DAC_GGR_Phase2/) including signed declarations.

- Completed declaration forms 1 to 5 (see – General BEIS Procurement conditions)
- Supporting appendices, within the specified limits for each criterion, including figures or extracts from Phase 1 final reports (e.g., illustrations / Process Flow Diagrams (PFDs) / graphs / charts / schematics / tables / calculations). The limits are noted within the "Assessment Criteria"
- Key technical drawings, calculations, figures or extracts from Phase 1 reports (e.g. Process Flow Diagrams (PFDs), Piping and Instrumentation Diagrams (P&IDs), Heat and Mass Balances (HMBs), site layouts, schematics, process analyses etc.), within the specified limits for criterion 3 (b) (Engineering Design).
- 1 page CVs for key team members.
- Letters of support or other evidence demonstrating a strong commitment of all participating organisations.
- Gantt chart and project plan.
- Lease agreement, letter of support or other evidence demonstrating a strong commitment from the pilot site.
- Risk register.
- Completed Finance Form.

Assessment Criteria You should endeavour to answer all the questions on the application in full, some questions will be 'required fields' in the form and you will not be able to proceed to the next section until these questions are complete. Incomplete applications and any containing incorrect information may 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. Part 3 should only be completed by the lead contractor. (Note: Essential subcontractors should fill in Parts 1& 2 of Declaration 4).

If a consortium is not proposing to form a separate corporate entity, the project partners will need to complete a Consortium Agreement. A signed consortium agreement must be finalised between all its members within one month of contract start date. 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.

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 2 proposals shall be valid for 120 days from the submission deadline **27th January 2022.**

4.4.2 Stage 2: Assessment

Applications will initially be assessed against the Eligibility Criteria described below (Competition Eligibility Criteria) and in Section 4 in the online application form. Applications which fail to demonstrate compliance with 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 2 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.

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 **March 2022**.

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.

4.4.3 Stage 3: Contract Award

The proposed contract award timing is:

> **Phase 2 contracts are expected to be awarded by late-March to mid-April 2022 for project start in mid- to late-April .**

Contract terms: For Phase 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.

[PLEASE NOTE] - The Standard Pre-Commercial Terms and Conditions have been amended as follows:

In section

“27. Intellectual Property Rights”, after paragraph (5), the following wording has changed (see bold italics in terms and conditions document): Under clauses 27(3), 27(4) and 27(5) the Authority shall only grant sub-licences to third parties if, after five years or as agreed between the Authority and the Contractor from the end date of this Contract, the Arising Intellectual Property has not been commercially exploited by the Contractor, or the Contractor has established a monopoly position.

“28. Exploitation of Intellectual Property”, after paragraph (6), the following wording has changed (see bold italics in terms and conditions document); If, within five years, or as agreed between the Authority and the Contractor, of its creation, any Arising Intellectual Property has not been commercially exploited by the Contractor or the Contractor has established a monopoly position, the Authority may require the Contractor to licence the Arising Intellectual Property to third parties nominated by the Authority. Should the Authority choose to exercise its discretion under this clause, it will notify the Contractor in accordance with clause 3.

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. These should relate to the project activities rather than the programme. 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 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. A signed consortium agreement must be finalised between all its members within one month of contract start date. BEIS will not involve itself in disputes between project partners. However, if such disputes arise BEIS may, at its discretion, require the project co-ordinator to pause project activity and then require the project co-ordinator to resolve these disputes before the project can be restarted.

5 Eligibility for Funding

5.1 Competition Eligibility Criteria

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

5.1.1 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 Phase 1 application that they were at least at TRL 4, and can, by the end of Phase 2 of the Project, show that TRL 6 or higher has been achieved, and Lot 2 Projects must be able to show at Phase 1 application that they were at TRL 6, and can, by the end of Phase 2 of the Project, show that TRL 7 or higher has been achieved.

Further information on TRLs is in Annex 3 – Technology Readiness Levels (TRLs).

5.1.2 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 CO_2.

5.1.3 Project boundaries

For an end-to-end project the start point of the process is either (a) the input of sustainable biomass[4] into a process which captures CO_2 or (b) dilute CO_2 (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 CO_2 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.

[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 CO_2 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 CO_2, 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.

This Guidance document has a table (Annex 4) which provides indicative level of purity for CO_2 at 98%. This does not explicitly need to be the purity of CO_2 that must be demonstrated or vented from the Phase 2 pilot plant but Projects must demonstrate how CO_2 purity will be achieved. Projects must state what purity they will achieve in Phase 2 during operation. Equally, projects will need to provide the costs of achieving the CO_2 purity specified at 50kt p.a. by 2030. We also recommend that contractors discuss what CO_2 specification might be required to be achieved with potential off-takers of their CO_2.

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.

The minimum capacity of the pilot in Lot 1 must be 100 tCO_2e per annum. Projects in Lot 2 must have a minimum capacity of 1,000 tCO_2e per annum. For the avoidance of doubt, projects are required to install and operate at these minimum capacities during Phase 2. This means that for solutions which are configured of multiple identical small units (modules), a sufficient number of modules should be installed during Phase 2 to demonstrate the minimum capacity (100 or 1,000 tCO_2e per annum).

5.1.4 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.

5.1.5 Project status

BEIS is unable to fund retrospective work on projects.

5.1.6 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.

5.1.7 Contract size

Contracts will be awarded in Phase 2 of this Competition:

SBRI Phase 2 – Pilot phase: Contracts in Lot 1 for up to £3m and in Lot 2 up to £5m per pilot project.

5.1.8 Eligible project costs

The full list of eligible project costs is set out in ”Eligible and Ineligible Costs”.

5.1.9 Match funding

BEIS will fund 100% of eligible project costs. Match Funding or contributions in kind are not eligible as part of the project funding.

5.1.10 Revenues

One of the key principles of the SBRI is that the agreement is a pre-commercial exercise. If, as a result of a successful demonstration, there are products which the project wishes to sell on the open market the SBRI agreement would need to be terminated early in order to allow participants to further their commercial relationship with buyers for any products arising from the demonstration.

Alternatively, products that are generated as a result of the operational phase of the pilot project to verify CO_2e capture can be either stored or donated free of charge.

5.1.11 Project location

The Phase 2 activities 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).

5.1.12 Project end date

Phase 2 Pilot Projects must be completed – including all reporting requirements – **by 31 March 2025 at the latest.**

5.1.13 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 projects are not permitted to include profit or project contingency costs in the eligible project costs.

5.1.14 Applicants and project team make-up

Phase 2 of the Competition is expected to be delivered by a project team or consortium. A single project application must be submitted by the lead project member (the project co-ordinator).

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
- Experts with sound project management skills and experience, who can deliver Phase 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 and progress the commercialisation activities to capture 50kTCO_2e per annum by 2030.

5.1.15 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 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 and how they will ensure that the same activity and resources are not charged for twice.

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.

5.2 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 is 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 applications 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.

6 Contract Size and Restrictions on Funding

6.1 Competition Budget and Availability

For Phase 2 of the programme, Lot 1 projects will be able to bid up to a maximum of £3million and Lot 2 projects to a maximum of £5million. The number of projects funded in Phase 2 depends on the quality of the proposals received that score 60% or above or until funding runs out.

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.

6.2 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 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 Annex 5 ”Eligible and Ineligible Costs”. 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 on the open market.

6.3 Decommissioning Costs

When the GGR solution in Phase 2 includes a physical asset, the chosen suppliers will have responsibility for decommissioning the 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. This applies only to those assets which have no residual value and are 100% used on the project.

7 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.

7.1 Phase 2

Phase 2 projects will be required to deliver:

- Construction of a GGR pilot in a real-world environment. Laboratory-based studies are not in scope for funding in this competition.
- Operation/trial of the GGR pilot in a real-world environment. The duration of the operational/trial period should be long enough to demonstrate the following: Monitoring, Reporting and Verification (MRV) methodology; reliability, sufficient to allow the next stage of the commercialisation plan to be adopted; batch/cyclical processes, if relevant; operation during different seasons/weathers, if relevant; operation with a range of feedstocks, if relevant. Indicative minimum durations might be three to six months for DACCS and BECCS based solutions and six to twelve months for other GGR solutions; however, these will vary between projects and it is for applicants to clearly define and justify the duration of the operational/trial period in the application. The justification should, as a minimum, address the above points.
- Contribution to knowledge dissemination activities. See Reporting, Knowledge Sharing, Evaluation and Intellectual Property Requirements.
- An evidence-based interim report for BEIS (and other government departments) detailing the methodology for measuring/calculating the GHG capture rate MRV, remaining uncertainties and the actions being taken by the project to overcome these.
- An evidence-based interim report for BEIS (and other government departments) detailing the barriers and risks to commercialisation and the actions being taken by the project to overcome these.
- 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, remaining uncertainties and next steps. This report should provide:
    - A detailed description of the design and development of the pilot system including:
        - Technical drawings of the pilot project.
        - Outputs of any modelling used to inform the design, and descriptions of the model(s) used, including identification and justification of any assumptions made in the model(s).

        - Relevant data informing the design, in tabular form.
        - A description of the installation of the pilot system.
        - Challenges overcome during the design and development of the pilot system.
        - Final costs of the pilot system.
    - The results of the demonstration and trials.
    - Key successes, lessons learnt, remaining uncertainties and how these might be overcome.
    - An assessment of the benefits and challenges of the solution including the following:
        - An estimate of the CAPEX costs of the GGR solution, the OPEX cost and lifecycle costs per tonne CO_2e captured/removed, with reference to the final costs of the pilot system.
        - A life cycle analysis (LCA) showing the expected GHG capture rate, associated GHG lifecycle emissions and the net GHG capture. The LCA should consider all materials and substances required, and all energy and fuel requirements. Key assumptions should be stated and justified. Any improvements between the pilot project and commercialised technology should be identified and justified.
        - Process risks.
        - The Monitoring, Reporting and Verification (MRV) methodology.
        - Environmental and social impacts.
        - How the solution could be scaled, any technical challenges related to scaling and potential cost reductions through scaling.
    - A detailed assessment of the business plan for how the GGR solution will continue to be developed after the funding for the demonstration ends including:
        - What the next stage in the development of the GGR would be, including its scale and likely location(s).
        - How this development(s) would be informed by information gained during Phase 2.
        - Dependencies, uncertainties - describe what your plan depends upon and any assumptions made.
    - A route to market assessment, describing the key steps to commercialisation, including significant barriers and risks, and an assessment of potential benefits for other sectors, including an assessment of job creation and potential carbon savings.
    - An assessment of the potential rollout for the technology once successfully commercialised

- 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.
- Versions of the Phase 2 interim and final projects report that can be made publicly available.

Alongside the reports, suppliers will need to deliver appropriate explanations of the analysis undertaken and the raw data used. BEIS may ask for fully accessible copies of any models used and if requested, these must be provided.

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 (of amended Terms and Conditions). If within five years of Project Closure, or as agreed with BEIS, 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.

See Annex 2 for the style and format for the Phase 2 reports.

7.1.1 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 to ensure that projects are progressing as per their commitments, and identify any remedial work necessary, 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. Criteria may include:

- Total spend to date within 25% (over or under) of margins determined at project outset. Note that this is a fixed price contract (see Financial Information).
- Project milestones set at project outset have not slipped by more than three months.
- Technical work on pilot project is progressing satisfactorily such that Phase 2 deliverables are likely to be complete by March 2025.

Projects that are deemed to have no realistic chance of completion may be cancelled and / or future funding 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 may be cancelled and future funding may be withheld.

7.1.2 Phase 2: Phase 2 project report milestones

- **By 6th April 2023**, two separate draft interim reports to include details of: (i) MRV methodology (see above for details), (ii) Barriers and risks to commercialisation (see above for details).
- Two separate final interim reports (i) and (ii) taking into account feedback provided from BEIS on the draft provided must be provided **by 28th April 2023.**
- If the bidder wishes for BEIS to publish a version of these reports with commercially sensitive information removed, this will also need to be provided **by 28th April 2023.**
- **By 31st January 2025**, a draft report detailing the findings on Phase 2 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 31st March 2025**.
- 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 31st March 2025**.
- BEIS will publish the interim reports and final project report on .gov.uk
- Throughout Phase 2, participants will be expected to attend dissemination events to discuss Phase 2 project findings with other participants in this competition, and other interested parties, including the NERC Hub.

7.1.3 Monitoring Officers

BEIS will appoint one or more monitoring officers to work with each project. Monitoring Officers will conduct monthly progress meetings with Project Teams and, COVID-19 permitting, visit you on site at least once per year during Phase 2. 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.

8 Assessment Criteria

The eligible projects for Phase 2 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 (Performance, Cost reduction and Technology development) will be taken forward. If two or more projects score identically overall 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.

The assessment criteria below are based on the Phase 1 assessment criteria with amendments to the criteria and weightings to reflect that Phase 2 is a pilot project and to allow the outcomes of the Phase 1 Design Studies to be assessed. The criteria allow contractors to extract specific evidence from their Phase 1 final reports to inform their responses in the Phase 2 application form. There are also additional questions to ensure that responses cover the full set of criteria for Phase 2.

These guidance notes are designed to inform you about the types of information you will be providing to BEIS in your application to Phase 2. 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. Only the highest scoring applications will be successful in entering the Phase 2 part of the programme.

All BEIS Procurements must demonstrate Social Value. See Criterion 2.

Criterion 1	**Technology feasibility, applicability**
Weighting	15%
Guidance	This criterion will assess the overall technical feasibility of the proposed pilot project and suitability of proposed technology for GGR in the UK. Based on its work during Phase 1, the applicant will be required to demonstrate: • That their proposed pilot project is currently sufficiently developed to be able to remove GHG from the air at the removal capacity required in the Competition (minimum capacities: Lot 1 – 100 tCO_2e/annum, Lot 2 – 1,000 tCO_2e/annum). • Can be delivered by March 2025 or sooner. • Will take the GGR approach to the minimum TRL, or higher, required by the competition by the end of Phase 2 (minimum TRLs: Lot 1 – TRL 6, Lot 2 – TRL 7). Also, the applicant needs to demonstrate that their technology can operate in a UK context and could reach $MtCO_2e$-scale removals per annum in the UK in the 2030s. The applicant should provide a robust description of the following information, based on its work during Phase 1: • The science and engineering underpinning the proposed GGR solution • Comprehensive description of the technology development status with reference to the proposed pilot project and TRL by the end of Phase 2. • Evidence of GGR performance, with reference to outputs from Phase 1, stating remaining technical uncertainties and how the proposed pilot project will help overcome these. • Description of the methodology for measuring/calculating the GHG capture rate, i.e., Monitoring, Reporting and Verification (MRV). • Outline path to technology/approach reaching 50k tCO_2e 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 Annex 4 of the Guidance documentation.

Criterion 1	**Technology feasibility, applicability**
	Responses should be limited to 2,500 words. Applicants who wish to support their response with figures or extracts from their Phase 1 reports (e.g., illustrations / PFDs / graphs / charts / schematics / tables) may attach these using the 'choose file' option below the text box (max. 20MB allowance provided and max. 10 pages). Applicants must clearly label the figures in the attachment and **reference the figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed. *Any text relating to a question response submitted within the Additional Attachments will not be assessed.*
Scoring	Highest marks will be awarded to applicants that: • Demonstrate how its work during Phase 1 has progressed the understanding of the science and engineering underpinning the proposed GGR solution. • Have a sound technical proposal for a pilot project that will be able to remove GHG from the atmosphere at the removal capacity and in the timeframe required in the competition. • Clearly describe the Monitoring, Reporting and Verification (MRV) methodology and, where weaknesses remain, explain how these might be overcome or mitigated during the pilot project. • Demonstrate that the technology can reach 50k tCO_2e/annum in the UK setting by 2030.

Criterion 2	**Social Value**
Weighting	10%
2a	**Benefits to the UK** The applicant should demonstrate Social Value by describing progress against commitments made during Phase 1, and also describing how the *pilot project* will (a) benefit the UK, (b) deliver jobs for UK citizens, and (c) bolster the UK's reputation as a pioneer in green technologies.

Criterion 2	Social Value
	The applicant should: • Demonstrate progress against social value commitments made during Phase 1. • Provide estimates of the numbers and types of jobs that the *pilot project* would create – e.g., the number of staff required to operate the pilot project, levels of technical expertise or specialist knowledge required, and any other relevant information. • Provide quantitative or qualitative estimates of any other ways that the *pilot project* might add value to society and bolster the UK's reputation as a pioneer in green technologies. Highest marks will be awarded to applicants who most clearly demonstrate progress against commitments made during Phase 1, and also demonstrate social value against (a), (b) and (c) *in the context of the pilot project*. Responses should be limited to 1,000 words.
2b	**Knowledge dissemination plan** Applicants will be expected to submit a Phase 2 knowledge dissemination plan, describing: • How the learnings from the pilot project will be shared with industry, including key stakeholders, lessons learned, and challenges faced. • The scale and scope of proposed dissemination and knowledge transfer activities. Highest marks will be awarded to applicants that have clear dissemination and knowledge-transfer plans and resources to deliver them and propose greater effort into these activities. Responses should be limited to 1,000 words. Applicants who wish to support their response with figures (e.g., illustrations / PFDs / graphs / charts / schematics / tables) may attach these using the 'choose file' option below the text box (max. 20MB allowance provided and max. 2 pages). Applicants must clearly label the figures in the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed.

Criterion 2	**Social Value**
	Any text relating to a question response submitted within the Additional Attachments will not be assessed.
Scoring	5% of the score will be assessed based on (2a). 5% of the score will be assessed based on (2b).

Criterion 3	**Performance, cost reduction and technology development**
Weighting	30%
3a	**Resources and environmental impact** Based on its work during Phase 1, the applicant should describe: • All chemical and physical processes used, materials and substances required, how they will be sourced, consumed or disposed of. • All water, energy and fuel requirements for each stage or process, how they will be sourced, and the reasons for their selection. • Environmental impacts including risks and benefits. Impact on the following should be considered: land use or land management; species and wildlife habitats; raw materials; atmosphere; water bodies; soil; sub-soil assets and minerals; others as relevant. Improvements between the pilot project and commercial scale should be identified and justified. The applicant should provide a basic and clearly presented quantitative Life Cycle Analysis (LCA) that shows the expected GHG capture rate, associated GHG lifecycle emissions and the net GHG capture (in tCO_2e emitted/tCO_2e captured). Key assumptions should be stated and justified, including the project/plant lifetime. [The carbon intensity (tCO_2/MWh) of energy and fuel requirements should be as per the BEIS default values in Annex 6 of the Competition Guidance Notes; any deviations from these should be identified and clearly justified.] Improvements between the pilot project and commercial scale should be identified and justified. Highest marks will be awarded to applicants that:

Criterion 3	Performance, cost reduction and technology development
	• Demonstrate a clear understanding of the resources required for their GGR solution and the environmental impacts, at both pilot project and commercial scale. • Provide a basic and clearly presented quantitative LCA which is fully justified and explain likely improvements between pilot project and commercial scale. Responses should be limited to 2,000 words. Applicants who wish to support their response with figures or extracts from their Phase 1 reports (e.g., illustrations / PFDs / graphs / charts / schematics / tables) may attach these using the 'choose file' option below the text box (max. 20MB allowance provided and max. 5 pages). Applicants must clearly label the figures in the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed. *Any text relating to a question response submitted within the Additional Attachments will not be assessed.*
3b	**Cost reduction** Based on work during Phase 1, the applicant should provide below a realistic and robust cost reduction plan until 2030, including a reasonable assessment of removal cost for a 50kT/pa plant in 2030 in £/tCO_2e, with reference to the current pilot project costs provided under criterion 6. Key assumptions should be stated and justified, including the project/plant lifetime. [The costs (£/MWh) of energy and fuel should be as per the BEIS default values in Annex 6 of these Competition Guidance Notes; any deviations from these should be identified and clearly justified.] Highest marks will be awarded to applicants that: • Describe the costs of the solution, and how confidence in lifetime costs (including CAPEX and OPEX and decommissioning costs) will be improved, and provide supporting evidence. • Describe how the pilot project phase will firm up costs for the commercialised solution. Responses should be limited to 1,500 words. Applicants who wish to support their response with figures or extracts from their Phase 1 reports (e.g., illustrations / PFDs / graphs / charts / schematics /

Criterion 3	Performance, cost reduction and technology development
	tables) may attach these using the 'choose file' option below the text box (max. 20MB allowance provided and max. 5 pages). Applicants must clearly label the figures in the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed. *Any text relating to a question response submitted within the Additional Attachments will not be assessed.*
3c	**Engineering design** The applicant should provide, based on its work during Phase 1, an engineering design for a pilot project that could be taken forward between 2022 and 2025. This design must be within the cost envelope defined by the Lot within which the applicant is operating, including: • Sufficient detail that the credibility of the design and its costs can be assessed. • Key technical drawings of the pilot project proposed. • Key outputs of any modelling used to inform the design, and descriptions of the model(s) used, including identification and justification of any assumptions made in the model(s). • Key relevant data informing the design, in tabular form. • Identification of the gaps in the engineering design and a description of the remaining engineering and design works that will need to be carried out during Phase 2 to fill these gaps. Highest marks will be awarded to applicants that can demonstrate that the engineering designs produced during Phase 1 are credible and sufficient to successfully complete the Phase 2 pilot project within the competition timetable and cost envelope. Responses should be limited to 1,000 words. Applicants should support their response by appending key technical drawings, calculations, figures or extracts from their Phase 1 reports (e.g., Process Flow Diagrams (PFDs), Piping and Instrumentation Diagrams (P&IDs), Heat and Mass Balances (HMBs), site layouts, schematics, process analyses etc.) may attach these using the 'choose file' option below the text box (max. 20MB allowance provided and 15 pages). Applicants must clearly label the figures in

Criterion 3	Performance, cost reduction and technology development
	the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed. *Any text relating to a question response submitted within the Additional Attachments will not be assessed.*
3d	**Commercialisation plans** Applicants are expected to provide, based on their work during Phase 1, a programme and business plan detailing how the GGR solution could continue to be developed beyond the end of the pilot phase, 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 knowledge gained during Phase 2. • Dependencies – describe what your plan depends upon and any assumptions made. Highest marks will be awarded to applicants that provide a clear, realistic plan for developing the GGR solution beyond the pilot project and achieving commercialisation. Responses should be limited to 1,000 words. Applicants who wish to support their response with figures or extracts from their Phase 1 reports (e.g., illustrations / graphs / charts / schematics / tables) may attach these using the 'choose file' option below the text box (max. 20MB allowance provided and 2 pages). Applicants must clearly label the figures in the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed. *Any text relating to a question response submitted within the Additional Attachments will not be assessed.*
Scoring	5% of the score will be assessed based on (3a). 5% of the score will be assessed based on (3b).

Criterion 3	**Performance, cost reduction and technology development**
	10% of the score will be assessed based on (3c). 10% of the score will be assessed based on (3d).

Criterion 4	**Project Team**
Weighting	10%
Guidance	The applicant should: • Describe the skills it has in its team and assure BEIS that it has the team needed to deliver the pilot project. • Demonstrate the capacity to deliver technical and project management aspects of the Project. • Identify any key changes to its team from Phase 1 (within the constraints set out in the Competition Guidance Notes). • Provide 1 page CVs for the key team members (maximum 15 CVs to be provided). • Demonstrate a strong commitment of all participating organisations for consortium bids, e.g. letters of support. • Highlight any skill gaps that will be addressed by subcontractors during the pilot project. List the subcontractors identified so far and describe the level of engagement carried out with each subcontractor during Phase 1. Provide evidence of a strong commitment of any critical subcontractors necessary for the successful completion of the pilot project, e.g., extracts of subcontractor agreements, letter of support. Responses should be limited to 1,000 words. Applicants should support their response by appending organisation charts, CVs or letters of support etc. using the ‘choose file’ option below the text box (max. 20MB allowance provided and no max. pages). Applicants must clearly label the figures in the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed.

Criterion 4	**Project Team**
	Any text relating to a question response submitted within the Additional Attachments will not be assessed.
Scoring	Highest marks will be awarded to applicants with teams that demonstrate the capacity to deliver technical and project management aspects of the pilot project, with redundancy in key skills. A strong commitment of all participating organisations will need to be evidenced, and any skill gaps that will be addressed by subcontractors should be identified.

Criterion 5	**Project delivery**
Weighting	20%

5a	**Pilot project plan**
	
	The applicant is required to provide a pilot project plan, including a Gantt chart, for Phase 2 to successfully construct, operate, test, refine and evaluate its GGR solution in a real-world environment. This will be assessed by looking at a range of factors, including:
	
	• The completeness and quality of the proposed project plan.
	• The appropriateness and credibility of the project milestones and deliverables.
	• The appropriateness and credibility of the plans for the operational/trial period. The duration of the operational/trial period should be clearly defined and be long enough to demonstrate the following:
	  ○ Monitoring, Reporting and Verification (MRV) methodology
	  ○ Reliability, sufficient to allow the next stage of the commercialisation plan to be adopted
	  ○ Batch/cyclical processes, if relevant
	  ○ Operation during different seasons/weathers, if relevant
	  ○ Operation with a range of feedstocks, if relevant
	
	Please provide your project plan (Gantt chart) as an appendix.
	
	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:

Criterion 5	**Project delivery**
	• Present well thought-out, robust, credible, project plans including a readable Gantt chart as a PDF that shows the key tasks, task dependencies, timescales and critical path. • Clearly list the project milestones and deliverables. • Present a detailed plan for the operational/trial period including the key objectives of the operational/trial period and key data that will be collected. • The duration of the operational/trial period should be clearly justified and should, as a minimum, address the points listed above. • Demonstrate an understanding of the regulations applicable to the pilot project and how these will be addressed. Responses should be limited to 2,000 words. Applicants should support their response by appending a Gantt chart and figures or extracts from their Phase 1 reports (e.g., illustrations / PFDs / graphs / charts / schematics / tables) using the 'choose file' option below the text box (max. 20MB allowance provided and 10 pages). Applicants must clearly label the figures in the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed. *Any text relating to a question response submitted within the Additional Attachments will not be assessed.*
5b	**Pilot site** The applicant should: • Identify the site hosting the pilot project (give address), the reasons for choosing it, its benefits and risks. • Demonstrate commitment from the site for hosting the pilot project, e.g. lease agreement, letter of support. • Describe how the GGR solution interacts with current or proposed use of the site or activities undertaken at it. • Identify the permits, licenses and/or consents that will be needed to undertake the pilot project and describe the current status or plans to receive each of these. Highest marks will be awarded to applicants that have obtained a strong commitment from a pilot site that is suitable for hosting the pilot project, and

Criterion 5	Project delivery
	can demonstrate a clear understanding of the permit, licences and/or consents required and the process to obtain these. Responses should be limited to 1,000 words. Applicants should support their response by appending a lease agreement, letter of support or other evidence using the 'choose file' option below the text box (max. 20MB allowance provided and no max. pages). Applicants must clearly label the figures in the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed. Figures or extracts which have not been referenced in the text box will not be assessed. *Any text relating to a question response submitted within the Additional Attachments will not be assessed.*
5c	**Risk management** The applicant should provide a comprehensive risk register for the pilot project. This will be assessed by looking at a range of factors, including the: • Quality of risk assessment and contingency planning. • Applicants 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. An example risk table is provided in Annex 7 which applicants may choose to use as a template. High scoring applications will, for example, show a realistic and robust approach to risk management, with a comprehensive risk matrix, including quantification of risks and mitigation methods for the risks mentioned. Please limit your response to 1,000 words. Applicants should support their response by appending a risk register using the 'choose file' option below the text box (max. 20MB allowance provided and no max. pages). Applicants must clearly label the figures in the attachment and reference the **figures and page numbers** in their response within the text box to ensure they are assessed.

Criterion 5	**Project delivery**
	Figures or extracts which have not been referenced in the text box will not be assessed. *Any text relating to a question response submitted within the Additional Attachments will not be assessed.*
Scoring	10% of the score will be assessed based on (5a). 5% of the score will be assessed based on (5b). 5% of the score will be assessed based on (5c).

Criterion 6	**Project financing**
Weighting	15%
6a	**Project costs** This criterion will assess: • Robustness of the project costs estimate – i.e., whether the proposed eligible project costs are realistic and justified in terms of the pilot project plan and sufficient to yield the outcomes sought. • That all costs associated with the development, implementation, operation, monitoring, evaluation and decommissioning (if necessary – see separate note in the Competition Guidance Notes) of the pilot project are included. Please complete the Finance Form provided alongside the application. Please note: • Higher Educational institutions (HEI), applying within a consortium, please use 'Sheet J' and 'Sheet K' to capture Labour and Overhead costs. • If an individual sub-contractor costs are more than 20% of the total project costs, please provide a high-level breakdown of the sub-contractor costs (5 to 10 items) in the text cell indicated in 'Sheet E' of the finance form. Please use the space below to describe how your proposed project costs are realistic and justifiable.

	Highest marks will be awarded to projects that can demonstrate that the proposed pilot project has realistic and justifiable costs, and that the project is are likely to secure the expected project aims and deliverables. Please limit your response to 1,000 words. Applicants should append the Finance Form(s) using the 'choose file' option below the text box (max. 20MB allowance provided)
6b	**Value for money to HM Government** The applicant should describe why the proposal represents good value for money for HM Government. The answer should explain the following: • How the availability of public funding makes a material difference to the actuality and pace of moving the solution towards commercialisation. • Cost savings that reflect the risk-benefit sharing IPR conditions of the pre-commercial procurement contract for this competition. Highest marks will be awarded to applicants that can demonstrate: • The added value of public funding for its proposed pilot project. To demonstrate this, it will need to provide evidence why it is not able to fund the project from within the business's own resources; or how BEIS's funding would allow it to undertake the project differently or more quickly and why this would be beneficial to the UK. The applicant should describe other sources of funding it has explored to fund this project and the outcome of these discussions. Public funding should not be the first option for projects. • A price reduction compared to the price of the project technology on the open market, where BEIS would retain exclusive rights to IPR and other project results. Please limit your response to 1,000 words.
Scoring	10% of the score will be assessed based on (6a). 5% of the score will be assessed based on (6b).

8.1 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

Score	Description
0	No Evidence: Proposal contains significant shortcomings and does not meet the required standard.
1	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.
2	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.
3	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.
4	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.
5	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.

9 Financial Information

Applicants are requested to provide a fixed price quotation for the work. A detailed cost breakdown is also required to enable assessment of value for money. There is no possibility of extending financial support beyond March 2025.

Financial information should include costs for Phase 2, detailing labour (including manpower rates), material costs, capital equipment costs, sub-contractor 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. This financial form is specific to Phase 2 applications and is not an updated version of the Phase 1 form, sections of the Finance Form marked 'For grants only' should be left blank.

9.1 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 payments to suppliers on evidence of delivery of outputs agreed in the milestone plan and approved by the monitoring officer. 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.

10 Notification and Publication of Results

10.1 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.

10.2 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 in Phase 2, 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.

11 Reporting, Knowledge Sharing, Evaluation and Intellectual Property Requirements

11.1 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.

Regular project monitoring and reporting will take two forms:

1. Project teams will be required to meet with their Monitoring Officer at least once per month to discuss project progress and highlight successes, issues, and risks.
2. Projects will be required to submit a project progress report every quarter. We expect this report to cover, as a minimum:
    a. progress against the project delivery plan and project milestones
    b. upcoming work over the next quarter
    c. financial information (including budget spend so far and budget forecast)
    d. an updated risk register (including flagging where risk ratings have changed, or new risks/issue have emerged)
    e. any key lessons learnt during delivery
    f. progress against relevant programme KPIs, if relevant for that quarter

Evaluation of the scheme: BEIS requires all projects within the Net Zero Innovation Portfolio (NZIP) to report on key performance indicators (KPIs) to provide a consistent approach to reporting evidence and to track and measure key outputs, outcomes and impacts. BEIS will supply successful applicants with a reporting template to complete at set intervals, including at the start of the project, annually during project delivery, at project closure and for up to three years after project closure. At project start, your Monitoring Officer will provide further details about the calculation of these KPIs.

Beyond these KPIs, BEIS conducts independent evaluations of many of its programmes to assess their impact, including value for money. Successful applicants will be expected to participate in reasonable evaluation activities during and after final contract payments, including but not limited to, providing programme-specific KPIs, completing questionnaires or surveys, participating in interviews and workshops, communicating the learnings from the project, providing costs/sales data.

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.

Projects must agree to publish non-confidential project outcomes and learning points. Previous BEIS innovation programmes have been successful in maximising what information can be shared openly with the wider industry and community, while preserving confidential details (or competitive position) of its innovation projects.

11.2 Intellectual Property

Suppliers will retain the intellectual property generated from the project and will be expected to identify and protect patentable knowledge within five 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.

12 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.

13 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.

14 Further Instructions to Bidders

The Department reserves the right to amend the enclosed Competition documents at any time prior to **23rd December 2021**. 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). Only projects in Phase 1 can apply for the Phase 2 competition. Where amendments are significant, the Department may at its discretion extend the deadline for receipt of applications.

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.

15 Annex 1

16 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.

Description	Details
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.

Description	Details
Duration of the processing	Processing will take place from signature of the contract in **April 2022** for the duration of the Contract. The Contract will end on 31st March 2025.
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 UNLESS requirement under European Union or European member state law to preserve that type of data	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. Where Personal Data is contained within the Contract documentation, this will be retained in line with the Department's privacy notice found below.

16.1 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:

- Names and contact details of employees involved in preparing and submitting the bid; Names and contact details of employees proposed to be involved in delivery of the contract;
- Names, contact details, age, qualifications and experience of employees whose CVs are submitted as part of the bid.

16.2 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.

16.3 Legal basis of processing

The legal basis for processing your personal data is processing 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.

16.4 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.

16.5 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.

16.6 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.
- 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.

16.7 International Transfers

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

16.8 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.

16.9 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.

17 Annex 2

17.1 Stylistic requirements for Phase 2 reports

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

https://www.gov.uk/guidance/style-guide/a-to-z-of-gov-uk-style

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.

17.2 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.

18 Annex 3: Technology Readiness Levels (TLRs)

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 section below defines TRLs 1 to 9.

18.1 Research and development

- **TRL 1 – Basic Research**: Scientific research begins to be translated into applied research and development.
- **TRL 2 – Applied Research**: Basic physical principles are observed, practical applications of those characteristics can be 'invented' or identified. At this level, the application is still speculative: there is not experimental proof or detailed analysis to support the conjecture.

18.2 Applied research and development

- **TRL 3 – Critical Function or Proof of Concept Established**: Active research and development are initiated. This includes analytical and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
- **TRL 4 – Laboratory Testing/Validation of Component(s)/Process(es):** Basic technological components are integrated to establish that the pieces will work together.
- **TRL 5 – Laboratory Testing of Integrated/Semi-Integrated System**: The basic technological components are integrated with reasonably realistic supporting elements so it can be tested in a simulated environment.

18.3 Demonstration

- **TRL 6 – Prototype System Verified**: Representative model or prototype system is tested in a relevant environment.
- **TRL 7 – Integrated Pilot System Demonstrated**: Prototype near or at planned operational system, requiring demonstration of an actual system prototype in an operational environment.

18.4 Pre-commercial deployment

TRL 8 – System Incorporated in Commercial Design: Technology is proven to work - actual technology completed and qualified through test and demonstration.

TRL 9 – System Proven and Ready for Full Commercial Deployment : Actual application of technology is in its final form - technology proven through successful operations.

19 Annex 4:CO_2 specification for end-to-end projects

With regard to the stream of concentrated CO_2 noted on page 18, this does not explicitly need to be the purity of CO_2 that must be demonstrated on vented from the Phase 2 pilot plant but Projects must demonstrate how CO_2 purity will be achieved. Projects must state what purity they will achieve in Phase 2 during operation. Equally, projects will need to provide the costs of achieving the CO_2 purity specification at 50kt p.a. by 2030. We also recommend that contractors discuss what CO_2 specification might be required to be achieved with potential off-takers of their CO_2.

A typical specification for geological storage is in the table below, taken from the Peterhead geological storage facility[5].

Composition	Units	Value (normal case)	Value (turn down case)	Value (design case)
CO2	Mol %	98.0903	98.0903	98.0902
H2O	Mol %	1.9018	1.9018	1.9028
O2	ppmv	19	19	19
N2	ppmv	60	60	60
NH3	ppmv	<0.1	<0.1	<0.1

[5] Peterhead basic design and engineering package: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/531347/11_003_-__Basic_Design_Engineering_Package.pdf

Specific use-cases may require slightly different specifications.

20 Annex 5: Eligible and Ineligible Costs

20.1 Eligible Costs

20.1.1 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 salary and employer costs e.g., employer's contribution to NI and pensions.
- Material costs (including consumables specific to the project).
- Capital equipment costs.
- Sub-contract costs.
- Travel and subsistence.
- Relating to permissions and consents.

20.1.2 Indirect costs

Indirect costs should be charged in proportion to the amount of effort deployed on the project. Applicants should document the methodology that they have applied to 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.

20.2 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)
- Carrying out commercialisation activities (this is different to developing a commercialisation plan which is required)
- To pay statutory fines, criminal fines or penalties
- In respect of VAT that you are able to claim from HM Revenue and Customs.

21 Annex 6: Default Fuel and Electricity Vales

Fuel sources (2020)

Fuel sources	**£/MWh**	**(tCO_2/MWh)**
Biogas	76	0.08
Blue hydrogen	41.7	0.017
Green hydrogen	138	0.397
Natural Gas	22.3	0.184
Other	0	0

Fuel sources (2030)

Fuel sources	**£/MWh**	**(tCO_2/MWh)**
Biogas	76	0.08
Blue hydrogen	42.3	0.013
Green hydrogen	117.1	0.158
Natural gas	29.8	0.184
Other	0	0

Electricity (2020)

	Cost (£/MWh) in 2018 prices	**Carbon Intensity (tCO_2/MWh)**
Grid electricity	56.1	0.135
Hydropower	103.5	0.097
Nuclear	91.8	0.004
Solar energy	56.6	0.006
Wind	54.4	0.004
Other	0	0.000

Electricity (2030)

	Cost (£/MWh) in 2018 prices	Carbon Intensity (tCO_2/MWh)
Grid electricity	56.8	0.080
Hydropower	88	0.097
Nuclear	91.8	0.004
Solar energy	39	0.006
Wind	45	0.004
Other	0	0.000

22 Annex 7: Example Risk Register

Applicants can provide their own Risk Table if preferred

#	Category	Risk description	Probability	Impact	Risk Rating (Probability x Impact)	Mitigation	Residual Probability	Residual Impact	Residual Risk Rating (Probability x Impact)	Owner
	Cost risks (there may be several)									
	Schedule risks List risks…									
	Technical risks List risks…									
	Environmental List risks…									
	Social risks List risks…									

#	Category	Risk description	Probability	Impact	Risk Rating (Probability x Impact)	Mitigation	Residual Probability	Residual Impact	Residual Risk Rating (Probability x Impact)	Owner
	Resource issues (e.g., availability of equipment) List risks…									
	Collaborators (e.g., failure of partners) List risks…									
	Economic and market factors (e.g., changes in cost of equipment) List risks…									
	Legislative/regulatory changes List risks…									

#	Category	Risk description	Probability	Impact	Risk Rating (Probability x Impact)	Mitigation	Residual Probability	Residual Impact	Residual Risk Rating (Probability x Impact)	Owner
	Human resources (e.g., loss or disability of key personnel) List risks…									
	Competition (e.g., technology substitution) List risks…									
	IP risk (challenges) List risks…									
	Planning and permitting List risks…									
	Commercial considerations									

#	Category	Risk description	Probability	Impact	Risk Rating (Probability x Impact)	Mitigation	Residual Probability	Residual Impact	Residual Risk Rating (Probability x Impact)	Owner
	List risks…									
	Additional risk types									

Probability Scoring:		
Certain	>90%	5
Likely	50-90%	4
Moderate	10-50%	3
Unlikely	3-10%	2
Rare	<3%	1

Impact Scoring:		
Very High	Project Abandonment	5
High	Project may continue, but with material differences to scope or schedule.	4
Medium	Time or Cost impact manageable within contingency	3
Low	Mitigated by minor adjustments to budget or schedule	2
Insignificant	Easily mitigated by day-to-day process	1

This publication is available from: https://www.gov.uk/government/publications/direct-air-capture-and-other-greenhouse-gas-removal-technologies-competition

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