

July 17, 2023

## **NEx Request for Proposals Notice**

NEx encourages you to submit proposals focused on the research topic described below:

**Project ID: RD24.10.**

**Project Title: Study and develop guidelines to use carbon byproducts in building and construction applications.**

### **Background**

Various high-carbon precursors can be used for the preparation of the carbon materials like hydrocarbons, coal, biomass, and polymers. Carbon materials comprise a broad family of structures with a unique combination of physical and chemical properties such as high surface area, electrical conductivity, thermal stability, and mechanical properties. Examples of carbon-based materials include graphene, graphene oxide, carbon nanotubes (CNTs), carbon black, solid carbon, fullerenes etc. The synthesis of carbon materials involves thermal treatments at moderate or high temperatures including a gasification process to allow for carbonization and then graphitization for specific precursors.

With the accelerated growth of blue hydrogen production supporting sustainable industries, a large mass of carbon byproduct (carbon black) will be generated. Hydrogen production from hydrocarbons will generate carbon-based byproducts with the potential to be incorporated into other high-value materials. As the building and construction sector demands huge number of materials, carbon byproduct can be used in several applications to improve concrete properties which will also support carbon capture and lowering carbon footprint.

### **Proposal Request**

We invite research and development proposals from qualified/experienced researchers, engineering firms, and research institutions to undertake a comprehensive study using carbon materials synthesized from hydrocarbon processes or hydrogen production that is incorporated in construction materials such as concrete, cementitious materials, insulations, structural composites etc.

- a. Perform laboratory testing and analysis to evaluate the properties and behaviour of carbon byproducts in different construction materials.
- b. Develop detailed guideline for incorporating carbon byproducts into various construction materials, including but not limited to concrete, asphalt, bricks, and insulation.

### **NEx Mission Statement**

Collaborate globally to expand and accelerate the use of nonmetallics in the built environment to drive innovation, research, education, awareness, adoption, and deployment.

Research and Development within NEx are among its core missions, and it supports and facilitates the development of new nonmetallic technologies to address challenges with effective solutions.

### **Funding Policy**

NEx will impose a limit of 15% on indirect costs (overhead) by research organizations for any research it funds. The organization must waive the remainder of the indirect costs.

### **Award Amount**

NEx does not impose any limit on the overall funding request; however, the anticipated budget for this project is \$75,000. Proposals with higher budget estimates will be accepted with information on budget spending relevant to the value added to the project scope. Co-funding and co-sponsoring proposals with other organizations are welcomed.

### **Proposal Evaluation**

NEx research proposals will be evaluated by the NEx Steering Committee. A winning proposal will be forwarded to the NEx Board of Directors with recommendations for funding.

Proposal evaluation criteria will include technical content, methodology, PI's relevant experience, potential impact/ industry adoption, budget and time, proposed deliverables, and outcome. NEx anticipates the completion of this project within 24 months duration.

### **Awarded Proposals**

- The awarded proposal is expected to commence within the first quarter of 2024.
- NEx will enter into a contract with the researching entity. As part of the contract, it is mandated that the overhead or indirect return be set at no more than 15% of the direct cost of the research funding requested from NEx. Any overhead over the maximum allowed 15% that is waived by the researching entity shall be considered as cost sharing and shall be indicated on the budget table as waived overhead, separate from other co-funding. Non-compliant proposals in this regard shall be returned without review.
- The schedule of payments contingent upon milestone deliverables will be contained in the contract and will include, at a minimum, a final report deliverable to NEx. Progress reports, if required, will be identified in the final contract.
- If principal investigators (PI) from two organizations are collaborating on the research, the award must be to a single organization, which will then subcontract with the second organization.
- NEx will only consider funding research that involves the use of proprietary products if the goal of the research is to advance knowledge in a particular area of study and not solely on a proprietary product.
- In case of any co-funding arrangement with other organization(s), commitment letter(s) from co-funding organization(s) is required before funds are dispersed from NEx.
- The results of NEx-funded research will be owned by NEx, and possibly by other co-founding organization(s). PI should obtain approval from NEx before publishing any results.

### **Where and How to Submit Proposals**

Submitted proposals will be evaluated by the NEx Steering Committee and the NEx Staff. Anyone who evaluates a proposal is required to agree and abide by NEx policies on confidentiality and conflict of interest.

Please email the proposal and supporting information to [info@nonmetallic.org](mailto:info@nonmetallic.org), by end of the day, **September 5, 2023**. The subject line and file name shall include project ID (see top of page 1) and the name

of the proposing organization (For example: "RD24.xx University of xyz").

If you have any questions regarding the proposal requirements or process, please contact NEx Technical Director, Aparna Deshmukh (aparna.deshmukh@nonmetallic.org).

### **Required Proposal Content**

Proposals submitted to the NEx shall be provided in one unprotected pdf file and shall contain:

#### **1. Section 1: Executive summary (maximum 2 pages)**

- 1.1. NEx RFP ID:
- 1.2. Proposal Title:
- 1.3. Principal Investigator (name, affiliation, address, phone, email):
- 1.4. Objective of the proposal (300 words or less)
- 1.5. Description of significance/impact of the project (300 words or less)

#### **2. Section 2: Main body (maximum 5 pages)**

- 2.1. Background
- 2.2. Project description (include enough detail to understand how the project will be performed)
- 2.3. Schedule (include matrix of tasks and schedule of completion, including quarterly progress and final reports, and semi-monthly teleconference updates)
- 2.4. List of deliverables/anticipated products, such as new material specifications, new documents, published papers, presentations, NEx/ACI University Webinar, or conference proceedings.
- 2.5. Budget (table of funding that includes all support such as):
  - Total budget
  - Any co-funding from organizations other than NEx (monetary, in-kind)
  - Net value of waived institution overhead or planned co-funding

#### **3. Section 3: Supporting Documents (maximum 2 pages each)**

- 3.1. Qualifications of the investigator, co-investigator(s), if any, and/or institutions.