

## DE-FOA-0002654

Questions about the FOA?

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FOA Webinar  
DE-FOA-0002654  
February 17, 2022

# Welcome

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**This webinar is being recorded and will be published on the EERE eXCHANGE website**

- **Participant's camera and microphone functions will be turned off and inaccessible**
  - You will not be able to turn them on during the webinar
- **Questions? Please enter them into the zoom chat function**
- **Answers will be provided after the webinar on EERE eXCHANGE**

# Notice

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- NO NEW INFORMATION OTHER THAN THAT PROVIDED IN THE FOA WILL BE DISCUSSED IN THE WEBINAR.
- There are no particular advantages or disadvantages to the application evaluation process with respect to participating on the webinar today.
- Your participation is completely voluntary.

# Notice

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- All applicants are strongly encouraged to carefully read the Funding Opportunity Announcement DE-FOA-0002654 (“FOA”) and adhere to the stated submission requirements.
- This presentation summarizes the contents of FOA. If there are any inconsistencies between the FOA and this presentation or statements from DOE personnel, the FOA is the controlling document and applicants should rely on the FOA language and seek clarification by submitting a question to [FY22CarbonUtilizationFOA@ee.doe.gov](mailto:FY22CarbonUtilizationFOA@ee.doe.gov).

## FY22 Carbon Utilization Technology: Improving Efficient Systems for Algae

**Anticipated Schedule:**

<b>FOA Issue Date:</b>	2/11/2022
<b>Submission Deadline for Concept Papers:</b>	3/18/2022
<b>Submission Deadline for Full Applications:</b>	5/27/2022
<b>Expected Date for DOE Selection Notifications:</b>	8/25/2022
<b>Expected Timeframe for Award Negotiations:</b>	August - September

# Agenda

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- 1) FOA Description
- 2) Diversity, Equity, and Inclusion
- 3) Topic Areas/Technical Areas of Interest
- 4) Award Information
- 5) Statement of Substantial Involvement
- 6) Cost Sharing
- 7) FOA Timeline
- 8) Concept Papers
- 9) Full Applications
- 10) Merit Review and Selection Process
- 11) Registration Requirements

# FOA Description

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Building a clean and equitable energy economy and addressing the climate crisis is a top priority of the Biden Administration. The Department of Energy (DOE) is committed to pushing the frontiers of science and engineering, catalyzing clean energy jobs through research, development, demonstration, and deployment, and ensuring environmental justice and inclusion of underserved communities.

The research and development activities funded by this FOA will support the government-wide approach to the climate crisis by driving the innovation that can lead to the deployment of clean energy technologies, which are critical for climate protection.

# FOA Description continued

Utilization of waste carbon dioxide (CO<sub>2</sub>), is of critical importance to achieving net-zero carbon emissions by 2050. Algae is a promising source of renewable carbon that can grow on waste CO<sub>2</sub>, including CO<sub>2</sub> captured from concentrated point sources or the ambient air. Fuels and products made from algae can be infrastructure-compatible, high-performance blendstocks, direct replacements, and/or additives to existing products.

The cultivation of algae also delivers benefits of the bioeconomy to new areas of the nation outside traditional agricultural and forestry areas. Using the CO<sub>2</sub> recycled in algae biomass to make affordable biofuels and bioproducts can displace greenhouse gas emissions from conventional products.

Bioproducts are products made from algae biomass, not including biofuels. This includes but is not limited to durable goods, foods, feeds, and other products that incorporate the algae biomass or fractions thereof.



# FOA Description continued

This FOA is funded by two DOE offices: the Office of Energy Efficiency and Renewable Energy's (EERE) Bioenergy Technologies Office (BETO) and the Office of Fossil Energy and Carbon Management's (FECM) Carbon Utilization Program (CUP).

The primary focus of BETO is on developing technologies that convert domestic biomass and/or waste resources, such as algae, into affordable biofuels and bioproducts that significantly reduce carbon emissions on a life cycle basis as compared to equivalent petroleum-based products.

Development of technologies for growing algae (including microalgae, macroalgae, and cyanobacteria) and conversion to biofuels and bioproducts is an important component of BETO's strategy for enabling the production of at least 3 billion gallons of sustainable aviation fuels (SAF) by 2030 with room for further volumetric growth through 2040 and 2050.

# FOA Description continued

The priority of FECM's Carbon Utilization Program (CUP) is to develop multiple pathways by which captured CO<sub>2</sub> is converted or recycled into economically viable and environmentally sustainable products. The near-term objective of this program's R&D is to ameliorate the cost of carbon capture and accelerate deployment of carbon management technologies through the conversion of CO<sub>2</sub> into value-added products. The program spans multiple technology approaches that include thermal, electrochemical, and bio-mediated pathways to utilize CO<sub>2</sub>. The activities funded by CUP through this FOA will demonstrate the economical and environmentally sustainable manufacturing of products through the biological uptake of CO<sub>2</sub> via algal systems.

Given the complementary mission areas of the offices, issuing this joint FOA reflects the Department's commitment to algae R&D, as well as its desire to cooperate effectively across mission areas and streamline processes for its applicants.

# Diversity, Equity, and Inclusion (DEI)

It is the policy of the Biden Administration that:

[T]he Federal Government should pursue a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.

This FOA seeks to encourage the participation of underserved communities and underrepresented groups. Applicants are highly encouraged to include individuals from groups historically underrepresented in STEM on their project teams.

As part of the application, applicants are required to describe how DEI objectives will be incorporated in the project. Specifically, applicants are required to submit a DEI Plan that describes the actions the applicant will take to foster a welcoming and inclusive environment, support people from underrepresented groups in STEM, advance equity, and encourage the inclusion of individuals from these groups in the project; and the extent the project activities will be located in or benefit underserved communities.

This plan will be evaluated as part of the technical review process and incorporated into the award if selected.

# Technology Space and Strategic Goals

This FOA addresses the broad challenges in improving the utilization efficiency of carbon dioxide supplied to algal systems.

BETO's Topic Area 1 is focused on improving utilization of emissions from fermentative processes or atmospheric carbon dioxide with the ultimate goal of maximizing the GHG impact of sustainable aviation fuels made from algae.

FECM CUP's Topic Area 2 is focused on improving utilization of utility and industrial point sources of carbon dioxide into bioproducts with a lower GHG life cycle assessment compared to conventional products.

Overall, this FOA specifically seeks to increase the carbon utilization efficiency (CUE) of algal systems to effectively cultivate a variety of targeted biofuels and bioproducts and lower their costs while quantifiably decreasing GHG impacts through deployment of algae-based technologies.

# Topic Area 1: Carbon Utilization Efficiency from Biomass- or Atmospheric-Based Sources of Carbon Dioxide

Topic Area 1 seeks to increase the carbon utilization efficiency of algal growth systems that use carbon dioxide sourced from fermentation (e.g., ethanol production), biogas purification (e.g., CO<sub>2</sub> removed from anaerobic digestion or landfill gas collection), or directly from the atmosphere. Using these CO<sub>2</sub> sources, algae grown on non-arable land and without freshwater are critical to expanding the domestic resource potential for biomass.

In algae systems, the cost of CO<sub>2</sub> is a major operational cost and addressing the utilization efficiency will both lower the overall costs and improve the GHG reduction potential of the fuels.

The impact of the Topic Area 1 outcome will be to lower the cost of fuels and products made from algal feedstocks while increasing the positive GHG impacts that can be achieved through deployment of algae-based technologies.

# Topic Area 1 continued

The objective of Topic Area 1 is to develop technologies that increase CUE in algal systems by minimizing the loss of captured carbon dioxide supplied to the system.

Strategies could include altering the water chemistry of algae growth media to increase CO<sub>2</sub> retention, isolating novel strains or improving existing algae strains to tolerate the altered media, developing novel CO<sub>2</sub> delivery systems, and modifying algae growth operational strategies to maximize carbon retention.

Encourages integration of carbon utilization R&D with work to lower the cost and increase the positive GHG impact of photosynthetically generated algae lipids suitable for conversion to SAF.

## Key Performance Parameters

<b><u>Metric</u></b>	<b>Target</b>	<b>Units</b>
<b>Carbon Utilization Efficiency</b>	>70%	kg carbon in harvested biomass / kg carbon supplied over course of >30 day trial
<b>Productivity</b>	>20	Areal productivity in grams ash-free dry biomass per m <sup>2</sup> per day over course of >30 day trial
<b>*Note that BETO encourages the use of standard analytical procedures for algae biomass composition and productivity. These procedures were developed by National Renewable Energy Laboratory (NREL)</b>		

# Topic Area 1 Requirements

- 1) Define CO<sub>2</sub> source(s):
  - a. CO<sub>2</sub> sources must be either waste CO<sub>2</sub> emissions from a stationary point fermentation source (e.g., a biorefinery), from biogas cleanup (e.g., purification of landfill gas to renewable natural gas), or CO<sub>2</sub> supplied via directly from the ambient atmosphere (e.g., through integration with Direct Air Capture (DAC) technology or through accelerated diffusion into algae growth media). Applicants must define CO<sub>2</sub> source, purity, and likely contaminants; and
  - b. Applicants must establish a framework for measuring carbon utilization minus any carbon supplied in their media and/or source water.
  
- 2) Define a baseline highly productive algae cultivation system that is the starting point for the proposed technology development in the application, is at TRL 3 or higher, and:
  - a. Includes definition of the strain(s) and a summary of prior cultivation data (i.e., prior cultivation data using the base proposed strain is required and further development of novel strains is allowable provided sufficient assays are proposed to delineate performance);
  - b. Utilizes saline or non-potable source water;
  - c. Includes a description of the growth media;
  - d. Describes the operational strategies;
  - e. Describes the harvest/dewatering technology; and
  - f. Includes target biomass composition(s) and the products to be made from the harvested algae.

# Topic Area 1 Requirements continued

- 3) Propose to meet or exceed the minimum target metrics for Topic Area 1 and provide a work plan that is likely to support meeting the targets while advancing the TRL of the system to 4;
- 4) Propose to deliver a carbon and nitrogen mass balance of the outdoor field research system that will be based on at least two independent 30 day or longer cultivation campaigns;
- 5) Propose a research plan guided by ongoing TEA and LCA to ensure that the proposed approaches can be integrated into industrially relevant algae cultivation systems (i.e., the workplan should have these analyses in parallel with experimental work and identify interim points in the project when these analysis results could be used to re-direct or downselect experimental plans);
- 6) Identify key data elements needed to deliver TEA and LCA results for the biofuels and bioproducts identified in the required Market Transformation Plan and envisioned to eventually be made from the produced algae biomass, propose adequate work plans to generate needed data for the algae biomass-related data elements, and propose to deliver TEA and LCA results using data gathered.
  - Note that it is not required to produce biofuels or bioproducts within the scope of the Topic Area 1 project – conversion efficiency may be extrapolated based on the biomass composition; and
- 7) Participate in initial, interim, and final verifications as described in Appendix H.



## Topic Area 2: Algae-Based Technology to Utilize Anthropogenic CO2 from Utility and Industrial Sources

Algal systems are a critical utilization pathway in CUP's mission due to algae's rapid growth, tolerance to various conditions, limited space requirements, and the formation of high-energy carbon compounds. The versatility and scope of market end uses of algal feedstocks make the algae pathway for CO2 conversion attractive for scale-up and commercialization; thus, increasing the impact of this approach to reduce CO2 emissions and mitigate climate change.

Applications must include three primary activities:

- 1) Describe quantification and optimization method of carbon dioxide uptake and conversion efficiency;
- 2) Identify target products and subsequent characterization to validate their usability and benefit; and
- 3) Full analysis of environmental and economic impact through LCA and TEA.

### Key Performance Parameters

Metric	Target	Units
<b>Carbon Utilization Efficiency</b>	50% or greater	kg carbon in harvested biomass / kg carbon supplied over course of >30 day trial
<b>Productivity</b>	>20	Areal productivity in grams dry ash-free biomass / m2 per day over course of >30 day trial

\*Note that CUP encourages the use of standard analytical procedures for algae biomass composition and productivity. These procedures were developed by NREL and are accessible here: [Microalgae Compositional Analysis Laboratory Procedures | Bioenergy | NREL](#).

## Topic Area 2 continued

Seeks applications that utilize emissions streams from utilities or industrial sources to grow algae for source material. Targeted emission streams are combustion exhaust gas produced from thermal conversion. Potential streams to be considered are representative of cement manufacturing, natural gas facilities, iron and steel production, and solid fuel (coal-fired or biomass) power plants. The acceptable sources of CO<sub>2</sub> for the proposed system can be ranked with explanations and benefits applicable to the specific process and algae strain. Thus, the integrated testing with a CO<sub>2</sub> source may be a continuous real emission stream or a synthetic representative of the selected emissions stream(s).

R&D concepts must holistically address CO<sub>2</sub> capture, conditioning, transport, and transfer to the algae medium to maximize CO<sub>2</sub> uptake and minimize the cost of CO<sub>2</sub> delivery while consider other potential co-benefits and negative impacts. Applications must consider a novel carbon delivery that improves carbon transfer or increases residence time, i.e., carbonate mechanisms, bubble-free CO<sub>2</sub>, or improved systems design. Real-time and accurate verification methods are also required for Topic Area 2. Projects must also address key technical barriers regarding process chemistry and system operations, including: reaction kinetics, selectivity, conversion, yield, equilibrium constraints, operating pressure and temperature, product separation, and feedstock purity requirements.

# Topic Area 2 Requirements

## 1) Carbon uptake requirements:

- a. To optimize CO<sub>2</sub> uptake and conversion efficiency, applicants must demonstrate holistically considered integration with the carbon source. This includes:
  - the optimal CO<sub>2</sub> concentration for transport and delivery;
  - practical limits on how much CO<sub>2</sub> can be utilized from any single source;
  - system footprint - including capture, diurnal storage, and algae cultivation and processing systems; and
  - the fate of heavy metals and other possible flue gas impurities.
- b. At a minimum, the application must detail the source of the CO<sub>2</sub> waste gas stream, the concentration of CO<sub>2</sub> in the stream, any impurity process requirements, CO<sub>2</sub> concentration after processing, and any other relevant indicators deemed essential to the process.
- c. Carbon transfer efficiencies (CTE) must be measured throughout each test campaign. CTE is the ratio between the change in the carbon content of the solution and the total CO<sub>2</sub> delivered. Comparative baselines for conventional technologies can be referenced from literature or experimentally derived.
- d. The CUE can be affected by a series of factors, e.g., the CTE. Therefore, applicants must demonstrate their understanding between the proposed innovations and implications in quantitative processes such as LCA, CTE, or CUE. If projects are investigating factors leading to an optimum CTE/CUE, then LCA should provide enough resolution on these factors.

# Topic Area 2 Requirements continued

## 2) Validation of bioproducts requirements:

- a. To validate the selection of a target bioproduct, applicants should provide a preliminary cost-benefit analysis showing why a particular bioproduct was targeted over other bio-based alternatives.
- b. Applications must demonstrate familiarity with proper bioproduct characterization and outline best available practices and techniques for algae-production technology for their intended bioproduct market, i.e., animal feeds source material. For Topic Area 2, applicants need to address the contaminants present, e.g., nitrogen oxides, sulfur oxides, hydrochloric acid, BTEX (benzene, toluene, ethylbenzene, and xylene), and other volatile organic compounds, heavy metals, within the inputs. Applicants must detail a path to complete any applicable testing and validation to enter a commercial market such as FDA/U.S. Department of Agriculture testing, product performance, or quality control and assurance.
- c. The commercialization pathway should highlight technical hurdles but also potential permitting steps and external factors such as consumer preference and potential co-benefits or negative impacts this pathway could have on marginalized or underserved communities including environmental justice communities. Applicants must define key stakeholders involved from the start of bioproduct testing, validation all the way into market penetration including stakeholders and communities typically excluded from or underrepresented in RDD&D processes. The applicant must outline a strategy to be employed during the project which proactively engages stakeholders and mitigates potential concerns.

# Topic Area 2 Requirements continued

- 3) Sustainability and economic analysis requirements:
  - a. Applicants must provide a baseline discussion of sustainability, life cycle analysis, and techno-economic analysis for the proposed pathway, including any upstream unit processes for CO<sub>2</sub> pretreatment and delivery from emission sources. Throughout the project, applicants must plan for performing ongoing TEA and LCA using NETL guidance documents and tools.
  - b. Through high-level TEA analysis, applicants should also identify knowledge gaps, vital technical challenges, and overall process cost. The applicant must discuss the impact that DOE funding would have on the proposed project. Applicants must specifically explain how DOE funding is necessary to achieve the project objectives relative to prior, current, or anticipated funding from other public and private sources.
- 4) Impacts requirement:
  - a. The applicant must provide the information set forth in the Performance Data Table in Appendix G and include a detailed block flow diagram illustrating the process of converting biomass to any products and services provided, such as wastewater treatment.

# Non-Responsive Applications: Topic Area 1 and 2

The following types of applications will be deemed nonresponsive and will not be reviewed or considered for an award:

- Applications that fall outside the technical parameters specified in Section I.A. and I.B. of the FOA.
- Applications for proposed technologies that are not based on sound scientific principles (e.g., violates the laws of thermodynamics).
- Applications that propose to develop technology that relies on purely heterotrophic algae cultivation.
- Applications that propose to develop technology for the artificial lighting-based cultivation of algae for energy products (other than as an enabling tool for high-throughput laboratory-based screening).
- Applications that propose to work on biomass other than algae biomass (e.g., lignocellulosic biomass).
- Applications that propose to undertake construction or groundbreaking for new research facilities (installation of new experimental equipment is allowable).
- Applications that propose novel carbon capture R&D. No novel carbon capture R&D will be considered. R&D may address challenges that are specific to integrating the algae technology with existing carbon capture technology.

# Non-Responsive Applications: Topic Area 2 only

Proposed novel R&D in the technology areas listed below will be considered non-responsive:

- Post-combustion CO<sub>2</sub> capture technologies
- Pre-combustion CO<sub>2</sub> capture technologies
- Oxy-combustion and chemical looping
- CO<sub>2</sub> compressor development
- CO<sub>2</sub> transport and geological storage
- Co-firing of biomass
- Direct air capture technologies
- Cultivation of terrestrial plants and biological sequestration
- Mineralization reactions with newly mined materials
- Enhanced Oil Recovery (EOR)
- Technologies primarily producing biofuels, ethanol, and biogas

# Award Information

Topic Area Number	Topic Area Title	Anticipated Number of Awards	Anticipated Minimum Award Size for Any One Individual Award (Fed Share)	Anticipated Maximum Award Size for Any One Individual Award (Fed Share)	Approximate Total Federal Funding Available for All Awards	Anticipated Period of Performance (months)
1	Carbon Utilization Efficiency from Biomass- or Atmospheric-Based Sources of Carbon Dioxide	3-4	\$2,000,000	\$3,000,000	\$9,000,000	24-36
2	Algae-Based Technology to Utilize Anthropogenic CO <sub>2</sub> from Utility and Industrial Sources	3-5	\$2,000,000	\$2,000,000	\$10,000,000	24-36

Types of Funding Agreements: Cooperative Agreement

Cost Share Requirement: 20%

\*Subject to the availability of appropriated funds



# Statement of Substantial Involvement

DOE has substantial involvement in work performed under awards made following this FOA. DOE does not limit its involvement to the administrative requirements of the award. Instead, DOE has substantial involvement in the direction and redirection of the technical aspects of the project as a whole. Substantial involvement includes, but is not limited to, the following:

- DOE shares responsibility with the Recipient for the management, control, direction, and performance of the Project.
- DOE may intervene in the conduct or performance of work under this award for programmatic reasons. Intervention includes the interruption or modification of the conduct or performance of project activities.
- DOE may redirect or discontinue funding the Project based on the outcome of EERE's evaluation of the Project at that the Go/No Go decision point.
- DOE participates in major project decision-making processes.

# Cost Sharing Requirements

## Cost Share 20%

The cost share must be at least 20% of the total allowable costs for research and development projects (i.e., the sum of the government share, including FFRDC costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project) and must come from non-federal sources unless otherwise allowed by law. (See 2 CFR 200.306 and 2 CFR 910.130 for the applicable cost sharing requirements.)

To assist applicants in calculating proper cost share amounts, DOE has included a cost share information sheet and sample cost share calculation as Appendices A and B to this FOA.

# Cost Share Contributions

- Contributions must be:
  - Specified in the project budget
  - Verifiable from the Prime Recipient's records
  - Necessary and reasonable for proper and efficient accomplishment of the project
- If you are selected for award negotiations, every cost share contribution must be reviewed and approved in advance by the Contracting Officer and incorporated into the project budget before the expenditures are incurred
- Please note, vendors/contractors may NOT provide cost share. Any partial donation of goods or services is considered a discount and is not allowable.

# Allowable Cost Share

- Cost Share must be allowable and must be verifiable upon submission of the Full Application
- Refer to the following applicable Federal cost principles:

<b>Entity</b>	<b>Cost Principles</b>
For-profit entities	FAR Part 31 <a href="http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/far/31.htm">http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/far/31.htm</a>
All other non-federal entities	2 CFR Part 200 Subpart E - Cost Principles <a href="https://www.ecfr.gov/cgi-bin/text-idx?node=2:1.1.2.2.1.5&amp;rgn=div6">https://www.ecfr.gov/cgi-bin/text-idx?node=2:1.1.2.2.1.5&amp;rgn=div6</a>

# Allowable Cost Share

- Cash Contributions
  - May be provided by the Prime Recipient, Subrecipients, or a Third Party (may not be provided by vendors/contractors)
- In-Kind Contributions
  - Can include, but are not limited to: the donation of volunteer time or the donation of space or use of equipment.

*For more information, see the Cost Share Appendix A in the FOA*

# Unallowable Cost Share

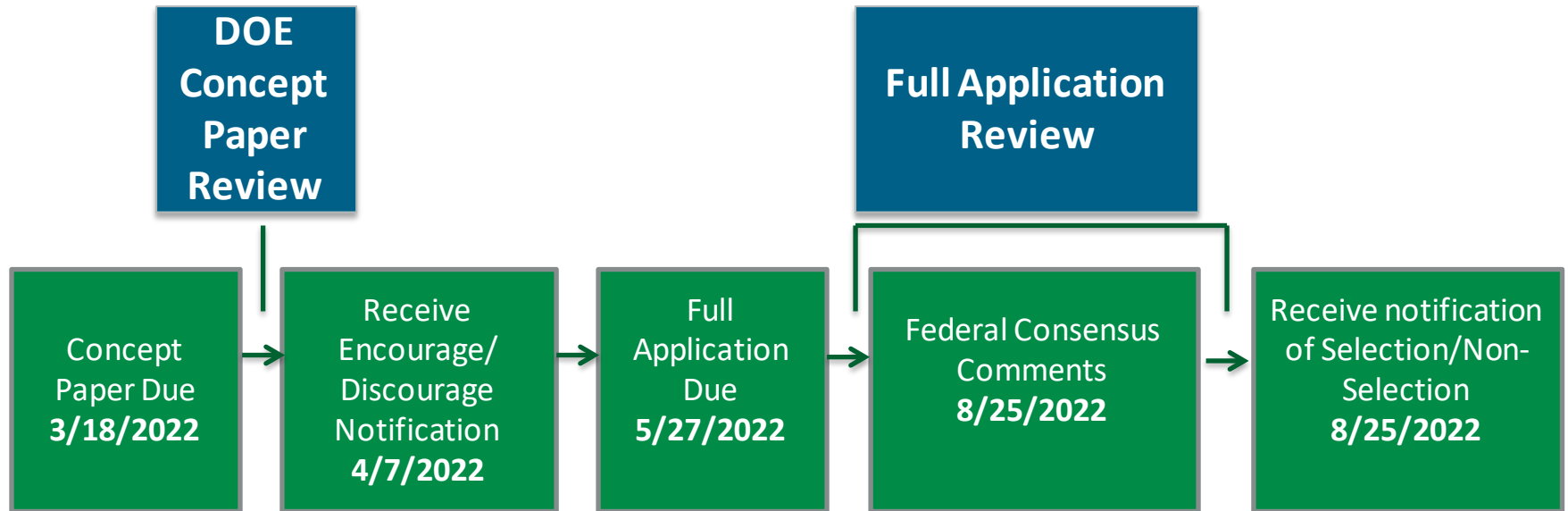
The Prime Recipient may **NOT** use the following sources to meet its cost share obligations including, but not limited to:

- Revenues or royalties from the prospective operation of an activity beyond the project period
- Proceeds from the prospective sale of an asset of an activity
- Federal funding or property
- Expenditures reimbursed under a separate Federal Technology Office
- The same cash or in-kind contributions for more than one project or program
- Vendor/contractor contributions

# Cost Share Payment

- Recipients must provide documentation of the cost share contribution, incrementally over the life of the award
- The cumulative cost share percentage provided on each invoice must reflect, at a minimum, the cost sharing percentage negotiated
- In limited circumstances, and where it is in the government's interest, the EERE Contracting Officer may approve a request by the Prime Recipient to meet its cost share requirements on a less frequent basis, such as monthly or quarterly. See Section III.B.6 of the FOA.

# FOA Timeline



DOE anticipates making awards by September 2022



# Concept Papers

- Applicants must submit a Concept Paper
  - Each Concept Paper must be limited to a single concept or technology
- Section IV.C of the FOA states what information a Concept Paper should include and the page limits.
  - Failure to include the required content could result in the Concept Paper receiving a “discouraged” determination or the Concept Paper could be found to be ineligible
- Concept Papers must be submitted by 3/18/2022 at 5 pm EST through EERE Exchange
- DOE provides applicants with: (1) an “encouraged” or “discouraged” notification, and (2) discouraged applicants will receive consolidated reviewer comment feedback with their “discouraged” notification.

# Concept Paper Review

Concept Papers are evaluated based on consideration the following factors. All sub-criteria are of equal weight.

Concept Paper Criterion: Overall FOA Responsiveness and Viability of the Project (Weight: 100%)

This criterion involves consideration of the following factors:

- The applicant clearly describes the proposed technology, describes how the technology is unique and innovative, and how the technology will advance the current state-of-the-art;
- The applicant has identified risks and challenges, including possible mitigation strategies, and has shown the impact that DOE funding and the proposed project would have on the relevant field and application;
- The applicant has the qualifications, experience, capabilities and other resources necessary to complete the proposed project; and
- The proposed work, if successfully accomplished, would clearly meet the objectives as stated in the FOA.

# Full Applications

The Full Application includes:

- **Technical Volume**
- **Resumes**
- **Letters of Commitment**
- **Statement of Project Objectives**
- **SF-424 Application for Federal Assistance**
- **Budget Justification Workbook**
- **Summary for Public Release**
- **Summary Slide**
- **Subrecipient Budget Justification**
- **DOE Work Proposal**
- **FFRDC Authorization**
- **Disclosure of Lobbying Activities**
- **Foreign Entity and Foreign Work Waivers**
- **Diversity Equity and Inclusion Plan**
- **Current and Pending Support**
- **Performance Data Table**

# Full Applications: Technical Volume Content

## Technical Volume: the key technical component of the Full Application

Content of Technical Volume	Suggested % of Technical Volume
Cover Page	
Project Overview	10%
Technical Description, Innovation and Impact	30%
Workplan and Market Transformation Plan	40%
Technical Qualifications and Resources	20%

# Full Application Eligibility Requirements

- Applicants must submit a Full Application by 5/27/2022
- Full Applications are eligible for review if:
  - The Applicant is an eligible entity Section III.A of FOA;
  - The Applicant submitted an eligible Concept Paper;
  - The Cost Share requirement is satisfied Section III.B of FOA;
  - The Full Application is compliant Section III.C of FOA; and
  - The proposed project is responsive to the FOA Section III.D of FOA
  - The Full Application meets any other eligibility requirements listed in Section III.E of the FOA.
  - Limitation on number of concept papers and full applications eligible for review Section III.F of the FOA

# Who is Eligible to Apply?

1. U.S. citizens and lawful U.S. permanent residents
2. For-profit entities
3. Educational institutions
4. Nonprofits
5. State, local, and tribal government entities
6. DOE/NNSA FFRDCs are eligible to apply for funding as a subrecipient but are not eligible to apply as a prime recipient.
7. Non-DOE/NNSA FFRDCs are eligible to apply for funding as a subrecipient but are not eligible to apply as a prime recipient.
8. NETL is not eligible for award under this FOA and may not be proposed as a sub-recipient on another entity's application. An application that includes NETL as a prime recipient or subrecipient will be considered non-responsive.

For more detail about eligible applicants, please see Section III.A of the FOA

Nonprofit organizations described in Section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995, are not eligible to apply for funding.

Prime Recipients must be incorporated (or otherwise formed) under the laws of a State or territory of the United States and have a physical location for business operations in the United States. See Section III.A.iii for requirements applicable to foreign entities applying under this FOA.

# Multiple Applications

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An entity may submit more than one Concept Paper and Full Application to this FOA, provided that each application describes a unique, scientifically distinct project and provided that an eligible Concept Paper was submitted for each Full Application.

# Merit Review and Selection Process (Full Applications)

- The Merit Review process consists of multiple phases that each include an eligibility review and a thorough technical review
- Rigorous technical reviews are conducted by reviewers that are experts in the subject matter of the FOA
- Ultimately, the Selection Official considers the recommendations of the reviewers, along with other considerations such as program policy factors, to make the selection decisions



# Technical Merit Review Criteria

- Criterion 1: Technical Merit, Innovation, and Impact (50%)
  - Technical Merit and Innovation
  - Impact of Technology Advancement
- Criterion 2: Project Research and Market Transformation Plan (25%)
  - Research Approach, Workplan, and SOPO
  - Identification of Technical Risks
  - Baseline, Metrics, and Deliverables
  - Market Transformation Plan
- Criterion 3: Team and Resources (15%)
- Criterion 4: Diversity, Equity, and Inclusion (10%)

# Selection Factors

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The Selection Official may consider the merit review recommendation, program policy factors, and the amount of funds available in arriving at selections for this FOA

# Program Policy Factors

The Selection Official may consider the following program policy factors in making his/her selection decisions:

- The degree to which the proposed project exhibits technological diversity when compared to the existing DOE project portfolio and other projects selected from the subject FOA;
- The degree to which the proposed project, including proposed cost share, optimizes the use of available DOE funding to achieve programmatic objectives;
- The level of industry involvement and demonstrated ability to accelerate commercialization and overcome key market barriers;
- The degree to which the proposed project is likely to lead to increased employment and manufacturing in the United States;
- The degree to which the proposed project will accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty; and
- The degree to which the proposed project, or group of projects, represent a desired geographic distribution (considering past awards and current applications).
- Whether the proposed project will occur in a Qualified Opportunity Zone or otherwise advance the goals of Qualified Opportunity Zones. The goals include spurring economic development and job creation in distressed communities throughout the United States.

# Registration Requirements

- To apply to this FOA, Applicants must register with and submit application materials through EERE Exchange: <https://eere-Exchange.energy.gov/>
- Obtain a “control number” at least 24 hours before the first submission deadline
- Although not required to submit an Application, the following registrations must be complete to received an award under this FOA:

<b>Registration Requirement</b>	<b>Website</b>
DUNS Number	<a href="http://fedgov.dnb.com/webform">http://fedgov.dnb.com/webform</a>
SAM	<a href="https://www.sam.gov">https://www.sam.gov</a>
FedConnect	<a href="https://www.fedconnect.net">https://www.fedconnect.net</a>
Grants.gov	<a href="http://www.grants.gov">http://www.grants.gov</a>

# Means of Submission

- Concept Papers and Full Applications must be submitted through EERE Exchange at <https://eere-Exchange.energy.gov>
  - DOE will not review or consider applications submitted through other means
- The Users' Guide for Applying to the Department of Energy EERE Funding Opportunity Announcements can be found at <https://eere-Exchange.energy.gov/Manuals.aspx>

# Key Submission Points

- Check entries in EERE Exchange
  - Submissions could be deemed ineligible due to an incorrect entry
- DOE strongly encourages Applicants to submit 1-2 days prior to the deadline to allow for full upload of application documents and to avoid any potential technical glitches with EERE Exchange
- Make sure you hit the submit button
  - Any changes made after you hit submit will un-submit your application and you will need to hit the submit button again
- For your records, print out the EERE Exchange page at each step, which contains the application's Control Number

# Applicant Points-of-Contact

- Applicants must designate primary and backup points-of-contact in EERE Exchange with whom DOE will communicate to conduct award negotiations
- It is imperative that the Applicant/Selectee be responsive during award negotiations and meet negotiation deadlines
  - Failure to do so may result in cancellation of further award negotiations and rescission of the Selection

# Questions

- Questions about this FOA? Email: [FY22CarbonUtilizationFOA@ee.doe.gov](mailto:FY22CarbonUtilizationFOA@ee.doe.gov)
  - All Q&As related to this FOA will be posted on EERE Exchange
    - You must select this specific FOA Number in order to view the Q&As
  - EERE will attempt to respond to a question within 3 business days, unless a similar Q&A has already been posted on the website
- Problems logging into EERE Exchange or uploading and submitting application documents with EERE Exchange? Email: [EERE-ExchangeSupport@hq.doe.gov](mailto:EERE-ExchangeSupport@hq.doe.gov).
  - Include FOA name and number in subject line
- All questions asked during this presentation will be posted on EERE Exchange