

**Notice of Intent No.: DE-FOA-0003436**  
**Issue Date: August 26, 2024**

DISCLAIMER: The “Notice of Intent to Issue” is for informational purposes only; the Department of Energy is not seeking comments on the information in this notice. Applications are not accepted at this time. Any information contained in this notice is subject to change.

**This is a Notice of Intent to Issue**  
**Funding Opportunity Announcement No. DE-FOA-0003215**  
**“University Training and Research for Fossil Energy and Carbon Management”**

In the fourth quarter of calendar year 2024 the Department of Energy (DOE) may issue a Funding Opportunity Announcement (FOA) seeking applications for financial assistance awards that would support the Office of Fossil Energy and Carbon Management (FECM) [University Training and Research Program](#) and Point Source Carbon Capture Program.

**BACKGROUND and TECHNICAL OBJECTIVES**

The University Training and Research (UTR) Program, sponsored by Office of Fossil Energy and Carbon Management (FECM) and administered by the National Energy Technology Laboratory (NETL), has the following primary mission objectives<sup>1</sup>: 1) educate and train the next generation of engineers and scientists; 2) support novel, early-stage research at U.S. colleges and universities; 3) increase research and development opportunities for underrepresented and structurally marginalized communities; 4) ensure that students are being equipped with cutting-edge, translatable skillsets that will allow them to contribute to the U.S. workforce and greater economy over the course of a longstanding and enduring career.

The UTR Program consists of two (2) sub-programs: University Carbon Research (UCR) and Historically Black Colleges and Universities and other Minority-Serving Institutions (HBCU-MSI). A brief description<sup>2</sup> of each sub-program is provided below.

***University Carbon Research (UCR) Program***

This sub-program provides funding to colleges and universities to support early-stage research and education into societal and human impacts of new technology development and deployment consistent with the program’s goals including Advancing Carbon Dioxide Removal, Accelerating Clean Hydrogen, Demonstrating and Deploying Point-Source Carbon Capture, and Advancing Critical Minerals (CM), Rare Earth Elements (REEs), Coal and Coal Waste to Products, and Mine Remediation. This sub-program provides a threefold benefit: (1) conducting directed energy research in an innovative environment; (2) expanding the research capabilities and education of students in STEM (Science Technology Engineering and Mathematics) and humanities disciplines;

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<sup>1</sup> “FECM Workforce Programs,” Office of Fossil Energy and Carbon Management, 16 July 2024, [FECM Workforce Programs | Department of Energy](#).

<sup>2</sup> “Department of Energy FY 2024 Congressional Justification,” DOE Vol. 4, Fossil Energy And Carbon Management Proposed Appropriation Language, Office of Chief Financial Officer, March 2023, [DOE FY 2024 Budget Request Vol 4 FECM \(energy.gov\)](#), accessed July 16, 2024.

and (3) developing research-based solutions to support Administration research, development, demonstration, and deployment (RDD&D) and equity goals.

### ***Historically Black Colleges and Universities and Other Minority Serving Institutions (HBCU-MSI) Program***

This sub-program supports early-stage mission-focused research and investigations and education into the societal and human impacts of new technology deployment related to the FECM mission. Awards under this program are intended to maintain and upgrade the educational, training, and research capabilities of HBCUs, Tribal Colleges and Universities (TCUs), and other MSIs in the fields of STEM and humanities with project results being used to further DOE and the Administration's commitment to equity and to advancing carbon management, critical minerals, and environmental remediation priorities.

This theme is consistent with the Department of Energy (DOE) Science Education Enhancement Act (42 U.S.C. § 7381) as amended by Sections 1102 and 1105 of the Energy Policy Act of 2005, which provides the statutory authority for DOE's HBCU-MSI Research and Development Program (HBCU-MSI Program). Implementation of the HBCU-MSI Program is also supported by DOE's Strategic Plan and Strategic Plan for Minority Education Programs, both of which promote the DOE's collaboration with Minority Serving Institutions. The HBCU-MSI Program is structured to support the mission of DOE.

The HBCU-MSI Program is directly relevant to the Justice40 Initiative. Established in Executive Order 14008, it outlines a focus on environmental justice for disadvantaged communities and establishes that 40% of overall benefits of certain federal investments must flow to disadvantaged communities. Seven program areas, all within the theme of decarbonization and a net-zero GHG emission economy will be considered, and examples of possible benefits within disadvantaged communities for each of these areas are provided in the interim guidance memo M-21-28 and addendum M-23-09. All projects funded through this FOA will be relevant to the Training and Workforce Development program area.

The Point-Source Carbon Capture RDD&D subprogram is within the Office of Carbon Management Technologies, and it focuses on committed emissions associated with infrastructure that are expected to persist through mid-century.<sup>2</sup> Natural gas power generation and carbon dioxide-emitting industrial sectors, such as cement, steel, pulp and paper, and hydrogen production are priorities. The Point-Source Carbon Capture subprogram supports pre- and post-combustion capture research and development (R&D) on transformational gas separation technologies that can help achieve decarbonization goals. This includes technologies such as non-aqueous solvents, sorbents, membranes, and cryogenic processes.

### **ANTICIPATED AREAS OF INTEREST (AOI)**

If released, the Funding Opportunity Announcement (FOA) is expected to focus on the following research and development activities:

- 1) **Curriculum to Grow Carbon Management Education Capacity** –The work funded through this AOI will address the challenge of a relatively low number of institutions, especially among Minority Serving Institutions, with an educational focus on carbon management. Projects would develop coursework to be taught at the host institution(s) to students, supplemented by efforts to disseminate materials to the external population for students at other institutions, workers, and/or other curious and interested members of the public.
- 2) **Critical Mineral Supply Chain Career Awareness Outreach Program** – The work funded through this AOI will address key gaps in the talent pipeline for the critical mineral supply chain sector. This AOI seeks to develop a pipeline for a highly skilled and diverse workforce by establishing one or

more university-led programs introducing concepts of critical minerals production to K-12 students (and their parents and teachers) in the surrounding communities. Proposals for this work could involve creating a new outreach program or making significant enhancements to an existing program. The outreach effort would be intended to lay out diversified career paths for students to enter the critical mineral supply chain sector, including pathways involving associate's, bachelor's, master's, or doctoral degrees, along with certificates or apprenticeships, and any combination thereof. As such, applications involving collaborative efforts will be encouraged, including those involving multiple departments within one institution and/or multiple institution types.

- 3) **Soil carbon sequestration: Establishing technical and social baselines to enable broader adoption**  
The work funded through this AOI will address two key gaps in the terrestrial carbon storage space: (1) the need for localized baseline measurements of soil carbon stock to enable determination of best practices for techniques improving soil carbon stock and other soil health parameters in various regions, and (2) the lack of understanding of specific barriers preventing local farmers from adopting soil health techniques improving terrestrial carbon stock. Funded projects would identify at least one location suitable for implementation of techniques increasing the carbon content of the soil. Locations could include farmlands, mine lands, wetlands, marshes, deserts, or prairies. If issued, this AOI would require an agreement with the site(s) intended to be used for testing; applications without a site agreement would be considered non-responsive. Additionally, the work would involve interviews conducted with at least three farmers, landowners, or other relevant stakeholders, where at least one stakeholder would be located in a disadvantaged community or tribally owned land.
  
- 4) **Using Artificial Intelligence (AI) and Machine Learning (ML) to Advance Point Source Capture (PSC) and Train the Next Generation of Engineers (HBCU-MSI only)** – This AOI seeks to address the need for development of next-generation carbon-capture materials by leveraging Artificial Intelligence (AI) and Machine Learning (ML) tools. In Topic A, projects will develop AI/ML tools that can identify next-generation materials that enable long lifetimes and can achieve high CO<sub>2</sub> capture efficiencies (at least 95% of CO<sub>2</sub> at high purity suitable for compression and transport<sup>2</sup>), enable flexible process designs with rapid start-ups and shut-downs, and be low-cost and resistant to sources of degradation in the process. In Topic B, projects will apply AI/ML algorithms and programs, in conjunction with conventional process analysis software and techniques, to develop/achieve first-principles (e.g., thermodynamic) models and/or Digital Twin models of the entire point source capture (PSC) ecosystem. In both topics, this AOI will create a skilled workforce in the field of AI/ML for materials discovery.

*The potential subject FOA may include revisions and amendments which may contain additional and/or different Areas of Interest.*

A University Training and Research Program Webinar will be held in the future. If you are interested in the webinar information, please reference NETL's business page periodically for updated information on events and/or proceedings from those event ([Events | netl.doe.gov](https://www.netl.doe.gov/events)). Past UTR webinars and presentations are outlined on [FECM's UTR webpage](#). The DOE also offers Technical Assistance videos on the [Energy Justice and Equity website](#) for MSIs applying to FOAs.

To stay up to date on announcements from the UTR program and other FECM programs, you may register for [FECM Email Updates](#).

DOE will **not** entertain questions at this time regarding issuance of the FOA. Details on how to submit questions and comments would be provided in the FOA.

#### **SUBMISSION AND REGISTRATION REQUIREMENTS FOR FULL APPLICATION**

If the FOA is released, it will be posted at Grants.gov (<http://www.grants.gov>) and at FedConnect

(<http://www.fedconnect.net>). Entities interested in applying for awards under the FOA are strongly encouraged to register at these sites to receive notification of announcements regarding the FOA. If DOE decides to issue the FOA, applications can only be submitted through Grants.gov. Eligibility to apply to this UTR FOA, if released, will be restricted to US Institutions of Higher Education. An HBCU-MSI-eligible Applicant will be considered for funding under both the UCR and HBCU-MSI Programs. More information on eligibility will be provided in the FOA, if released.

**There are several one-time actions an applicant must complete to submit a Full Application in Grants.gov** (e.g., obtain a Unique Entity Identifier (UEI), register with the System for Award Management (SAM), register with Grants.gov, and register in FedConnect.net to submit questions). Applicants who are not registered with SAM and Grants.gov, should allow at least 44 days to complete these requirements. It is suggested that the process be started as soon as possible.

- **SAM-** Applicants must register with SAM at <http://www.sam.gov/> prior to submitting an application in response to an FOA. Designating an Electronic Business Point of Contact (POC) and obtaining a special password called an MPIN are important steps in SAM registration. Failure to register with SAM will prevent your organization from applying through Grants.gov. The applicant must maintain an active SAM registration with current information at all times during which it has an active Federal award or an application under consideration. More information about SAM registration for applicants is found at: [GSAFSD Service Portal Landing - GSA Federal Service Desk Service Portal](#)

**NOTE:** If clicking the SAM links do not work, please copy and paste the link into your browser.

- **UEI** - Applicants must obtain an UEI from the SAM to uniquely identify the entity. The UEI is available in the SAM entity registration record.

**NOTE:** Subawardees/subrecipients at all tiers must also obtain an UEI from SAM and provide the UEI to the Prime Recipient before the subaward can be issued.

- **Grants.gov-** Applicants must register with Grants.gov and set up your WorkSpace. You cannot submit an application through Grants.gov unless registered. Please read the registration requirements carefully and start the process immediately.

- 1) The Authorized Organizational Representative (AOR) must register at: [Register | Grants.gov](#)
- 2) An email is sent to the E-Business (E-Biz) POC listed in SAM. The E-Biz POC must approve the AOR registration using their MPIN from their SAM registration.

**More information about the registration steps for Grants.gov is provided at:**

[Applicant Registration | Grants.gov](#)

In addition:

- Add a Profile to a Grants.gov Account: A profile in Grants.gov corresponds to a single applicant organization the user represents (i.e., an applicant) or an individual applicant. If you work for or consult with multiple organizations and have a profile for each, you may log in to one Grants.gov account to access all of your grant applications. To add an organizational profile to your Grants.gov account, enter the UEI for the organization in the UEI field while adding a profile. For more detailed instructions about creating a profile on Grants.gov, refer to: [Add Profile | Grants.gov](#)
- EBiz POC Authorized Profile Roles: After you register with Grants.gov and create an Organization Applicant Profile, the organization applicant's request for Grants.gov roles and access are sent to the EBiz POC. The EBiz POC will then log in to Grants.gov and authorize the appropriate roles, which may include the AOR role, thereby giving you permission to

complete and submit applications on behalf of the organization. You will be able to submit your application online any time after you have been assigned the AOR role.

**NOTE:** When applications are submitted through Grants.gov, the name of the organization applicant with the AOR role that submitted the application is inserted into the signature line of the application, serving as the electronic signature. The EBiz POC must authorize people who are able to make legally binding commitments on behalf of the organization as a user with the AOR role; **this step is often missed, and it is crucial for valid and timely submissions.**

To track your role request, refer to:

[Applicant Registration | Grants.gov](#)

Questions relating to the **registration process, system requirements, or how an application form works** must be directed to Grants.gov at 1-800-518-4726 or [support@grants.gov](mailto:support@grants.gov).

- **FedConnect.net** - Applicants must register with FedConnect to submit questions to an FOA. FedConnect website: [www.fedconnect.net](http://www.fedconnect.net).

## **DISCLAIMER**

This Notice of Intent (NOI) is issued so that interested parties are aware that DOE may issue an FOA on this topic. Any information contained in this NOI is subject to change.

This is a NOI only. DOE may issue a FOA as described herein, may issue a FOA that is significantly different than the FOA described herein or may not issue a FOA at all.

No Concept Papers or Full Applications are being accepted at this time.