THE CARBON RECYCLING NETWORK & BBNET POC CALL:

> ## *NO CARBON LOST: ELIMINATING CO_2 PRODUCTION FROM BIOMASS-BASED FERMENTATION PROCESSES*

OPERATIONAL GUIDELINES

CALL OPEN: 25 MAY 2022   **CLOSING DATE: 17:00, 8 JULY 2022**

UKRI-BBSRC NIBB Proof of Concept funding will be used to encourage and support multidisciplinary projects which seek to integrate component parts within the **Carbon Recycling Network** and **BBNet** frameworks. Funds will be prioritised for accessing and developing key technology areas using UK open access technology service providers and those that have clear potential for further funding or have a route to commercial translation. Although an industrial partner is not required for PoC funding, it is encouraged. Individual PoC projects should last no longer than 12 months.

The maximum award value for a **PoC is £50k**. PoCs are awarded at **80%fEC**. The awardee at the academic institution **MUST** be willing to provide the remaining **20%fEC.**

1. Scope of the call:

To slow global temperature rises, we must dramatically reduce the use of fossil carbon as sources of energy, fuels and chemicals and instead use biomass. The sustainable recycling of agricultural and forestry biomass carbon into gaseous or chemical products can be accomplished through biological conversion processes based on anaerobic digestion or fermentation, respectively. The latter requires the prior deconstruction of the biomass into either sugars or synthesis gas (syngas) through the respective action of either lignocellulolytic enzymes or thermal gasification. However, traditional, carbohydrate-based fermentation processes, such as ethanol production, waste more than one third of the carbon which is not incorporated into the product but lost in the form of CO_2. Eliminating this loss would reduce GHG emissions and improve productivity, potentially by >50%.

The two NIBBs, **The Biomass Biorefinery Network** and the **Carbon Recycling Networks** wish to fund proof of concept projects that will:

- Enable a step-change in fermentation processes to further reduce the carbon footprint of biomass exploitation.
- These will improve the conversion of biomass to fermentable carbon (sugar) and underpin the design, build and test of innovative organisms (monocultures & synthetic communities)
- Bioprocesses that can maximise the conversion of this sustainable carbon to chemical commodities without CO_2 release.

The envisaged bio-manufacturing solutions will contribute to the UKs as well as global NetZero targets by eliminating CO_2 production during biomass-based fermentation bioprocesses, while simultaneously improving productivity through incorporation of the lost carbon into the chemicals and material being manufactured.

2. Advertisement:

All funding calls will be advertised using the **Carbon Recycling Network** & **BBNet** websites, Twitter & LinkedIn, email, as well as other bodies including KTN and learned societies to ensure wide coverage of the call. Funding calls will be **open for approximately 6 weeks**.

3. Funds and Scale of the Award:

The Carbon Recycling Network and BBNet are pleased to be working together on this call and will fund projects up to **£50k - PoCs are awarded at 80%fEC**. The awardee at the academic institution **MUST** be willing to provide the remaining **20%fEC**. We anticipate that at least 4 projects will be funded in this round, subject to them meeting the criteria thresholds for funding.

Projects are encouraged to have some financial support from industry; this can be a cash contribution or in-kind funding. Industrial support should be from a company with a research or manufacturing base in the UK.

All applications will be reviewed and assessed by the Carbon Recycling Network and BBNet (in a joint assessment panel). It is anticipated that awards will be announced in September 2022

4. Criteria:

The Carbon Recycling Network and BBNet criteria for funding:

- Applicants are members of both the Carbon Recycling and BBNet Networks – this includes any industrial partners.
- Proposals must contain a clear and concise plan with well-defined objectives and deliverables.
- Proposals must contain a clear plan for following-up and progressing the work/ technology development beyond the initial scope of the PoC proposal.
- Proposals must include a plan for establishing value and demonstrating impact from project deliverables.
- Proposals must be a proof of concept and good value for money.

5. Eligibility:

Funding is available for current **the Carbon Recycling Network and BBNet** members, who are eligible to receive BBSRC funding (https://bbsrc.ukri.org/documents/grants-guide/)

Up to 20% of PoC project value can be subcontracted to industry to buy a service or to an

SME to facilitate involvement. However, PoC funding will be counted as De minimis aid and so Industrial partners need to ensure that by accepting involvement, they are not in breach of De minimis aid rules (https://www.gov.uk/state-aid).

6. Application Form:

The application form will comprise a maximum of eight-pages (Ariel Font 10, single space, minimum of 2 cm margins), and detail the:

(i) People and Organisations Involved
(ii) Executive Summary
(iii) Track record of Applicants
(iv) Background & Description of Proposed Research
(v) References
(vi) Relevance to **the Carbon Recycling Network and BBNet**
(vii) Gantt Chart
(viii) Impact
(ix) Public Summary
(x) Data Sharing
(xi) Justification of Resources
(xii) Predicted Breakdown of Cost.

Applications must be accompanied by a **brief 1-page CV** from **ALL applicants** and any co-applicants, together with a 1-page description of the combined capabilities and facilities available in the organisation/s.

7. Application Process:

Applications should be submitted on the application form as a pdf document by email to **Network Manager** louise.dynes@nottingham.ac.uk: all applications will be acknowledged within three working days. The Network Manager will also be the main point of contact for this fund. BBNet and The Carbon Recycling Network Management Board members will have access to all applications.

All information submitted will be held in strictest confidence between the two Network's Management Boards.

8. Evaluation Process:

The Network Managers will check the application meets the criteria and has the required information. If there are any problems the Network Managers will contact the applicant to request further information, however if this cannot be easily remedied (within three working days) then the application will be returned to the applicant. -

The Network Managers will then process the application recording specific information: date received, further information requested, whether the application requires Management Board (MB) review, whether external review is required, which MB members have been allocated to review and introduce the application at the MB meeting and a conflict-of-interest register. Details of the current MB membership can be found on both websites: https://carbonrecycling.net/about/#panel4 & https://www.bbnet-nibb

All applications will be reviewed by a panel formed by the two management boards; however, all applications will be available for them to read in advance of their presentation to the MB meeting if they wish to. Any MB member who has a conflict of interest (or has a reason for not reviewing the application such as involving an industrial competitor) must decline discussion of that particular application. MB members will have **at least two weeks** to review the applications, at the end of this time a score must be submitted to the Network Managers.

Proposals will be introduced at meetings, discussed by the MB and ranked by the following criteria:

Criteria	% contribution of total score
Quality of Science	30
Relevance of application to The Carbon Recycling Network & BBNet scope	15
Industrial relevance and pathway to impact	20
Economic, environmental and social impact	15
Project management	10
Value for money	10

For each criterion, proposals must score **60% of total marks** allocated.

The MB will be able to award proof of concept funds in tranches of up to £50k; they will have a good degree of flexibility in the decisions made so that, at the MB's discretion, an application could for example, be part funded.

Within the week following the MB meeting, the Network Managers will request BBSRC's funding approval for their shortlisted projects. Once funding approval has been granted, the PI applicant will be notified. Applicants who are unsuccessful will be informed promptly and the Network Managers will pass on specific feedback if the review panel makes this available. We will not offer comprehensive feedback on proposals submitted.

Independent external review of proposals will be sought if the area of application is not within the expertise of the Board. External reviewers will be asked to evaluate the proposal and invited to submit a detailed commentary. The commentaries will be made available to all MB members and review will proceed as described above. In the case of conflict of interest, the MB member will not receive the written reviews.

9. Payment of Awards:

Consortia of applicants will need to have signed agreements in place prior to funded projects commencing; the Network Managers will check this is the case. The Universities of Nottingham or York will provide a simple contract for the awardee, assigning all rights to the awardee's University or consortium but requiring funds to be spent as detailed on the application and reports on progress to be sent to the Network. **Funds will be transferred at 80% fEC from the BBSRC to The Universities of Nottingham or York in arrears on final project costs once a project has**

completed. The Universities of Nottingham or York will then pay invoices once the final report is approved by the each Execute Group (EG). The Universities of Nottingham or York will then transfer funds to the awardee.

Note on release of funds
Successful applicants will be informed via email and an electronic award letter will be sent to the PI and it is their responsibility to inform and circulate it to the institution's awards/ research office. Please note that while the call is joint once each network has agreed to fund a project subsequent processes and procedures will follow the specific guidelines for that individual network.

10. Carbon Recycling Network Monitoring, Reporting and Finances:

At the end of award, a **final report** on results against objectives will be submitted to the Network Manager within **one calendar month**. The Report will detail the: the work that was undertaken, he Outcome(s)and the Next Steps. Grantees are also required to provide, by email to the Network Manager, the following documents:

- Financial Expenditure Statement (template available from the Network Managers). However, the Carbon Recycling Network will not require receipts to be submitted, although these must be kept, as they may be required for possible future audits.
- A 500-word public summary of the work which may be published at the **Carbon Recycling Network** website.
- Grantees will be expected to give an oral presentation at the next appropriate annual scientific meeting and required to make a "summary/case study" slide for the **Carbon Recycling Network** website.

The grantee's host institution will follow their standard procedures for financial accounts. The EG will approve the final reports. In the case of conflict of interest, the MB Chair or senior nominee will review such reports.

11. BBNet Monitoring, Reporting and Finances:

At the end of the project, grantees are required to provide, by email to the Network Manager, the following documents:

- A final report (template available from the NIBB Manager), setting results against objectives.
- A 1-page case-study including at least one picture (template available from the NIBB Manager).
- Financial Expenditure Statement (template available from the NIBB Manager). However, BBNet will not require receipts to be submitted, although these must be kept, as they may be required for possible future audits. The grantee's host institution will follow their standard procedures for financial accounts.
- Invoice

All reports will be checked by the Network Manager. The EG will approve the final reports and the MB will have access to them. In the case of conflict of interest, a MB member will review such reports

12. Conflict of Interest Guidance:

In cases of conflict of interest, there are specific alternatives to the stated guidance – these are referred to throughout the document.
Examples of a conflict of interest include:

- Employed by the same institution as the applicant(s)
- Actively involved in research collaborations with the applicants(s)
- Working closely with the applicant(s), for example as a co-author or PhD Supervisor, or has worked closely in the last 4 years
- Holding a current position on the governing body of, or an honorary position within the institution(s) of the applicant(s). In receipt of personal remuneration in excess of £5,000 per annum from the applicant's organisation
- Personal/family relationship with the applicant(s)

Any reviewer with a conflict of interest will declare it and will not participate in the review of that application and during the review panel they will leave the room. They may be present for final discussion of the ranking list (unless they are named applicants on the application). In addition, reviewers may declare a conflict of interest if they consider the area of research to be too close to their own interest. In this case they may recuse themselves from review and all discussions of the project.

13. Data Protection Regulations:

Please be aware that copies of proposals will be made available to the PoC Assessment Committee (members of the Management Board and external "co-opted") who will use information provided in the application for processing the proposal through assessment, the award of any consequential grant, and for the payment, maintenance and review of the funds. Funding comes from UKRI-BBSRC, so to meet the Research Councils' obligations for public accountability and the dissemination of information, non-confidential details of awards may also be made available on the Research Councils' websites and other publicly available databases, and in reports, documents and mailing lists. Be assured however, that all parties involved in PoC assessment and monitoring have to sign a confidentiality undertaking and any conflicted parties (i.e. members of the Assessment Committee) will not have access to confidential information regarding the proposals they are conflicted over. Information on all applications is added to the UKRI-BBSRC's database. UKRI-BBSRC will use this information for research related activities including, but not limited to, transfer of POC funds, statistical analysis in relation to evaluation of the UKRI- BBSRC NIBB, study of trends and policy and strategy studies. To meet the Research Councils' obligations for public accountability and the dissemination of information, non-confidential details of awards may also be made available on the Research Councils' websites and other publicly available databases, and in reports, documents and mailing lists.

14. Acknowledgement:

Any publications should acknowledge support as follows '***We acknowledge that The Carbon Recycling* Network, a *UKRI-BBSRC grant BB/S009833/1 & BBNet, a UKRI-BBSRC grant BB/S009779/1 supported this project through a joint POC call'***.

14. Timeline:

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┌─────────────────────────┐
│      PoC Call Opens      │
└─────────────────────────┘
            │  6 weeks
            ▼
┌─────────────────────────┐
│      PoC Call Closes     │
└─────────────────────────┘
            │  6 weeks
            ▼
┌─────────────────────────┐
│        Assessment        │
│         Meeting          │
└─────────────────────────┘
            │  1 week
            ▼
┌─────────────────────────┐
│  Successful Bids Advised │
│      Feedback Given      │
└─────────────────────────┘
            │  4 weeks
            ▼
┌─────────────────────────┐
│   Project Initiated and  │
│        Completed         │
└─────────────────────────┘
            │  4 weeks
            ▼
┌─────────────────────────┐
│      Final Report        │
└─────────────────────────┘
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            ▼
┌─────────────────────────┐
│ Oral Presentation at Annual │   *Next appropriate time*
│   Scientific Meeting     │
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