



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Informational Webinar:

Chemical and Materials Sciences to Advance Clean Energy Technologies and Low-Carbon Manufacturing (CEM) Funding Opportunity Announcement (FOA)

DE-FOA-0002676

FOA Issue Date	02/16/2022
Submission Deadline for Pre-Applications	03/16/2022 at 5:00PM Eastern Time A Pre-Application is required
Pre-Application Response Date	04/13/2022
Submission Deadline for Applications	05/17/2022 at 11:59PM Eastern Time

Bruce Garrett
Office of Basic Energy Sciences
February 23, 2022

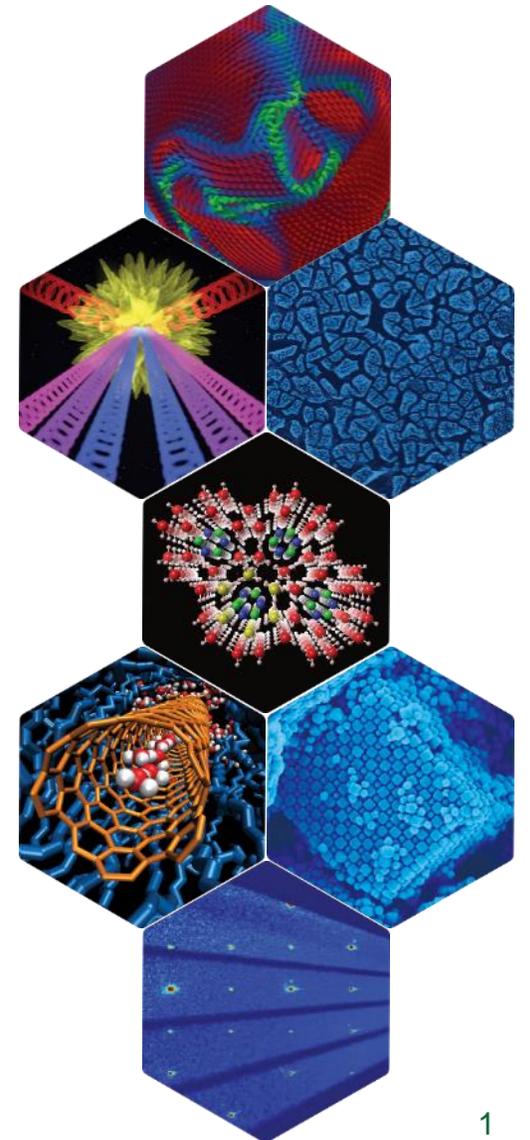
Disclaimer: This presentation summarizes the contents of the FOA. Nothing in this webinar is intended to add to, take away from, or contradict any of the requirements of the FOA. If there are any inconsistencies between the FOA and this presentation or statements from DOE personnel, the FOA is the controlling document.

Basic Energy Sciences (BES) Mission

To understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels

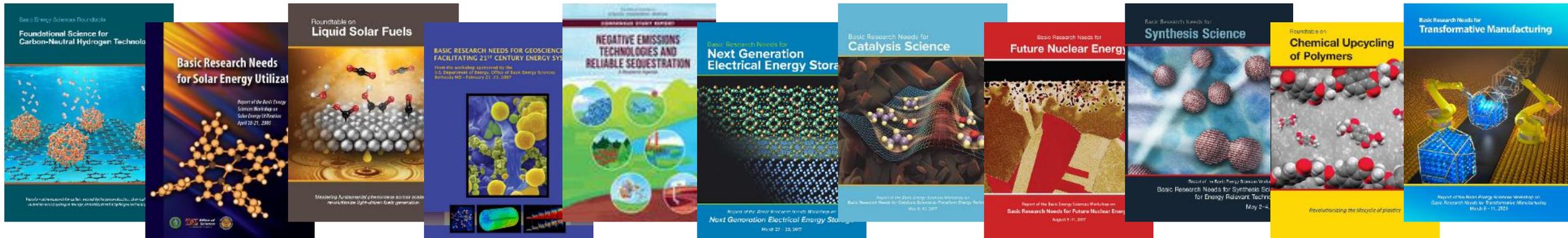
BES fulfills its mission through:

- ▶ Supporting **basic research** to discover new materials and design new chemical processes that underpin a broad range of energy technologies
 - ❖ **Critical role in clean energy research**
- ▶ Operating **world-class scientific user facilities** in x-ray, neutron, and electron beam scattering as well as in nanoscale research
- ▶ Managing **construction and upgrade projects** to maintain **world-leading** scientific user facilities



Solicitation Context

- ▶ The Chemical and Materials Sciences to Advance Clean Energy Technologies and Low-Carbon Manufacturing (CEM) Funding Opportunity Announcement (FOA) expands ongoing BES research directions to provide fundamental science that is foundational to clean energy technologies and low-carbon manufacturing
- ▶ The FOA's emphasis aligns with current DOE and Administration priorities and is coordinated with efforts by DOE's energy technology offices
- ▶ The primary focus is on energy use-inspired fundamental science
- ▶ The scope is informed by priority research directions/opportunities defined in BES reports as well as by a National Academy study on negative emissions technologies



CEM FY 2022 FOA: Scientific Scope (See Sec. I of the FOA)

- ▶ New applications from single and multiple principal investigators (PIs) are requested to advance basic and fundamental chemical and materials sciences that underpin clean energy technologies and low-carbon manufacturing
 - ▶ Clean energy technologies: approaches to capture, produce, convert, store, and use energy that reduce or eliminate unwanted emissions such as greenhouse gases as well as approaches such as direct air capture (DAC) and carbon storage/sequestration to decrease emissions released into the environment from energy production and use
 - ▶ Low-carbon manufacturing: manufacturing processes that minimize carbon emissions and energy consumption
- ▶ Research should generate foundational knowledge that can support development of approaches to minimize climate impacts of energy technologies and manufacturing
- ▶ Some awards from this FOA are anticipated to provide foundational knowledge that can advance the goals of DOE's Energy Earthshots Initiative (<https://www.energy.gov/policy/energy-earthshots-initiative>)

CEM FY 2022 FOA: Scientific Scope (See Sec. I of the FOA)

- ▶ The FOA emphasizes fundamental research across 7 Topic Areas:
 - ▶ Carbon-Neutral Hydrogen
 - ▶ Solar Energy
 - ▶ Carbon Dioxide Removal
 - ▶ Energy Storage
 - ▶ Nuclear Energy
 - ▶ Transformative Manufacturing
 - ▶ Critical Minerals and Materials
- ▶ Proposed research must target a single primary Topic Area
 - ▶ Applications to Critical Minerals and Materials are required to explain how the proposed critical materials research will advance objectives in other Topic Areas
- ▶ Applicants are encouraged to consider the following cross-cutting themes in the development of the proposed research strategy:
 - ▶ Materials Synthesis
 - ▶ Biohybrids and Bio-inspiration
 - ▶ Tool and Method Development
 - ▶ Data Science
- ▶ See Sec. I of the FOA for more detailed information including links to workshop and roundtable reports relevant to the specific Topic Areas

CEM FY 2022 FOA: Key Elements

- ▶ The FOA solicits new applications only
- ▶ Eligible Applicants: All types of domestic entities, including for example, universities/colleges, non-profit organizations, for profit organizations, DOE National Laboratories (see Sec. III of the FOA)
 - ▶ Other Federal agencies or FFRDCs may participate as partners (not lead institution)
- ▶ FOA encourages applications led by, or in partnership with, Minority Serving Institutions (MSIs)*, including Historically Black Colleges and Universities (HBCUs), that are underrepresented in the BES portfolio and applications including individuals from groups historically underrepresented in STEM

*US Department of Education lists of MSIs and HBCUs in 2021 can be found at: <https://www2.ed.gov/about/offices/list/ope/ides/2021eligibilitymatrix.xlsx> and <https://sites.ed.gov/whhbcu/one-hundred-and-five-historically-black-colleges-and-universities/>

CEM FY 2022 FOA: Award Information (See Sec. II of the FOA)

- ▶ **Estimated funding:** Subject to availability of funds, up to \$150 million in current and future fiscal year funds will be used to support awards under this FOA
- ▶ **Period of performance:** Up to three years
- ▶ **Maximum/minimum award size:** DOE anticipates award sizes will range from:
 - ▶ \$200,000 per year to \$350,000 per year for single-PI awards
 - ▶ \$200,000 per year to \$1,500,000 per year for multi-PI awards with the exception that DOE/NNSA National Laboratories cannot request less than \$500,000 per year
- ▶ **Expected number of awards and award size:** The number of awards and award sizes will depend on the number of meritorious applications and the availability of appropriated funds
- ▶ **Types of award instruments:** DOE anticipates awarding grants, interagency agreements, and National Laboratory authorizations under this FOA

CEM FY 2022 FOA: Pre-applications (See Sec. III.D and IV.B of the FOA)

- ▶ Pre-applications are **required**, with a limit of **3 per lead institution**
 - ▶ National labs limited to 3 multi-PI pre-apps.
 - ▶ Other institutions can submit a total of 3 pre-apps with up to 2 being multi-PI pre-apps.
- ▶ Pre-application cover page must include a signature from an official of the lead institution
 - ▶ For DOE/NNSA National Laboratories, this should be the Laboratory Director
 - ▶ For other applicants, this should be someone with authority over research activities for the entire institution
- ▶ Program Managers may evaluate all or some portion of pre-applications to determine their **competitiveness within a scientific topic**. Any such review will be conducted by no fewer than three federal program managers based on the following criteria:
 - ▶ Responsiveness to the objectives and requirements of the FOA
 - ▶ Scientific and technical merit
 - ▶ Appropriateness of the proposed research approaches
 - ▶ Likelihood of scientific impact

CEM FY 2022 FOA: Pre-applications (See Sec. III.D and IV.B of the FOA)

- ▶ If used, reviews within a topic area will be a **comparative review** with priority given to **scientifically innovative and forward-looking basic research** with the **highest likelihood of success as an application**
- ▶ Applicants with the highest rated pre-applications will be encouraged to submit applications; others will be discouraged from submitting applications
- ▶ Topic Areas with relatively few pre-applications may not make use of comparative pre-application reviews
- ▶ The ratio of encourage/discourage results will differ between topical subjects

CEM FY 2022 FOA: Key Dates

- ▶ Pre-application due date: **03/16/2022, by 5:00PM** Eastern Time
 - ▶ Pre-applications must be submitted via the DOE Portfolio Analysis and Management System (PAMS)
- ▶ Pre-application response date: **04/13/2022**
 - ▶ DOE will notify all pre-applicants to indicate whether or not they are encouraged to submit an application
 - ▶ DOE expects the ratio of encourage/discourage results will differ between topical subjects.
- ▶ Application due date: **05/17/2022, by 11:59PM** Eastern Time
 - ▶ Applications that have not been encouraged by DOE may be declined without merit review
 - ▶ Applications must be submitted via www.grants.gov
- ▶ DOE anticipates that award selection will be completed by the 4th quarter of Fiscal Year 2022 (July – Sept) and that awards will be made in Fiscal Year 2022

Checklist for avoiding common errors: Pre-applications

(not a comprehensive list of all FOA requirements)

- ▶ **Scope:** No applied research or technology development
- ▶ **Tables:** FOA requires a table listing “individuals who should not serve as reviewers” be submitted in Excel format by email to CleanEnergy.FOA@science.doe.gov
 - ▶ A template called “Collaborator Template” is provided
 - ▶ More info on List of Individuals Who Should Not Serve as Reviewers in FOA Sec. IV, p.16 & p.49
- ▶ **Signature:** Cover page must include the signature of an official of the lead institution
 - ▶ Official who signs should be someone with authority over research activities for the entire institution
 - ▶ Signatures will be used to identify pre-applications that the institution supports
 - ▶ Pre-applications without institutional support may be **discouraged**
- ▶ Individuals are limited to be **lead PI** on 1 pre-application.
 - ▶ The PI on a pre-application may be listed as a senior/key personnel on other submissions without limitation
- ▶ Submit pre-application **via PAMS**, not via www.grants.gov (due **March 16, 5pm ET**)
- ▶ **Late submissions** of pre-applications are rarely accepted (see Sec. IV.F.4 of the FOA)

Checklist for avoiding common errors: Applications

(not a comprehensive list of all FOA requirements)

- ▶ **Tables:** FOA requires a table of collaborators and conflicts of interest with the application, submitted in Excel format by email to CleanEnergy.FOA@science.doe.gov
 - ▶ A template is provided
 - ▶ List of Individuals Who Should Not Serve as Reviewers (FOA p.26 & p.49)
- ▶ **Budget:** For multi-institutional projects, the lead institution must request a larger percentage of the budget than each of the other institutional partners
- ▶ **Biographical sketch** and list of **current/pending support**
 - ▶ Required for each senior/key personnel; follow instructions in FOA, including the use of the NSF format
 - ▶ Ensure complete list of activities regardless of source of funding
 - ▶ Do not attach a list of individuals who should not be used as merit reviewers as part of the biographical sketch
- ▶ Submit application via www.grants.gov, not via PAMS (**due May 17** by 11:59pm ET)
- ▶ **Late submissions** of applications are rarely accepted (see Sec. IV.F.4 of the FOA)

Where to find more information

- ▶ FOA: <https://science.osti.gov/bes/Funding-Opportunities>
- ▶ This webinar is being recorded; slides and the recording will be posted on the FOA page listed above
- ▶ Questions about the FOA: Please send an email with your question(s) to

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Questions & Answers

Please submit questions using Zoom Q&A window, which should be accessible at the bottom of your zoom window

If your question is not answered today, or you have additional questions about the presentation, please submit to

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