NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 23-108

Dear Colleague Letter: Conference Proposals on Clean Energy Topics

May 16, 2023

Dear Colleagues:

As energy use in the United States continues to grow, the use of clean, sustainable energy sources must increase to meet demand. These sources include energy from biomass, geothermal, wind, hydropower, tidal power, and solar sources. Clean energy represents new efficient technology based on novel fundamental concepts, the energy saved through increased energy efficiency, and conservation measures for existing technologies, as well as energy derived from renewable sources.

With this Dear Colleague Letter (DCL), the National Science Foundation (NSF) is calling for conference proposals on identifying collaborative research opportunities for advancing science and technology for clean energy. The goal of these workshops is to initiate new collaborations in clean energy topics within academia or between academia and Federally Funded Research and Development Centers (FFRDCs). It is encouraged that Principal Investigators (PIs) organize a topical workshop in collaboration with one or more FFRDCs that have significant research activity in the proposed topic.

NSF's Directorates for Engineering (ENG); Mathematical and Physical Sciences (MPS); Biological Sciences (BIO); Computer and Information Science and Engineering (CISE); Geosciences (GEO); Social, Behavioral and Economic Sciences (SBE); STEM Education (EDU); and Technology, Innovation and Partnerships (TIP) seek to support workshops that will establish new collaborations among academic institutions, and among academic institutions and FFRDCs to advance Clean Energy Technologies and increase the use of clean energy sources to benefit all sectors of the economy, to ensure social justice, and to contribute to the public good. Advances in custom-designing and producing materials for energy-efficient technologies, electrification of the U.S. economy including the transportation sector and the chemical industry, as well as developing new approaches to harnessing energy from renewable sources in green and sustainable ways, are critical for developing practical approaches to achieving a carbon-neutral and equitable economy.

Preparation of conference proposals on identifying collaborative research opportunities for advancing science and technology for clean energy should be guided by results from recent NSF workshops, National Academies studies, workshop reports by U.S. Department of Energy, and similar sources. Conference proposals should present promising new ideas and a vision for advancing NSF's investments in fundamental convergent research in the chosen clean energy topic. Conference proposals should include plans to identify activities to catalyze strong new collaborations between FFRDCs and academia or between academic institutions that will advance use-inspired research with high potential for significant societal and sustainability impacts.

Proposers are encouraged to address themes of convergence science and engineering and to bring together researchers, educators, and practitioners from academia, industry, FFRDCs, and nonprofit organizations. Conferences should draw participants from a diverse set of institutions, including non-R1 institutions, minority serving institutions of higher education, institutions in EPSCOR states, and primarily undergraduate institutions. Proposers are also encouraged to consider geographical diversity as appropriate for the topic when describing specific strategies for recruiting conference participants. Proposals should address innovative approaches to broadening participation.

Preference will be given to conference themes aligned with the following topics:

- Hydrogen, fusion, and/or geothermal technologies with a focus on enabling new science and technology discovery and deployment within the scope of any of the eight NSF Directorates participating in this DCL.
- Industrial heat and/or energy efficiency technologies with a focus on enabling new science and technology discovery and deployment within the scope of any of the eight NSF Directorates participating in this DCL.
- Offshore wind and/or wave energy technologies with a focus on enabling new science and technology discovery and deployment within the scope of any of the eight NSF Directorates participating in this DCL.
- Critical materials for clean energy technologies - their recovery, reuse, and recycling with a focus on enabling new science and technology discovery and deployment within the scope of any of the eight NSF Directorates participating in this DCL.
- Net-zero fuels and/or bioenergy with a focus on enabling new science and technology discovery and deployment within the scope of any of the eight NSF Directorates participating in this DCL.
- Needs for education and workforce training, including on topics such as understanding of workforce education and training needs; broadening participation opportunities; and new pedagogical approaches in order to advance and strengthen the U.S. competitiveness in the research areas listed above. A project's scope may span from pre-college through graduate school and career levels.

Other emerging topics in clean energy will be considered. For all topics the conference should include discussions on understanding barriers and opportunities for technology adoption; understanding the economic and societal impacts of technology development; social justice considerations; and/or understanding social and environmental sustainability of clean energy technologies. Conference proposals are also encouraged to include research ideas related to computational, simulation, and data-science tools that can lead to new insights in clean energy technology development.

Submission of a conference proposal is by invitation only; the process is initiated by the submission of a Concept Outline describing the proposed conference topic. Concept outlines are strictly limited in length to 3 pages plus a half-page justification of the estimated budget, for a total of 4 pages, including references. A minimum of one PI and one co-PI must be associated with a concept outline. **An individual may appear as PI, co-PI, Senior Personnel, or Consultant on no more than two conference proposals submitted in response to this DCL**. The concept outline must be aligned with NSF's efforts to advance diversity, equity, and inclusion in STEM. These values must be reflected in the composition of the Conference Organizing Committee, as well as the plan for selecting presenters and participants. Conference budget requests must not exceed $100,000. All correspondence, inquiries, and concept outlines for conference proposals must be submitted to CET_DCL_Workshop@nsf.gov. Subsequently invited conference proposals that fail to address the requirements described in this DCL will be returned without review. Conference proposals will be internally reviewed.

Concept outlines for conference proposals responsive to this DCL must be received by 5 p.m. submitter's local time on 06/30/2023. Invitation to submit conference proposals can be expected approximately 2-3 weeks after submission of the concept outline. The invitation to submit a conference proposal will include a due date of August 16, 2023 of 5 p.m. submitter's local time. All conference proposals must be submitted via Research.gov to the coordinating program Electrochemical Systems (PD 23-7644) in the Chemical, Bioengineering, Environmental, and Transport System Division (CBET) of NSF's Directorate for Engineering (ENG). Conference proposals submitted without prior submission of a corresponding concept outline and subsequent invitation will be returned without review. The email invitation from an NSF Program Officer serves as documentation of approval for submittal and must be uploaded by the prospective PI in the "Additional Single Copy Documents" section of Research.gov. The concept outline and proposal titles must begin with "CET:" after the prepended text "Conference:". Guidance on conference proposal content and the associated budget request is provided below.

The conference proposals must include a tentative conference location and agenda. Conferences must be held during the fall and winter of 2023/2024. Conference topics must be interdisciplinary. The Project Description should articulate the desired outcomes of the

conference in terms of a vision for convergent research opportunities that have not yet received significant investment. Conference proposals should identify a Conference Organizing Committee composed of members drawn from multiple disciplines and organizations. An individual may appear on a maximum of two conference proposals in a senior role (PI, co-PI, or Senior Personnel). The Organizing Committee must be engaged in formulating, executing, and reporting on the conference. Conferences may touch on themes of an international nature where potential benefits for the U.S. are made clear. Engagement of international researchers in conferences is welcome, but NSF support is limited to U.S. participants. Participant support should be prioritized for students, postdocs, junior faculty, or participants from emerging research institutions . PIs should articulate how attendees will be selected - including strategies for recruiting a diverse set of participants and speakers. All conferences must be held in the U.S., and organizers are encouraged to hold them in-person with hybrid options. The outcome of the conference must be a white paper to NSF on emerging collaborative research opportunities and economic and technical barriers that could be addressed by convergent fundamental research investments. This white paper would be due to NSF 4 months after the conference. Scientific publications as a result of the conference are encouraged.

Conference proposals are to follow guidance contained in the NSF Proposal & Award Policies & Procedures Guide (PAPPG) Chapter II.F.9, as provided at the following link: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

All correspondence, inquiries, and concept outlines must be submitted to CET_DCL_Workshop@nsf.gov.

Sincerely,

Susan S. Margulies, Assistant Director
Directorate for Engineering (ENG)

Sean L. Jones, Assistant Director
Directorate for Mathematical and Physical Sciences (MPS)

Simon Malcomber, Acting Assistant Director
Directorate for Biological Sciences (BIO)

Margaret Martonosi, Assistant Director
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Alexandra R. Isern, Assistant Director
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James L. Moore III, Assistant Director
Directorate for STEM Education (EDU)

Erwin Gianchandani, Assistant Director
Directorate for Technology, Innovation and Partnerships (TIP)

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[i] For purposes of this DCL, the term "conference" and "workshop" are synonymous for consistency with the language in the Proposal & Award Policies & Procedures Guide.

[ii] The term "Emerging Research Institutions" uses the definition in 42 §USC 18901 as institutions of higher education with an established undergraduate or graduate program that have less than $50,000,000 in Federal research expenditures.