CALL SUMMARY

Applicants should refer to the Greenhouse Gas Removal (GGR) Demonstrators call webpage and the Call for Proposals document (available for download from the call webpage) for details of the call scope, including scientific focus, requirements, exclusions and available resources.

Up to £22.5 million is available to fund up to five Demonstrators (maximum £4.5 million per demonstrator at 80% FEC) covering greenhouse gas removal technologies as outlined in the Royal Society Greenhouse Gas Removal report.

Please note that all Demonstrators must have a start date of no later than 14th February 2021 and will have the duration of 4.5 years (54 months) to cover the full duration of the programme.

APPLICATION AND ASSESSMENT PROCESS - SUMMARY

<table>
<thead>
<tr>
<th>Stage</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressions of Interest/Outline stage - mandatory</td>
<td>Expression of Interest (EOI)/Outline proposals will be assessed by an expert panel (GGR Demonstrators Expert Panel) comprising representatives of the national and international community. Successful applications will be invited to submit a full stage proposal based on the expert panel recommendations. The closing date for the EOI/Outline stage is 19th November 2019, 4:00 pm.</td>
</tr>
<tr>
<td>Full stage – by invitation only</td>
<td>Full stage proposals will be assessed by full external peer review with assessment undertaken by the GGR Demonstrators Expert Panel. As part of the assessment, UKRI-BBSRC may also invite the Principal Investigator (PI) and Co-Investigators (Co-Is) to an interview with the panel.</td>
</tr>
</tbody>
</table>
The GGR Demonstrators Expert Panel will integrate all the assessment information and formulate a final ranked list with recommendations to UKRI-BBSRC for funding.

The closing date for the full stage is 6th May 2020, 4:00 pm.

ELIGIBILITY

This call for proposals is open to all institutions and applicants normally eligible for BBSRC funding. See Section 3 of the BBSRC Grants Guide for further information on institutional and applicant eligibility. A list of eligible organisations is available on the UKRI website: https://www.ukri.org/funding/how-to-apply/eligibility). It should be noted that PIs and Co-Is from any discipline supported by UKRI are welcomed and encouraged to apply.

We expect that successful proposals will be led by researchers with a proven ability to deliver large-scale research projects or centres successfully as well as a proven ability to interact successfully with business. We encourage inter-institutional and interdisciplinary applications and encourage partnerships with non-HEI organisations where they meet eligibility requirements for funding by a research council.

The Demonstrator PI (and host Institution) will be responsible for the development and directorship of the Demonstrator. In addition a maximum six to ten Co-investigators are advised to be named on the proposal. The inclusion of each Co-I should be fully justified as to their role in the proposed Demonstrator. A PI or a Co-I cannot be considered for this and the Directorate Hub Call simultaneously.

Investigators may be involved in no more than two Demonstrator proposals submitted to this call and only one of these may be as the Principal Investigator.

Public Sector Research Establishments (PSREs) with 10 or more researchers with PhDs (or equivalent) are eligible to apply. If PSREs wishing to apply have not previously applied for UKRI funding and are not currently designated IRO status they will be required to complete an eligibility form to ensure they have the required research capacity, systems and controls in place to manage the research and grant funding. PSRE applicants should contact GGR@bbsrc.ukri.org at the earliest opportunity to discuss their interests in applying.

ELIGIBLE COSTS

The following is a guide to what applicants are able to request in support of their proposal.

Director salaries and research support costs
The Director of the Demonstrator should be the named PI on the proposal and under full economic costing may request funds to cover their salary costs for the time spent developing and directing the Demonstrator. Requests may also be made for between six and ten co-investigators to assist the Demonstrator's Director in this. Co-Investigators must have a defined role within the Demonstrator to justify their inclusion, which must be described in
each case. **Costs can be requested for an appropriately skilled Demonstrator Project Manager(s)** (full time, part-time or job share) to be responsible for activities such as the day-to-day Demonstrator management, event coordination, communication and potential website development for the Demonstrator. Due to the size and complexity of the programme it is advised that a Demonstrator Project Manager is included in the proposal.

The time spent on directing and managing the Demonstrator should be reasonable and is not expected to form the majority of costs of the proposal.

Capital expenditure of approximately 18% of the grant is available across all of the Demonstrators but this is not expected to support the acquisition of very large-scale equipment.

**Demonstrator-led events**

Costs for supporting and facilitating meetings and events can be requested and are strongly advised to facilitate early academic/business interactions.

**Proof of concept studies/Flexible fund**

As part of the total research budget, proof of concept/flexible funds **with a suggested limit of £500K**, can be requested as part of the proposal for allocation by the Demonstrator for further research and development, and particularly to facilitate early business interaction activities prior to provision of Innovate UK funding (competitions to run in FY2022/23 with funds awarded as grants in Q3 for two years). The flexible funds can be used for Demonstrator specific projects to fund academic researchers to overcome blockages, these may include feasibility studies or projects to provide preliminary data, through to desk-based studies and visits to learn new techniques, as well as facilitating early engagement with business to strengthen, the quality, collaborative and cross-disciplinary nature of future innovation. It is encouraged that the Demonstrator seeks collaborations with companies where funds can be matched. Activities should not duplicate already available funding streams (e.g. FOF [https://bbsrc.ukri.org/funding/filter/follow-on/]).

The governance surrounding the use of the flexible funds should be clearly described including how these proposals will be assessed and selected for funding and how the progress and outcomes will be monitored and utilised to enhance the value of the Demonstrator and future business interactions.

Flexible funds will be funded at the 80% level by BBSRC and should be allocated at the 80% level for each project by the Demonstrator host institution. The Institution where the research is to be undertaken should be responsible for the 20% shortfall. As these are research-based projects, they can include a component to cover estates and indirect costs for the relevant institution.

The flexible funding will be managed as a separate part of the main grant by each Demonstrator and will be held by BBSRC until requested (at any time) by the host institution to fund Demonstrator selected flexible fund proposals. All funds will be reimbursed at least 3 months in arrears and an audit trail is essential for the reimbursement.
Summary of eligible costs

- Salary costs for the PI and CoI, costed at an appropriate level to reflect the time spent developing and directing the Demonstrator.
- Salary cost for a dedicated Demonstrator Project Manager(s) (full time, part-time or job share) are eligible and should be requested at 80% FEC.
- Costs for supporting community events (room hire, catering, etc.) to develop the Demonstrator and its scaling to grow academic and business interactions requiring investment that will benefit the wider community rather than just the host institution are eligible to be requested at 100% FEC.
- Flexible funds up to £500k (requested at 80% FEC) to support further academic or business interactions. These are also eligible for estates and indirect costs (note that the flexible fund will be held by BBSRC until requested).
- Capital expenditure of approximately 18% of the grant is available across all of the Demonstrators but this is not expected to support the acquisition of very large-scale equipment.

APPLICATION AND ASSESSMENT PROCESS – FULL STAGE

The full stage call is only open to proposals invited by the GGR Demonstrators Expert Panel following the EOI/outline assessment. Feedback and guidance on the content of the EOI/outline proposal and any conditions attached to submission will be provided to Demonstrator proposals however the Office is happy to discuss your proposal in advance of the submission deadline (see contact details).

How to apply (invited full proposals)

Full proposals must be submitted on a single Je-S proposal form, even if they are multi-institutional bids. The award will be made to the lead institution, which will be responsible for the management of the award.

Applicants should also refer to the Je-S help text and BBSRC Grants Guide, in addition to this call guidance, when preparing a proposal.

Proposals must be submitted through the Je-S System in Wednesday 6th May 2020, 4:00 pm, using the following information:

1. Log in the Joint Electronic System (Je-S)
2. Select Council: BBSRC
3. Select Document Type: Standard proposal
4. Select Scheme: UKRI
5. Select Call/Type/Mode: UKRI_BBSRC GREENHOUSE GAS REMOVAL (GGR) DEMONSTRATORS – INVITE ONLY
6. Select ‘Create Document’ and follow the on-screen instructions to complete the form.

General information

- Please refer to Je-S guidance to fill in the following sections on the Je-S proforma: Project details, Investigators, Objectives, Summary, Academic Beneficiaries,
Resource Summary, Other Support, Resources, Estates & Indirects, Project Partners, Ethical Information, Nominated Reviewers (up to a maximum of four), Attachments.

- Equipment over £115K will need 3 quotations and a business case.
- The 'Beneficiary Countries' & 'Proposal Classifications' sections on the Je-S form are non-mandatory, and the Je-S form can be saved without filling these in.
- Changes to indicative costs provided at the EOI stage are permitted. We will allow ~10% deviation from the full project costings originally submitted in the outlines up to the maximum £4.5M (80% FEC project value).
- We no longer require applicants to fill in an ‘Impact Summary’ as part of the Je-S form. This section will be removed from the form whilst this call is open. Please do not fill the section in. Impact should be captured in the Case for Support.
- Applicants should note that under no circumstances should their application exceed the page limits described. Any submissions which exceed the stipulated page limits will be withdrawn.

Overview of submission documents for full stage
BBSRC recommend that you use typefaces Arial, Helvetica or Verdana and a strict minimum font size of 11 must be used for the entire Case for Support, Justification of Resources and CVs (excluding text on diagrams and the use of mathematical symbols). A minimum of single line spacing and standard character spacing must be used. Margins must not be less than 2cm

The following documentation is required:

<table>
<thead>
<tr>
<th>Document</th>
<th>Description</th>
<th>Page limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover letter</td>
<td>Full proposals should include a covering letter providing an explanation of how feedback provided on the EOI by the “GGR Expert Panel” has been addressed.</td>
<td>No page limit</td>
</tr>
<tr>
<td>Case for Support</td>
<td>The overall maximum page length for the combined case for Support is 14 pages. It must be self-contained - external links are not permitted. See detailed information below for Case for Support breakdown.</td>
<td>Maximum 14 pages</td>
</tr>
<tr>
<td>Justification of Resources</td>
<td>A narrative description of the resources required for the project. Changes to indicative costs provided at the EOI/Outline stage are permitted. We recommend contacting us if the budget deviates more than 10% from the full project costings submitted to the full stage the outline stage. All resources requested (directly incurred, directly allocated and exceptions, including PI and Co-I time) must be fully justified. Requests for a dedicated Demonstrator Manager (advised for the size of the programme) should be detailed here.</td>
<td>Maximum 4 pages</td>
</tr>
</tbody>
</table>
Please detail your requirements for a flexible fund in this section (up to £500K can be requested as part of the total £4.5M available (80% FEC value)).

Funds for Demonstrator led events should also be detailed in this section. Events that are of benefit to the wider community rather than just the host institution are eligible to be requested at 100% FEC.

Items that would ordinarily be found in a department, for example non-specialist computers, should include justification both for why they are required for the project and why they cannot be provided from the Research Organisation's own resources (including funding from indirect costs from grants).

Please see the Je-S guidance for further details.

<table>
<thead>
<tr>
<th><strong>CVs</strong></th>
<th>Required for all named applicants and named research staff only. CVs are not required for named technicians.</th>
<th>Maximum 2 pages per investigator and named researcher, combined into a single PDF.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagrammatic work Plan</strong></td>
<td>A diagrammatic work plan and supporting narrative that relates to the management strategy, identifying appropriate time points and deliverables for each objective. A Gantt chart is recommended.</td>
<td>Maximum 2 pages</td>
</tr>
<tr>
<td><strong>Data Management Plan</strong></td>
<td><a href="https://bbsrc.ukri.org/about/policies-standards/data-sharing-policy/">https://bbsrc.ukri.org/about/policies-standards/data-sharing-policy/</a></td>
<td>Maximum 2 pages</td>
</tr>
<tr>
<td><strong>Facility Form</strong></td>
<td>See Je-S guidance for relevant facilities</td>
<td>Optional, but required for some facilities</td>
</tr>
<tr>
<td><strong>Letters of support</strong></td>
<td>Only directly relevant Letters of Support should be submitted. These can include letters from:</td>
<td>letters of support should be combined</td>
</tr>
</tbody>
</table>
TO NOTE:
UK Research and Innovation has announced changes to requirements on 'Pathways to Impact'. As a result of this change, you will no longer be required to provide a ‘Pathways to Impact’ plan or complete an ‘Impact Summary’ within your grant application. These requirements will be removed for all UKRI opportunities by 01 March 2020. As this change is implemented, we ask that you follow the below guidance concerning Impact when preparing your application to this opportunity:

A separate Pathways to Impact statement is no longer required, but applicants must still consider how they will or might achieve impact throughout their projects and include this as part of their Case for Support. Applicants should refer to specific call guidelines and assessment criteria when embedding impact within their Case for Support. Activities to realize impact do not have to be cost incurring, but relevant costs can be included and must be fully justified within the Justification of Resources statement.

Case for support
The Case for Support should build on the EOI proposal provided at the outline stage and fully address any feedback. It should also be a self-contained document. Please note, the EOI proposal will not be made available to external reviewers.

The Case for Support must be a single document of up to 14 sides of A4. This should address all aspects of how the proposed Demonstrator will deliver, manage and govern the expected outputs of a Demonstrator as described in this Call Text. Figures, diagrams and tables are included in this 14-side limit.

The Case for Support must include the following sections. The suggested page lengths are indicative, and applicants may use the overall space (14 pages) at their own discretion:

Section 1: Strategic relevance (up to one page recommended)
Please refer to the call webpage and the Call for Proposals document (available for download from the call webpage) for the scope of the call.
• Describe the significance and importance of the proposed research, including how the Demonstrator will demonstrate the overall capability of the technology in relation to UK GGR targets as outlined by the Royal Society Report on Greenhouse Gas Removal.

• Describe how the proposed programme of research integrates disciplines across the natural and/or physical sciences and the social sciences to understand the development of technologies and wider implications of the GGR solution proposed including, for example - potential costs, environmental risks, co-benefits, political and societal barriers, acceptability, trade-offs and potential unintended consequences.

• Describe how your research aligns to the UK’s commitment to the Paris Climate Agreement and existing national policy frameworks on greenhouse gas removal.

Section 2: Science case (up to eight pages recommended)

Background
• Introduce the Demonstrator technology and explain its wider academic and industrial context in reference to the range of GGR technologies in development at the national and international scale.

• Demonstrate a knowledge and understanding of past and current work in the Demonstrator technology area both in the UK and internationally and how this is a suitable technology for the UK to deploy.

• Provide a summary of the results and conclusions of your recent work in the technology area(s) relevant to the proposal.

Programme and methodology
• Identify the overall aims of the proposed Demonstrator, set in the context of the call’s Greenhouse Gas Removal scope, to explore the effectiveness, cost (social, economic etc.), interdependencies and the associated opportunities and limitations as a large-scale demonstration of GGR.

• Provide the individual measurable objectives for the Demonstrator and explain how these will be tackled and the anticipated impact. This should include a detailed description and justification for the methods and approaches to be employed.

• Describe the programme of work, indicating the research to be undertaken and the milestones that can be used to measure its progress. The detail should be sufficient to indicate the programme of work for each member of the research team.

• Explain how the Demonstrator will provide a quantitative assessment of the technology’s effectiveness in CO2 removal, including the scalability for CO2 capture, encompassing the starting capability per annum, the expected capability at the end of funding and at what point in time maximum potential will be reached. The anticipated
start and finish Technology Readiness Levels (TRL) should be indicated. Describe the nature of the intended CO₂ storage mechanism(s) and any associated risks.

- Explain how the Demonstrator will account for the environmental risks and their management, co-benefits, business operating models, ethics, political and societal acceptability and engagement using appropriate tools.

- Identify any potential project deployment risks within the research programme and strategies to mitigate these risks (e.g. alternative approaches).

- Outline potential routes for sustainable scalability. This should include scientific, technological, environmental, economic and social issues that may need to be considered for full scale deployment of that particular technology. This should be undertaken in cooperation with the Directorate Hub.

Section 3: Statement of added value (up to one page recommended)

- Justify the need for SPF GGR funding, describing the added value of funding through this mechanism. Describe how the work proposed is a fully integrated programme of work that must be tackled via an inter- and multi-disciplinary programme of coordinated activity with other Demonstrators and the Directorate Hub.

- Outline how the proposed research complements other research funded in this area nationally and internationally, including the wider UKRI research councils (NERC, EPSRC, ESRC, AHRC, BBSRC and Innovate UK).

- Describe any collaborative activities and/or tools, that you wish to deploy throughout the grant to ensure regular contact with the wider stakeholder community and increase the profile of the UK in global GGR activities.

Section 4: Track record and ability to deliver (up to two pages recommended)

- Describe and justify the contribution to the project of each named Investigator (PI/Co-I), including a clear time commitment. This should be in the form of a succinct personal statement, providing evidence of the skills and expertise they will bring to the project based on significant prior research achievements and broader impacts. This would be expected to include any engagement in previous collaborative and/or interdisciplinary projects by the investigators.

- Describe the leadership track record of the Principal Investigator demonstrating capability to lead the project. This should include prior experience of managing and successfully delivering complex multi-investigator/PDRA research projects as well as any relevant professional development activities. Where relevant, their ability to mentor and support the development of Early Career Researchers.

1 Please note, as stated in the call text, it is anticipated that the GGR Demonstrators will be moving towards TRL3-4 by the end of the funding period, but it is more than acceptable if the Demonstrators exceed the target and reach higher TRL levels, recognising that some of the technologies are more mature than others.
• Describe the resources or facilities that will be available within the team and their institutions to underpin the research.

**Section 5: Management strategy (up to two-pages recommended)**

Please refer to the **Call for Proposals** (available for download from the call webpage) for an explanation of the governance of the programme. It is advised that you also read the information on the NERC led **Greenhouse Gas Removal Demonstrators Directorate Hub** to understand how the Demonstrators outputs will feed into the Hub.

• Describe how the project will be managed to ensure effective working of the investigators and successful delivery of the planned outcomes. The management approach should be appropriate to the nature and scale of the programme.

• Provide details about the governance, advisory and management structure, details of the approach to project and risk management, and the monitoring strategy for the proposed programme.

• Describe the governance for any flexible fund requested, including how applications will be assessed and selected for funding and how the progress and outcomes will be monitored and utilised to enhance the value of the Demonstrator and future business interactions.

• Explain how the Demonstrator will commit to working collaboratively with the other Demonstrators in the programme as well as with the Directorate Hub, and to identify and exploit potential opportunities to work with other existing UKRI investments, where appropriate, to maximise impact and to meet UK Government GGR targets for 2050.

• Detail how the Demonstrator will implement a Management Board for monitoring of the Demonstrator and an Expert Advisory Group for gaining specialist advice.

**Assessment process: full stage**

The assessment of the full proposals is by GGR Demonstrators Expert Panel and full external peer review; applicants will be invited to respond in writing to the reviewers’ comments.

As part of the assessment, UKRI may also invite the PI and Co-I’s (up to two) to an interview with the panel.

Assessment will take on the **15th and 16th September 2020**.

**Assessment Criteria**

Applications to the GGR Demonstrators call will be assessed with reference to the scope of call and against the following assessment criteria:

**Excellence of the research proposed**

The project should fully address the scientific scope of the call and meet the highest current international standards in its area of research. The project should have a coherent focus on addressing a significant research challenge employing ambitious, creative and innovative approaches. Justification should be provided regarding how the project will lead to a distinctive and significant advancement with regard to both current state of knowledge and
ongoing research efforts within the field.

**Appropriateness of the technology and impact**
The extent to which the technology to be demonstrated has the potential to remove significant amounts of GHG from the atmosphere, and to which it will help the UK to achieve GGR at a scale of ≈130Mt CO₂ per annum by 2050, as outlined by the Royal Society Report

**Ability to deliver and leadership quality**
Projects must demonstrate that they have the appropriate leadership expertise and experience to deliver the complexity and scale of work proposed, with a track-record of leading multi- or interdisciplinary research. This includes overall scientific leadership to maintain the focus and momentum of the project, as well as the skills required to ensure the successful functioning of the team of individuals involved – this may include relevant professional development indicators (e.g. in leadership/project management).

**Interdisciplinarity of the research proposed**
The extent to which the proposal encompasses an interdisciplinary team with both the ability to deliver the technology for GGR and to explore the broader implications of the GGR Demonstrator proposed to understand potential costs, environmental risks, co-benefits, political and societal barriers, acceptability, trade-offs and unintended consequences.

**Management strategy**
The proposal must demonstrate that a robust strategy is in place to manage the award (including flexible funds), the team and the research outputs, including adequate governance and advisory structures of the Demonstrator and commitment to wider integration with other Demonstrators and the central Directorate Hub, risk management, monitoring strategy, and project management.

**Resources**
The resources requested (including any flexible funds) should be fully justified and appropriate relative to the anticipated project outcomes.

**Communication tools and collaboration activities**
The suitability of the tools and collaboration activities proposed to engage the wider stakeholder community (public, business, policy makers, NGO’s etc.) and increase the profile of the UK in global GGR activities.

In addition, at full stage the Research Committees will also assess the following:

**Data management plan**
Research proposals are expected to comply with BBSRC’s data sharing policy, and all proposals must include a data management plan. For the BBSRC policy please see the statement at [https://bbsrc.ukri.org/about/policies-standards/data-sharing-policy/](https://bbsrc.ukri.org/about/policies-standards/data-sharing-policy/).

**Ethics and Animal usage**
CONDITIONS OF THE AWARD

Awards will be made under standard UKRI Research Grant Terms and Conditions to the lead organisation, which will be responsible for the management of the award.

REPORTING AND MONITORING

Each demonstrator is required to implement a Management Board for project oversight together with an Expert Advisory Group to provide strategic scientific oversight and direction of the Demonstrator. Representatives from the Demonstrators may be invited to attend programme board meetings run by the Directorate Hub, as well as relevant programme GGR workshops.

Demonstrator grants will be monitored on a regular basis. Activities of individual Demonstrators will be reported on a quarterly basis, but information should be updated throughout the lifetime of the Demonstrator as and when relevant. An extranet site will be used as the main portal for data entry by the Demonstrator Project Managers. This will be managed by the BBSRC Project Officer on behalf of UKRI.

There will be a mid-term review to ensure that each Demonstrator still has the potential for large scale GGR removal. UKRI reserves the right to withdraw funding for Demonstrator that is not able to be ultimately deployed at a substantial scale to meet GGR targets. Further details of this activity will be made during the lifetime of the successful grants.