

**Advanced Manufacturing Projects
for Emerging Research Exploration**
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**FOA Webinar
DE-FOA-0001465
1/05/2017**

Advanced Manufacturing Projects for Emerging Research Exploration

Anticipated Schedule:

| | |
|--|-----------------------|
| FOA Issue Date: | 12/22/16 |
| FOA Informational Webinar: | 1/05/17 |
| Submission Deadline for Concept Papers: | 1/31/17 5:00pm ET |
| Submission Deadline for Full Applications: | 3/30/17 5:00pm ET |
| Submission Deadline for Replies to Reviewer Comments: | 4/21/17 5:00pm ET |
| Expected Date for EERE Selection Notifications: | June 2017 |
| Expected Timeframe for Award Negotiations: | June – September 2017 |

Notice

- All applicants are strongly encouraged to carefully read the Funding Opportunity Announcement DE-FOA-0001465 (“FOA”) and adhere to the stated submission requirements.
- This presentation summarizes the contents of FOA. If there are any inconsistencies between the FOA and this presentation or statements from DOE personnel, the FOA is the controlling document and applicants should rely on the FOA language and seek clarification from EERE.
- If you believe there is an inconsistency, please contact AMOEmergingResearch@ee.doe.gov and we will provide clarification.

Agenda

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

FOA Description

The U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE) is an organization focused on achieving aggressive and well-defined mid-to-long term clean energy goals for the United States of America. In that context, EERE has established multi-year plans and roadmaps. EERE focuses the majority of its resources on a limited number of "highest probability of success" pathways/approaches to ensure that the program initiatives are supported at a critical mass (both in terms of dollars and time) for maximum impact.

Although this roadmap-based approach is one of EERE's greatest strengths, it can create challenges in recognizing and exploring unanticipated, game changing pathways and approaches which may ultimately be superior to those in our existing portfolio.

FOA Description Continued

To enhance the responsiveness of the roadmap approach, EERE is issuing Funding Opportunity Announcements (FOAs) within its existing Offices and programs to support innovative technologies and solutions that could help meet existing goals but are not represented in a significant way in the Offices' existing Multi-Year Program Plans (MYPPs) or current portfolios. These FOAs and resulting projects will allow EERE to assess new technologies for their potential to be “on ramped” to future MYPPs, and encourage contributions from new partners. Successful projects will reduce the risk associated with potential breakthrough approaches and technologies so that they can be viable candidates for inclusion in future program roadmaps.

FOA Description Continued

The Applicants' technologies may be at different levels of maturity; proposed funding levels and project durations should be commensurate with the workscope necessary to advance the technology to the proposed readiness level. Applications to this FOA will be accepted in the following categories:

- Tier 1 (Concept Definition, expected TRL 2-3): DOE Federal Share Range of \$250,000 - \$1,000,000. The project would conduct early stage research needed to explore and define technical concepts. Activities would focus on thoroughly understanding and describing the capabilities of the technology. Research may include laboratory scale experiments, exploration of fundamental scientific concepts associated with the technology, data generation and analysis, and other exploratory methods.

FOA Description Continued

- Tier 2 (Proof of Concept, expected TRL 3-5): DOE Federal Share Range of \$750,000 - \$2,500,000. The project would conduct research, development and testing of prototype technology or processes. Work may include analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology, predictive modeling or simulation of performance, engineering studies to assess scale-up, and testing of concept feasibility at the prototype or bench scale.

Topic Areas/Technical Areas of Interest

This funding opportunity addresses three topic areas. Each topic area consists of multiple subtopics. DOE intends to fund the applications with the greatest chance of helping achieve the goals and mission of EERE. EERE may award an entire application or any part of an application at a funding level that will be negotiated with the applicant.

For all topic areas, Tier 1 or Tier 2 applications may be submitted. Proposed approaches are not required to reach the award ceiling; rather the proposed estimate of project costs should be commensurate with the work plan and proposed outcomes. Award durations will be for 1-2 years for Tier 1 projects and 2-3 years for Tier 2 projects, with a Go/No-Go decision point after each year. Applications with a strong linkage to relevant Chapter 6 QTR Technology Assessment topics are highly encouraged.

Topic Area 1: Advanced Materials

The Advanced Materials Topic Area focuses on advances in innovative materials and the devices and systems that incorporate them for energy-saving opportunities and improved functionality. This topic area contains the following subtopics:

- 1.1: Innovative Advanced Materials Manufacturing for Clean Energy
- 1.2: Novel Materials for Use in Harsh Service Conditions
- 1.3: Novel Materials for Direct Thermal Energy Conversion
- 1.4: Novel Materials for New Highly-Effective Chemical Catalysts
- 1.5: Atomically Precise Manufacturing

See the following slides and the FOA for more information about each subtopic:

Topic Area 1: Advanced Materials

Subtopic 1.1: Innovative Advanced Materials Manufacturing for Clean Energy

- This subtopic will accelerate the development of new, high performance materials systems for clean energy applications. For example, in steelmaking, recent advances in novel steel compositions, heat treatment processes, casting techniques, and refining methods have shown that significant innovations are still possible in steelmaking despite the high maturity level of this metallurgical system. Of particular interest, applications are sought to develop and demonstrate new advances in both clean energy manufacturing processes and product development for energy efficiency in steel and iron alloys.
- Also of particular interest, in high performance thermal and electrical conductors, novel methods are sought to inexpensively increase the electrical and thermal conductivity of metals to provide a new source of clean energy, thereby improving efficiencies over broad application spaces.

Topic Area 1: Advanced Materials

Subtopic 1.2: Novel Materials for Use in Harsh Service Conditions

- The physical limitations of materials in demanding environments have long constrained engineers in the design of innovative new products and technologies. Aggressive service environments can involve high temperatures and thermal cycling, high pressures, corrosive chemicals, liquid melts, dust and particulates, mechanical wear, neutron irradiation, and hydrogen attack. These aggressive environments—and the associated materials durability challenges—are common across multiple applications and sectors. New materials and new materials processing solutions are needed to meet stringent application demands for future products that will provide energy savings, emissions reductions, and other benefits. The following areas of particular interest:
 - Phase-stable materials
 - Functional surfaces
 - Embrittlement-resistant materials

Topic Area 1: Advanced Materials

Subtopic 1.3: Novel Materials for Direct Thermal Energy Conversion

- This subtopic seeks novel approaches to direct thermal energy conversion for low temperature industrial waste heat streams that will significantly improve the energy efficiency of the industrial sector. For example, advances in nanomaterials and nanofabrication could enable new direct conversion technologies that have the potential to surpass the performance of existing low-efficiency, high cost heat recovery systems. Some examples would include plasmonics, thermionic emission, and vibration energy harvesting. This subtopic is not limited to these examples. Desired performance targets include a conversion efficiency $>30\%$ with a manufacturing cost $<\$1/W$.

Topic Area 1: Advanced Materials

Subtopic 1.4: Novel Materials for New Highly-Effective Chemical Catalysts

- This subtopic focuses on early-stage research capable of producing significant technical advances in the science of catalysis and providing energy efficiency benefits for specific applications. Applications that further the development of and leverage DOE Office of Basic Energy Sciences Energy Frontier Research Center efforts in catalysis are encouraged. Particular areas of interest are:
 - Advanced models for metal-oxide catalyst systems
 - Innovations in new catalyst materials to replace noble metal catalysts
 - Innovations in new molecules and synthesis techniques to produce biomimetic and atomically precise active sites
 - New computational tools for biocatalysis analysis and development

Topic Area 1: Advanced Materials

Subtopic 1.5: Atomically Precise Manufacturing

- Atomically precise manufacturing is the production of materials, structures, devices, and finished goods in a manner such that every atom is at its specified location relative to the other atoms, and in which there are no defects, missing atoms, extra atoms, or incorrect (impurity) atoms. In current practice, atomically precise molecular sheets are possible using macromolecular chemistry with densely-packed designs for near zero defects, and full cross-linking for near theoretical strength and chemical stability. Spiroligomers, Metal Organic Frameworks, engineered proteins, enzymes, ribozymes, peptoids, and engineered DNA and RNA are examples of atomically precise building blocks that can be crafted for macromolecular assemblies, or which can be designed as atomically precise receptor sites to catalyze chemical reactions.

Topic Area 1: Advanced Materials

Subtopic 1.5: Atomically Precise Manufacturing (cont'd)

In future practice, more complex atomically precise structures and devices could be fabricated using positional assembly with advanced scanning probe systems, or with integrated nanosystems for molecular additive manufacturing. Advances in these current or future practice techniques will be considered for funding for high energy impact applications such as (but not limited to) atomically precise membranes, atomically precise catalysts, molecular electronic computer circuits, and high sensitivity molecular sensors.

Topic Area 2: Advanced Processes

The Advanced Processes Topic Area focuses on advancing transformational next-generation processes and technologies not bound by limitations of current processes. This topic area contains the following subtopics:

2.1: Approaches to Cost-Effective Hydrogen Use in Manufacturing Processes

2.2: Innovative and Intensified Process Heating Methods to Minimize Emissions

2.3: Novel Approaches to Low Cost Waste Heat Recovery

2.4: High Value Roll-to-Roll Processes in Manufacturing

See the following slides and the FOA for more information about each subtopic:

Topic Area 2: Advanced Processes

Subtopic 2.1 – Approaches to Cost-Effective Hydrogen Use in Manufacturing Processes

- The focus of this topic is not necessarily to reduce the cost of hydrogen generation, but rather to explore options for the potential use of hydrogen feedstock. Applications in this subtopic area for the following are encouraged to advance promising approaches for the cost-effective use of hydrogen:
 - New process chemistries with hydrogen as the reductant;
 - Hydrogen/hydrogen-rich combustion;
 - Process heat integration with intermittent hydrogen generation;
 - Ammonia production alternatives to the Haber Bosch process; and
 - Other opportunities for hydrogen to cost-effectively replace fossil fuel use in manufacturing.

Topic Area 2: Advanced Processes

Subtopic 2.2 – Innovative and Intensified Process Heating Methods to Minimize Emissions

- One potential approach for reductions in process heating energy requirements is through low thermal budget processing. For low thermal budget processing, advanced processes could potentially provide the same or greater level of performance as current processes but at much lower temperatures and with potentially large energy savings. Examples of excitation sources that could potentially be used to achieve high throughput at significantly lower overall energy inputs include, but are not limited to, ultrasonic, infrared, microwave, plasma, and hybrid excitations.
- Applications are sought focusing on approaches that shorten manufacturing cycles through transient processing, and developing new manufacturing processes using alternate fuels and energy types. Other relevant approaches could include microbial and biomolecular-activated processes.

Topic Area 2: Advanced Processes

Subtopic 2.3 – Novel Approaches to Low Cost Waste Heat Recovery

- Applications in this subtopic area for the following are encouraged to advance promising approaches that could significantly lower the cost for recovering waste heat:
 - Innovative heat transfer methods and heat exchanger geometries to reduce equipment size;
 - High-efficiency, liquid-gas heat exchangers for low-temperature flue gases or exhaust air from dryers;
 - Advanced heat pumps (e.g., adsorption/desorption and chemical looping reactions);
 - Anti-fouling technologies to remove contaminants from waste heat streams or mitigate build-up of debris on heat exchanger surfaces; and
 - New designs and concepts to clean (remove) particulates from high-temperature gases.
- This subtopic is not limited to these examples. The proposed technology must have adequate robustness for utilization in challenging industrial operations. A credible path from early stage development to ultimate commercialization will need to be shown.

Topic Area 2: Advanced Processes

Subtopic 2.4 – High Value Roll-to-Roll Processes in Manufacturing

- While many R2R research needs are specific to a particular material set or market, several needs are cross-cutting, such as the need for precision registration of multiple coatings, aqueous ink development, and further development of multilayer coating techniques.
- Applications in this subtopic are sought to investigate novel process methods in the following: tools to feed precursor solutions and slurries at sufficient rates while controlling the rheology of these materials; development of substrates (tensile strengths, surface finish and release, materials, zero defect, etc.); design tools; feedback control; materials drying, curing, and heat treating accessories; incorporation of concurrent/simultaneous process using additive and subtractive techniques; atmospheric and vacuum process improvements, precision alignment and registration; and lithographic imaging and etch/deposition. Approaches with broad applicability are preferred.

Topic Area 3: Modeling and Analysis Tools for Materials and Manufacturing

The Modeling and Analysis Tools for Materials and Manufacturing Topic Area focuses on optimization of energy and materials usage across the lifecycle of manufactured products through the use of information technology. This topic area contains the following subtopics:

- 3.1: Machine Learning and Algorithms for Efficiency in Manufacturing
- 3.2: Open Source Tools for Energy Efficiency in Manufacturing

See the following slides and the FOA for more information about each subtopic:

Topic Area 3: Modeling and Analysis Tools for Materials and Manufacturing

Subtopic 3.1 – Machine Learning and Algorithms for Efficiency in Manufacturing

- Applying machine learning techniques to the factory floor can enable increased accuracy in decision-making and improvement in performance.
- Applications in this subtopic are encouraged to focus on efficiency improvements for major energy consuming applications, or that enable a game-changing technology or production advancement. A strong justification is required to provide evidence that the technique will impact manufacturing efficiency, and a credible path from early stage development to ultimate commercialization will need to be shown, including a plausible pathway for integrating the technology into commercial manufacturing operations.

Topic Area 3: Modeling and Analysis Tools for Materials and Manufacturing

Subtopic 3.2 – Open Source Tools for Energy Efficiency in Manufacturing

- Applications in this subtopic are encouraged to focus on efficiency improvements for major energy consuming applications, or that enable a game-changing technology or production advancement. A strong justification is required to provide evidence that the technique will impact manufacturing energy efficiency, and a credible path from early stage development to ultimate commercialization will need to be shown, including a plausible pathway for integrating the technology into commercial manufacturing operations. Applicants for this subtopic should closely review the requirements noted in Appendix E.

Non-Responsive Applications

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

- Applications that fall outside the technical parameters specified in Section I.B of the FOA, including but not limited to:
 - Applications for proposed technologies that are not based on sound scientific principles (e.g., violates the law of thermodynamics).

Award Information

| | |
|------------------------------------|---|
| Total Amount to be Awarded | \$35,000,000.00* |
| Average Award Amount | EERE anticipates making awards that range from \$250,000 to \$1,000,000 for Tier 1 projects and between \$750,000 to \$2,500,000 for Tier 2 projects. |
| Types of Funding Agreements | Cooperative Agreements, Grants, Technology Investment Agreements, Work Authorizations, and Interagency Agreements |
| Period of Performance | Up to 24 months for Tier 1 projects and up to 36 months for Tier 2 projects. |
| Cost Share Requirement | 20% of Total Project Costs |

*Subject to the availability of appropriated funds

Statement of Substantial Involvement

EERE has substantial involvement in work performed under Awards made following 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:

- EERE shares responsibility with the Recipient for the management, control, direction, and performance of the Project.
- 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.
- EERE may redirect or discontinue funding the Project based on the outcome of EERE's evaluation of the Project at that the Go/No Go decision point.
- EERE participates in major project decision-making processes.

Cost Sharing Requirements

- Applicants must contribute a minimum of 20% of the total project costs for R&D projects.
- 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

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 |
| All other non-federal entities | 2 CFR Part 200 Subpart E - Cost Principles |

Allowable Cost Share

- Cash Contributions
 - Encompasses all contributions to the project made by the recipient, subrecipient, or vendor for costs incurred and paid for during the project. This includes when an organization pays for personnel, supplies, equipment, etc. for their own company with organizational resources. If the item or service is reimbursed for, it is considered cash cost share.
- In-Kind Contributions
 - Encompasses all contributions to the project made by the recipient, subrecipient, or vendor that do not involve a payment or reimbursement and represent donated items or services. In-Kind cost share items include volunteer personnel hours, donated existing equipment, donated existing supplies, etc.

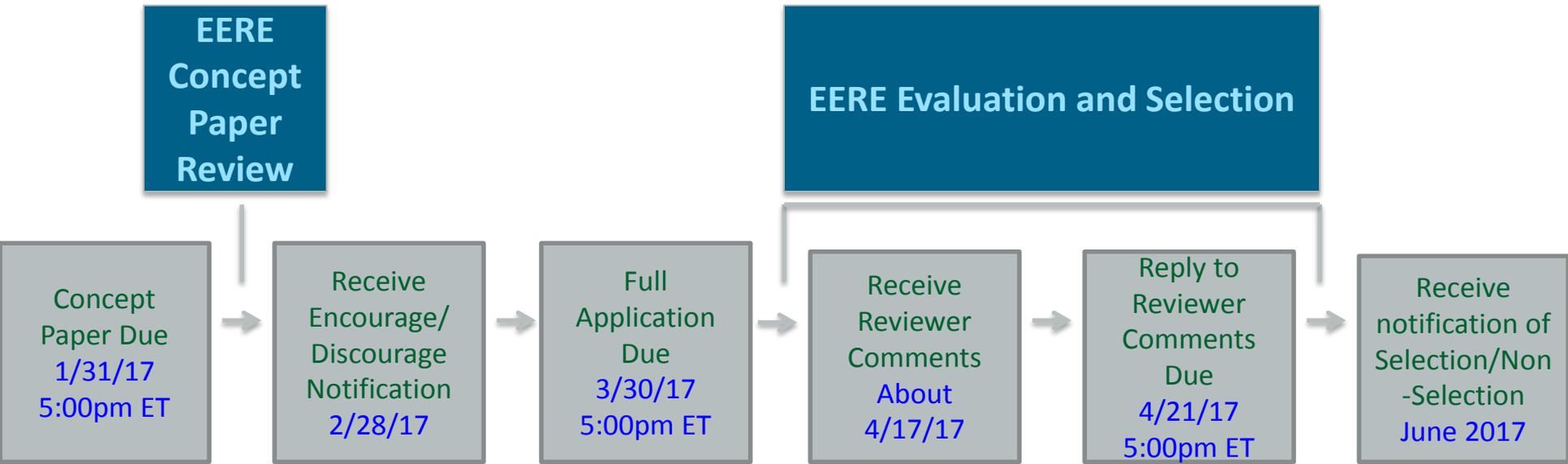
Unallowable Cost Share

- The Prime Recipient may not use the following sources to meet its cost share obligations including, but not limited to:
 - Revenues or royalties from the prospective operation of an activity beyond the project period
 - Proceeds from the prospective sale of an asset of an activity
 - Federal funding or property
 - Expenditures reimbursed under a separate Federal Technology Office
 - Independent research and development (IR&D) funds
 - The same cash or in-kind contributions for more than one project or program

Cost Share Payment

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

FOA Timeline



EERE anticipates making awards by [September 2017](#)

Pre-Selection Interviews

- EERE may invite one or more applicants to participate in Pre-Selection Interviews
- All interviews will be conducted in the same format
- 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
- Participation in Pre-Selection Interviews with EERE does not signify that applicants have been selected for award negotiations

Concept Papers

- Applicants must submit a Concept Paper
 - Each Concept Paper must be limited to a single concept or technology
- The Concept Paper must include a technology description (See Section IV.C of the FOA)
 - The technology description is limited to 3 pages
 - The Concept Paper can also include graphs, charts, or other data (limited to 1 page)
- Concept Papers must be submitted by 1/31/17 5:00pm ET, through EERE Exchange, and must comply with the content and form requirements in Section IV.C of the FOA
- EERE provides applicants with: (1) an “encouraged” or “discouraged” notification, and (2) the reviewer comments

Concept Paper Review

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

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

Quality, innovativeness, soundness, adequacy and completeness of the proposed project and the likelihood that the applicant will effectively and efficiently accomplish the work and meet the objectives.

This criterion involves consideration of the following factors:

- The applicant clearly describes the proposed technology, describes how the technology is unique and innovative, and how the technology will advance the current state-of-the-art;
- The applicant has identified risks and challenges, including possible mitigation strategies, and has shown the impact that EERE 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

- Full Applications must be submitted by **3/30/17 by 5:00pm ET**, through EERE Exchange, and must comply with the content and form requirements in Section IV.D of the FOA.
- The Full Application includes:
 - **Technical Volume:** The key technical submission - info relating 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.
 - **SF-424A Budget & Budget Justification:** a detailed budget and spend plan for the project.
 - **Summary for Public Release**
 - **Summary Slide**
 - **Administrative Documents:** E.g., U.S. Manufacturing Plan, FFRDC Authorization (if applicable), Disclosure of Lobbying Activities, etc.

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% |
| Innovation and Impact | 15% |
| Technical Description | 25% |
| Workplan | 30% |
| Technical Qualifications and Resources | 20% |

Full Application Eligibility Requirements

- Applicants must submit a Full Application by 3/30/17
- Full Applications are eligible for review if:
 - The Applicant is an eligible entity (Section III.A of FOA);
 - The Applicant submitted an eligible Concept Paper;
 - The Cost Share requirement is satisfied (Section III.B of FOA);
 - The Full Application is compliant (Section III.C of FOA); and
 - The proposed project is responsive to the FOA (Section III.D of FOA)
 - The Full Application meets any other eligibility requirements listed in Section III of the FOA.

Who's Eligible to Apply?

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.

Multiple Applications

An entity may only submit one Concept Paper and one Full Application for each of the three Topic Areas identified in Section I.B for consideration under this FOA. For example, EERE will only consider one Concept Paper and one Full Application per university for each of the three Topic Areas identified for this FOA (not one submission per each college or school within 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 per Topic Area under this FOA.

Merit Review and Selection Process (Full Applications)

- 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

Technical Merit Review Criteria

Criterion 1: Impact on Office Mission, National Energy Goals, and U.S. Competitiveness (34%)

- Degree that the technology will impact AMO mission, national energy goals, and U.S. competitiveness.
- Degree that proposed project is innovative and unique.
- The extent to which the proposed approach or technology, if successful, represents a measureable and significant advancement over current state-of-the art.
- The degree to which the application demonstrates a profound understanding of the current approach and/or state-of-the-art.
- The clarity of the application's demonstration of an awareness of competing approaches or technologies and identification of how the proposed project has advantages over these competing approaches.
- Validity and likelihood of success of the proposed manufacturing and/or commercialization strategy.

Technical Merit Review Criteria - Continued

Criterion 1: Impact on Office Mission, National Energy Goals, and U.S. Competitiveness (34%) (Continued)

- For Tier 2 Applications only: Quality of the Market Transformation Plan to include:
 - Completeness of identification of target market, competitors, and distribution channels for proposed technology along with known or perceived barriers to market penetration, including a mitigation plan.
 - Quality of the identification of a product development and/or service plan, commercialization timeline, financing, product marketing, legal/regulatory considerations including intellectual property, infrastructure requirements, data dissemination, U.S. manufacturing plan, and product distribution.

Technical Merit Review Criteria - Continued

Criterion 2: Quality and Technical Merit of Proposed Work Plan and Milestones (33%)

- Clearly defined project outcome and deliverables.
- Demonstration of a sound technical approach to accomplish the proposed objectives.
- Submission of a development plan, technical information, test results and data that demonstrates credible and well-justified technical potential to meet or exceed any defined targets or goals.

Technical Merit Review Criteria - Continued

Criterion 3: Capabilities and Resources of the Proposed Project Team (33%)

- Degree to which the roles and responsibilities of the project team members are clearly defined and demonstrate an effective plan to manage the resources.
- Demonstrated experience and commitment of the project team to manage and implement projects of similar risk and complexity (all project aspects, including scope, cost, and schedule) that have led to successful development and commercialization.
- Collaboration of teaming partners on past projects.
- Credentials, capabilities, and experience of proposed team members/key personnel.
- Access to the facilities and equipment necessary to accomplish the project or clearly define how the necessary equipment and facilities will be obtained.
- Adequacy of the project timetable/schedule and milestones to successfully accomplish project objectives on time and within the proposed budget.

Replies to Reviewer Comments

- EERE provides applicants with reviewer comments
- Applicants are not required to submit a Reply - it is optional
- To be considered by EERE, a Reply must be submitted by 4/21/17 5:00pm ET and submitted through EERE Exchange
- Content and form requirements:

| Section | Page Limit | Description |
|----------|-------------|--|
| Text | 2 pages max | Applicants may respond to one or more reviewer comments or supplement their Full Application. |
| Optional | 1 page max | Applicants may use this page however they wish; text, graphs, charts, or other data to respond to reviewer comments or supplement their Full Application are acceptable. |

Program Policy Factors

In addition to the Technical Merit Review criteria, the Selection Official may consider the following program policy factors in determining which Full Applications to select for award negotiations:

- Likelihood that the successful completion of the proposed project would result in a technology or solution that would receive follow-on funding from federal agencies and private investors;
- The degree to which the proposed project, including proposed cost shares, optimizes the use of available EERE funding to achieve programmatic objectives;
- The degree to which proposed technological approaches address priority technology topics identified in Chapter 6 (Innovating Clean Energy Technologies in Advanced Manufacturing) Technology Assessments in the Department of Energy 2015 Quadrennial Technology Review;

Program Policy Factors - Continued

- Diversity of technological areas in project awards, including technology concepts that leverage or complement other high priority AMO investments (e.g., critical materials, wide bandgap semiconductors);
- Organizational diversity, particularly to encourage new research participants to AMO in general or for a specific high priority AMO investment area;
- The level of technical, market, organizational, and environmental risks associated with the project;
- 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 or financial uncertainty.

Registration Requirements

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

| Registration Requirement | Website |
|--------------------------|---|
| DUNS Number | http://fedgov.dnb.com/webform |
| SAM | https://www.sam.gov |
| FedConnect | https://www.fedconnect.net |
| Grants.gov | http://www.grants.gov |

Means of Submission

- Concept Papers, Full Applications, and Replies to Reviewer Comments 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
- 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

Applicant Points-of-Contact

- 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

Questions

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