Notice of Intent No.: DE-FOA-0002746

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 and applications are not being 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-0002735

Bipartisan Infrastructure Law (BIL): Regional Direct Air Capture (DAC) Hubs (Section 40308):

The Department of Energy (DOE) National Energy Technology Laboratory (NETL) intends to issue a Funding Opportunity Announcement (FOA) on behalf of the Office of Fossil Energy and Carbon Management (FECM). The FOA is anticipated to be issued in the fourth quarter of Fiscal Year 2022 and will be funded by the BIL.

BACKGROUND

On November 15, 2021, President Joseph R. Biden, Jr. signed the Infrastructure Investment and Jobs Act (Public Law 117-58), also known as the BIL. The BIL authorizes and appropriates a total of $3.5 billion for the five (5) year period encompassing fiscal years (FYs) 2022 through 2026 for Regional Direct Air Capture (DAC) Hubs (Section 40308). If issued, this FOA will implement Section 40308 of the BIL to contribute to the development of regional DAC Hubs while incorporating environmental justice, community engagement and consent-based siting, and equity and workforce development. DAC technologies support the Biden Administration's decarbonization goals of 50-52% reduction in greenhouse gases (GHG) from 2005 levels emissions by 2030, a carbon-pollution free power sector by 2035, and a net-zero GHG emissions economy by 2050. Section 40308 of the BIL requires DOE to provide funding for eligible projects that *contribute to* the development of four (4) regional DAC Hubs. Direct Air Capture processes which capture carbon dioxide from ambient air differs from point source carbon capture systems which prevent additional emissions from being released, e.g., from power plants or industrial facilities. Each of the DAC Hubs:

(i) facilitates the deployment of direct air capture *projects*;
(ii) has the capacity *to capture and sequester, utilize*, or *sequester and utilize* at least 1,000,000 metric tons of carbon dioxide from the atmosphere annually from a *single unit* or *multiple interconnected units*;
(iii) demonstrates the *capture*, *processing, delivery*, and *sequestration or end use of captured carbon*; and
(iv) could be developed into a regional or interregional carbon network to facilitate sequestration or carbon utilization.

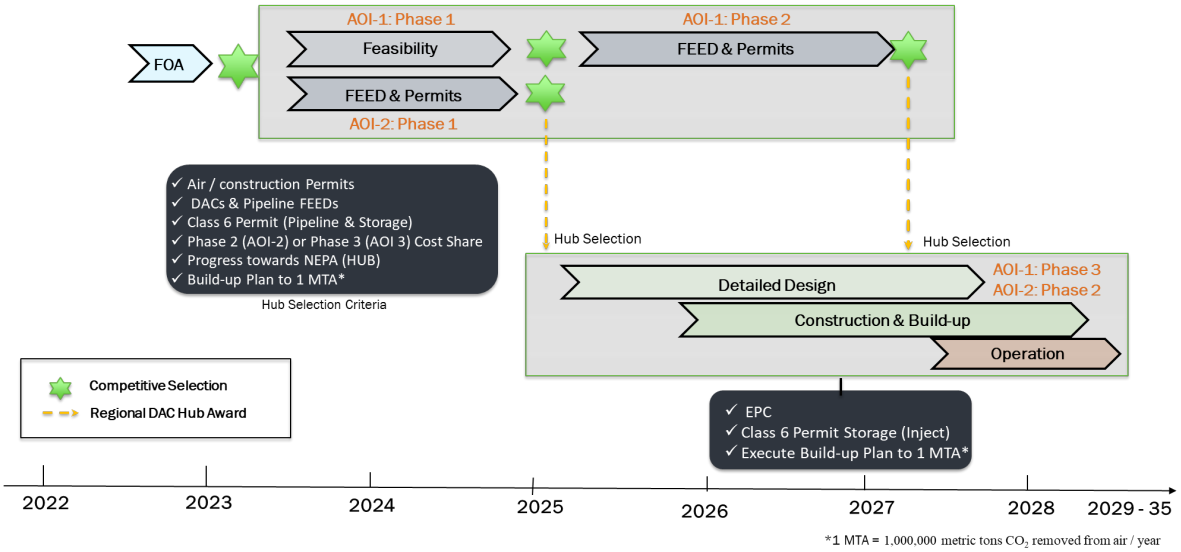
Meaningful community engagement will be central to the successful development and implementation of all phases of the Regional DAC Hubs program. Engagement is continuous throughout the lifecycle of a project, and the types of engagement will change with project phase. Projects funded through the BIL provisions will include Equity, Environmental and Energy Justice (EEEJ) principles and priorities. Equity requires the consideration of existing barriers underserved and underrepresented individuals and communities face when accessing Federal resources. Environmental and energy justice principles include procedural justice, distributive justice, recognition justice, and restorative justice.

In keeping with the Administration's goals, and as an agency whose mission includes strengthening our country's energy prosperity and advancing just and sustainable decarbonization, DOE intends to use this program to support the creation of good-paying jobs with the free and fair choice to join a union, the incorporation of strong labor standards, and high-road workforce development, especially registered apprenticeships, and quality pre-apprenticeship. DOE will require projects to track and report on outcomes and outputs related to environmental impacts, environmental justice, community engagement, and consent-based siting, equity and workforce development, and domestic supply chains and manufacturing. Guidance on specific application and reporting requirements will be included in the FOA, if released.

DIRECT AIR CAPTURE HUB IMPLEMENTATION STRATEGY

This Notice of Intent provides a high-level draft plan for DOE's current vision to meet the BIL requirements for Regional DAC Hubs. Please note this is a preliminary plan and will likely evolve during the FOA development process.

DOE understands that some DAC technologies are more mature while others are more nascent, but it is DOE's intent to further both near-term and longer-term DAC technologies through this BIL provision. Therefore, as per **Figure 1**, there will be two project timelines, a **Standard Timeline (i.e., Area of Interest 1)** that facilitates projects that are still formulating their Regional DAC Hub concept and require time to complete planning and team formation while assessing technical and economic viability during Phase 1, and an **Accelerated Timeline (i.e., Area of Interest 2)** that has a shorter schedule for Applicants that have already completed some of the necessary activities (e.g., DAC front-end engineering design (FEED)), thus facilitating the earlier development and implementation of a Regional DAC Hub(s).



Regardless of the timeline, all projects have to meet the same technical requirements (FEED & Permits, Detailed Design, Construction & Hub Build Out and Operation) and community engagement obligations. However, DOE anticipates that some companies have already completed some of these activities and should apply under **AOI-2** (Accelerated Timeline). DOE has funding available for projects in both timelines. It is DOE's expectation that due to the current technical readiness of most DAC technologies, most applicants will apply to **AOI-1** (Standard Timeline).

For Standard Timeline (**AOI-1**), DOE will **ONLY** be funding Phase 1 work at this time. Phase 2 and Phase 3 will be competitive and specific requirements for those Phases will be released by DOE at a later date. For Accelerated Timeline (**AOI-2**), DOE will be funding only Phase 1 work at this time. Phase 2 will be

competitive and specific requirements for this Phase will be released by DOE at a later date. For both timelines, the FOA will likely have a closing 60 days after issuance.

From FY22-FY26, this FOA is expected to make available up to $3.5 billion of Federal funds for cost-shared project(s) to support the goals of Section 40308 of the BIL and DOE's Carbon Dioxide Removal Program.

	Phase 1	Phase 2	Phase 3
Timeline			
Standard (AOI-1)	80/20	50/50	50/50
Accelerated (AOI-2)	50/50	50/50	n/a

Table 1. Anticipated Cost Share (%) Requirements for Each Timeline and Phase.

TECHNICAL OBJECTIVES

In accordance with Section 40308 of the BIL, DOE shall provide funding for eligible projects that contribute to the development of four Regional DAC Hubs.

For the purposes of implementation, only projects that result in carbon dioxide removal (i.e., atmospheric capture tied to permanent sequestration out of the atmosphere) will be considered. These include CO_2 captured from the atmosphere that is stored via durable conversion pathways or in dedicated geologic storage. Life cycle analysis of the entire project will be used as the basis for evaluating the CO_2-equivalent removal potential from the atmosphere, including: all mass and energy inputs and outputs required to construct, operate, monitor, and close the facility; emissions from land use change; and long-term retention of the CO_2. For the purpose of the DAC Hubs, eligible mechanisms for direct atmospheric CO_2 capture are anticipated to include: 1) chemical Direct Air Capture technologies (including those conventionally identified as "DAC"); 2) Biomass Carbon Removal and Storage (BiCRS), 3) Ocean-based Carbon Removal (Direct Ocean Capture, or "DOC"), and 4) Enhanced Mineralization. The term 'regional direct air capture hub' means a network of projects, potential CO_2 utilization off-takers, connective carbon dioxide transport infrastructure, subsurface resources, and sequestration infrastructure located within a region.

There are two areas of interest (AOIs), with identical technical requirements but different timelines to reflect that some applicants might have completed early activities:

AOI-1: Regional DAC Hubs (Standard Timeline)

The objective of **AOI-1** Phase 1 is to support projects that are still formulating their Regional DAC Hub concept and will complete planning and team formation while assessing technical and economic viability during Phase 1, which corresponds to the Standard timeline. **AOI-1** Recipients will complete planning and analysis, develop community engagement plans, including analysis of key metrics, such as the decarbonization potential and energy resources/infrastructure/workforce in the proposed region, initial design, financing, permitting, updating cost estimates for Phases 2 and 3, securing cost share for Phase 2, and preliminary National Environmental Policy Act (NEPA) compliance and related reviews. Under **AOI-1**, DAC Hub development and implementation will be conducted in three phases with a competitive down-selection between phases. Community engagement will be central to the successful implementation of all phases of the Regional DAC Hubs program.

AOI-2: Regional DAC Hubs (Accelerated Timeline)

The objective of **AOI-2** Phase 1 is to support projects that have formulated their Regional DAC Hub concept, received necessary project team and host site/land access commitments, developed and started to implement meaningful community engagement, completed most FEED work on both the DAC and storage components, and have submitted, or will soon submit, Underground Injection Control (UIC) Program Class VI permit(s) for dedicated carbon dioxide storage, but have not initiated the NEPA process.

AOI-2 recipients will implement community engagement plans emphasizing meaningful community engagement, and (if applicable) will finalize (i) the DAC front-end engineering design (FEED) study(ies), (ii) CO_2 Pipeline FEED Study(ies), (iii) development of relevant aspects of a Storage Field Development Plan(s) to support receipt of UIC Class VI Permit(s) to construct, and/or conversion off-take agreements, (iv) initial funding plan for the DAC Hub, and (v) initiation of the NEPA compliance process. The NEPA process includes developing an Environmental Information Volume (EIV) and receiving a determination of completing either an Environmental Assessment (EA) or Environmental Impact Statement (EIS), with either a Finding of Non-Significant Impact (FONSI) or a Record of Decision (ROD). Under **AOI-2**, DAC Hub development and implementation will be conducted in two phases with a competitive down-selection between Phase 1 and Phase 2. Community engagement will be central to the successful implementation of all phases of the Regional DAC Hubs program.

COORDINATION AND ANTICIPATED APPLICANT REQUIREMENTS

For both AOI's, Regional DAC Hub Applicants should discuss any coordination with activities of the Carbon Capture Technology Program established under the Energy Policy Act of 2005 (EPAct 2005) Section 962(b)(1) (*see also* BIL Section 40303), the Carbon Storage Validation and Testing Program established under EPAct 2005 963(b)(1) (*see also* BIL Section 40305), and the CIFIA[1] Program established under EPAct 2005 Section 999B(a) (*see also* BIL Section 40304) in their Phase 1 application narrative. DOE intends to leverage funding from each of the programs to contribute toward the development of integrated regional and interregional carbon capture, transport, sequestration, and utilization networks for removal.[2,3] See 2 CFR 200.306 for restrictions related to cost sharing under Federal awards, including that cost share funds cannot be paid by the Federal Government under another Federal award.

Phase 1 application requirements are anticipated to include, but will not be limited to, the following:

- Team commitments, including each team member's corporate net-zero plans and how participation in this Hub contributes to the companies' goals, Hub owner/responsible party (this usually will be the prime recipient of the award), DAC developer(s), carbon conversion developer(s), pipeline operator, storage site owner, EPC(s), host site(s), NEPA consultant, Life Cycle Analysis consultant, financing partner(s), CO_2 off-taker(s), labor groups/unions, and/or community groups/stakeholders.
- DAC Hub Region Description (i.e., description of the region, including economically distressed communities, if applicable; carbon intensity of the local industry; fossil energy production history, if applicable; availability of low carbon energy production; and existing infrastructure, including pipelines, carbon sequestration and/or conversion potential).
- DAC Technology Description(s) (i.e., description, current scale and maturation plan of the proposed DAC technology(ies), and existing and required resources, such as land, water, and energy).
- DAC Hub capacity build-up, including schedule, cost estimate, and plans for adding new team members and technologies.
- Description of plans and schedule to receive required permits, including UIC Class VI Permit (if applicable).
- Plan for meaningful stakeholder engagement based on a transparent process, including an evaluation of the impacts, costs, benefits and burdens of the proposed DAC hub on local communities as well as engagement with relevant construction trade unions to ensure the availability of a skilled workforce to support timely construction processes and, as appropriate, status on implementation of the plan.
- Explanation of how the cost share will be obtained for the proposed DAC Hub implementation.
- Business case analysis that demonstrates how DOE dollars will be leveraged (i.e., state and/or federal incentives, Low Carbon Fuel Standard and federal 45Q tax credits, and discussion of any voluntary corporate carbon purchases).

[1] 'CIFIA' means Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program
[2] https://www.energy.gov/bil/bipartisan-infrastructure-law-homepage
[3] https://netl.doe.gov/bilhub

When selecting applications for funding Section 40308, DOE is expecting to consider criteria, including but not limited to, the following:

- **CARBON INTENSITY OF LOCAL INDUSTRY -** Located in a region with— (I) existing carbon-intensive fuel production or industrial capacity; or (II) carbon-intensive fuel production or industrial capacity that has retired or closed in the preceding 10 years.
- **GEOGRAPHIC DIVERSITY -** located in different regions of the United States.
- **CARBON POTENTIAL -** located in regions with high potential for carbon sequestration or utilization.
- **HUBS IN FOSSIL-PRODUCING REGIONS -** contribute to the development of at least 2 Regional DAC Hubs located in economically distressed communities in the regions of the United States with high levels of coal, oil, or natural gas resources.
- **SCALABILITY -** give priority to eligible projects that, as compared to other eligible projects, will contribute to the development of Regional DAC Hubs with larger initial capacity, greater potential for expansion, and lower levelized cost per ton of carbon dioxide removed from the atmosphere.
- **EMPLOYMENT** - give priority to eligible projects that are likely to create opportunities for skilled training and long-term employment to the greatest number of residents of the region.

Note that projects proposing use and incidental or associated storage of CO_2 as part of the recovery and production of hydrocarbons under this FOA are not of interest and will not be accepted. Additionally, certain CO_2 use/conversion cases will not be of interest due to a lack of durable storage. It is anticipated that more details will be provided in the FOA.

DOE will **not** accept 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.

There are several one-time actions that must be completed before submitting an application in response to this Funding Opportunity Announcement (FOA) (e.g., obtain a Unique Entity Identifier (UEI), register with the System for Award Management (SAM), register with Grants.gov, and register with FedConnect.net to submit questions). It is vital that applicants address these items as soon as possible. Some may take several weeks, and failure to complete them could interfere with an applicant's ability to apply to this FOA. Applicants who are not registered should allow up to **44 days at a minimum to complete these requirements**

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

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

- **SAM** - Applicants must register with the SAM at https://www.sam.gov/ prior to submitting an application in response to this FOA. Designating an Electronic Business Point of Contact (EBiz 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: https://www.fsd.gov/gsafsd_sp?id=gsafsd_kb_articles&sys_id=650d493e1bab7c105465eaccac4bcbcb.

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

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

1. The Authorized Organizational Representative (AOR) must register at: https://apply07.grants.gov/apply/OrcRegister
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:
https://www.grants.gov/web/grants/applicants/registration.html

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 DUNS Number for the organization in the DUNS field while adding a profile. For more detailed instructions about creating a profile on Grants.gov, refer to: https://www.grants.gov/web/grants/applicants/registration/add-profile.html

- *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 is 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.**

For more detailed instructions about creating a profile on Grants.gov, refer to:
https://www.grants.gov/web/grants/applicants/registration/authorize-roles.html

To track your role request, refer to:
https://www.grants.gov/web/grants/applicants/registration/track-role-status.html

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**.

- **FedConnect.net** - Applicants must register with FedConnect to submit questions. FedConnect website: www.fedconnect.net.

DISCLAIMER

This NOI is issued so that interested parties are aware of the DOE's intention to issue a FOA in the near term. Any information contained in this NOI is subject to change.

No Full Applications are being accepted at this time.