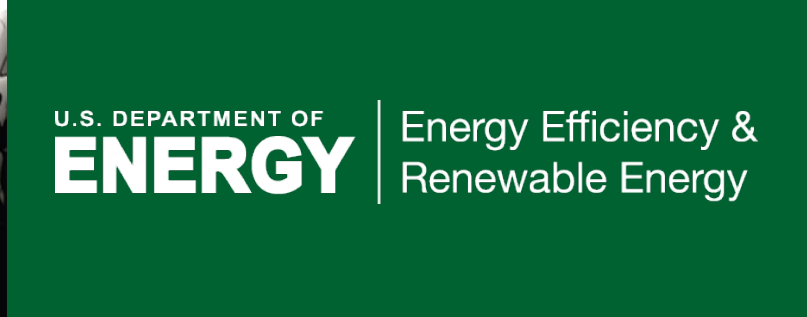


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MACRO: Mixed Algae Conversion Research Opportunity FOA Webinar

MacroFOA@ee.doe.gov

FOA Webinar
DE-FOA-0003274
April 17, 2024

Notice

- 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

- All applicants are strongly encouraged to carefully read the Funding Opportunity Announcement DE-FOA-0003274 (“**FOA**”) and adhere to the stated submission requirements.
- This presentation summarizes the contents 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, and applicants should rely on the FOA language and seek clarification by submitting a question to MacroFOA@ee.doe.gov

MACRO: Mixed Algae Conversion Research Opportunity

Anticipated Schedule:

FOA Issue Date:	April 10, 2024
Submission Deadline for Concept Papers:	May 10, 2024, 5:00 PM EDT
Submission Deadline for Full Applications:	June 27, 2024, 5:00 PM EDT
Expected Date for EERE Selection Notifications:	September 26, 2024
Expected Timeframe for Award Negotiations:	Oct. – Dec. 2024

Agenda

- 1) FOA Description (FOA section I.A)
- 2) Topic Areas (FOA section I.B)
- 3) Award Information (FOA section II)
- 4) Statement of Substantial Involvement (FOA section VI.B.x)
- 5) Cost Sharing (FOA section III.B)
- 6) FOA Timeline (FOA Cover Page)
- 7) Concept Papers (FOA section V.A.i)
- 8) Full Applications (FOA section V.A.ii)
- 9) Merit Review and Selection Process (FOA section V)
- 10) Registration Requirements (FOA section VI.B.i)

FOA Description – FOA Section I.A

This FOA will advance the Biden Administration’s goals to put the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050. The U.S. Department of Energy (DOE) is committed to catalyzing clean energy jobs through research, development, demonstration, and deployment, and ensuring environmental justice and inclusion of underserved communities.

This FOA is funded by two offices in the DOE: 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 Conversion Program.

FOA Description

BETO's focus is on developing technologies that convert domestic biomass and/or waste resources to affordable biofuels and bioproducts that significantly reduce carbon emissions on a life-cycle basis as compared to equivalent petroleum-based products. These bioenergy technologies can enable a transition to a clean energy economy, create high-quality jobs, support rural economies, and spur innovation in renewable energy and chemicals production.

The priority of FECM's Carbon Conversion Program is to develop pathways by which captured and concentrated CO₂ is converted into economically viable and environmentally sustainable products. The near-term objective of this program's R&D is to accelerate deployment of carbon management technologies through the conversion of CO₂ into value-added products. The program includes bio-mediated pathways to convert and use CO₂.

FOA Description

BETO recently funded the first full US Exclusive Economic Zone (EEZ) analysis for seaweed biomass potential. BETO hosted a stakeholder engagement session in February 28, 2023, to present preliminary findings from the analysis and gather feedback from experts across the seaweed industry. The analysis includes a marine area screening analysis, macroalgae biomass growth model, and associated technoeconomic analysis (TEA) and finds that the technical potential could match or exceed the biomass potential from terrestrial sources.

This potential for seaweed to contribute to the bioeconomy underscores the need for targeted investments to support the development of the seaweed industry—from farming technologies through marketable products.

<https://www.energy.gov/eere/bioenergy/2023-billion-ton-report-assessment-us-renewable-carbon-resources>

FOA Description

This FOA specifically seeks to address gaps in conversion technology approaches for various algal and wet waste feedstocks to increase their utilization. Developing successful conversion technologies can further improve the economics and carbon utilization efficiencies to bioproducts, resulting in additional market opportunities for further algae biomass cultivation and carbon dioxide utilization. These technologies may also provide solutions for communities to lower costs and the environmental impacts of waste management.

- For purposes of this FOA, “algae” includes microalgae, cyanobacteria, and macroalgae (also referred to as seaweed).
- All types of algae may be of interest to this FOA, subject to the topic-specific requirements described in each Topic Area.
- For Topic Area 1, the required beginning Technology Readiness Level (TRL – see Appendix E of the FOA) is 3 and the target state is 4 by the end of the project.
- For Topic Area 2, the required beginning TRL is 4 and the target state is 5 by the end of the project.

Topic Areas – FOA Section I.B

Topic Area 1: Conversion of Seaweeds to Low-Carbon Fuels and Bioproducts

- Topic Area 1 is specifically focused on utilizing readily available algae including: offshore farmed seaweeds, seaweed wastes (e.g., from nutrient extraction processes), and blends of seaweed with other waste algae (e.g., algae produced during wastewater treatment or harmful algal blooms that present disposal issues) or blends of seaweed with other wet wastes (e.g. sludge from wastewater treatment) for conversion to low-carbon fuels and bioproducts such as commodity chemicals.

Topic Area 2: Conversion of Algal Biomass for Low-Carbon Agricultural Bioproducts

- Topic Area 2 is specifically focused on utilizing direct industrial CO₂ emissions in algal systems to produce biomass feedstocks that can be processed or converted to value-added products, defined as when the value of an end product is increased compared to the value of feedstocks by processing and inclusion of additional qualities or functions (excluding fuel products).

Topic Area 1: Conversion of Seaweeds to Low-Carbon Fuels and Bioproducts

Topic Area 1, funded by BETO, aims to address gaps in storage, mobilization, and conversion of readily available algae to low-carbon fuels and bioproducts to enable these readily available feedstocks to access new markets.

Allowable feedstocks include the following:

- offshore farmed seaweeds,
- seaweed wastes (e.g., from nutrient extraction processes),
- blends of seaweed with other waste algae (e.g., algae produced during wastewater treatment or harmful algal blooms that present disposal issues) or
- blends of seaweed with other wet wastes (e.g. sludge from wastewater treatment) to low-carbon fuels and bioproducts to enable these readily available feedstocks to access new markets.

Applications are sought that will develop laboratory or bench scale technologies and/or processes for utilizing these feedstocks for conversion to bioproducts and/or fuels with significant potential to reduce GHG emissions.

Applications will be required to demonstrate through life cycle analysis (LCA) that the utilization of these feedstocks to generate bioproducts at commercial scale has the potential of at least 50% GHG reductions compared to conventional products and/or fuels.

Topic Area 1 Specific Areas of Interest

- Preservation and storage approaches for harvested seaweed that can be applied at scale.
 - Note that cultivation and harvesting activities are not within the scope of Topic Area 1 and should not be included in applications to Topic Area 1. Procurement of feedstocks appropriate for the scale of conversion focused R&D activities is allowable and should be sufficiently described to understand impacts to TEA and LCA.
- Accurate, precise, and rapid seaweed composition analysis.
- Microbial strain development for the effective utilization of minimally processed seaweeds (such as for long-term storage) or a seaweed waste stream from an existing industry (e.g., nutrient extraction).
 - Blending of these feeds is also acceptable with appropriate discussion on reasoning. Approaches can include engineering of industrially relevant, genetically tractable microorganisms to utilize most or all sugars in the feedstock and to be tolerant to high salt levels in minimally processed seaweeds. Alternatively, halophilic microorganisms with native ability to utilize seaweeds can be engineered to make platform chemicals (e.g., ethanol). Single-organism approaches as well as engineered microbial consortia are of interest.

Topic Area 1 Specific Areas of Interest - Continued

- Optimization of enzymatic degradation of seaweed to fermentable sugars and/or other molecules of interest.
 - Approaches can include discovery and characterization of new enzymes. Enzymatic degradation may be paired with chemical pretreatments.
- Hydrothermal Liquefaction (HTL) using readily available seaweeds, or blends of seaweeds with seaweed wastes (e.g., from nutrient extraction processes), or blends of seaweed with other waste algae (e.g., algae produced during wastewater treatment or harmful algal blooms that present disposal issues) or blends of seaweed with other wet wastes (e.g. sludge from wastewater treatment)
- Other thermochemical or hybrid conversion approaches that can overcome challenges with wet feedstocks.

Topic Area 2: Conversion of Algal Biomass for Low-Carbon Agricultural Bioproducts

Topic Area 2, funded by FECM, aims to utilize carbon dioxide emissions streams from utilities or industrial sources to grow algae for source material and create value-added bioproducts (exclusive of fuels).

Applications are sought that utilize anthropogenic (e.g., fossil fuel derived) carbon dioxide emissions, including concentrated CO₂ supplied from DAC technologies, in the cultivation process and then convert macro- and/or micro-algae into low-carbon agricultural applications or bioproducts such as animal feed.

Applications are encouraged to focus on optimization of the technologies and processes for the conversion of cultivated algae biomass to bioproducts and clearly describe the end use bioproducts targeted.

Applications will be required:

- to show a reduction in CO₂ emissions through LCA and
- demonstrate that the targeted bioproducts provide benefits compared to current, commercially available products.

Applications proposing animal feed as bioproducts must describe requirements for necessary testing or demonstrations of the resulting product.

Topic Area 2 Specific Areas of Interest

Applications to Topic Area 2 must include four primary activities:

- **1) Describe quantification and optimization method of carbon dioxide uptake and conversion efficiency;**
 - **2) Identify target bioproducts and subsequent characterization to validate their usability and benefit;**
 - **3) Identify processes for conversion of algal biomass into end bioproducts;**
 - **4) Full analysis of environmental and economic impact through LCA & TEA.**
- Topic Area 2 seeks applications that utilize carbon dioxide emissions streams from utilities or industrial sources to grow algae for source material and create value-added bioproducts.
 - Of particular interest is the conversion and processing of bioproducts for use in agriculture and animal feed. Targeted emission streams may include combustion exhaust gas produced from thermal conversion. Potential streams to be considered may also include emissions from cement manufacturing, natural gas facilities, iron and steel production, and solid fuel (coal-fired or biomass) power plants.
 - The integrated testing with a CO₂ source may be a continuous real emission stream or a synthetic representative of the selected emissions stream(s).

Non-Responsive Applications

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

Topic Area 1 and Topic Area 2:

- Applications that fall outside the technical parameters specified in Section I.A or I.B of the FOA
- Applications for proposed technologies that are not based on sound scientific principles (e.g., violates the law of thermodynamics).
- Applications that propose to work on biomass other than readily available algae biomass (e.g., lignocellulosic biomass) except when wet biomass-based wastes are used in blends with readily available algal biomass.
- Applications that propose to undertake construction or groundbreaking for new research facilities (installation of new experimental equipment is allowable).
- Applications that include the National Energy Technology Laboratory (NETL) as a prime recipient or subrecipient.

Non-Responsive Applications - Continued

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

Topic Area 1 only:

- Applications proposing algal cultivation or harvesting activities within the research plan.
- Applications proposing end uses related to food or animal feeds (the intent of Topic Area 1 is to focus on BETO priority areas including fuels and commodity chemicals).

Non-Responsive Applications - Continued

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

Topic Area 2 only:

- Conversion of non-anthropogenic sources of CO₂.
- Applications that propose biofuels as end products.
- Bioproducts with less than 10% GHG emissions reduction as compared to incumbent products.
- 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.
- Novel R&D in the technology areas listed below:
 - CO₂ compressor development, CO₂ transport and geological storage, Co-firing of biomass, Cultivation of terrestrial plants, Technologies producing biofuels, ethanol, and biogas

Teaming Partner List

- To facilitate the formation of new project teams for this FOA, a Teaming Partner List is available at:
<https://eere-exchange.energy.gov/Default.aspx#Foald5b00376e-30b6-47b5-a0e7-6497aadad055>
- Any organization that would like to be included on this list should submit the following information through eXCHANGE :
 - Organization Name, Contact Name, Contact Address, Contact Email, Contact Phone, Organization Type, Area of Technical Expertise, and Brief Description of Capabilities
- By submitting this information, you consent to the publication of the above-referenced information
- By facilitating this Teaming Partner List, EERE does not endorse or otherwise evaluate the qualifications of the entities that self-identify themselves for placement on the Teaming Partner List

Award Information – FOA Section II

Total Amount to be Awarded	Approximately \$18,800,000*
Average Award Amount	BETO anticipates making awards that range from \$1,000,000 to \$1,500,000 for Topic Area 1. FECM anticipates making awards that range from \$2,500,000 to \$3,00,000 for Topic Area 2.
Types of Funding Agreements	<ul style="list-style-type: none">• Cooperative Agreements
Period of Performance	Topic Area 1: 24 to 36 months Topic Area 2: 24 months
Cost Share Requirement	20% of Total Project Costs

*Subject to the availability of appropriated funds

Statement of Substantial Involvement – FOA Section VI.B.x

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. 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 DOE's evaluation of the Project at that the Go/No Go decision point(s).
- DOE participates in major project decision-making processes.

Cost Sharing Requirements – FOA Section III.B

- Applicants are bound by the cost share proposed in their Full Applications if selected for award negotiations. **The cost share must be at least 20% of the total project costs¹** for research and development projects.² The cost share must come from non-federal sources unless otherwise allowed by law.
- 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.

¹ Total project costs is the sum of the government share, including FFRDC costs if applicable, and the recipient share of project costs.

² Energy Policy Act of 2005, Pub.L. 109-58, sec. 988. Also see 2 CFR 200.306 and 2 CFR 910.130 for additional cost sharing requirements.

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:

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

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.

See the Cost Share Appendices A and B in the FOA

Unallowable Cost Share

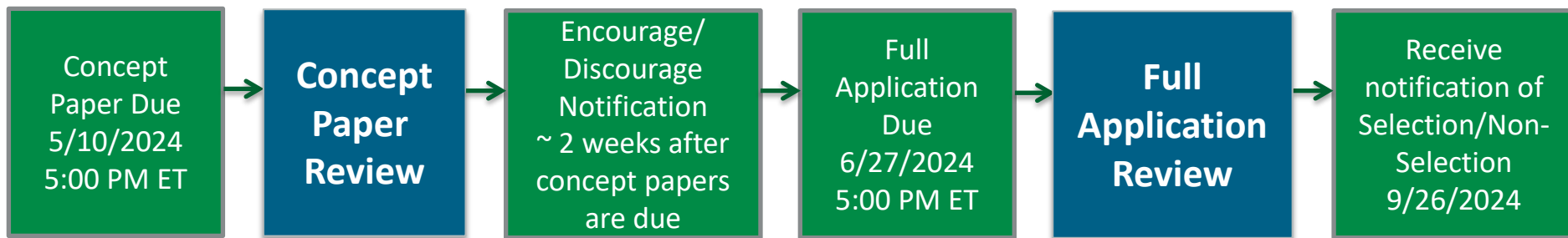
The Prime Recipient may **NOT** use the following sources to meet its cost share obligations including, but not limited to:

- 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 program
- 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 DOE 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.vi of the FOA.

FOA Timeline – FOA Cover Page



DOE anticipates making awards by December 31, 2024

Concept Papers – FOA section V.A.i

- 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 5/10/2024 5:00 PM ET, through EERE eXCHANGE website
- DOE provides applicants with: (1) an “encouraged” or “discouraged” notification, and (2) the reviewer comments

Concept Paper Review – FOA Section V.D.i

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, 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 of the technology, regulatory and financial aspects of the proposal 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 – FOA Section V.A.ii

The Full Application includes:

- **SF-424 Application for Federal Assistance:** The formal application signed by the authorized representative of the applicant.
- **Technical Volume:** The key technical submission - info relating to the technical content, project partners, etc.
- **Resumes**
- **Letters of Commitment**
- **Statement of Project Objectives (SOPO)**
- **Diversity Equity and Inclusion Plan**
- **SF424A & Budget Justification:** a detailed budget and spend plan for the project.
- **Summary for Public Release**
- **Summary Slide**
- **Subrecipient Budget Justification(s) (if applicable)**
- **DOE work proposal for FFRDCs (if applicable) and authorization from FFRDC Contracting Officer**

Full Applications – FOA Section V.A.ii, Continued

Administrative Documents:

- **SF-LLL Disclosure of Lobbying Activities**
- **Foreign Entity Waiver Requests and Foreign Work Waiver**
- **Current and Pending Support**
- **Locations of Work**
- **Transparency of Foreign Connections**
- **Potentially Duplicative Funding Notice**

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	40%
Technical Qualifications and Resources	20%

Full Application Eligibility Requirements

- Applicants must submit a Full Application by **6/27/2024 5:00 PM ET**
- Full Applications are eligible for review if:
 - The Applicant is an eligible entity, see 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 of the FOA

Who is Eligible to Apply?

This FOA has restricted eligibility requirements to the following entities:

- Domestic Entities

The proposed prime recipient and subrecipient(s) must be domestic entities. The following types of domestic entities are eligible to participate as a prime recipient or subrecipient of this FOA:

- Institutions of higher education;
- For-profit entities;
- Nonprofit entities; and
- State and local governmental entities and federally recognized Indian Tribes (Indian Tribes).

To qualify as a domestic entity, the entity must be organized, chartered, or incorporated (or otherwise formed) under the laws of a particular state or territory of the United States; have majority domestic ownership and control; and have a physical place of business in the United States.

DOE/NNSA FFRDCs are eligible to apply for funding as a subrecipient but are not eligible to apply as a prime recipient.

Except as described below for the National Energy Technology Laboratory (NETL), DOE/National Nuclear Security Agency (NNSA) FFRDCs are eligible to apply for funding as a subrecipient but are not eligible to apply as a prime recipient.

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.

Who is Eligible to Apply? - Continued

Federal agencies and instrumentalities (other than DOE) are eligible to participate as a subrecipient but are not eligible to apply as a prime recipient.

Entities banned from doing business with the U.S. government such as entities debarred, suspended, or otherwise excluded from or ineligible for participating in federal programs are not eligible.

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.

Foreign Entities

In limited circumstances, DOE may approve a waiver to allow a foreign entity to participate as a prime recipient or subrecipient. A foreign entity may submit a Full Application to this FOA, but the Full Application must be accompanied by an explicit written waiver request. Likewise, if the applicant seeks to include a foreign entity as a subrecipient, the applicant must submit a separate explicit written waiver request in the Full Application for each proposed foreign subrecipient.

Appendix C lists the information that must be included in a foreign entity waiver request.
The applicant does not have the right to appeal DOE's decision concerning a waiver request.

Multiple Applications

Limitation on Number of Concept Papers and Full Applications Eligible for Review:

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 an eligible Concept Paper was submitted for each Full Application.

Merit Review and Selection Process (Full Applications) - FOA Section V

- 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%)

This criterion involves consideration of the following factors:

Technical Merit and Innovation

- Extent to which the proposed technology, process, or project is innovative or replicable;
- Degree to which the current state of the technology and the proposed advancement are clearly described and based on sound scientific and engineering principles;
- Extent to which the application specifically and convincingly demonstrates how the applicant will move the state of the art to the proposed advancement and why it is needed now relative to prior work

Technical Merit Review Criteria – Criterion 1 Continued

- Sufficiency of technical detail in the application to assess whether the proposed work is scientifically meritorious and revolutionary, including relevant data, calculations, and discussion of prior work, with analyses that support the viability of the proposed work;
- Extent to which the application provides evidence that the proposed technology has achieved the minimum required starting TRL;
- Degree to which key manufacturing and supply chain challenges are considered, as applicable, for viable scale-up in this and future demonstrations;
- Degree to which siting and environmental constraints are considered for deployment;
- Extent to which project has the potential to reduce emissions and provide clean energy acceleration benefits for a community or region; and

Technical Merit Review Criteria – Criterion 1 Continued

- Topic Area 1 Only – Degree to which the application convincingly demonstrates potential for greater than 50% GHG reductions of product
- Topic Area 2 Only – Degree to which the product demonstrates at least a 10% reduction, and preferably a 25% reduction, in GHG emissions as compared to incumbent products.

Impact of Technology Advancement

- Extent to which the project supports the topic area objectives and target specifications and metrics;
- Potential impact of the project on advancing the state of the art;
- Extent to which the project facilitates stakeholder relationships across new or existing stakeholders to gain technical buy-in and increase potential for future deployments.

Technical Merit Review Criteria – Criterion 2

Criterion 2: Project Research and Market Transformation Plan (25%)

This criterion involves consideration of the following factors:

Research Approach, Workplan, and SOPO

- Degree to which the approach and critical path have been clearly described and thoughtfully considered;
- Degree of the adequacy and feasibility of the applicant's approach to achieving the objectives of the Topic Area; and
- Degree to which the task descriptions are clear, detailed, timely, and reasonable, resulting in a high likelihood that the proposed Workplan and SOPO will succeed in meeting the project goals.
- Adequacy of proposed project management systems including the ability to track scope, cost, and schedule progress and changes;
- Reasonableness of budget and spend plan as detailed in the budget justification workbook for proposed project and objectives;

Technical Merit Review Criteria – Criterion 2 Continued

- Adequacy, reasonableness, and soundness of the project schedule, as well as periodic Go/No-Go decisions prior to further funds disbursement, interim milestones, and metrics to track process;

Identification of Technical Risks

- Discussion and demonstrated understanding of the key technical risk areas involved in the proposed work and the quality of the mitigation strategies to address them.

Baseline, Metrics, and Deliverables

- Level of clarity in the definition of the baseline, metrics, and milestones; and
- Relative to a clearly defined project baseline, the strength of the quantifiable metrics, milestones, and mid-point deliverables defined in the application, such that meaningful interim progress will be made.

Technical Merit Review Criteria – Criterion 2 Continued

Market Transformation Plan

- Identification of target market, competitors, and distribution channels for proposed technology along with known or perceived barriers to market penetration, including mitigation plan; and
- Comprehensiveness of market transformation plan including but not limited to product development and/or service plan, commercialization timeline, financing, product marketing, legal/regulatory considerations including intellectual property, infrastructure requirements, and product distribution.

Technical Merit Review Criteria – Criterion 3

Criterion 3: Team and Resources (15%)

This criterion involves consideration of the following factors:

- Capability of the Principal Investigator(s) and the proposed team to address all aspects of the proposed work with a high probability of success. The qualifications, relevant expertise, and time commitment of the individuals on the team;
- Diversity of expertise and perspectives of the team and the inclusion of industry partners that will amplify impact;
- Demonstrated experience of the applicant and partnering organizations in the technology areas addressed in the application and managing projects of similar size (budgetary amounts), scope (progression of technology from low TRL to high TRL), and complexity (integrating multiple technologies and/or team members on a single effort

Technical Merit Review Criteria – Criterion 3 Continued

- Sufficiency of the facilities to support the work
- Degree to which the proposed consortia/team demonstrates the ability to facilitate and expedite further demonstration, development, and commercial deployment of the proposed technologies
- Level of participation by project participants as evidenced by letter(s) of commitment and how well they are integrated into the Workplan; and
- Reasonableness of the budget and spend plan for the proposed project and objectives

Technical Merit Review Criteria – Criterion 4

Criterion 4: Diversity, Equity, and Inclusion (10%)

This criterion involves consideration of the following factors:

- The quality and manner in which the measures incorporate diversity, equity and inclusion goals in the project; and
- Extent to which the project benefits underserved communities.

Reviewer Comments

- DOE will provide applicants with reviewer comments after Selection decisions have been made.

Selection Factors

Each of BETO and FECM's Selection Officials may consider the merit review recommendations, program policy factors, and the amount of funds available in arriving at selections for their respective Topic Areas in 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 will accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty;

Program Policy Factors - Continued

- The degree to which the proposed project, or group of projects, represent a desired geographic distribution (considering past awards and current applications);
- The degree to which the proposed project incorporates applicant or team members from Minority Serving Institutions (e.g., Historically Black Colleges and Universities (HBCUs)/Other Minority Institutions (OMIs)); and partnerships with Minority Business Enterprises, minority-owned businesses, woman-owned businesses, veteran-owned businesses, or Indian Tribes; and
- The degree to which the proposed project will employ procurement of U.S. iron, steel, manufactured products, and construction materials.

Registration Requirements

- To apply to this FOA, Applicants must submit application materials through EERE eXCHANGE:
 - Beginning in July 2022*, eXCHANGE will be updated to integrate with [Login.gov](https://login.gov). As of Sept. 29, 2022*, applicants must have a Login.gov account to access [EERE eXCHANGE](#). Please ensure that the email address associated with Login.gov matches the email address associated with your eXCHANGE account. For more information, refer to the eXCHANGE Multi-Factor Authentication (MFA) Quick Guide in the [Manuals section](#) in eXCHANGE.
- **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 receive an award under this FOA:

Registration Requirement	Website
SAM	https://www.sam.gov
FedConnect	https://www.fedconnect.net
Grants.gov	http://www.grants.gov

*Date subject to change

Means of Submission

- Concept Papers and Full Applications must be submitted through EERE eXCHANGE at <https://eere-eXCHANGE.energy.gov>
 - EERE 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 MacroFOA@ee.doe.gov
 - All Q&As related to this FOA will be posted on EERE eXCHANGE
 - You must select this specific FOA Number [DE-FOA-0003274](#) to view the Q&As
 - EERE will attempt to respond to questions within 3 business days, unless a similar Q&A has already been posted on the website
 - Upon the issuance of a FOA, DOE personnel are prohibited from communicating (in writing or otherwise) with applicants regarding the FOA except through the established question and answer process
- Problems logging into EERE eXCHANGE or uploading and submitting application documents with EERE eXCHANGE? Email EERE-eXCHANGESupport@hq.doe.gov.
 - Include FOA name and number in subject line