

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



**U.S. Department of Energy
Golden Field Office**

Industrial Energy Efficiency Grand Challenge

Funding Opportunity Announcement Number: DE-FOA-0000113

Announcement Type: Initial

CFDA Number: 81.086

Issue Date: 06/3/2009

Letter of Intent Due Date: 06/15/2009

Application Due Date: 7/14/2009, 11:59 PM Eastern Time

NOTE: Questions regarding the content of this announcement must be submitted through FedConnect. Applicants must be registered in FedConnect to submit or view Questions.

APPLICATION SUBMISSION, FEDCONNECT QUICK START GUIDE, REGISTRATION REQUIREMENTS, AND SUBMISSION OF QUESTIONS

1. Application Submission

APPLICATIONS MUST BE SUBMITTED THROUGH FEDCONNECT AT <https://www.fedconnect.net/> TO BE CONSIDERED FOR AWARD. The Adobe Application Package identified in Part IV. C. is posted as an attachment to this FOA (in FedConnect). It is the responsibility of the applicant, prior to the Application due date and time, to verify successful transmission.

Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and their applications will be accepted in Grants.gov to be considered for award.

2. FedConnect Quick Start Guide

Use this guide to assist you with FedConnect:

https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf

3. Registration Requirements

To submit an application in response to this FOA, Applicants must be registered with FedConnect. Before you can register with FedConnect, you will need the following:

- A. Your organization's DUNS (including plus 4 extension if applicable). If you don't know your organization's DUNS or if your organization does not have a DUNS, you can search for it or request one at <http://fedgov.dnb.com/webform/displayHomePage.do>.
- B. A federal Central Contractor Registration (CCR) account. If your organization is not currently registered with CCR, please register at www.ccr.gov before continuing with your FedConnect registration.
- C. Possibly, your organization's CCR MPIN. If you are the first person from your organization to register, FedConnect will need to create an organization account. Only a person who knows your organization's CCR MPIN can do this. To find out who this is in your organization, go to <http://www.ccr.gov/> and click **Search CCR**. Once you've found your organization, locate the Electronic Business Point of Contact.

After the initial FedConnect account is created, employees can register themselves without the MPIN. If you are not sure whether your organization has an account with FedConnect, complete the registration form and FedConnect will let you know if your organization is registered. (PLEASE REFER TO THE FEDCONNECT QUICK START GUIDE).

Applicants who are not registered with CCR and FedConnect, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible. For those Applicants already registered in CCR, the CCR registration must be updated annually at <http://www.ccr.gov/Renew.aspx>.

4. Questions

Questions regarding the content of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to submit questions and to receive responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf. DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been distributed.

Questions pertaining to the submission of applications through FedConnect should be directed by e-mail to support@FedConnect.net or by phone to FedConnect Support at 1-800-899-6665.

TABLE OF CONTENTS

PART I – FUNDING OPPORTUNITY DESCRIPTION

- A. Introduction**
- B. Description**

PART II – AWARD INFORMATION

- A. Type of Award Instrument**
- B. Estimated Funding**
- C. Maximum and Minimum Award Size**
- D. Expected Number of Awards**
- E. Anticipated Award Size**
- F. Period of Performance**
- G. Type of Application**
- H. Continuation Provision**

PART III – ELIGIBILITY INFORMATION

- A. Eligible Applicants**
- B. Cost Sharing**
- C. Other Eligibility Requirements**
- D. Multiple Principal Investigators**

PART IV – APPLICATION AND SUBMISSION INFORMATION

- A. Address to Request Application Package**
- B. Letter of Intent and Pre-Application**
- C. Content and Form of Application**
- D. Submissions from Successful Applicants**
- E. Submission Dates and Times**
- F. Intergovernmental Review**
- G. Funding Restrictions**
- H. Submission and Registration Requirements**

PART V – APPLICATION REVIEW INFORMATION

- A. Review Criteria**
- B. Review and Selection Process**
- C. Anticipated Notice of Selection and Award Dates**

PART VI – AWARD ADMINISTRATION INFORMATION

- A. Award Notices**
- B. Administrative and National Policy Requirements**
- C. Reporting**

PART VII – QUESTIONS/AGENCY CONTACTS

- A. Questions**
- B. Agency Contacts**

PART VIII – OTHER INFORMATION

- A. Modifications**
- B. Government Right to Reject or Negotiate**
- C. Commitment of Public Funds**
- D. Proprietary Application Information**
- E. Evaluation and Administration by Non-Federal Personnel**
- F. Intellectual Property Developed under this Program**
- G. Notice of Right to Request Patent Waiver**
- H. Notice Regarding Eligible/Ineligible Activities**
- I. Notice of Right to Conduct a Review of Financial Capability**
- J. Notice of Potential Disclosure Under Freedom of Information Act**

APPENDICES/REFERENCE MATERIAL

Appendix A - Definitions

Appendix B - Personally Identifiable Information (PII)

Appendix C - Cost Share Information

PART I – FUNDING OPPORTUNITY DESCRIPTION

A. INTRODUCTION:

Projects selected under this Funding Opportunity Announcement (FOA) will be funded with regular DOE appropriation funds and not with American Recovery and Reinvestment Act of 2009 funds.

B. DESCRIPTION:

1. Purpose:

The purpose of this FOA, “**Industrial Energy Efficiency Grand Challenge**”, is to fund cost-shared development of transformational industrial processes and technologies that reduce the energy intensity (million Btu’s per unit system output) or greenhouse gas emissions (carbon equivalent) of the system by a minimum of 25 percent while providing a return on investment of 10 percent or greater. The proposed requirement complies with the following goal and strategy of the Energy Security Theme of DOE’s 2006 Strategic Plan:

Goal 1.4 Energy Productivity: Cost-effectively improve the energy efficiency of the U. S. economy.

Pertinent strategy to meet this goal: Partner with energy-intensive industries to develop transformational manufacturing processes and technologies that enable more efficient use of energy in industrial processes.

The FOA is in support of the Energy Efficiency and Renewable Energy (EERE) mission to strengthen America’s energy security, environmental quality, and economic vitality in public-private partnerships that enhance energy efficiency and productivity. It would help accomplish the goal of EERE’s Portfolio Priority 6, “Increase the Energy Efficiency / Reduce the Energy Intensity of Industry”.

In support of the above mission and goals, the Industrial Technologies Program (ITP) of EERE defined its mission in 2007 as: “Improve national security, climate and environment, and economic competitiveness by transforming the way U. S. industry uses energy” and set a goal to “Drive a 25% reduction in U. S. industrial energy intensity by 2020 in support of EPAct 2005”.

The planned solicitation will select and fund concept definition Research and Development (R&D) studies to develop transformational manufacturing processes and technologies that meet the grand challenges of energy-intensive industries. Industrial collaboration is strongly recommended, and cost sharing is required.

2. Statutory Authorization:

Energy Policy Act of 2005, Section 911, provides that programs shall include research, development, demonstration, and commercial application of advanced technologies to improve the energy efficiency, environmental performance and process efficiency of energy-intensive and waste-intensive industries.

Energy Independence and Security Act of 2007, Section 452, authorizes the Secretary of Energy to establish a program, in cooperation with energy-intensive industries and national industry trade associations representing the energy-intensive industries, to support, research, develop, and

promote the use of new materials processes, technologies, and techniques to optimize energy efficiency and the economic competitiveness of the United States' industrial and commercial sectors.

3. Background:

U. S. industry consumes approximately 32 quadrillion Btu (quads) of energy per year¹ - almost a third of all energy used in the United States - while also emitting an estimated 1,640 million metric tons of carbon dioxide (MMTCO₂) per year. Top energy-intensive industries include:

<i>Industry</i>	<i>Annual Energy Consumption (Quads)²</i>	<i>Estimated Annual Carbon Emissions MMTCO₂³</i>
Petroleum	6.8	304.8
Chemicals	6.5	316
Forest & Paper Products	2.7	102.4
Iron & Steel	1.4	127.4
Food & Beverage	1.2	94.7
Mining	0.8	55
Transportation Equipment	0.4	50
Cement	0.4	82
Fabricated Metals	0.4	44
Aluminum	0.5	52
Glass	0.2	20.9
Information Technology	0.2	29
Metal Casting	0.2	17.9

¹ <http://www.eia.doe.gov/oiaf/aeo2008>

² Annual energy use data does not include generation losses. *Manufacturing Energy Consumption Survey, 2002, Energy Information Administration.*

³ Estimated annual carbon emission data includes generation losses and, where applicable, both energy- and process-related emissions. This data comes from a number of sources, including - *Energy-Related Carbon Dioxide Emissions in U.S. Manufacturing, 2006, EIA; Emissions of Greenhouse Gases in the United States, 2007, EIA; and, where necessary, supplemental industry-specific reports and EERE ITP analysis.*

Reducing the energy and carbon footprint is a challenge that the industries face which if solved will yield economic benefits. Problems of this magnitude are termed “Grand Challenges.” Grand Challenges typically involve high-risk, high-return R&D such as an entirely new processing route to achieve much lower energy use than current processes.

It is essential that U.S. industry be prepared to meet these grand challenges by achieving significant reduction in energy consumption and/or greenhouse gas emissions (GHG) while also creating value and enhancing competitiveness. This will require a dedication to innovation and the development of transformational manufacturing processes, technologies and materials to create the next generation of U.S. industrial success.

ITP leads the national effort to improve the energy efficiency of this sector. ITP’s strategy draws on the diverse strengths of industry, academia, and the national laboratories to form collaborative teams focused on reducing energy use and carbon emissions in some of the nation’s most energy-intensive industries. These collaborative teams share the costs and risks of research while solving the technological challenges of today and the future.

To this end, ITP is releasing this FOA to solicit, select and fund projects to develop transformational industrial processes and technologies associated with the nation’s energy intensive industries listed above. This may include next generation manufacturing concepts, advanced industrial materials, greenhouse gas reduction technologies, and other innovative concepts that reduce industrial energy intensity and/or greenhouse gas emissions.

For this FOA, transformational technologies are broadly defined to include new industrial procedures, processes, technologies, and materials that drastically reduce or alter energy use in manufacturing with no negative effect on production, throughput, or system economics. The Concept Definition projects sought by this FOA are not limited to a specific industrial process, technology or sector so long as they seek to address the grand challenge of reducing the energy intensity (million Btu’s per unit system output) or greenhouse gas emissions (carbon equivalent) of the system by a minimum of 25 percent while providing a return on investment of 10 percent or greater through the development of a transformational technology concept.

ITP uses a Stage-Gate approach to manage the progress of a project and guide disciplined decision-making throughout the course of research, development and commercialization. It categorizes the progression of a project from concept to commercialization in five stages:

- Stage 1 – Preliminary Investigation and Analysis,
- Stage 2 – Concept Definition,
- Stage 3 – Concept Development,
- Stage 4 – Technology Development and Verification, and
- Stage 5 – Information Dissemination and Commercialization.

ITP’s *Stage-Gate Innovation Management Guidelines* contains definitions of these stages and suggested decision criteria for the corresponding gates. Please see http://www1.eere.energy.gov/industry/financial/stage_gate_project.html for more information.

This FOA seeks Concept Definition (Stage 2) projects as a mechanism to investigate promising approaches to the Grand Challenges facing industry. In general, concept definition involves the early stage research needed to explore and define technical concepts and may include laboratory scale experiments, exploration of fundamental scientific concepts associated with the technology, data generation and analysis, or other exploratory methods.

Any proposed concept-definition study should focus on specific, promising technologies that offer the potential for major energy, carbon, and economic benefits. While the focus of the proposed work must be on the early stages of research, it will also indicate how the technology will eventually fit into commercial markets. The study will identify the technical barriers and critical R&D paths for developing a commercial application or product that addresses a significant market opportunity. The research will translate end-user needs into preliminary technical specifications and clearly define the technology's market and technical risks as well as its energy, environmental, and economic advantages. These findings are expected to support a solid, credible justification for moving the technology forward. (Alternatively, the study may identify any barriers for development of the topic technology). The results of the study must illustrate a path forward to introduce the new technology into the marketplace.

The proposed team must be qualified to define the capabilities of the technology by conducting research studies, exploring relevant scientific concepts, analyzing data, and performing other appropriate activities. DOE expects that the results of the study will be published. Any proprietary data delivered to DOE that will be used in preparation of the study will be protected from public disclosure pursuant to the clause "Rights in Data – Programs Covered Under Special Protected Data Statutes," 10 CFR 600 Appendix A to Subpart D, which will be included in any Agreement awarded under this FOA.

The maximum DOE share for each project is not to exceed \$300,000; applicant cost share is to be no less than 20% of the total Concept Definition study cost. The duration of these projects should not exceed one year.

Continuation Provision: If the project goals and criteria are successfully accomplished, DOE may fund select projects for Stage 3 activities under a Continuation Provision, extending the project period to 3 to 4 years and budget to \$3 to \$4 million. See Continuation Provision clause under Part II – Award Information for details.

4. Topic Areas of Interest:

This FOA seeks Stage 2 Concept Definition (as defined above under Background) projects to develop transformational industrial processes and technologies that reduce the energy intensity (million Btu's per unit system output) or greenhouse gas emissions (carbon equivalent) of the system by a minimum of 25 percent while providing a return on investment of 10 percent or greater. The transformational technologies are broadly defined as including new industrial procedures, processes, technologies, and materials that drastically reduce or alter energy use in manufacturing with no negative effect on production, throughput, or system economics. Such technologies are expected to offer a dramatic departure from current practice and are expected to offer substantial cost, energy and environmental benefits over the incumbent technology. The emphasis is on new processes and technologies that are revolutionary and can be commercialized within the next five to seven years.

Specifically, this FOA is seeking proposals that offer solutions to core technical problems facing an industry or group of industries, that, if solved hold the potential to produce large improvements in energy intensity, environmental performance, product yield, and economic benefits. Such problems are often termed "Grand Challenges." Grand Challenges typically involve high-risk, high-return R&D such as an entirely new processing route to achieve much lower energy use than current processes.

ITP seeks applications that are responsive to one of the four Topic Areas of Interest described below. An organization may submit more than one application addressing different Area or different concept for the same Area. Each application should clearly indicate the Topic Area, it is addressing. This information will be used during Initial Review to determine the responsiveness of the application to the FOA. There is no preset goal for the number of awards to be made in any particular Topic Area or on any particular sub topic within a Topic Area.

Topic Area 1: Next Generation Manufacturing Concepts

Applications are invited for entirely new manufacturing concepts that will potentially replace conventional manufacturing processes. These next generation manufacturing concepts should address the grand challenge of reducing the energy intensity (million Btu's per unit system output) or greenhouse gas emissions (carbon equivalent) of the system by a minimum of 25 percent while providing a return on investment of 10 percent or greater through the implementation of advanced transformational industrial processes, procedures, or technologies. The proposed concept-definition study will focus on specific, promising technologies that offer the potential for major energy, carbon, and economic benefits associated with the industries listed above.

Topic Area 2: Energy Intensive Processes

Energy Intensive Processes (EIP)⁴ technology areas cover many of the manufacturing processes in the U.S. industrial sector. As such, EIP activities must address specific technology areas that are expected to generate large energy-saving benefits across a variety of industries. This FOA seeks proposals that transform the way major manufacturing processes use energy.

The four technology areas that are expected to generate large energy-saving benefits across a variety of industries under EIP are:

- A. **Reactions and Separations:** New technologies with improved energy intensity and process intensification capabilities which yield dramatic energy and cost savings to a wide range of industries such as oil refining, food processing and chemical production.
- B. **High-temperature Processing:** Improvements for producing metals and non-metallic materials that include deployment of lower-energy or non-thermal alternatives to conventional high-temperature processing technologies.
- C. **Waste Heat Minimization and Recovery:** Technology advances in ultra-efficient steam production, high performance furnaces and broadly applicable waste-heat recovery that contribute to sustainability, reduced water usage and a lower carbon footprint for U.S. industry.
- D. **Sustainable Manufacturing:** Technologies that enable the manufacture of components with multiple market applications and new manufacturing options that reduce process steps or parts count, thereby reducing energy intensity through the manufacturing value chain.

⁴ <http://www1.eere.energy.gov/industry/intensiveprocesses/index.html>

Applications are invited that address the grand challenge of achieving significant reduction in energy intensity and/or GHG emissions through the implementation of advanced transformational industrial processes in the areas listed above. The proposed concept-definition study will focus on specific, promising technologies that offer the potential for major energy, carbon, and economic benefits that address cross-industry applications in the topics listed above.

Topic Area 3: Advanced Materials

Availability of materials with requisite engineering properties, in large quantities and at a reasonable cost, is critical to successful implementation and viability of most energy efficiency technologies at a commercial scale. Materials limitations to energy efficiency are usually related to inadequate performance or lifetime in severe-service environments. The success or failure of many industrial energy efficiency concepts depends on materials selection and fabrication techniques to meet the ever increasing demands on performance and life.

Applications are invited that address the grand challenge of achieving significant reduction in energy intensity (million Btu's per unit system output) or greenhouse gas emissions (carbon equivalent) of the system by a minimum of 25 percent while providing a return on investment of 10 percent or greater through the development and implementation of advanced industrial materials. The proposed concept-definition study will focus on specific, promising industrial materials technologies that offer the potential for major energy, carbon, and economic benefits in the following two areas of interest:

- A. **Thermal and Degradation Resistant Materials:** The goal is to develop and deploy advanced industrial materials that would last longer and operate at higher temperatures: thereby improving productivity, reducing or eliminating plant down time, and reducing energy intensity. The quantitative goal for thermal and degradation resistant materials is to increase lifetime by a factor of ten (10x), thus achieving reduction in energy intensity.
- B. **Materials for Energy Systems:** The goal is to develop and deploy advanced industrial materials that improve performance (by at least 50%) of energy production and energy transfer equipment and reduce energy losses. Examples include but are not limited to: photovoltaic and thermoelectric materials, refractories and insulation, materials for heat exchangers, or other waste heat recovery technologies.

Topic Area 4: Industrial Greenhouse Gas Emissions Reduction

In the United States in 2005, industry accounted for approximately 28 percent of total energy-related CO₂ emissions. Significant reduction of industrial greenhouse gas (GHG) emissions (tracked in CO₂ equivalents) can be attained through changes in energy use, development of new materials, and improvement of process efficiencies. In addition, development of advanced manufacturing technologies could significantly reduce industrial CO₂ emissions. Innovative enabling technologies for energy-efficient and low CO₂ emission products and processes can take advantage of developments in sensors and controls, catalysis, nanotechnology, micro-manufacturing, and other areas to reduce GHG emissions, including industrial gases with high global warming potential (GWP).

Applications are invited for transformational technologies that address not only carbon intensity reductions, but also absolute carbon reductions. Of particular interest are technologies that apply

to industries that have been identified as major sources of carbon emissions including, but not limited to, those listed in the table presented in the Background section above.

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

DOE anticipates awarding grants under this program announcement.

B. ESTIMATED FUNDING

Approximately \$5 million is expected to be available for new awards in FY2009 and an additional \$10 million is expected to be available for awards made under this announcement in year FY2010.

C. MAXIMUM AND MINIMUM AWARD SIZE

Ceiling (i.e., the maximum amount for an individual award made under this announcement):
\$ 300,000.

Floor (i.e., the minimum amount for an individual award made under this announcement):
\$100,000.

D. EXPECTED NUMBER OF AWARDS

DOE anticipates making about 50 awards under this announcement depending on the size of the awards. There is no pre-set target about the number of awards under various Topic Areas.

E. ANTICIPATED AWARD SIZE

DOE share of the budget for an award will be typically \$250,000.

F. PERIOD OF PERFORMANCE

The period of performance will be 1 year.

G. TYPE OF APPLICATION:

Only new applications will be accepted under this announcement (e.g., applications for renewals of existing DOE funded projects will not be considered).

H. CONTINUATION PROVISION:

This FOA seeks to support only Concept Definition (Stage 2) activities. However, the Project Narrative part of the application should include a “Continuation Plan” section that describes the Scope of Work and Budget Estimate to continue the project to Concept Development Stage (Stage 3). Awardees that successfully accomplish project goals and criteria may submit a Continuation Application to DOE for additional funds to perform Concept Development (Stage 3) activities to advance the technology on the commercialization path. The Continuation Application has to be submitted 90 days before the end of the project period and should be based on the Scope of Work and Budget Estimate for Stage 3 activities originally presented in the application.

Based on the Stage 2 results, DOE intends to approve selected (8 to 10) Continuation Applications considering factors such as technical and commercial success potential for the project; energy intensity and greenhouse gas emissions reduction potential of the technology; availability of funds; and program policy factors. For these selected projects, DOE will negotiate a revised Statement of Project Objective, Schedule and Budget for the project and amend the Award Agreement. Depending upon the scope of work to be performed for Stage 3 activities, the DOE share of the budget may be increased to \$3 to \$4 million and the Period of Performance may be extended to 3 to 4 years.

PART III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS

All types of entities are eligible to apply. Teaming arrangement is strongly encouraged. Together, the team should possess both technical and commercial capabilities. The team can be comprised of large and small companies, academia, trade organizations and research organizations including DOE National Laboratories (DOE FFRDCs as defined in Section 2 of the Energy Policy Act of 2005). DOE FFRDCs, however, cannot be the prime recipient.

B. COST SHARING

Consistent with applicable statutory and regulatory requirements, the cost share must be at least 20% of the total allowable costs for the projects and must come from non-Federal sources unless otherwise allowed by law. The sum of the Government share, including FFRDC contractor costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project.

C. OTHER ELIGIBILITY REQUIREMENTS

Federally Funded Research and Development Center (FFRDC) Contractors: FFRDC contractors are not eligible for an award under this announcement, but a DOE FFRDC may be proposed as a team member on another entity's application subject to the following guidelines:

Authorization for DOE FFRDCs. The cognizant contracting officer for the FFRDC must authorize in writing the use of a DOE FFRDC contractor on the proposed project and this authorization must be submitted with the application. Save the authorization in a single file named "FFRDC_Auth.pdf," and attach. The following wording is acceptable for this authorization.

"Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complementary to the missions of the laboratory, will not adversely impact execution of the DOE assigned programs at the laboratory."

Value/Funding. The value of, and funding for, the FFRDC contractor portion of the work will not normally be included in the award to a successful applicant. Usually, DOE will fund a DOE FFRDC contractor through the DOE field work proposal system.

Cost Share. The applicant's cost share requirement will be based on the total cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

FFRDC Contractor Effort:

- The FFRDC contractor effort, in aggregate, shall not exceed 49% of the total estimated cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

Responsibility. The applicant, if successful, will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to, disputes and claims arising out of any agreement between the applicant and the FFRDC contractor.

D. MULTIPLE PRINCIPAL INVESTIGATORS

The assignment and use of multiple Principal Investigators (PIs) in projects awarded under this FOA is allowed. The applicant, whether a single organization or team/partnership/consortium, must indicate in the application if the project will include multiple PI's. (See Part IV, Section C 3 c.) The decision to use multiple PIs for a project is the sole responsibility of the applicant. If multiple PI's will be designated, the application must identify in the application the Contact PI/Project Coordinator and provide a "Coordination and Management Plan" that describes the organization structure of the project as it pertains to the designation of multiple PI's. This plan should, at a minimum, include:

- Process for making decisions on scientific/technical direction;
- Intellectual property issues;
- Communication plans;
- Procedures for resolving conflicts; and
- PI's roles and administrative, technical and scientific responsibilities for the project.

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION FORMS

Apply at FedConnect

The Adobe Application Package is provided as a separate attachment to this Funding Opportunity Announcement in FedConnect. Once you have SAVED the application package and completed all the required documentation, you will submit your application via the FedConnect portal. DO NOT use the Save & Submit selection in Grants.gov

Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and their applications will be accepted in Grants.gov to be considered for award.

B. LETTER OF INTENT AND PRE-APPLICATION

1. Letter of Intent

Applicants are requested to submit a letter of intent by Monday, June 15, 2009. This letter should include the name of the applicant, the title of the project, the name of the Project Director/Principal Investigator(s), and a one-page abstract that indicates Topic Area of Interest. An organization may submit more than one application addressing different Area or different concept for the same Area. Letters of intent and accompanying abstracts will be used by DOE to organize and expedite the merit review process. They should not contain any proprietary or sensitive business information. Failure to submit such letters will not negatively affect a responsive application submitted in a timely fashion. The letter of intent should be sent by E-mail to ITP-grandchallenge@go.doe.gov.

2. Pre-application

A pre-application is not required.

C. CONTENT AND FORM OF APPLICATION

The Adobe Application Package is provided as a separate attachment to this Funding Opportunity Announcement (on FedConnect).

Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and their applications will be accepted in Grants.gov to be considered for award.

You must complete the mandatory forms and any applicable optional forms, in accordance with the instructions on the forms and the additional instructions below, as required by this FOA. **Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement.**

Once the forms below have been completed, save the Adobe Application Package in a single file, using up to 10 letters of the Applicant's Organization Name as the file name (e.g., UCLA). If your organization is submitting more than one Application, you must identify an application number at the end of each file name (e.g., UCLA-1). If your organization is submitting more than one Application to different topic areas, you must identify an application number and the Topic Area Number at the end of each file name (e.g., UCLA-1-Topic1).

1. SF 424 - Application for Federal Assistance

Complete this form first to populate data in other forms. Complete all required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 21 can be found at

http://management.energy.gov/business_doe/business_forms.htm, under Certifications and Assurances.

2. Project/Performance Site Location(s)

Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided. **Note that the Project/Performance Site Congressional District is entered in the format of the 2 digit state code followed by a dash and a three-digit Congressional district code, for example, VA-001.**

3. Other Attachments Form

Submit the following files with your application and attach them to the "Other Attachments" Form. Click on "Add Mandatory Other Attachment" to attach the Project Narrative. Click on "Add Optional Other Attachment," to attach the other files.

a. Project Summary/Abstract File

The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the project director/principal investigator(s), the project title, and the Topic Area of Interest it is addressing. It should describe the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants for collaborative projects. Applicants are cautioned that this document should not include any proprietary information, trade secrets, or other confidential business, financial or sensitive information, since this summary may be subject to public disclosure under the Freedom of Information Act (FOIA). The project summary must not exceed 1 page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right) with font not smaller than 11 point. Save this information in a file named "Summary.pdf," and click on "Add Optional Other Attachment" to attach.

b. Project Narrative File - Mandatory Other Attachment

The project narrative must not exceed 20 pages including cover page, table of contents, list of acronyms, charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins

(top, bottom, left, and right). EVALUATORS WILL REVIEW ONLY THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE. The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application. See Part VIII.D for instructions on how to mark proprietary application information. Save the information in a single file named "Project.pdf," and click on "Add Mandatory Other Attachment" to attach.

The project narrative must include:

- Statement of Project Objectives.
This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.
- Merit Review Criterion Discussion.
The section should be formatted to address each of the merit review criterion and sub-criterion listed in Part V. A. below. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria. **DOE WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH OF THE MERIT REVIEW CRITERION AND SUB-CRITERION.** Cross referencing to following two sections may be used to avoid duplication of information.
- Project Management Plan.
This section should describe the activities/tasks to be performed; their assignment and coordination among team members; milestones and schedule for the accomplishment of the activities/tasks; and the spending plan associated with the activities/tasks and organizations. The PIs should plan on attending and making presentations at three ITP meetings to be held in DC or Golden: A Kick-off meeting in fall of 2009, a mid-term progress review meeting in spring of 2010, and a final presentation at the conclusion of the project in fall of 2010.
- Project Continuation Plan.
This section should outline the Scope of Work to be performed for Stage 3 activities and Budget Estimate, assuming that the project goals and criteria are accomplished at the conclusion of the award and the project is selected for continuation.

The above listed components of your Project Narrative combined, must be within the Narrative page limit specified above. Documents listed below may be included as clearly marked appendices to your Narrative and will not count towards the Project Narrative page limit. Please note that some of the required documents listed below may have their own page limits to which you must adhere.

c. Resume File

Provide a resume for each key person proposed, including subawardees and consultants if they meet the definition of key person. A key person is any individual who contributes in a substantive, measurable way to the execution of the project.

Save all resumes in a single file named “resume.pdf” and click on “Add Optional Other Attachment” to attach. Each resume must not exceed 2 pages when printed on 8.5” by 11” paper with 1 inch margins (top, bottom, left, and right) with font not smaller than 11 point and should include the following information, if applicable:

Education and Training. Undergraduate, graduate and postdoctoral training, provide institution, major/area, degree and year.

Professional Experience: Beginning with the current position list, in chronological order, professional/academic positions with a brief description.

Publications. Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address, if available electronically.

Patents, copyrights and software systems developed may be provided in addition to or substituted for publications.

Synergistic Activities. List no more than 5 professional and scholarly activities related to the effort proposed.

Of the key personnel identified in this file, indicate the Principal Investigator(s) (PI). If multiple PI’s are proposed, the applicant must provide the information indicated in Part III, Section D, as part of this file.

d. Budget File

SF 424 A Excel, Budget Information – Non-Construction Programs File

You must provide a separate budget for each year of support requested and accumulative budget for the total project period. Use the SF 424 A Excel, “Budget Information – Non Construction Programs” form on the Applicant and Recipient Page at http://management.energy.gov/business_doe/business_forms.htm. You may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (see PART IV, G). Save the information in a single file named “SF424A.xls,” and click on “Add Optional Other Attachment” to attach.

e. Budget Justification File

A Budget Justification for SF 424A must be provided for the costs proposed in each Object Class Category/Cost Classification category (e.g., identify key persons and personnel categories and the estimated costs for each person or category; provide a list of equipment and cost of each item; identify proposed subaward/consultant work and cost of each subaward/consultant; describe purpose of proposed travel, number of travelers and number of travel days; list general categories of supplies and amount for

each category; and provide any other information you wish to support your budget). Provide the name of your cognizant/oversight agency, if you have one, and the name and phone number of the individual responsible for negotiating your indirect rates as part of the budget justification or under the comments under the Indirect tab of the Budget Justification form.

f. Letters of Commitment

You must have a letter from each third party contributing cost share (i.e., a party other than the organization submitting the application) that proposes to provide all or part of the required cost share. **All Letters of Commitment must be attached to the Project Narrative File.** Each letter must state that the third party is committed to providing a specific minimum dollar amount of cost share. In the budget justification, identify the following information for each third party contributing cost share: (1) the name of the organization; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project cost; and (4) the proposed type of cost share – cash, services, or property. Letters of Commitment from parties participating in the project, exclusive of vendors, who will not be contributing cost share, but will be integral to the success of the project must be included as part of this Appendix to the Narrative. Letters of Commitment will not count towards the Project Narrative page limit.

g. Subaward Budget File(s)

You must provide a separate budget (i.e., budget for each budget year and a cumulative budget) for each subawardee that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total work effort (whichever is less). Use the SF 424 A Excel for Non Construction Programs or the SF 424 C Excel for Construction Programs. These forms are found on the Applicant and Recipient Page at <https://www.eere-pmc.energy.gov/forms.aspx>. Save each Subaward budget in a separate file. Use up to 10 letters of the subawardee’s name (plus424.xls) as the file name (e.g., ucla424.xls or energyres424.xls). Click on “Add Optional Other Attachment” to attach each file.

A budget justification for the subaward budget is also required. The budget justification must include the same justification information described in paragraph e. above.

h. Budget for Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable

If a DOE-FFRDC contractor is to perform a portion of the work, you must provide a DOE Field Work Proposal in accordance with the requirements in DOE Order 412.1 Work Authorization System. This order and the DOE Field Work Proposal form are available at the following link:

<http://www.management.energy.gov/documents/o4121.pdf>. Use up to 10 letters of the FFRDC name (plus .pdf) as the file name (e.g., lanl.pdf or anl.pdf), and click on “Add Optional Other Attachment” to attach.

i. Authorization for DOE FFRDCs

Save the Authorization for DOE FFRDCs, as specified in Part III.C. Other Eligibility Requirements, in a single file named “FFRDC_Auth.pdf” and click on “Add Optional Other Attachment”.

j. SF-LLL Disclosure of Lobbying Activities

If applicable, complete SF- LLL.

Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying." The form is available in the optional document box on the Adobe Application Package attached to this FOA.

Summary of Required Forms/Files

Your application must include the following documents:

Name of Document	Format	File Name
SF 424 - Application for Federal Assistance	Part of Adobe Application Package	
Project/Performance Site Location(s)	Part of Adobe Application Package	
Other Attachments Form: Attach the following files to this form:	Part of Adobe Application Package	See Instructions
Project Summary/Abstract File	PDF	Summary.pdf
Project Narrative File, including required appendices (Letters of Commitment)	PDF	Project.pdf
Resume File	PDF	Resume.pdf
SF 424A Excel – Budget Information for Non-Construction Programs File	Excel	SF424A.xls
Budget Justification File	PDF	See Instructions
Subaward Budget File(s), if applicable Budget Justification(s), if applicable	Excel for Budget PDF for Justification	See Instructions
Budget for Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable	PDF	See instructions

Authorization from cognizant Contracting Officer for FFRDC, if applicable.	PDF	FFRDC_Auth.pdf
SF-LLL Disclosure of Lobbying Activities	PDF	SF-LLL.pdf

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS

If selected for award, DOE reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to:

- Indirect cost information
- Other budget information
- Environmental Questionnaire

E. SUBMISSION DATES AND TIMES

Pre-application Due Date: Pre-applications are not required.

Application Due Date

- Applications must be received by Tuesday, July 14, 2009, 11:59 PM Eastern Time. You are encouraged to transmit your application well before the deadline.
APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.

F. INTERGOVERNMENTAL REVIEW

- This program is not subject to Executive Order 12372 – Intergovernmental Review of Federal Programs.

G. FUNDING RESTRICTIONS

Cost Principles. Costs must be allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600. The cost principles for commercial organization are in FAR Part 31.

Pre-award Costs. Recipients may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. Recipients must obtain the prior approval of the contracting officer for any pre-award costs that are for periods greater than this 90 day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

H. SUBMISSION AND REGISTRATION REQUIREMENTS

1. Where to Submit

APPLICATIONS MUST BE SUBMITTED THROUGH FEDCONNECT TO BE CONSIDERED FOR AWARD. Submit electronic applications through the FedConnect portal. Information regarding how to submit applications via Fed Connect can be found at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf.

Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and their applications will be accepted in Grants.gov to be considered for award.

Further, it is the responsibility of the applicant, prior to the Application due date and time, to verify successful transmission.

2. Registration Process Requirements

To submit an application in response to this FOA, Applicants must be registered with FedConnect. Before you can register with FedConnect, you will need the following:

- A. Your organization's DUNS (including plus 4 extension if applicable). If you don't know your organization's DUNS or if your organization does not have a DUNS, you can search for it or request one at <http://fedgov.dnb.com/webform/displayHomePage.do>.
- B. A federal Central Contractor Registration (CCR) account. If your organization is not currently registered with CCR, please register at www.ccr.gov before continuing with your FedConnect registration.
- C. Possibly, your organization's CCR MPIN. If you are the first person from your organization to register, FedConnect will need to create an organization account. Only a person who knows your organization's CCR MPIN can do this. To find out who this is in your organization, go to <http://www.ccr.gov/> and click **Search CCR**. Once you've found your organization, locate the Electronic Business Point of Contact.

After the initial FedConnect account is created, employees can register themselves without the MPIN. If you are not sure whether your organization has an account with FedConnect, complete the registration form and FedConnect will let you know if your organization is registered. (PLEASE REFER TO QUICK START GUIDE).

Applicants, who are not registered with CCR and FedConnect, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible. For those Applicants already registered in CCR, the CCR registration must be updated annually at <http://www.ccr.gov/Renew.aspx>.

Part V - APPLICATION REVIEW INFORMATION

A. REVIEW CRITERIA

1. Initial Review Criteria

Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the funding opportunity announcement and meets the requirements specified under the Topic Area of Interest, as indicated by the Applicant in Project Summary. If an application fails to meet these requirements, it may be deemed non-responsive and eliminated from full Merit Review.

2. Merit Review Criteria

Applications will be evaluated against the merit review criteria shown below. All sub-criteria (bullets) under a particular criterion are of equal importance.

Criterion 1: Technical Merits of the Proposed Technology **Weight: [25%]**

- The scientific and technical merit of the proposed technology
- Innovation, originality, and feasibility of the proposed technology
- Thoroughness of the proposed Statement of Project Objectives (SOPO) and the anticipated outcome and results

Criterion 2: Potential Energy, Economic, Environmental, and Market Benefits **Weight: [40%]**

- The potential percent energy reduction in comparison to current technology; the magnitude (in Trillion Btu/yr) and timing of projected energy savings
- The potential of the technology to reduce greenhouse gas and other environmental pollutant emissions as well as to reduce solid and liquid wastes, in comparison to the technology currently in commercial use
- The potential economic benefits of the proposed technology over the current technology
- The completeness and validity of assumptions used in developing the benefits ascribed to the technology
- Discussion of the potential markets that would be impacted by the successful development and commercial implementation of the proposed technology

Criterion 3: Technical Approach and Project Management Plan **Weight: [25%]**

- Identification of a technical area of interest specified in the FOA and discussion of how the proposed technology addresses the need and its potential superiority over currently used technologies

- Validity and completeness of the proposed technical approach and likelihood of success based on the current status of the proposed technology and the scientific merit of the proposed approach
- Adequacy, reasonableness and soundness of the proposed Project Management Plan (coordination of tasks and assignments among team members, schedule, milestones) to accomplish the stated project objectives
- Adequacy, appropriateness, and reasonableness of the proposed work and budget distribution among the team members to accomplish the stated project objectives

Criterion 4: Qualifications and Resources

Weight: [10%]

- Capability and experience of organizational participants in proposed technology area
- Evidence of organization experience in developing and commercializing innovative technologies
- Discussion of adequacy (quality, availability and appropriateness) of facilities and equipment to accommodate the proposed project

3. Other Selection Factors

The selection official may consider the following program policy factors in the selection process:

Relevance to Energy Intensity Reduction Goal: Project contributes to ITP's goal to drive a 25% reduction in U.S. industrial energy intensity in 10 years in support of the EPAct of 2005 and the President's carbon reduction goals through voluntary partnerships with industry.

Congruity to Current ITP Portfolios: Project provides needed portfolio diversity, contributes to portfolio balance across priority technical areas, and /or provides needed adjustment in portfolio risk profile to achieve desired balance with respect to technical approaches, stages of development and technical and commercialization risks. Note: The current portfolios can be accessed at <http://www1.eere.energy.gov/industry/>.

Potential Impact on Manufacturing Supply Chain: Project provides the potential to impact energy efficiency, carbon reduction, and economic competitiveness throughout a domestic manufacturing supply chain.

Leveraging of Funds: Project leverages federal funds to optimize advancement of programmatic goals. Applicants with non-federal cost-share above the minimum may be given preferential consideration.

B. REVIEW AND SELECTION PROCESS

1. Merit Review

It is very important that those documents, Project Abstract and Project Narrative file, that will be used during the Merit Review Process do not contain any Personally Identifiable Information as described in Appendix B.

2. Selection

The Selection Official may consider the merit review recommendation, program policy factors, and the amount of funds available.

3. Discussions and Award

The Government may enter into discussions with a selected applicant for any reason deemed necessary, including, but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; **(3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR part 600; and/or (4) special terms and conditions are required.** Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES

- DOE anticipates notifying applicants selected for award by September 15, 2009 and making awards by September 25, 2009.

Part VI - AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

1. Notice of Selection

DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance. (See Part IV.G with respect to the allowability of pre-award costs.)

Organizations whose applications have not been selected will be advised as promptly as possible. This notice will explain why the application was not selected.

2. Notice of Award

A Financial Assistance Award issued by the contracting officer is the authorizing award document. It normally includes, either as attachments or by reference: 1. Special Terms and Conditions; 2. Applicable program regulations, if any; 3. Application as approved by DOE; 4. DOE assistance regulations at 10 CFR part 600; 5. National Policy Assurances To Be Incorporated As Award Terms; 6. Budget Summary; and 7. Federal Assistance Reporting Checklist, which identifies the reporting requirements.

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

1. Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR part 600 (See: <http://ecfr.gpoaccess.gov>).

2. Special Terms and Conditions and National Policy Requirements

The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at

<http://www.management.energy.gov/documents/specialtermsandcondition308.pdf>.

The National Policy Assurances To Be Incorporated As Award Terms are located at

http://management.energy.gov/business_doe/1374.htm.

3. Intellectual Property Provisions

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at

http://www.gc.doe.gov/financial_assistance_awards.htm.

DOE expects that the results of the project will be published. Any proprietary data delivered to DOE that will be used in preparation of the report will be protected from public disclosure for 5 years pursuant to the clause "Rights in Data – Programs Covered Under Special Protected Data Statutes," 10 CFR 600 Appendix A to Subpart D, which will be included in any Agreement awarded under this FOA.

C. REPORTING

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement. The proposed Checklist for this program can be found at https://www.eere-pmc.energy.gov/procurenet/FinancialAssistance/Forms/DOE_Forms/DOEF4600_2.doc.

PART VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

Questions regarding the content of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to submit questions and to receive responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf. DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been distributed.

Questions pertaining to the **submission** of applications through FedConnect should be directed by e-mail to support@FedConnect.net or by phone to FedConnect Support at 1-800-899-6665.

B. AGENCY CONTACT(S)

Name: Anne Elkins
E-mail: ITP-grandchallenge@go.doe.gov

All questions should be submitted through the FedConnect portal (see Part VII.A. above)

PART VIII - OTHER INFORMATION

A. MODIFICATIONS

Notices of any modifications to this announcement will be distributed through the FedConnect portal. You can receive an email when a modification or an announcement message is posted by registering with FedConnect as an interested party for this FOA. It is recommended that you register as soon as possible after the release of the FOA, to ensure you receive timely notice of any modifications or other announcements.

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. COMMITMENT OF PUBLIC FUNDS

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. PROPRIETARY APPLICATION INFORMATION

Patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may harm the applicant, should be included in an application only when such information is necessary to convey an understanding of the proposed project. The use and disclosure of such data may be restricted, provided the applicant includes the following legend on the first page of the project narrative and specifies the pages of the application which are to be restricted:

“The data contained in pages _____ of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government’s right to use or disclose data obtained without restriction from any source, including the applicant.”

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following:

“The following contains proprietary information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation.”

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM

Patent Rights. The government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. (See “Notice of Right to Request Patent Waiver” in paragraph G below.)

Rights in Technical Data. Normally, the government has unlimited rights in technical data created under a DOE agreement. Delivery or third party licensing of proprietary software or data developed solely at private expense will not normally be required except as specifically negotiated in a particular agreement to satisfy DOE’s own needs or to insure the commercialization of technology developed under a DOE agreement.

Special Protected Data Statutes. This program is covered by a special protected data statute. The provisions of the statute provide for the protection from public disclosure, for a period of up to five years from the development of the information, of data that would be trade secret, or commercial or financial information that is privileged or confidential, if the information had been obtained from a non-Federal party. Generally, the provision entitled, Rights in Data - Programs Covered Under Special Protected Data Statutes, (10 CFR 600 Appendix A to Subpart D), would apply to an award made under this announcement. This provision will identify data or categories of data first produced in the performance of the award that will be made available to the public, notwithstanding the statutory authority to withhold data from public dissemination, and will also identify data that will be recognized by the parties as protected data. For National Laboratories and FFRDCs, the data rights clause in Applicant's M & O Contract will apply.

G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER

DOE intends to issue a class waiver for Agreements awarded under this FOA, which DOE expects will cover most, if not all, prime Recipients and team members. If a class waiver is not issued or a prime Recipient or team member does not qualify for the class waiver, an Applicant, including team members other than the prime Recipient, may request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this announcement, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the prime Recipients and team members will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784. Additionally, DOE's patent waivers will include a U.S. competitiveness provision reflecting DOE's programmatic objectives; e.g., improving the competitive position as well as the U.S. employment opportunities in U.S. industries.

Domestic small businesses and domestic nonprofit organizations will receive the patent rights clause at 37 CFR 401.14, i.e., the implementation of the Bayh-Dole Act. This clause permits domestic small business and domestic nonprofit organizations to retain title to subject inventions. Therefore, small businesses and nonprofit organizations do not need to request a waiver.

H. NOTICE REGARDING ELIGIBLE/INELIGIBLE ACTIVITIES

Eligible activities under this program include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

I. NOTICE OF RIGHT TO CONDUCT A REVIEW OF FINANCIAL CAPABILITY

DOE reserves the right to conduct an independent third party review of financial capability for applicants that are selected for negotiation of award (including personal credit information of principal(s) of a small business if there is insufficient information to determine financial capability of the organization).

J. NOTICE OF POTENTIAL DISCLOSURE UNDER FREEDOM OF INFORMATION ACT

Applicants should be advised that identifying information regarding all applicants, including applicant names and/or points of contact, may be subject to public disclosure under the Freedom of Information Act, whether or not such applicants are selected for negotiation of award.

REFERENCE MATERIAL

Appendix A – Definitions

“Amendment” means a revision to a Funding Opportunity Announcement

"Applicant" means the legal entity or individual signing the Application. This entity or individual may be one organization or a single entity representing a group of organizations (such as a Consortium) that has chosen to submit a single Application in response to a Funding Opportunity Announcement.

"Application" means the documentation submitted in response to a Funding Opportunity Announcement.

“Authorized Organization Representative (AOR)” is the person with assigned privileges who is authorized to submit grant applications through Grants.gov on behalf of an organization. The privileges are assigned by the organization’s E-Business Point of Contact designated in the CCR.

"Award" means the written documentation executed by a DOE Contracting Officer, after an Applicant is selected, which contains the negotiated terms and conditions for providing Financial Assistance to the Applicant. A Financial Assistance Award may be either a Grant or a Cooperative Agreement.

"Budget" means the cost expenditure plan submitted in the Application, including both the DOE contribution and the Applicant Cost Share.

“Central Contractor Registration (CCR)” is the primary database which collects, validates, stores and disseminates data in support of agency missions. Funding Opportunity Announcements which require application submission through FedConnect or Grants.gov require that the organization first be registered in the CCR at <http://www.grants.gov/CCRRegister>.

"Consortium (plural consortia)" means the group of organizations or individuals that have chosen to submit a single Application in response to a Funding Opportunity Announcement.

"Contracting Officer" means the DOE official authorized to execute Awards on behalf of DOE and who is responsible for the business management and non-program aspects of the Financial Assistance process.

"Cooperative Agreement" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and Substantial Involvement (see definition below) is anticipated between DOE and the Applicant during the performance of the contemplated activity.

"Cost Sharing" means the respective share of Total Project Costs to be contributed by the Applicant and by DOE. The percentage of Applicant Cost Share is to be applied to the Total Project Cost (i.e., the sum of Applicant plus DOE Cost Shares) rather than to the DOE contribution alone.

“Credential Provider” is an organization that validates the electronic identity of an individual through electronic credentials, PINS, and passwords for Grants.gov. Funding Opportunity Announcements which require application submission through Grants.gov require that the individual applying on behalf of an organization first be registered with the Credential Provider at <https://apply.grants.gov/OrcRegister>.

“Data Universal Numbering System (DUNS) Number” is a unique nine-character identification number issued by Dun and Bradstreet (D&B). Organizations must have a DUNS number prior to registering in the CCR. Call 1-866-705-5711 to receive one free of charge. http://www.grants.gov/applicants/request_duns_number.jsp

“E-Business Point of Contact (POC)” is the individual who is designated as the Electronic Business Point of Contact in the CCR registration. This person is the sole authority of the organization with the capability of designating or revoking an individual’s ability to conduct CCR transactions.

“E-Find” is a Grants.gov webpage where you can search for Federal Funding Opportunities in FedGrants. <http://www.grants.gov/search/searchHome.do>

"Financial Assistance" means the transfer of money or property to an Applicant or Participant to accomplish a public purpose of support authorized by Federal statute through Grants or Cooperative Agreements and sub-awards. For DOE, it does not include direct loans, loan guarantees, price guarantees, purchase agreements, Cooperative Research and Development Agreements (CRADAs), or any other type of financial incentive instrument.

“FedConnect” is where federal agencies post opportunities and make awards via the web. Any Applicant can view public postings without registering. However, registered users have numerous added benefits including the ability to electronically submit Applications / Responses to the government directly through this site. <https://www.fedconnect.net/FedConnect/>

“Federally Funded Research and Development Center (FFRDC)” means a research laboratory as defined by Federal Acquisition Regulation 35.017.

“Funding Opportunity Announcement (FOA)” is a publicly available document by which a Federal agency makes known its intentions to award discretionary grants or cooperative agreements, usually as a result of competition for funds. Funding opportunity announcements may be known as program announcements, notices of funding availability, solicitations, or other names depending on the agency and type of program.

"Grant" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and no Substantial Involvement is anticipated between DOE and the Applicant during the performance of the contemplated activity.

“Grants.gov” is the “storefront” web portal which allows organizations to electronically find grant opportunities from all Federal grant-making agencies. Grants.gov is THE single access

point for over 900 grant programs offered by the 26 Federal grant-making agencies.
<http://www.grants.gov>

“Indian Tribe” means any Indian tribe, band, nation, or other organized group or community, including Alaska Native village or regional or village corporation, as defined in or established pursuant to the Alaska Native Claims Settlement Act (85 Stat. 688)[43 U.S.C. § 1601 et seq.], which are recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

"Key Personnel" means the individuals who will have significant roles in planning and implementing the proposed Project on the part of the Applicant and Participants, including FFRDCs.

“Marketing Partner Identification Number (MPIN)” is a very important password designated by your organization when registering in CCR. The E-Business Point of Contact will need the MPIN to assign privileges to the individual(s) authorized to perform CCR transactions on behalf of your organization. The MPIN must have 9 digits containing at least one alpha character (must be in capital letters) and one number (no spaces or special characters permitted).

"Participant" for purposes of this Funding Opportunity Announcement only, means any entity, except the Applicant substantially involved in a Consortium, or other business arrangement (including all parties to the Application at any tier), responding to the Funding Opportunity Announcement.

“Principal Investigator” refers to the technical point of contact/Project Manager for a specific project award.

"Project" means the set of activities described in an Application, State plan, or other document that is approved by DOE for Financial Assistance (whether such Financial Assistance represents all or only a portion of the support necessary to carry out those activities).

“Proposal” is the term used in IIPS meaning the documentation submitted in response to a Funding Opportunity Announcement. Also see Application.

“Recipient” means the organization, individual, or other entity that receives a Financial Assistance Award from DOE, is financially accountable for the use of any DOE funds or property provided for the performance of the Project, and is legally responsible for carrying out the terms and condition of the award.

"Selection" means the determination by the DOE Selection Official that negotiations take place for certain Projects with the intent of awarding a Financial Assistance instrument.

"Selection Official" means the DOE official designated to select Applications for negotiation toward Award under a subject Funding Opportunity Announcement.

"Substantial Involvement" means involvement on the part of the Government. DOE's involvement may include shared responsibility for the performance of the Project; providing technical assistance or guidance which the Applicant is to follow; and the right to intervene in

the conduct or performance of the Project. Such involvement will be negotiated with each Applicant prior to signing any agreement.

“Technology Investment Agreement (TIA)” is a type of assistance instrument used to support or stimulate research projects involving for-profit firms, especially commercial firms that do business primarily in the commercial marketplace. TIAs are different from grants and cooperative agreements in that the award terms may vary from the Government-wide standard terms (See DOE TIA regulations at 10 CFR Part 603). The primary purposes for including a TIA in the type of available award instruments are to encourage non-traditional Government contractors to participate in an R&D program and to facilitate new relationships and business practices. A TIA can be particularly useful for awards to consortia (See 10 CFR 603.225(b) and 603.515, Qualification of a consortium).

"Total Project Cost" means all the funds to complete the effort proposed by the Applicant, including DOE funds (including direct funding of any FFRDC) plus all other funds that will be committed by the Applicant as Cost Sharing.

“Tribal Energy Resource Development Organization or Group” means an “organization” of two or more entities, at least one of which is an Indian Tribe (see “Indian Tribe” above) that has the written consent of the governing bodies of all Indian Tribes participating in the organization to apply for a grant or loan, or other assistance under 25 U.S.C. § 3503.

Appendix B – Personally Identifiable Information

In responding to this Announcement, Applicants must ensure that Protected Personally Identifiable Information (PII) is not included in the following documents: Project Abstract, Project Narrative, Biographical Sketches, Budget or Budget Justification. These documents will be used by the Merit Review Committee in the review process to evaluate each application. PII is defined by the Office of Management and Budget (OMB) and DOE as:

Any information about an individual maintained by an agency, including but not limited to, education, financial transactions, medical history, and criminal or employment history and information that can be used to distinguish or trace an individual's identity, such as their name, social security number, date and place of birth, mother's maiden name, biometric records, etc., including any other personal information that is linked or linkable to an individual.

This definition of PII can be further defined as: (1) Public PII and (2) Protected PII.

- a. **Public PII:** PII found in public sources such as telephone books, public websites, business cards, university listing, etc. Public PII includes first and last name, address, work telephone number, email address, home telephone number, and general education credentials.
- b. **Protected PII:** PII that requires enhanced protection. This information includes data that if compromised could cause harm to an individual such as identity theft.

Listed below are examples of Protected PII that Applicants must not include in the files listed above to be evaluated by the Merit Review Committee.

- Social Security Numbers in any form
- Place of Birth associated with an individual
- Date of Birth associated with an individual
- Mother's maiden name associated with an individual
- Biometric record associated with an individual
- Fingerprint
- Iris scan
- DNA
- Medical history information associated with an individual
- Medical conditions, including history of disease
- Metric information, e.g. weight, height, blood pressure
- Criminal history associated with an individual
- Employment history and other employment information associated with an individual
- Ratings
- Disciplinary actions
- Performance elements and standards (or work expectations) are PII when they are so intertwined with performance appraisals that their disclosure would reveal an individual's performance appraisal

- Financial information associated with an individual
- Credit card numbers
- Bank account numbers
- Security clearance history or related information (not including actual clearances held)

Listed below are examples of Public PII that Applicants may include in the files listed above to be evaluated by the Merit Review Committee:

- Phone numbers (work, home, cell)
- Street addresses (work and personal)
- Email addresses (work and personal)
- Digital pictures
- Medical information included in a health or safety report
- Employment information that is not PII even when associated with a name
- Resumes, unless they include a Social Security Number
- Present and past position titles and occupational series
- Present and past grades
- Present and past annual salary rates (including performance awards or bonuses, incentive awards, merit pay amount, Meritorious or Distinguished Executive Ranks, and allowances and differentials)
- Present and past duty stations and organization of assignment (includes room and phone numbers, organization designations, work email address, or other identifying information regarding buildings, room numbers, or places of employment)
- Position descriptions, identification of job elements, and those performance standards (but not actual performance appraisals) that the release of which would not interfere with law enforcement programs or severely inhibit agency effectiveness
- Security clearances held
- Written biographies (e.g. to be used in a program describing a speaker)
- Academic credentials
- Schools attended
- Major or area of study
- Personal information stored by individuals about themselves on their assigned workstation or laptop unless it contains a Social Security Number

Appendix C – Cost Share Information

Cost Sharing or Cost Matching

The terms “cost sharing” and “cost matching” are often used synonymously. Even the DOE Financial Assistance Regulations, 10 CFR Part 600, use both of the terms in the titles specific to regulations applicable to cost sharing. DOE almost always uses the term “cost sharing,” as it conveys the concept that **non-federal share is calculated as a percentage of the Total Project Cost**. An exception is the State Energy Program Regulation, 10 CFR Part 420.12, State Matching Contribution. Here “cost matching” for the non-federal share is calculated as a percentage of the federal funds only, rather than the Total Project Cost.

How Cost Sharing Is Calculated

As stated above, cost sharing is calculated as a percentage of the Total Project Cost. Following is an example of how to calculate cost sharing amounts for a project with \$1,000,000 in federal funds with a minimum 20% non-federal cost sharing requirement:

Formula: Federal share (\$) divided by Federal share (%) = Total Project Cost

Example: \$1,000,000 divided by 80% = \$1,250,000

Formula: Total Project Cost (\$) minus Federal share (\$) = Non-federal share (\$)

Example: \$1,250,000 minus \$1,000,000 = \$250,000

Formula: Non-federal share (\$) divided by Total Project Cost (\$) = Non-federal share (%)

Example: \$250,000 divided by \$1,250,000 = 20%

See the sample cost share calculation for a blended cost share percentage below. **Keep in mind that FFRDC funding is DOE funding.**

What Qualifies For Cost Sharing

While it is not possible to explain what specifically qualifies for cost sharing in one or even a couple of sentences, in general, if a cost is allowable under the cost principles applicable to the organization incurring the cost and is eligible for reimbursement under a DOE grant or cooperative agreement, then it is allowable as cost share. Conversely, if the cost is not allowable under the cost principles and not eligible for reimbursement, then it is not allowable as cost share. In addition, costs may not be counted as cost share if they are paid by the Federal Government under another award unless authorized by Federal statute to be used for cost sharing.

The rules associated with what is allowable as cost share are specific to the type of organization that is receiving funds under the grant or cooperative agreement, though are generally the same for all types of entities. The specific rules applicable to:

- Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations are found at

10 CFR600.123;

- State and Local Governments are found at 10 CFR600.224;
- For-profit Organizations are found at 10 CFR600.313.

In addition to the regulations referenced above, other factors may also come into play such as timing of donations and length of the project period. For example, the value of ten years of donated maintenance on a project that has a project period of five years would not be fully allowable as cost share. Only the value for the five years of donated maintenance that corresponds to the project period is allowable and may be counted as cost share.

Additionally, DOE generally does not allow pre-award costs for either cost share or reimbursement when these costs precede the signing of the appropriation bill that funds the award. In the case of a competitive award, DOE generally does not allow pre-award costs prior to the signing of the Selection Statement by the DOE Selection Official.

Following is a link to the DOE Financial Assistance Regulations. You can click on the specific section for each Code of Federal Regulations reference mentioned above.

DOE Financial Assistance Regulations:

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=98a996164312e8dcf0df9c22912852b0&rgn=div5&view=text&node=10:4.0.1.3.9&idno=10>

As stated above, the rules associated with what is allowable cost share are generally the same for all types of organizations. Following are the rules found to be common, but again, the specifics are contained in the regulations and cost principles specific to the type of entity:

(A) *Acceptable contributions.* All contributions, including cash contributions and third party in-kind contributions, must be accepted as part of the recipient's cost sharing if such contributions meet all of the following criteria:

- (1) They are verifiable from the recipient's records.
- (2) They are not included as contributions for any other federally-assisted project or program.
- (3) They are necessary and reasonable for proper and efficient accomplishment of project or program objectives.
- (4) They are allowable under the cost principles applicable to the type of entity incurring the cost as follows:

(a) *For-profit organizations.* Allowability of costs incurred by for-profit organizations and those nonprofit organizations listed in Attachment C to OMB Circular A-122 is determined in accordance with the for-profit costs principles in 48 CFR Part 31 in the Federal Acquisition Regulation, except that patent prosecution costs are not allowable unless specifically authorized in the award document.

(b) *Other types of organizations.* Allowability of costs incurred by other types of organizations that may be subrecipients under a prime award is determined as follows:

(i) *Institutions of higher education.* Allowability is determined in accordance with OMB Circular No. A-21 -- Cost Principles for Educational Institutions

(ii) *Other nonprofit organizations.* Allowability is determined in accordance with OMB Circular A-122, Cost Principles for Non-Profit Organizations

(iii) *Hospitals.* Allowability is determined in accordance with the provisions of 45 CFR Part 74, Appendix E, Principles for Determining Costs Applicable to Research and Development Under Grants and Contracts with Hospitals

(iv) *Governmental organizations.* Allowability for State, local, or federally recognized Indian tribal government is determined in accordance with OMB Circular No. A-87, Cost Principles for State, Local, and Indian Tribal Governments

(5) They are not paid by the Federal Government under another award unless authorized by Federal statute to be used for cost sharing or matching.

(6) They are provided for in the approved budget.

(B) *Valuing and documenting contributions*

(1) *Valuing recipient's property or services of recipient's employees.* Values are established in accordance with the applicable cost principles, which mean that amounts chargeable to the project are determined on the basis of costs incurred. For real property or equipment used on the project, the cost principles authorize depreciation or use charges. The full value of the item may be applied when the item will be consumed in the performance of the award or fully depreciated by the end of the award. In cases where the full value of a donated capital asset is to be applied as cost sharing or matching, that full value must be the lesser or the following:

(a) The certified value of the remaining life of the property recorded in the recipient's accounting records at the time of donation; or

(b) The current fair market value. If there is sufficient justification, the contracting officer may approve the use of the current fair market value of the donated property, even if it exceeds the certified value at the time of donation to the project. The contracting officer may accept the use of any reasonable basis for determining the fair market value of the property.

(2) *Valuing services of others' employees.* If an employer other than the recipient furnishes the services of an employee, those services are valued at the employee's regular rate of pay, provided these services are for the same skill level for which the employee is normally paid.

(3) *Valuing volunteer services.* Volunteer services furnished by professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as cost sharing or matching if the service is an integral and necessary part of an approved project or program. Rates for volunteer services must be consistent with those paid for similar work in the recipient's organization. In those markets in which the required skills are not found in the recipient organization, rates must be consistent with those paid for similar work in the labor market in which the recipient competes for the kind of services involved. In either case, paid fringe benefits that are reasonable, allowable, and allocable may be included in the valuation.

(4) *Valuing property donated by third parties.*

(a) Donated supplies may include such items as office supplies or laboratory supplies. Value assessed to donated supplies included in the cost sharing or matching share must be reasonable and must not exceed the fair market value of the property at the time of the donation.

(b) Normally only depreciation or use charges for equipment and buildings may be applied. However, the fair rental charges for land and the full value of equipment or other capital assets may be allowed, when they will be consumed in the performance of the award or fully depreciated by the end of the award, provided that the contracting officer has approved the charges. When use charges are applied, values must be determined in accordance with the usual accounting policies of the recipient, with the following qualifications:

(i) The value of donated space must not exceed the fair rental value of comparable space as established by an independent appraisal of comparable space and facilities in a privately-owned building in the same locality.

(ii) The value of loaned equipment must not exceed its fair rental value.

(5) *Documentation.* The following requirements pertain to the recipient's supporting records for in-kind contributions from third parties:

(a) Volunteer services must be documented and, to the extent feasible, supported by the same methods used by the recipient for its own employees.

(b) The basis for determining the valuation for personal services and property must be documented.