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Good afternoon, everyone and welcome to our webinar. Thank you for your interest in the U.S. Department of Energy's efforts on renewable energy and energy efficiency. You are joining us for the Informational Webinar for Applicants and other Interested parties for the Modular Chemical Process Intensification Institute For Clean Energy Manufacturing Funding Opportunity Announcement, or FOA, which was issued on May 05, 2016. My name is Kelly Visconti and I am a Technology Manager in the Advanced Manufacturing Office within the DOE's Office of Energy Efficiency and Renewable Energy. I am joined by my colleague, John Winkel, who will be covering additional information later in the presentation. We hope to cover the basic aspects of the Funding Opportunity Announcement during this webinar.

Before we begin, I'd like to draw your attention to the email address on the left hand side of this cover page. This is the official mailbox to direct all of your questions during the entire FOA process. Please do not contact EERE individuals directly with questions, including myself. 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 3 business days. Please be careful not to submit any language that might be business sensitive, proprietary or confidential.

Also, just to be clear, 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.

Let's get started!

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This slide shows the anticipated schedule for the FOA. The FOA has already been posted, and we are conducting the FOA Informational Webinar now. Please note that there are a few requirements that we will go over in the presentation that are different than in past FOAs, such as Replies to Reviewer Comments – we will cover all requirements for this FOA later in the presentation.

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All applicants are strongly encouraged to carefully read the Funding Opportunity Announcement DE-FOA-0001578 ("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 from EERE.

If you believe there is an inconsistency, please email ModularChemicalPI@ee.doe.gov

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The agenda for this presentation is the eleven items listed on the slide:

We encourage you to have a copy of the FOA in front of you for reference as we go through the presentation.

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Information provided in these slides is an overview of the FOA, it does not contain all information that is provided in the FOA – please read the entire FOA for all relevant information.

EERE's AMO establishes Manufacturing Innovation Institutes in the President's National Network for Manufacturing Innovation (NNMI) as shared research, development, and demonstration facilities to overcome cross-cutting challenges related to the manufacturing of clean energy and energy efficiency products, in addition to challenges associated with improving the energy efficiency of the manufacturing sector across the board.

This FOA supports the establishment of a Manufacturing Innovation Institute on Modular Chemical Process Intensification for Clean Energy Manufacturing.

Modular chemical process intensification represents an emerging opportunity for processing industries in the U.S. manufacturing sector to improve energy efficiency, reduce feedstock waste, and improve productivity by merging and integrating separate unit processes (mixing, reactions, separation) into single modular hardware elements of reduced size, with higher efficiency and providing inherent scalability.

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Section I.B. provides the following Background Information:

- Overview of the Manufacturing Innovation Institutes

- Purpose, TRL/MRL focus, etc.

- Overview of Modular Chemical Process Intensification

- Description, background, benefits

- Teaming Partner List

- How to participate

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I will start with a

Definition of Modular Chemical Process Intensification from the FOA

- Modular chemical process intensification is a set of technologies that bring significant reduction in equipment size, and improvement in energy efficiency, for the manufacturing of products requiring chemical processes.
- At the core of process intensification is the optimization of process performance by focusing on molecular level kinetics, thermodynamics, and heat and mass transfer.
- These improvements translate into reductions in: complexity, equipment requirements, and facility footprint, and thereby, minimize risk and uncertainty of construction and operation in chemical manufacturing facilities, for both existing and new products.

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Three Application Focus Areas for Modular Chemical Process Intensification are:

- 1) Energy intensive industries,
- 2) Modular and decentralized manufacturing, and
- 3) Other energy related industries.

DOE expects a Modular Chemical Process Intensification Institute will have a balanced portfolio of technologies and workforce development, resulting in positive and direct benefit in all three of these impact areas.

Applicants must address how they will engage with and have impact in all of these areas, as well as any other well justified application areas.

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Application Focus Areas

1. **Energy intensive industries:** Manufacturing accounts for approximately one quarter of total U.S. energy consumption.

Energy-intensive industry sectors of chemicals, petroleum refining, pulp and paper, and primary metals production, are the largest manufacturing sector energy consumers – each consuming more than 1 quadrillion BTUs (Quad) of energy per year.

EERE Bandwidth studies show these industries also offer large opportunities for potential energy reductions in the manufacturing sector.

As a technology which increases chemical reaction efficiency and more closely couples latent heat from reactions to process heating of chemical feedstocks, process intensification has the potential to greatly improve energy efficiency in chemical manufacturing.

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Application Focus Areas – cont.

2. **Modular, decentralized manufacturing:**

The development of modular chemical process intensification approaches will also provide a new basis for scaling of chemical related processes.

Rather than scaling-up to larger production size for an individual facility (in which economies of scale reduce costs at a cube-square scaling relationship), a modular process can be scaled-out through equipment manufacturing economies of scale and the massive parallelization of identical modules.

Process intensification provides a new way of achieving cost-reduction, enabled by economies of scale in chemical manufacturing, as the mass-production of the individual modules proceeds down a learning curve.

Use of multiple modules of lower production capacity to meet production volumes of typical large scale manufacturing will require that the cost of building each successive module decreases as well.

Traditional chemical conversion and separation processes rely on plant-level economies of scale to capture increased efficiency, resulting in large scale centralized manufacturing, with fuel and feedstocks brought in to a centralized plant from the point of production (fields for oil/gas, farms for biomass.) Because process intensification technologies combine and reduce processing steps within single modules, process intensification has the potential to revolutionize chemical processing from large-scale, fixed-asset chemical plants to small-scale modular facilities closer to the point of feedstock generation on a decentralized basis.

This picture illustrates the two aspects of chemical modular process intensification: 1) using PI techniques to intensify a process in an individual module and 2) driving down the cost of each module to result in better overall economics.

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Application Focus Areas – cont.

3. Other energy-related industries: Process intensification technologies have promising application to many energy-related industries across the DOE portfolio. Process Intensification can be applied in:

- Oil and gas (well-head gas separation, distributed gas-to-liquid conversion, fractional distillation),
- Coal (modular gasification),
- Specialty chemicals (distributed feedstocks),
- Food manufacturing (microwave-enhanced heating and wet-mill separation),
- Biofuels and bio-chemicals (gasification, alcohol separations),
- Tank Waste Processing
- Helium-4 Refining, and
- Others.

To address broad applications an Institute would become a place for innovation in multiple related fields, thereby establishing itself as the globally acknowledged leader in this important emerging technology area.

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Applicants are expected to develop their plan of work to address progress they can make on these high-priority technical focus areas:

- **RD&D of process intensification with core capabilities** including, but not limited to:
 - Reaction methods
 - Separations
 - Mixing
 - Heating
 - Materials
- **Development and test-bed demonstration of intensified integrated process modules**, and the Institute could for example:
 - Share testing facilities and prototype equipment development at a scale sufficient to demonstrate viability,
 - Develop a representative test bed (including establishing standards for test-bed requirements) or a facility to baseline new processes and equipment,
 - Create a standard modular prototype system for more competitively sensitive activities to enable proof of concept and de-risk the deployment of such technologies, and

- Demonstrate complementary information technology related innovations in sensors, controls, and data algorithms that could be developed with other Institutes and partners.

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- Research, Development and demonstration of module manufacturing techniques.
- R&D and knowledge dissemination of cross cutting technologies examples include alternatives approaches to thermal energy input, address fouling and degradation of membranes as well as catalyst regeneration.
- Development of open-architecture, open-standard, and open-source (when possible) software and design tools for multiple industries

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Technical Focus Areas enabling Modular Chemical Process Intensification – cont.

- Other well justified technical focus areas may be proposed, provided they are relevant to enabling modular chemical process intensification.
- The Institute is expected to establish core technical capabilities, to encourage cross cutting applications, and to address technologies in a precompetitive landscape.
- As technologies mature, the Institute will leverage industry partnerships to demonstrate/de-risk these technologies in specific first-of-kind applications in a realistic manufacturing environment.
- Workforce development and education is a key aspect of manufacturing Institutes. Pilot scale facilities will enable hands-on application, and earlier stage R&D facilities and work will enable students to develop industry-relevant knowledge and experience in creating new processes, designing unit operations, and scaling up technologies.

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The NNMI program has defined overall objectives for each Institute:

- to research, develop and demonstrate high-impact new advanced manufacturing technologies that are adopted into the market at scale for energy efficient manufacturing and clean energy and energy efficient product manufacturing;
- to be financially self-sustaining after 5 years;
- to train an advanced manufacturing workforce; and to enrich the innovation ecosystem and strengthen US manufacturing competitiveness; and
- to establish an industrial consortium as a public-private partnership (including small and medium sized manufacturers).

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FOA Goals – Cont.

I will not read each of these word for word, but summarize these and encourage you to read the FOA for complete details.

Key elements for this Institute -consistent with the design model for all Manufacturing Innovation Institutes are to:

- Lead a national effort to research, develop, test, and demonstrate industrially- relevant, high-impact modular chemical process intensification technologies and solutions for energy intensive and clean energy and energy efficient product manufacturing
- Establish and support a modular chemical process intensification-related shared RD&D infrastructure
- Provide capabilities for and collaboration in open, pre-competitive work among multiple parties... as well as proprietary activities as appropriate

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FOA Goals – Cont.

- Be a financially self-sustaining, world-leading innovation hub that brings together private and public entities
- Establish a technical education and workforce development program
- Define, manage and implement clear operating structures and strategies for participation by a wide range of stakeholders in the Institute

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FOA Goals – cont.

The specific quantitative technical objectives of the R&D work of the Institute are to:

1. **Demonstrate Energy Efficiency in Process Intensification Technology**: 20 percent or greater (>20%) improvement in energy efficiency in first-of-kind demonstration in a relevant pilot environment within five years supporting a goal of at least an order of magnitude improvement in energy productivity for at least one representative process within ten years.
2. **Demonstrate Energy Productivity improvement through Process Intensification Technology** through a doubling of energy productivity by a combination of both improvement in capital equipment capacity cost (\$/kg per day) and operating cost (due to improved feedstock and fuel efficiencies).

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3. **Demonstrate Intensification in Individual Chemical Process Modules**: Research, develop and demonstrate at representative pilot scale with 1,000 hours of operating time, at least one (or more) modular and intensified process with
 - 10x reduced capacity cost (\$/kg per day),
 - with improved energy efficiency (kg/kJ), and
 - 20% lower emissions/environmental waste (kg/kg) relative to commercial state-of-the art at the relevant production rate (kg per day).
4. **Demonstrate Approaches to Cost-Effective Manufacturing of Process Intensified Modules**: Applied research, development and demonstration of technologies to scale-out manufacturing of intensified process modules, with a modelled cost based on

technical advances **that reduce by over 20% the cost/unit of intensified process modules with each doubling in cumulative module manufacturing production.**

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Continuing with Goal #5,

5. **Demonstrate Potential for Cost Effective Deployment of Modular Chemical Process Intensification:** Develop tools and technologies to **reduce the cost of deploying modular chemical process intensification in existing processes by fifty percent (50%) relative to the existing state of the art within five years**, and be **on a pathway** to achieve at least installed and operating **cost parity** for the adoption of modular chemical process intensification technologies at full scale in one or more application areas.
6. **Establish an enabling R&D Portfolio**
7. **Build Industrial Partnership and Eco-System**

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8. **Build Pathway to Self-Sustainment** with external support that directly replaces the initial Federal funding in the sixth year of operation.
9. **Train the Trainers in Modular Chemical PI** with 50+ education/ training professionals trained per year (including energy management practices) by year 3.
10. **Educate Students in Modular Chemical PI** with at least 500+ students trained per year by year 3.
11. **Establish an Annual Planning Process**

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12. **Establish an Industrial Roadmap**
13. **Support an Emerging Supply Chain**
14. **Support Increased Diversity of Firms and Individuals in the Eco-System**

The Applicant shall identify clear, quantitative, long-term objectives and milestones that demonstrate annual progress towards these objectives, demonstrating market pull and technical relevance for subsequent technology transfer and commercial adoption.

Please read the FOA for more details on all of the sections mentioned here.

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Institute Best Practices

DOE has identified several best practices for management and operations that the proposed Institute applicants are expected to align with and plans to address these points are to be included in the project narrative. Deviations from these best practices shall be adequately justified by the applicant with a strong alternative plan.

These are summarized here, please see Section I.C. for more information on these best practices.

- **Institute Management time commitment expectation**
- **Institute organizational structure**
- **DOE participation in decision making**
- **Intellectual Property guidance and work for others or fee for service arrangements**

– **Publication of results and data sharing**

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

1. Applications that fall outside the technical parameters specified in Section I.C of the FOA, including but not limited to modular chemical process intensification technology development and demonstration that is primarily not focused on energy efficient or lifecycle energy manufacturing or is solely focused on technology development with no relevant application to energy intensive or energy related industries or clean energy/energy efficient product manufacturing.
2. Applications that focus primarily on modular chemical process intensification demonstrations at industrial facilities without the research, development and demonstration of technology or sharing of pre-competitive knowledge as a resource in a public-private partnership.
3. Applications for proposed technologies that are not based on sound scientific principles (e.g., violates the law of thermodynamics).
4. Applications that do not propose the establishment of a pre-competitive public-private consortium with partners from industry (including small and medium-sized firms).

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To facilitate the formation of new project teams for this FOA, a Teaming Partner List is available at <https://eere-Exchange.energy.gov> under FOA, DE-FOA-0001578.

Any organization that would like to be included on this list should submit the information shown to the email address provided. The Teaming Partner List will be updated periodically, to reflect new Teaming Partners who have provided their information.

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

EERE will not pay for the provision of any information, nor will it compensate any respondents for the development of such information.

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EERE anticipates making one award ranging from \$35,000,000 to \$70,000,000 in Federal Share under this FOA subject to the availability of appropriated funds.

EERE intends to fund a Cooperative Agreement under this FOA, but may also fund Work Authorizations if a National Laboratory is the prime applicant. Cooperative Agreements include Substantial Involvement which will be discussed on the next slide.

The Period of Performance is expected to be up to 60 months divided into budget periods with the initial budget period being 6 months in length to provide resources for the startup phase

which consists of formalization of industrial partnerships as well as finalizing technical development plans. Subsequent budget periods will be approximately 12 months each with the final budget period 18 months.

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Under cooperative agreements, there will be what is known as “substantial involvement” between EERE and the Recipient during the performance of the project.

EERE has substantial involvement in work performed under Awards made as a result of this FOA. EERE does not limit its involvement to the administrative requirements of the Award. Instead, EERE 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:

1. EERE shares responsibility with the Recipient for the management, control, direction, and performance of the Project.
2. EERE 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.
3. EERE may redirect or discontinue funding the Project based on the outcome of EERE’s evaluation of the Project at a Go/No-Go decision point.
4. EERE may redirect or discontinue funding for individual Institute Activities based on the outcome of EERE’s evaluation of those activities at the Go/No-Go decision points.
5. EERE participates in major project decision-making processes.
6. EERE participates in any governance or management boards that may be established and may invite other U.S. Government officials for participation in advisory capacity.
7. To adequately monitor project progress and provide direction to the Institute, the Prime Recipient must provide EERE with an adequate level of insight into various Institute activities. The Prime Recipient must notify EERE of meetings, reviews, and tests in sufficient time to permit EERE participation and provide all appropriate documentation for EERE review. (More details in the FOA)
8. EERE may choose to engage a private, independent engineering (IE) firm to assist in assessing the progress of the project and provide timely and accurate reports to EERE. (More details in the FOA)

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Applicants must contribute a minimum of **50%** of the total project costs for the Institute.

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

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

The total budget presented in the application must include both Federal (DOE), and Non-Federal (cost share) portions, thereby reflecting TOTAL PROJECT COSTS proposed.

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Cost Share must be allowable and must be verifiable upon submission of the Full Application. Please refer to this chart for your entity's applicable cost principles. It is imperative that you follow the applicable cost principles when creating your budget for the full application.

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Cost share can be provided in cash and/or in-kind. It can be provided by the Prime Recipient, subs, or a third party.

The basic definition of 'in-kind' cost share is the donation of personnel time, equipment, facilities, or other items that an organization will contribute to the project, whereas DOE regards these costs – if paid by the cost share provider – as 'cash' cost share. It can take many forms, each of which must be assigned a dollar value to be included in the budget. Some examples of in-kind cost share are the donation of work hours, facility use, equipment use.

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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 is unallowable.

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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

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Further, Applicants are encouraged to review the regulations regarding Program Income (such as fees charged for R&D projects not included in the Full Application) and be aware of the ways in which Program Income can be treated during the award. For awards made under this FOA, the default use of program income is Addition (see 2 CFR 200.307(e)(2)).

Any other treatment of Program Income must be negotiated and approved by the Contracting Officer. Program Income should not be included as cost share in the Applicant's budget.

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EERE's Evaluation and Selection Process is shown in blue here. EERE will review Concept Papers, Replies to Reviewer Comments (which we will cover later in the presentation), and Full Applications. The gray boxes represent the actions that apply to applicants throughout the FOA process.

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Concept Papers are required for this FOA. Concept Papers are brief descriptions of the proposed project. It 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.

Concept Papers must be submitted by **June 15, 2016, 5PM ET**, through EERE Exchange. EERE will provide applicants with either an encouraged or discouraged notification.

A “discouraged” notification conveys EERE’s lack of programmatic interest in the proposed project. An applicant who receives a “discouraged” notification may still submit a Full Application.

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EERE evaluates the Concept Papers based on the following technical review criteria:

Criterion 1: Technical Description, Innovation and Impact (40%)

This criterion involves consideration of the following factors:

- Quality of the proposed integrated modular chemical process intensification technical approach;
- The proposed technical focus areas that are well-defined with aggressive, quantitative technical objectives;
- The Applicant’s understanding of the current state-of-the-art in the field of modular chemical process intensification, including key opportunities and challenges;
- Extent to which the Applicant has described how the proposed technical work will overcome the challenges identified;
- The estimated energy and competitiveness impact that the proposed Institute would have on clean energy and energy efficient manufacturing;
- Quality of the approach presented in the technical education and workforce development plan summary;
- Quality of the approach to strengthen U.S. manufacturing competitiveness while engaging a broad range of stakeholders with both horizontal and vertical reach across and within supply chains.

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Criterion 2: Team and Resources (30%)

This criterion involves consideration of the following factors:

- Extent to which the roles and responsibilities of the leadership team are well-defined;
- Whether the Principal Investigator (Institute Director/Executive) and Project Team have the skill, expertise and prior experience needed to successfully execute the Institute;
- Whether the Applicant has adequate access to equipment and facilities necessary to accomplish the effort and/or clearly explains how the proposed Institute intends to obtain access to the necessary equipment and facilities.

Criterion 3: Operations and Management Approach Description (30%)

This criterion involves consideration of the following factors:

- The proposed management and operations structure and approach, including the role of the U.S. government in the management of the proposed Institute.

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The Full Application includes:

Technical Volume: The key technical submission. Applicants submit info pertaining to the technical content, project team members, etc.

SF-424 Application for Federal Assistance: The formal application signed by the authorized representative of the applicant. Includes cost share amounts and Federal certifications and assurances.

SF-424A Budget & Budget Justification: Budget documents that asks applicants to submit a detailed budget and spend plan for the project.

Summary for Public Release: Applicants must provide a 1 page summary of their technology appropriate for public release.

Summary Slide: Powerpoint slide that provides quick facts about the technology (ies)/approach(es) proposed for the Institute. Slide content requirements are provided in the FOA.

Administrative Documents: E.g., U.S. Manufacturing Plan, FFRDC Authorization (if applicable), Disclosure of Lobbying Activities, etc.

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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 consists of no more than 50 pages and is comprised of a cover page, project overview, technical description, innovation, and impact, qualifications and resources, and operations and management plan. Please note that the percentages listed here are suggested and are not mandatory.

- The Cover Page will be a one page document and provides basic information on their project, such as title, topic area, points of contact, etc.
- The Project Overview constitutes no more than 2 pages of the Technical Volume and provides information on project background, goals, impact of EERE funding
- The Technical Description, Innovation, and Impact section is approximately 50% of the Technical Volume. It provides information on project relevance and outcomes, feasibility, and innovation/impacts. This ultimately provides the justification as to why EERE should fund the project.
- The Qualifications and Resources section is approximately 20% of the Technical Volume. It provides applicants and opportunity to provide information about the proposed project team and demonstrate how the applicant will facilitate the successful completion of the proposed project.
- The Operations and Management Plan section is approximately 30% of the Technical Volume. It provides information on the overall management approach, including organizational, governance and participation structures, road-mapping and strategic planning processes, Project Management, IP Management and the plan to become financially sustainable.

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As we previously pointed out, applicants must submit full applications by **August 17, 2016**. EERE will conduct an eligibility review, and full application will be deemed eligible 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, see Section III.B of FOA;
- The Full Application is compliant with Section III.C of FOA; and
- The proposed project is responsive to Section III.D of the FOA
- The Applicant submitted only one Full Application for consideration
- The Full Application meets any other eligibility requirements listed in Section III of the FOA.

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Eligible applicants for this FOA include:

1. Individuals
2. Domestic Entities
3. Foreign Entities
4. Incorporated Consortia
5. Unincorporated Consortia

For more detail about each eligible applicant, please see Section III.A of the FOA for eligibility requirements

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.

Also, note that 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. If a foreign entity applies for funding as a Prime Recipient, it must designate in the Full Application a subsidiary or affiliate incorporated (or otherwise formed) under the laws 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.

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An entity may only submit one Concept Paper and one Full Application for consideration under this FOA. For example, EERE will only consider one Concept Paper and one Full Application per university for this FOA (not one submission per each college or school under the university). This limitation does not prohibit an Applicant from collaborating on other applications (e.g., as a potential Subrecipient or partner) so long as the entity is only listed as the prime Applicant on one Concept Paper and Full Application submitted under this FOA.

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- The Merit Review process consists of multiple phases that each include an initial 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

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For the purposes of this webinar, the merit review criteria will be summarized, please refer to the FOA for more information. Applications will be evaluated against all criteria noted in Section V.A.II of the FOA:

Criterion 1: Technical Merit, Innovation, and Impact (40%)

Technical Merit and Innovation

- Quality of the integrated technical approach for the proposed Institute and core competencies identified
- Degree to which the Applicant built upon and adequately addressed the Technical Topic Areas identified in Section I.C. of this FOA including clearly defined goals and aggressive technical targets.
- Extent to which the Applicant demonstrates a strong understanding of the state of the art, and whether the proposed technical work is scientifically meritorious and innovative
- Quality of the technical education and workforce development plan and leverage existing resources;

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Criterion 1: Technical Merit, Innovation, and Impact (40%) - Continued

Statement of Project Objectives

- Adequacy, appropriateness, and reasonableness of the proposed work, schedule and allocation among the team members to accomplish the stated objectives;
- Relative to a clearly defined baseline, the strength of the quantifiable metrics, milestones, Go/No-Go decision points, and mid-point deliverables defined in the application;
- Quality of the SOPO for the first two budget periods (Budget Period 1 and Budget Period 2) that describes the initial startup phase for the Institute and the initial technology development activities, as well as the overall plan for the full award period;

Impact

- The quality of the Market Transformation plan for the initial proposed projects and technical work and the extent to which the Applicant demonstrates the likelihood of successful technology adoption by industry and supports precompetitive technology development;

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Impact - Continued

- Extent to which the Applicant demonstrates a high and credible impact of the Institute for aggregate cumulative energy savings and reduction in greenhouse gases
- Extent to which the Applicant demonstrates the potential impact of the Institute to support U.S manufacturing competitiveness for clean energy and energy efficient manufacturing and supply chains

- Degree of commitment to support U.S. manufacturing as demonstrated in the U.S. Manufacturing Plan; and
- Degree to which the Applicant illustrates how DOE funding will enable acceleration of RD&D, and how the Institute will appropriately leverage existing resources including but not limited to National Institute of Standards and Technology's Manufacturing Extension Partnership (MEP) Centers, National Science Foundation's Advanced Technological Education (ATE) Centers, national laboratories, and other government investments.

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Criterion 2: Qualifications and Resources (30%)

- Quality of the Institute key technical personnel and their level of technical capabilities and relevance to achieving the goals and objectives of the Institute and the FOA;
- Qualifications, relevant expertise, experience of the proposed Institute Director/Executive and key management staff
- The sufficiency of the existing and proposed equipment, facilities and capabilities to support the work;
- Adequacy of budget and spend plan for the proposed project to achieve the defined objectives;
- Quality and clarity of the cost share contributions (cash, in-kind) including the source of cost share, as well as how Program Income, if applicable, is expected to be generated and utilized; and
- Adequacy of funding availability to encourage openness and new participants as the Institute goes forward, and to accommodate changes in strategic direction.

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Criterion 3: Operations and Management (30%)

Management and Governance Approach

- Effectiveness of management approach and governance structure to enable strategic and technical decision-making;
- Degree to which the Institute can operate as an independent, neutral, non-biased coordinating and convening body for a diverse set of stakeholders;
- Adequacy of the inclusion of Federal government (DOE and other Federal government participants identified by DOE) on decision making bodies (boards/committees) at both a strategic and technical level within the Institute;
- The adequacy and quality of the proposed participation structure

Operations

- The adequacy and quality of the annual planning process, including the strategic planning and industry roadmap activities, periodic update of the industry roadmap (annual or bi-annual) and incorporation of the industry roadmap to Institute strategic planning;

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Criterion 3: Operations and Management (30%) - Continued

Operations - Continued

- Strength of the technical management plan for selecting and prioritizing RD&D work, tracking performance, and planned periodic (annual) review of processes for Institute and project performance;
- Quality of the stakeholder engagement plan, and how it demonstrates openness to new participants, in particular with SMEs, minority-owned businesses, and women-owned businesses, and ability to engage stakeholders along the supply chain including end-users;
- Adequacy of the discussion of the economic and operational key risk areas involved with operations and management plan,
- The adequacy of Institute's strategy to manage export control compliance and meet the goal of strengthening U.S. manufacturing competitiveness while engaging a wide range of stakeholders that may include foreign participants;
- Adequacy of how metrics will be tracked to gauge success of the Institute and impact in the technology area;

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Criterion 3: Operations and Management (30%) - Continued

Project Management

- Adequacy, reasonableness, and soundness of the proposed project management plan for accomplishment of the Institute objectives;
- Extent to which the Applicant demonstrates a strong level of integration across the Institute elements to provide value that is greater than the sum of the individual activities (i.e., how will the shared facilities support the technical education and workforce development plans and project activities);

Intellectual Property Management Plan

- Adequacy of the IP management plan for supporting the needs of the Institute and its participants, which addresses the precompetitive landscape and the broader U.S. manufacturing sector;
- Quality of the IP Management plan and other IP agreements demonstrating that the IP issues inherent with collaborations and/or multi-user facilities are addressed

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Criterion 3: Operations and Management (30%) - Continued

Transition Plan

- Likelihood that the Institute can achieve financial self-sufficiency from dedicated Federal funding within five years; and
- Reasonableness of the extended profit and loss estimates for an additional three years beyond the award period.

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The Full Applications will be reviewed by experts in this FOA's topic areas. After those experts review the applications, EERE provides those reviewer comments to the applicants and provides the applicants with a brief opportunity to respond.

This process provides applicants with an opportunity to provide brief response to correct any perceived misunderstandings or misinterpretations and to provide clarification before a selection decision is made. Replies are considered by the reviewers and the selection official.

Comments will be provided to applicants in Exchange following the evaluation of eligible full applications. Applicants will then be able to respond to the comments through the Reply to Reviewer Comments process. Applicants will have at least 3 days to respond.

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As part of the merit review process, EERE may invite certain applicants to participate in Pre-Selection Interviews.

The invited applicants will meet with EERE to allow the Merit Review Panel to seek clarification on the contents of the Full Applications and otherwise ask questions regarding the proposed project. The information provided by applicants to EERE through Pre-Selection Interviews contributes to EERE's selection decisions.

EERE will arrange to meet with the invited applicants in person at EERE's offices or a mutually agreed upon location. EERE may also arrange site visits at certain Applicants' facilities. In the alternative, EERE may invite certain applicants to participate in a one-on-one conference with EERE via webinar, videoconference, or conference call.

EERE will not reimburse applicants for travel and other expenses relating to the Pre-Selection Interviews, nor will these costs be eligible for reimbursement as pre-award costs.

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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

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Program policy factors include:

- The degree to which the proposed project optimizes the use of available EERE funding to achieve programmatic objectives;
- The level of industry involvement and demonstrated ability to accelerate commercialization and overcome key market barriers; and
- 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.

Note: Cost sharing above the minimum required will not be considered in the evaluation.

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There are several one-time actions before submitting an application in response to this FOA, and it is vital that applicants address these items as soon as possible. Some may take several weeks and failure to complete them could interfere with an applicant's ability to apply to this FOA, or to meet the negotiation deadlines and receive an award if the application is selected.

Obtain a Dun and Bradstreet Data Universal Numbering System (or DUNS) number.

Register with the System for Award Management (SAM). Designating an Electronic Business Point of Contact and obtaining a special password are important steps in SAM registration. Please update your SAM registration annually.

Register in FedConnect. For more information, review the FedConnect Ready, Set, Go! Guide at the FedConnect site.

Register in Grants.gov to receive automatic updates when Amendments to this FOA are posted. However, please note that Concept Papers and Full Applications will not be accepted through Grants.gov.

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All required submissions must come through EERE Exchange. EERE will not review or consider applications submitted through any other means.

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Check entries in EERE Exchange - Submissions could be deemed ineligible due to an incorrect entry

EERE 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 Confirmation page at each step, which contains the application's Control Number

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Applicants must designate primary and backup points-of-contact in EERE Exchange with whom EERE 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

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Remember, all questions about this FOA should be sent via Email to:

ModularChemicalPI@ee.doe.gov. All Questions & Answers will be posted on EERE Exchange as a spreadsheet uploaded on the FOA main page

EERE will attempt to respond to a question within 3 business days, unless a similar Q&A has already been posted on the website. If you have problems logging into EERE Exchange or uploading and submitting application documents with EERE Exchange, Email EERE at: ExchangeSupport@hq.doe.gov. Include FOA name and number in subject line

This concludes the Webinar. Thanks for attending.