MACRO: Mixed Algae Conversion Research Opportunity FOA Webinar

Here is the text version of the webinar "MACRO: Mixed Algae Conversion Research Opportunity FOA Webinar," presented by the U.S. Department of Energy's Energy Efficiency and Renewable Energy's Office in April 2024.

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Trevor Smith:

Welcome slide of presentation (1-2):

Hello everyone and welcome to our webinar thank you for your interest in the US Department of Energy's efforts on renewable energy and energy efficiency. Before we begin I'd like to draw your attention to the email address on the left side of this cover page, this is the official mailbox to direct all your questions to the entire FOA process. Please do not contact do individuals directly with questions including myself. DOE Personnel are prohibited from communicating in writing or otherwise with applicants regarding the FOA, except through the established Q&A process. All questions received at this mailbox are posted publicly at the Q&A section of the FOA page on EERE Exchange in an anonymous way. The official answers to your questions will typically also be posted within three business days. Please be careful not to submit any language that might be business sensitive proprietary or confidential. If you have questions during this webinar, you can send them to the email address on the slide and we'll post the answers in EERE Exchange. We will not be taking any questions during the webinar, and you will not be able to post in the chat.

Notice slide (3):

Please note no in 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.

Next slide (4):

All applicants are strongly encouraged to carefully read the funding opportunity announcement and adhere to the state of 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 the email address provided here.

Next slide (5):

This slide shows the potential or the anticipated schedule for the FOA. The FOA has already been posted and we're conducting the FOA informational webinar now. We will cover the FOA requirements later in the presentation.

Next slide (6):

The agenda for this presentation is as follows. We will cover the FAA description, topic areas, award information, statement of substantial involvement, cost sharing, the FOA timeline, concept papers, full applications, merit review and selection process, and registration requirements. We encourage you to have a copy of the FOA in front of you for reference as we go through the presentation.

Next slide (7):
The following slides will describe the purpose and background for the FOA. 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 US Department of Energy 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 within the Office of Energy Efficiency and Renewable Energy's (EERE), Bioenergy Technology Office (BETO) and the Office of Fossil Energy and Carbon Management's (FECM) Carbon Conversion Program.

Next slide (8):
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.

Next slide (9):
BETO recently funded the first full US exclusive economic zone analysis for seaweed biomass potential. BETO hosted a stakeholder engagement session in February of 2023 to present preliminary findings from the analysis and gather feedback from experts across the seaweed industry. The analysis includes a marine screening analysis, macroalgae biomass growth model, and associated technoeconomic analysis 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 for farming technologies through marketable product. The analysis mentioned here is within the recently released 2023 billion ton report that can also be found on BETO's website with a link included here.

Next slide (10):
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 is defined as including 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, please see the appendix in the FOA, for reference is beginning state of three and a

target state of four by the end of the project. For Topic Area 2, the required beginning TRL is four and the target state is five by the end of the project.

Next slide (11):
Topic Area 1 is specific focused on utilizing readily available algae including offshore farm seaweeds, seaweed wastes, blends of seaweed with other waste algae, or blends of seaweed with other wastes for conversion to low carbon fuels and bioproducts such as commodity chemicals.

Topic Area 2 is specifically focused on utilizing direct industrial CO2 emissions in algal systems to produce biomass feed stocks 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 the feedstocks by processing and inclusion of additional qualities or functions. Please note excluding fuel product.

Next slide (12):
Here I will discuss Topic Area 1 in in further detail. 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 feed stocks to access new markets. So again allowable feedstocks include offshore farmed seaweeds, seaweed waste, for example from nutrient extraction processes, blends of seaweed with other waste algae, for example algae produced during wastewater treatment or harmful algal blooms that present disposal issues, or blends of seaweed with other wet wastes, for example sludge from wastewater treatment, all targeting towards converting to low carbon fuels and bioproducts to enable these readily available feed stocks 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 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.

Next slide (13):

The following are some specific areas of interest to BETO within Topic Area 1. 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 technoeconomic analysis and life cycle analysis.

Accurate, precise, and rapid seaweed composition analysis is also of interest. Microbial strain development for the effective utilization of minimally processed seaweeds, such as for long-term storage or seaweed waste stream from an existing industry, again example of nutrient extraction. Blending of these fees 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, for example ethanol. Single organism approaches as well as engineered microbial consortia are also of interest.

Next slide (14):
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 pre-treatments.

Hydrothermal Liquefaction otherwise known as HTL using readily available seaweeds or blends other thermochemical or hybrid conversion approaches that can overcome challenges with wet feedstocks. Next, I'm going to hand over to my fossil energy and carbon management colleague Emily Connor to go over the Topic Area 2 details. Emily.

Emily Connor:
Next slide (15)
Thanks Trevor, as Trevor said I'm Emily Connor with the Office of Fossil Energy and Carbon management, so I'll be sharing about Topic Area 2. So, under this funding Topic Area 2 which is funded by the Office of Fossil Energy and Carbon Management aims to utilize carbon dioxide emissions streams from utilities or industrial sources to grow algae for source material and create value-added bioproducts. Again, exclusive of fuels. Applications are sought that utilize anthropogenic, for example fossil fuel derived carbon dioxide emissions including concentrated carbon dioxide emissions supplied from direct air capture or 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 that are targeted. Applications will be required to show a reduction of carbon dioxide emissions through life cycle analysis or LCA and demonstrate that the targeted bioproducts provide benefits compared to current, commercially available products. Applications proposing animal feed as bioproducts must describe the requirements for necessary testing or demonstrations of the resulting product.

Next slide (16)
Next slide please, thank you. Under this FOA, funding applications for Topic Area 2 must include four primary activities. First, applications must describe quantification and the optimization method of carbon dioxide uptake and the conversion efficiency. Second, applications must identify target bioproducts and subsequent characterization to validate their usability and benefit. Third, applications must identify processes for conversion of algal biomass into end bioproducts, and finally applications must provide analysis of environmental and economic impact through life cycle analysis and technoeconomic analysis.

Topic Area 2 seeks applications that utilize carbon dioxide emission 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, for example coal-fired or biomass power plants. The integrated testing with a carbon dioxide source may be a continuous real emission stream or a synthetic representative of the selected emission stream or streams. And with that, I will turn it back over to Trevor at the Bioenergy Technology Office.

Trevor Smith:
Next slide (17)

Thank you, Emily. The following types of applications will be deemed non-responsive and will not be reviewed or considered for an award. Within both topics applications that fall outside the technical parameters specified in both sections of the FOA, describing the topic areas, applications for proposed technologies that are not based on sound scientific principles, for example that violate the law of thermodynamics, applications that propose to work on biomass other than readily available algae biomass, for example lignocellulosic biomass, except when wet biomass-based wastes are used in blends with readily available algo biomass. Applications that propose to undertake construction or groundbreaking for new research facilities, for example installation of new experimental equipment is allowable. Applications that include the National Energy Technology Laboratory as a prime recipient or subrecipient.

Next slide (18)
Within Topic Area 1, the following applications would be deemed non-responsive and will not be reviewed. Applications proposing algal cultivation or harvesting activities within the research plan, or 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.

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Within Topic Area 2, the following applications would be deemed nonresponsive and will not be reviewed or considered for an award. 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 research and development, no novel carbon capture research and development 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, or technologies producing biofuels, ethanol, and biogas.

Next slide (20)
To facilitate the formation of new project teams for this FOA, a teaming partner list is available at the website listed on this slid. We'll update the teaming partner list periodically to reflect new teaming partners who have provided their information. Any organization that would like to be included on this list should submit the information shown on this slide through exchange. Keep in mind though that by submitting this information you consent to the publication of that information. Please also note that by facilitating this team partner list, DOE does not endorse or otherwise evaluate the qualifications of the entities that self-identify themselves for placement on the teaming partner list. In addition, EERE will not pay for the provision of any information nor will it compensate any respondents for the development of such information.

Next slide (21)
Next, we're going to talk about the award information. DOE expects to make approximately $8.8 million of federal funding available for new rewards under this FOA, subject to the availability of appropriated funds. The average award amount for BETO's Topic Area 1 is anticipated to range from $1 to $1.5 million dollars. The average award amount for FECM's Topic Area 2 is anticipated to range from $2.5 to $3

million dollars. DOE intends to fund cooperative agreements under this FOA. Cooperative agreements include substantial involvement which we'll discuss next.

Next slide (22)
Under cooperative agreements there will be what is known as substantial involvement between DOE and the recipient during the performance of the project. 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 recipient for management control direction and performance of the project. DOE may intervene in the conduct or performance of work under this award for program 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 the Go/No-Go decision points. DOE participates in major project decision-making processes.

Next slide (23)
Next, we'll discuss cost sharing requirements. 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 costs for research and development projects. 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.

Next slide (24)
The total budget presented in the application must include both federal and non-federal cost share portions, thereby reflecting total project costs proposed. All costs must be verifiable from the recipients records and be necessary and reasonable for the accomplishment of the project. Contributions must be specified in the project budget, verifiable from the prime recipient records, and necessary and reasonable for project for proper and efficient accomplishment of the project. If you're 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 and contractors may not provide cost share. Any partial donation of goods or services is considered a discount and is not allowable.

Next slide (25)
Cost share must be allowable and must be verifiable upon submission of the full application. Please refer to this chart for your entities of applicable cost principles. It is imperative that you follow the applicable cost principles when creating your budget for the full application.

Next slide (26)
Cost share can be provided in cash and/or In-Kind. It can be provided by the primary recipient, subrecipients, or a third party. One note, vendors and contractors can't provide cost share because that is considered a discount. Cash contributions include but are not limited to personnel costs, fringe costs, supply and equipment costs, indirect costs, and other direct costs. In-Kind contributions are those where a value of the contribution can be readily determined, verified, and justified but where no actual cash is transacted in securing the good or service comprising the contribution. Allowable In-Kind contributions

include but are not limited to, the donation of volunteer time, or the donation of space or use of equipment.

Next slide (27)
Be aware that there are items that are considered unallowable cost share. If a cost is considered unallowable, it cannot be counted as cost share. This slide provides some examples of cost share that are unallowable. For example, revenues or royalties from the perspective 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, and vendor or contractor contributions.

Next slide (28)
Cost share must be provided on an invoice basis, unless a waiver is requested and approved by the DOE Contracting Officer. 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 requirements on a less frequent basis, such as monthly or quarterly. See section 3B-6 of the FOA.

Next slide (29)
DOE’s evaluation and selection process is shown here in in blue. DOE will review concept papers and full applications. The green boxes represent the actions that apply to applicants throughout the FOA process.

Next slide (29)
Concept papers are required for this FOA. Concept papers are brief descriptions of the proposed projects. Tt allows applicants to submit their ideas with minimal time and expense. EERE will provide feedback on the proposed project so the applicant can make an informed decision whether to expend additional resources to prepare a full application. If an applicant fails to submit an eligible concept paper, the applicant is not eligible to submit a full application.

Next slide (30)
Next, we're going to cover the concept paper review including the concept paper criterion. This is designated under the header of overall FOA responsiveness and viability of the project. This criteria 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 in the proposed project, would have on the relevant field in 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 FOA. DOE will provide applicants with either an encouraged or discourage notification and the reviewer comments. Please note that regardless of the date, applicants receive the encourage or discourage notifications, the submission deadline for the full application remains the date stated on the FOA cover page.

Next slide (31)
Next, we'll talk about full applications. The full application includes the SF-424 Application for Federal Assistance, this is the formal application signed by an authorized representative. The technical volume, which is the key technical submission and info relating to the technical content, project team members, etc. Resumes, that provide details for key project personnel, letters of commitment to describe the activities and cost share details for project partners, a statement of project objectives, which provides a standalone document for the work plan, a diversity and equity and inclusion plan, which describes the actions the applicant will take during the project, please note the DEI plan details are provided in the FOA. The SF-424A and budget justification, which is a detailed budget and spend plan for the project, a summary for public release, the applicants are required to provide a one-page summary for their technology appropriate for public release, a summary slide, a PowerPoint slide that provides quick facts about the technology, and the slide content requirements are provided in the FOA. Subrecipient budget justifications as applicable, which provide budget details for subrecipients expected to perform work greater than $250,000 or 25% of the total work effort, whichever is less, a DOE work proposal for FFRDC's, these are federally funded research and development centers known as National Labs, if applicable.

Next slide (32)
Here are some additional administrative documents, the SF-LLL, disclosure of lobbying activities, the foreign entity waiver requests and foreign work waivers, as applicable, current and pending support, locations of work, transparency of foreign connections, and potentially duplicative funding notice.

Next slide (33, 34)
The key technical component of the full application is the technical volume which helps applicants frame the technical information that the application will be evaluated on. The technical volume provides information regarding what the project is, how the project tasks will be accomplished, and the project timetable. The technical volume is comprised of a cover page, project overview, technical description, innovation, and impact, work plan, technical qualifications and resources. Please note that the percentage listed here are suggested and are not mandatory. The cover page will be one-page and provides basic information on the project such as title, topic area, points of contact, etc. Project overview constitutes approximately 10% of the technical volume and provides information on project background, goals, impact of EERE funding. The technical description, innovation, and impact section is approximately 25% of the technical volume. Tt provides information on project relevance and outcomes, feasibility and innovation, and impacts. This ultimately provides the justification as to why DOE should fund the project. The work plan is the key element to the technical volume and constitutes approximately 50% of the technical volume. It details the proposed milestones and project schedule. If selected for award negotiations, the work plan serves as the starting point when negotiating the statement of project objectives. The technical qualifications and resource section is approximately 20% of the technical volume. It provides applicants an opportunity to provide information about the proposed project team and demonstrate how the applicant will facilitate the successful completion of the proposed project.

Next slide (35)
Next, we're going to talk about full application eligibility requirements. As we previously pointed out, applicants must submit full applications by June 27th 2024, no to later than 5:00pm Eastern. EERE will conduct an eligibility review and full applications will be deemed eligible, if they've submitted a full application by the deadline, the applicant is an eligible entity, the applicant submitted an eligible concept paper, the cost share requirement is satisfied, the full application is compliant, the proposed

project is responsive to the FOA, and the full application meets any other eligibility requirements listed in section 3 of the FOA.

Next slide (36)
So who's eligible to apply? This FOA has restricted eligibility requirements to the following entities: domestic entities, the proposed prime recipient and subrecipients must be domestic entities. The following types of domestic entities are eligible to participate as prime recipients or subrecipients of this FOA. Institutions of higher education, for-profit entities, nonprofit entities, and state and local government entities, and federally recognized Indian Tribes. To qualify as a domestic entity, the entity must be organized, chartered, or incorporated, or otherwise formed under the laws of 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 and nuclear national labs 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 Lab, DOE/National Nuclear Security Agency FFRDC's are eligible to apply for funding as a separate recipient, but are not eligible to apply as prime recipients. The National Energy Technology Lab is not eligible for award under the FOA and may not be proposed as subrecipient on another entity's application. An application that includes NETL as a prime recipient or subrecipient will be considered non-responsive.

Next slide (37)
Federal agencies and instrumentalities other than DOE are eligible to participate as subrecipients, but are not eligible to apply as prime recipients. Entities banned from doing business with US 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 501c section 4 of The Internal Revenue code of 1986 that engaged in lobbying activities after December 31st 1995, are not eligible to apply for funding. Foreign entities in limited circumstances may approve a waiver to allow a foreign entity to participate as a prime recipient or subrecipient. The foreign entity may submit a full application to the 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. Please note, all prime recipients receiving funding under this FOA 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. If a foreign entity applies for funding as a prime recipient and must designate in the full application a subsidiary or affiliate incorporated or otherwise formed under the laws of the state of a state or territory of the United States to be the prime recipient. The full application must state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate. Foreign entities may request a waiver of the requirement to designate a domestic or affiliate as the prime recipient in the full application.

Next slide (38)
Multiple Applications: limitation on number of concept papers and full application eligible for review. An entity may submit more than one concept paper in 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.

Next slide (39)
Next, we will discuss the merit review and selection process. 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.

Next slide (40-41)
Next, we're going to cover the technical merit review criteria. Criteria 1 is both technical merit, innovation, and impact and is 50% of the scoring. This Criterion involves consideration of the following factors, under technical merit and innovation, the extent to which the proposed technology, process, or project is innovative or replicable. The degree to which the current state of the technology and the proposed advancement are clearly described in based on sound scientific and engineering principles. The 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. 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. The extent to which the application provides evidence that the proposed technology has achieved the minimum required starting TRL. The degree to which key manufacturing and supply chain challenges are considered as applicable for viable scale up in this and future demonstrations. The degree to which sighting and environmental constraints are considered for deployment, and extent to which the project has the potential to reduce emissions and provide clean energy acceleration benefits for community or region.

Next slide (42)
And within Topic Area 1 Only, the degree to which the application convincingly demonstrates potential for greater than 50% GHG reductions of the product. For Topic Area 2 Only, the degree to which the product demonstrates at least a 10% reduction and preferably a 25% reduction in GHG emissions as compared to incumbent products. Under impact of technology advancement, still within criteria one, the extent to which the project supports the topic objectives and target specifications and metrics. The potential impact of the project on advancing the state-of-the-art the extent to which the project facilitates stakeholder relationships across newer existing stakeholders to gain technical buy-in and increase potential for future deployments.

Next slide (43)
Within Criteria 2, and this is the project research and market transformation plan, 25% of the score, this criterion involves the consideration of the following factors, under research, approach, work plan, and statement of project objectives. The degree to which the approach and critical path have been clearly described and thoughtfully considered. The degree of the adequacy and feasibility of the applicant's approach to achieving the objectives of the topic area. The degree to which the test descriptions are clear detailed timely and reasonable, resulting in a high likelihood that the proposed work plan and SOPO will succeed in meeting the project goals. The adequacy of proposed project management systems, including the ability to track, scope, cost, and scheduled progress and changes. Reasonableness of budget and spend plan is detailed in the budget justification workbook for proposed project and objectives.

Next slide (44)
The adequacy reasonable 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 progress. Under 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. Under baseline metrics and deliverables, the level of clarity in the definition of the baseline metrics and milestones, relative to a clearly defined project baseline, the strength of the quantifiable metrics milestones and midpoint deliverables, defined in the application such that meaningful interim progress will be made.

Next slide (45)
Under the 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 the comprehensiveness of the market transformation plan including but not limited to, product development and service plan commercialization timeline, financing product marketing, legal or regulatory considerations, including intellectual property infrastructure requirements, and product distribution.

Next slide (46)
Under Criterion 3, the team and resources, approximately 15% of your score, this criteria involves consideration of the following factors: capability of the principal investigators 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, the 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, scope, and complexity and/or team members on a single effort.

Next slide (47)
Sufficiency of the facilities to support the work the degree to which the proposed consortia or team demonstrates the ability to facilitate and expedite further demonstration development and commercial deployment of the proposed technologies. The level of participation by project participants as evidenced by letters of commitment and how well they are integrated into the work plan. And reasonable of the budget and spend plan for the proposed project and objectives.

Next slide (48)
Under Criterion 4, the diversity equity and inclusion plan, this is 10% of the final score, 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 the extent to which the project benefits underserved communities.

Next slide (49)
The full applications are reviewed by experts in the FOA topic areas and DOE will provide final consensus comments at the time of selections and for the applicants to review.

Next slide (50)
Next, we're going to discuss selection factors. Each of BETO's 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.

Next slide (51)
After the merit review process the selection official may consider program policy factors to come to a final selection decision. These include 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.

Next slide (52)
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 for minority serving institutions, for example historically black colleges and universities, or other minority institutions, and partnerships with minority business enterprises, minority owned businesses, women-owned businesses, veteran owned businesses, or Indian tribes. And the degree to which the proposed project will employ procurement of US iron, steel, manufactured products, and construction materials.

Next slide (53)
Next, we're going to discuss registration requirements. There are several one-time actions before submitting an application in response to this FOA and it is vital that the applicants address these items as soon as possible. Some may take several weeks, failure to complete them could interfere with an applicant's ability to apply to this FOA or to meet the negotiation deadlines and receive an award if the application is selected. Under system for reward management, register with the system for reward management designating an electronic business point of contact and obtaining a special password called an M-PIN are important steps in SAM registration. Please update your SAM registration annually. Under FedConnect, please register in FedConnect to create an organization account your organization SAM and M-PIN is required. Gor more information about the SAM, M-PIN or other registration requirements, review the FedConnect ready-set-go guide at the FedConnect site. Under grants.gov please register in grants.gov to receive automatic updates when amendments to this FOA are posted. Please note that concept papers and full applications will not be accepted through grants.gov

Next slide (54)
All required submissions must come through EERE exchange. EERE will not review or consider applications submitted through any other means.

Next slide (55)
Some key submission points, be sure to check entries in EERE exchange. These submissions could be deemed ineligible due to an incorrect entry. DOE strongly encourages applicants to submit one to two 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.

Next slide (56)
Applicants must designate primary and backup points of contact in the 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 recission of the selection.

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For questions about this FOA as indicated earlier, please email the address here at MacroFOA at ee.doe.gov

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