

August 15, 2024

NEx Request for Proposals Notice

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

NEx RFP Id: RD25.01

Proposal Title: Innovative Oil-Based Solutions for Sustainable Concrete and Industrial Processes (any or all three)

Background

The construction and industrial sectors are significant contributors to global carbon emissions and environmental degradation. Traditional concrete production and large-scale industrial processes, such as cement, steel, and aluminium manufacturing, are energy-intensive and emit large amounts of CO₂. Oil-based additives and admixtures have shown promise in various applications due to their unique chemical properties and potential for customization. This RFP aims to harness the potential of oil-based solutions to address key challenges in concrete technology and industrial processes.

Proposal Request

Concrete production, particularly through the use of Portland cement, contributes significantly to global CO₂ emissions. Geopolymer concrete, which utilizes alkali activators, presents a lower-carbon alternative, but current activators often have limitations in terms of cost, performance, and sustainability. In mass concrete applications, controlling heat and temperature rise is critical to prevent thermal cracking, which can compromise structural integrity. High-temperature industrial processes, such as those in cement kilns, steel furnaces, and aluminium smelting, are major sources of CO₂ emissions. Innovative admixtures that can lower manufacturing temperatures and/or adsorb CO₂ during these processes are needed to meet stringent environmental regulations and sustainability targets.

NEx is seeking proposals for groundbreaking research and development project aimed at advancing sustainable practices in the construction and industrial sectors. We invite researchers and industry experts to propose projects in one or all of the following areas, with the potential to significantly impact their respective fields:

1. Development of Oil-Based Alkali Activators for Geopolymer Concrete
2. Development of Oil-Based Additives to Control Heat and Temperature Rise in Mass Concrete
3. Development of Hydrocarbon-Based Admixtures to Lower Manufacturing Temperatures and/or Adsorb CO₂ Emissions in Cement Kilns, Steel Furnaces, and Aluminium Smelting.

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 to be around \$80,000 to \$120,000. Proposals with higher budget estimate 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. Typically, NEx funded project duration ranges from 6 to 24 months.

Awarded Proposals

- The awarded proposal is expected to commence within the first quarter of 2025
- 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. Quarterly progress reports 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 projects that involves the use of proprietary products if the goal of the project 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 notify NEx before publishing any results.

Where and How to Submit Proposals

Submitted proposals will be evaluated by the NEx Steering Committee and subject matter experts.

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, by end of the day, **October 7, 2024**. The email 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).

Proposals submitted to NEx shall be provided in **one unprotected PDF** using [NEx provided template](#).