# "RECOVERY ACT"

# FINANCIAL ASSISTANCE
# FUNDING OPPORTUNITY ANNOUNCEMENT

## U. S. Department of Energy - Headquarters

## Advanced Research Projects Agency – Energy (ARPA-E)

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## Executive Summary and Introduction

This is the first solicitation for the Advanced Research Projects Agency – Energy (ARPA-E). ARPA-E is a new organization within the Department of Energy (DOE), created specifically to foster research and development (R&D) of transformational energy-related technologies. Transformational technologies are by definition technologies that disrupt the status quo. They are not merely better than current technologies, they are significantly better. Often, a technology is considered transformational when it so outperforms current approaches that it causes an industry to shift its technology base to the new technology. The Nation needs transformational energy-related technologies to overcome the threats posed by climate change and energy security, arising from its reliance on traditional uses of fossil fuels and the dominant use of oil in transportation.

ARPA-E will fund scientists and technologists to take an immature technology that promises to make a large impact on the ARPA-E Mission Areas (see Section I.B) and develop it beyond the "valley of death" that prevents many transformational new technologies from becoming a market reality. The "valley of death" generally occurs in two phases. The first phase occurs at the point of determining whether a laboratory stage technology can ever become a real-world technology or it has some inherent unsuitability for real-world applications. Once it has been determined through R&D that the apparent barriers can be overcome and how they may be overcome, then additional investment from many other sources causes a new field of technology options to open up. The second phase of the "valley of death" occurs at the point of developing the immature transformational technology to the point where key risks have been lowered enough that industry can invest in the final stages of development and incorporate the technology into products.

Success for ARPA-E as an organization will be gauged by (a) whether its portfolio of investments includes the most promising transformational energy technology options and (b) the agency's ability to form and manage R&D efforts to mature these technologies rapidly. In the end, the nation will judge ARPA-E on whether these technologies come to market and are being used widely enough that they make a significant difference to reductions in domestic oil use and energy-related emissions of greenhouse gases.

To accomplish these challenging goals, ARPA-E is willing to work with any R&D entity[1] singly or in teams, that has a transformational technology idea and a credible plan to mature that technology beyond either phase of the "valley of death." For early stage transformational technologies with the potential for broad transformational impact, the R&D project must carry the technology development to the point where others can recognize the major potential impact and the technology is suitable for development or can be made suitable. For the projects aimed at overcoming the later phase of the "valley of death," the technology (component, system, hardware, software, or other) must be matured to the point that it can transition into industrial development and deployment.

[1] Some restrictions apply to Federally Funded Research and Development Center (FFRDC), Foreign Entities and Federal Laboratories (see Section III).

The kinds of technologies most suited to an ARPA-E style development are those that still have significant technical risks to overcome, but promise to meet the future costs and scale of products that can deeply penetrate into consumer and industrial use. ARPA-E intends to accelerate the development of these technologies and, in many cases, make possible transformational technologies that would normally not be able to reach enough maturity for industry to use them because of the risks at the current stage of development.

ARPA-E intends to be a nimble, flat organization that is willing to take on high-risk projects to meet its ambitious goals. Working with the performer, ARPA-E will create an intellectual property strategy, technical data strategy, and procurement or financial assistance instrument that best manages the high risk inherent in this kind of R&D and optimizes the likelihood that the technology will move forward to market after the Government ceases funding. ARPA-E has the flexibilities to work with companies who do not traditionally work with the Federal Government. In the area of cost-sharing, ARPA-E will be flexible, working with the performer to determine the appropriate level and the appropriate type of cost-sharing arrangements, which may include monetary contributions and/or other (in-kind) contributions. As rules of thumb, when the project risk is very high, the cost sharing should be lower. When the technology is closer to market or the future market is large and potentially very profitable, the cost share should be higher[2].

Once the R&D project begins, ARPA-E Program Managers will interact frequently with performers, helping to identify problems as early as possible and seeking solutions to keep the R&D on track. ARPA-E's role is more than simply providing R&D funds; ARPA-E will actively work to make your R&D succeed.

This Funding Opportunity Announcement (FOA), funded through the American Recovery and Reinvestment Act of 2009[3], will focus on high-risk, high-payoff transformational energy-related R&D. In this announcement, ARPA-E asks for the kernel of your technical idea in the form of a concept paper. ARPA-E will respond to you, indicating whether a full application based on that idea is likely to receive funding. We do this first step to save you the time and expense of preparing a full application that may have little chance of success. Please read carefully about the ARPA-E mission and decide if your R&D plan really satisfies these goals. Only truly transformational technologies that can contribute greatly to the ARPA-E's Mission Areas have any chance of funding. **We are not looking for incremental progress on current technologies.**

If you have a technical idea that can change the energy landscape and are looking to work with ARPA-E to move that technology beyond the technical risk barriers preventing its current use, read further.

[2] The cost sharing provisions for this first solicitation are detailed on page 10.

[3] For all projects funded through the Recovery Act, special terms and conditions apply. Details are provided in this announcement.

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## Section I - FUNDING OPPORTUNITY DESCRIPTION

### A. American Recovery and Reinvestment Act of 2009 (Recovery Act)

Projects under this Funding Opportunity Announcement (FOA) will be funded, in whole or in part, with funds appropriated by the American Recovery and Reinvestment Act of 2009, P. L. 111-5 (Recovery Act or Act). The Recovery Act's purposes are to stimulate the economy and to create and retain jobs. The Act gives preference to activities that can be started and completed expeditiously. Accordingly, special consideration will be given to projects that promote and enhance the objectives of the Act, especially job creation, preservation and economic recovery, in an expeditious manner. Be advised that special terms and conditions may apply to projects funded by the Act. (See section VIII)

### B. Advanced Research Projects Agency – Energy

The Advanced Research Projects Agency – Energy (ARPA-E) is an organization within the Department of Energy, chartered by Congress in the America COMPETES Act (P. L. 110-69) to create transformational new energy technologies and systems through funding and managing research and development (R&D) efforts. The mission of ARPA-E is to overcome the long-term and high risk technological barriers in the development of energy technologies that can achieve the following, with no direct detriment to any of ARPA-E's Mission Areas:

(1) Enhance the economic and energy security of the United States through the development of energy technologies that result in-
   a. reductions of imports of energy from foreign sources;
   b. reductions of energy-related emissions, including greenhouse gases; and
   c. improvement in the energy efficiency of all economic sectors; <u>and</u>

(2) Ensure that the United States maintains a technological lead in developing and deploying advanced energy technologies.

Under this announcement, ARPA-E will achieve these goals by funding energy technology projects that (1) translate scientific discoveries and cutting-edge inventions into technological innovations and (2) accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of high technical or financial risk.

ARPA-E is not intended to be a substitute for existing R&D organizations within the Department of Energy. ARPA-E complements the existing organizations by adding an organization focused on R&D that is both transformational and translational. ARPA-E's purpose is not to support basic research aimed at discovery and knowledge generation for its own sake, nor will it undertake large-scale demonstration projects. Applicants interested in receiving basic research financial assistance should continue to work with the Department of Energy's Office of Science. Similarly, projects focused on incremental improvement in existing technology platforms that fall under the applied programs, e.g., the Office of Energy Efficiency and Renewable Energy, Office of Fossil Energy and the Office of Nuclear Energy, should continue to be directed to those offices.

ARPA-E does not own or manage any laboratories. ARPA-E will accomplish its mission by funding scientists and technologists outside ARPA-E to perform high-risk, high-payoff R&D efforts with the purpose of enabling major technological advances to overcome the problems of energy security and climate change.

ARPA-E's strategy is to define key challenges, develop solution concepts, support R&D projects that are transformational in nature, and bring those concepts to fruition. Transformational R&D is not about incremental improvements of the state of the art. It is about enabling major leaps forward in the technology base, technology components, and/or integrated systems. Transformational R&D emphasizes high-risk concepts with potentially high-payoff.

Transformational energy technologies are those that have the potential to create new paradigms in how energy is produced, transmitted, used, and/or stored. Such advances are characterized by a clear view of a desired outcome, an understanding of the barriers that intervene, and innovative pathways toward a new frontier. They have the potential to radically change understanding of important energy-related concepts or to lead to the creation of new energy-related fields. As breakthroughs, they often depend on technical approaches that are novel, emergent, integrative, or enabling, and fall outside the established constructs of existing mission-directed or discipline-oriented R&D programs.

The kinds of R&D activities supported by ARPA-E are not restricted. They may include targeted acceleration of novel, early-stage energy research with possible technology applications; development of techniques, processes, and technologies, and related testing and evaluation; research and development of manufacturing processes for novel energy technologies; and coordination with nongovernmental entities for demonstration of technologies and research applications to facilitate technology transfer. However, this announcement is focused on accelerated development of technologies.

Within the spectrum of technology research activities, from basic research to full system validation, as defined within a framework of nine (9) "technology readiness levels" (TRL) in FOA. (See Appendix 4 – Technology Readiness Levels (TRL)) ARPA-E is expected to operate mainly within the range of TRL-2 through TRL-7. There is a strong expectation that ARPA-E funded R&D, if successful, will advance technology readiness from lower to higher levels over the course of a project.

The test for how far to take technology maturation depends on: (1- early stage) whether the transformational objective is to open up a new field of technology through applied research; or (2 - late stage)whether the objective is to reduce the technology risk low enough for industry to invest in further development and deployment. Under this announcement, R&D projects should carry the technology development to one of these two decision points. For the later stage targeted development work, the R&D plan must overcome all key technical barriers currently preventing industrial absorption of the transformational technology, but should not carry the tax-payer investment beyond the point where industry should be able to shoulder the remaining technical and market risks. Depending on the specific technology and its industry, the industry absorption point may vary in TRL level.

R&D performers funded by ARPA-E may include the full range of R&D entities. ARPA-E encourages the appropriate skills mix to perform the proposed R&D. This may be a single performer or team, may be one or more institutions, and may include operational experts along with the research team.

The result of a later stage successful ARPA-E project will be such that the transformational technology originally conceived at the beginning of the R&D project will at the end of the project be sufficiently advanced and well defined in terms of performance and risk that industry can incorporate the new technology into product development. Projects under this FOA must be aimed at *more than progress toward* identified project goals; the project must be aimed at *delivering* on these project goals. The R&D effort on later stage technology development projects must carry the risk reduction process for the technology to the point entrepreneurial decisions can be made with confidence.

ARPA-E is part of a broader national energy strategy. The elements of the Administration's Energy and Environment Agenda (www.whitehouse.gov/agenda/energy_and_environment) relevant to this FOA include:

- **Reduce GHG emissions:** Drive emissions to 80% below 1990 levels by 2050, and ensure 25 percent of our electricity comes from renewable sources by 2025.

- **Enhance Energy Security:** Save more oil than the U.S. currently imports from the Middle East and Venezuela combined (more than 3.5 million barrels per day) within 10 years.

- **Restore Science Leadership:** Strengthen America's role as the world leader in science and technology.

- **Quickly Implement the Economic Recovery Package:** Create millions of new green jobs and lay the foundation for the future.

Under this FOA, ARPA-E is seeking R&D applications for technologies that, when in wide-spread use, will make substantial, significant, quantitative contributions to these national goals and ARPA-E Mission Areas. In addition, the proposed technology when in use may not have a negative impact on any of the ARPA-E Mission Areas.

## C. Funding Opportunity Description

This is the first Funding Opportunity Announcement (FOA) released from ARPA-E. There is both opportunity, under the Recovery Act, and an urgent strategic need to begin transformational energy R&D projects as soon as practicable. This first announcement is primarily aimed at prospective applicants who already have a relatively well-formed R&D plan for a transformational concept or new technology that can make a significant contribution towards attainment of the Administration's Energy and Environment Agenda (see above), if and when successfully deployed. Because eventual success will be judged on whether the technologies transition to industrial development and then wide-spread use, ideally an applicant will also have

ready a plan to transition the results of the R&D to one or more products and into manufacturing. However, this announcement is only for financial assistance on the R&D portion of the plan.

This initial announcement is narrowly focused on transformational R&D, but intentionally broad on applications and technologies. This announcement is open to the full range of concepts potentially covering all aspects of ARPA-E's Mission Areas. The intent is to harness the creativity of all sectors of the American science and technology communities to advance the ARPA-E Mission Areas and stimulate the pursuit of new and innovative technical opportunities that can spur great leaps forward within those mission impact areas. In the future, it is anticipated that ARPA-E will run additional program-specific announcements.

This announcement describes all of the information required to submit an application. Additional forms required are listed in this document along with the instructions. This notice constitutes the total FOA.

## Concept Paper

In order to reduce the administrative burden on applicants and ARPA-E, and to mitigate unnecessary costs associated with the generation of applications that are unlikely to receive funding and expedite awards, ARPA-E applicants are required to submit a concept paper as the first step of the application process. ARPA-E will review the concept paper and provide early feedback on whether the kernel of the R&D idea is likely to form a basis of a successful full application. Only after notification from ARPA-E on the concept paper will the applicant be permitted to submit a full application.

Opening time for submission of concept papers begins May 12, 2009. The Concept Paper closing date and time is on 2 June 2009 at 8:00 p.m. (EST). Concept papers must be submitted to www.FedConnect.net at any time between the opening time and the closing time for concept paper submission. Early submission is strongly encouraged.

This FOA will appear on the FedConnect website, www.FedConnect.net, and FedBizOpps website, www.fedbizopps.gov/. The directions for completing the concept paper submission are in this FOA (Section IV). To submit the concept paper, a cover sheet (Appendix 1) is also required.

Concept papers will be reviewed as received. In cases of an extremely meritorious submission, an applicant may be contacted by fax and email (if contact information is supplied by the applicant) for early submission for a full application. Concept paper notification will indicate whether a full application based on the idea presented in the concept paper is likely to be competitive. ARPA-E anticipates informing all other applicants no later than 13 July 2009. For those receiving early notification, ARPA-E will assign an individual deadline for the full application submission; the deadline will be thirty-one days after the date of the notification.

## Application

Instructions for electronic submission of the full application will be supplied in the concept paper notification. An applicant may submit a full application at any time before the closing date established in their concept paper written notification. An applicant may submit a full application even if the concept paper feedback indicates that a full application would be unlikely to be successful. All applications that meet the minimum requirements for submission will be evaluated using the same criteria, regardless of the feedback on the concept paper.

It is the responsibility of the applicant to complete submission before the established deadlines. Applicants are urged not to wait to the closing dates for the concept paper or the application, but instead should submit as soon as possible. Because internet and data server traffic can be heavy on the day the portal closes, and especially in the last several hours, applicants are urged to submit in a timely manner so as not to have difficulties meeting the deadlines.

## Section II - AWARD INFORMATION

### A. Type of Award Instrument

ARPA-E anticipates awarding grants, cooperative agreements, or Technology Investment Agreements (TIAs) under this FOA. Cooperative agreements and TIAs are the most likely instruments to be used because of the need for substantial Government interaction during the performance of the research and development (R&D) project.

A TIA may offer more flexibility for tailoring requirements than standard financial assistance awards in certain areas, including financial management systems that comply with Generally Accepted Accounting Principals for for-profit applicants; cost accounting systems; methods of payment (*e.g.* reimbursements, advance payments, and milestone payments are available); and intellectual property terms. While a TIA would typically offer flexibility in terms of audit provisions, ARPA-E's flexibility for these provisions is limited under this FOA. The funds for this FOA have been appropriated by the Recovery Act, which includes express requirements with respect to audit provisions. ARPA-E is also limited in its flexibility regarding tangible property management, including for example real property and equipment. Otherwise, it is ARPA-E's general policy to avoid requirements that would force participants to use different financial management, property management, and purchasing systems than those currently in use.

An applicant may request a TIA if the applicant believes that using a TIA could benefit the objectives of the program and can document these benefits. After an applicant is selected for negotiations, the Contracting Officer and the ARPA-E Program Manager will determine if awarding a TIA would benefit the objectives of the program in ways that likely would not happen with a typical financial assistance agreement. (See Section III and Appendix 2 for cost share requirements.)

### B. Estimated Funding /Number of Awards

ARPA-E anticipates that most awards will be for total project costs in the range of $2 million to $5 million. Some may be as low as $500,000 or as high as $10 million. In extremely exceptional cases, ARPA-E may choose to accept efforts up to $20 million. The applicant should propose a funding level that is appropriate to the work, not introducing additional risk by underfunding nor adding extraneous tasks or large management reserves that will drive up the R&D cost.

Multiple awards are anticipated. ARPA-E anticipates awarding agreements totaling up to $150 million. However, the amount of resources made available under this announcement will depend on the quality of the proposed R&D projects and other programmatic considerations.

## C. Period of Performance

The period of performance for efforts selected under this announcement is limited to no more than 36 months performance; however, ARPA-E has a strong preference for a period of performance of no more than 24 months.

## Section III - ELIGIBILITY INFORMATION

### A. Eligible Applicants

ARPA-E welcomes submissions from any type of capable technology research and development entity. This includes, but is not limited to for-profit entities, academic institutions, research foundations, not-for-profit entities, collaborations, and consortia. The lead organization that will enter into the agreement with ARPA-E must be a U.S. entity. FFRDCs, federal agencies and laboratories, and foreign entities (entities that are directly or indirectly owned or controlled by a foreign company or government) may only participate as part of a collaboration, consortium, or other teaming arrangement, and may not lead the team.

A minimum of 90% of the work, as defined by total project costs, must be performed on U.S. soil, which includes the United States proper and its territories.

Participation by Foreign Entities.

If a foreign entity participates in the proposed R&D project, no more than 25% of the ARPA-E funds may be expended by the combination of all foreign entities on the project (excluding equipment that is not available in the United States). This restriction applies to the combined performance of the foreign entities, regardless of whether the work is performed in the United States or a foreign location.

Organizational Conflicts of Interest.

ARPA-E may elect to utilize contractor services to support program creation, administration, and testing. To avoid both real and perceived conflicts of interest, ARPA-E only allows a company or other entity to be a R&D performer if the company is not a support contractor to ARPA-E because support contractors may be involved in the program creation, administration, and testing phases. By submitting a concept paper or application, the applicant and all subcontractors or team members on that application are stating that they are not performing support contractor services for ARPA-E, either as a prime contractor or subcontractor. If it is found that a lead applicant or any of the other entities on the application are support contractors to ARPA-E, the application may be rejected by ARPA-E without further review.

If a prospective applicant believes that any conflict of interest exists or may exist (whether organizational or otherwise), the applicant should promptly raise the issue with ARPA-E by sending applicant's contact information and a summary of the potential conflict by email to the mailbox address for this FOA at **ARPA-E@hq.doe.gov,** before time and effort are expended in preparing an application.

### B. Cost Sharing (or Matching)

The recipient must provide cost share of at least 20% of the total allowable costs for R&D projects of an applied nature (i.e., 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). For awards where ARPA-E determines that use of a TIA is appropriate, recipients are required to provide at least 50% of the total project costs, where practicable. Under this FOA where the Contracting Officer (CO) in consultation with the ARPA-E Program Manager (PM) determines in a given case that this level of required non-Federal cost sharing for a TIA is impracticable, the Contracting Officer may reduce the requirement to not less than 25% of the costs of the project. Before deciding the cost sharing requirement is impracticable, the CO and PM will carefully consider if there are other factors that demonstrate the recipient's commitment to the success of the project. Whether for R&D of an applied nature or conducted under a TIA, the Recipient's cost-share must come from non-federal sources unless otherwise allowed by law. Although monetary cost share is preferred, in-kind cost share contributions will be considered.

Refer to Appendix 2, Cost Share Information, for further discussion of calculating cost share.

## C. Other Eligibility Requirements

Federally Funded Research and Development Center (FFRDC) Contractors.
FFRDC contractors may be proposed as a team member on another entity's application, but may not lead the team, subject to the following guidelines:

Authorization for non-DOE/NNSA FFRDCs.
The Federal agency sponsoring the FFRDC contractor must authorize in writing the use of the FFRDC contractor on the proposed project and this authorization must be submitted with the full application. This authorization is not required for the concept paper submission but is required before merit review of the applications will be initiated. The use of a FFRDC contractor must be consistent with the contractor's authority under its award and must not place the FFRDC contractor in direct competition with the private sector.

Authorization for DOE/NNSA FFRDCs.
The cognizant contracting officer for the FFRDC must authorize in writing the use of a DOE/NNSA FFRDC contractor on the proposed project and this authorization must be submitted with the full application. The authorization is not required for the concept paper submission but is required before merit review of the application will be initiated. The following wording is acceptable for this authorization.

"Authorization is granted for the [*Name*] 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/NNSA assigned programs at the laboratory, and will not place the laboratory in direct competition with the domestic private sector."

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/NNSA will fund a DOE/NNSA FFRDC contractor through the DOE field work proposal system and other FFRDC contractors through an interagency agreement with the sponsoring agency.

FFRDC Contractor Effort.
The scope of work to be performed by the FFRDC contractor may not be more significant than the scope of work to be performed by the applicant or the sum total of the applicant with all other subcontractors and/or team members.

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.

## Section IV - APPLICATION AND SUBMISSION INFORMATION

NOTE TO ALL POTENTIAL APPLICANTS:

Registration Requirements

There are several one-time actions you must complete in order to submit an application in response to this FOA. You must obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), and register with FedConnect. Potential applicants who are not registered with CCR and Grants.gov should do so as soon as possible. Questions relating to the registration process, system requirements, or how the application works must be directed to Grants.gov at 1-800-518-4726.

### A. Address to Request Application Package

Application forms and instructions are included with this FOA (Appendix 3) and are also available at Grants.gov. To access these materials in Grants.gov, go to http://www.grants.gov, select "Apply for Grants," and then select "Download Application Package." Enter the CFDA and/or the funding opportunity number located on the cover of this announcement and then follow the prompts to download the application package.

### B. Letter of Intent and Pre-Applications

Letters of Intent are not requested nor required. A Pre-Application in the form of a Concept Paper is required.

### C. Defining Early Stage and Late Stage Transformational R&D

ARPA-E's purpose is to fund and manage technology R&D projects that are transformational and translational, as discussed in Section I. Transformational technology R&D efforts usually fall into one of two categories: Early Stage and Late Stage.

<u>Early Stage.</u>
In this category, the project is focused on drawing a discovery or invention out of the laboratory and determining, through applied research: (1) whether the technology can be made sufficiently robust for real world applications and (2) whether the technology is capable of achieving a combination of real world performance values sufficient to eventually transition the technology into industrial use. This type of early stage applied research is focused on translating the discovery into technology.

To achieve the level of transformation ARPA-E seeks, the Early Stage R&D must enable major advances, although the end point of the project may be before a specific application is demonstrated. Early Stage transformational R&D identifies the key technical barriers for the technology and determines possible pathways to overcome these barriers. Once these barriers are overcome in later stage R&D, then the technology will change either a broad range of energy

fields or have a complete transformative effect on the technology base of a single field of energy applications. Often projects in this category draw on novel scientific or technological concepts and rely on an integrative approach to address the multiple aspects of the technology that must be understood and improved to make later stage technology maturation programs possible. In general the results from this type of R&D are made widely available, since the end point of the R&D project is before the traditional transition to industry-only development.

Late Stage.
In the second category of transformational R&D projects, an immature technology with the potential for wide-spread use and major impact on the Administration's Energy and Environment Agenda is developed to the point that all the key technical risks have been reduced so that industry is able to take on the final stages of development, if any, and then incorporate the new technology into products. "Late Stage" refers only to the end point of the R&D project, not to how immature the technology may be at the beginning of the effort. Each project will be tailored to the specific technology as well as to how the particular targeted industrial sector accepts and integrates new technologies. For example, late stage R&D projects are likely to take into consideration the industry's specific requirements for prototype realism and technology maturity (TRL level). Intellectual property strategy is often a key factor to the final success of this type of project. The transformational technology from a successful late stage R&D project will be picked up by one or more industrial entity and developed into marketable products.

**The applicant must designate whether their application is for an early stage or late stage transformational R&D projects because these categories are evaluated on different criteria. This selection must be marked on the cover sheet form (Appendix 1).**

## D. Concept Paper Structure and Submission Information – Common Requirements for both Early and Late Stages

**NO FACSIMILE OR HARD COPY SUBMISSIONS WILL BE ACCEPTED.**

The typical concept paper should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed or unrelated efforts should not be consolidated into a single concept paper.

The concept paper must be submitted through www.FedConnect.net. The total concept paper is limited to eight (8) pages, exclusive of the cover sheet (Appendix 1). All pages shall be formatted to fit on 8-1/2 by 11 inch paper with type not smaller than 12 point and margins not less than one inch on every side. The concept paper must be submitted as a PDF file. The page limitation for applications includes all figures, tables, and charts. The submission of other supporting materials is strongly discouraged as it will not be considered for review. All applications must be written in English.

No later than one week prior to the concept paper submission deadline, the applicant must submit a web-based cover sheet through http://www.arpa-e.energy.gov/foa/coverpage.html (Appendix 1). Once the cover page is submitted, ARPA-E will email the applicant an application control number. This number must be placed at the top right corner of each page of the concept paper.

To facilitate rapid review, the concept paper should contain the elements listed in the concept paper format below and in the order listed. The number of pages listed for each element is a suggested breakout and should be adjusted to meet the maximum length of eight (8) pages. If a concept paper exceeds the page limitation, only the first eight (8) pages will be reviewed.

**Concept Paper Structure for Early Stage Transformational Projects**

The concept paper is limited to eight (8) pages for the following 4 sections: Abstract, Technical Section, Mission Impact, and a Cost Summary sheet.

- ***Abstract*** (limited to 150 words or less) - The abstract should summarize your concept paper, giving the essence of your transformative concept, how your proposed research plan would develop this concept and what the potential impact of this applied research is likely to be.
- ***Technical Section*** - In this section (suggest 3 - 4 pages), describe the essence of the technical breakthrough, discovery, invention, or concept on which you will base your proposed applied research. Outline the key technical areas which must be explored and how you will approach this research. Identify the current TRL level (Appendix 4) of the technology and the level you propose to reach when the project is completed. This section is intended to give the reviewers the kernel of your proposed R&D; it is not supposed to document all technical assertions. Focus on what is new and innovative about your concept and proposed R&D. Distinguish your proposed work from other R&D in substantively similar areas, especially if DOE is funding efforts that appear to be similar.
- ***Mission Impact Section*** - In this section (suggest 3 - 4 pages), address why your proposed project is transformational. Will the outcome of your applied research lead to new energy-related applications? How will it revolutionize one or more energy-related field(s)? What potential impact (both quantitatively and qualitatively) on the ARPA-E Mission Areas and the Administration's Energy and Environment Agenda do you foresee arising from further development of the technology project you propose? Justify briefly how you derived the quantitative impact. If your technology might be interpreted as supporting one of the ARPA-E Mission Areas while being detrimental to another, please explain why this is not so. Briefly describe how the results of your R&D will be made available for further development after the end of your proposed effort.
- ***Cost Summary*** - Include a one (1) page summary of direct costs. Identify the general number, types, and percentage of time anticipated to be work for people funded under the project. Identify any major equipment purchases. If multiple team members are proposed, include a top-level break-down of costs by team member. Note that the cost summary is not binding. It is merely included to give reviewers a sense of how the applicant proposes to spend funds to accomplish its tasks.

**Concept Paper Structure for Late Stage Transformational Projects**

The concept paper is limited to eight (8) pages for the following 4 sections: Abstract, Technical Section, Mission Impact, and a Cost Summary sheet.

- ***Abstract*** (limited to 150 words or less) - The abstract should summarize your concept paper, giving the essence of your transformative concept, how your proposed research plan would develop this concept and what the potential impact of this research and development effort is likely to be.
- ***Technical Section*** - In this section (suggest 3 - 4 pages), describe your transformative technology (component, system, hardware, software, or other) and your proposed R&D to mature this technology. Identify the current TRL level (Appendix 1) of the technology and the level you propose to reach when the project is completed. Briefly describe the state of the art and what is unique and innovative about your approach. Outline the key technical areas which must be developed and how you will approach development. This section is intended to give the reviewers the kernel of your proposed R&D; it is not supposed to document all technical assertions. Distinguish your proposed work from other R&D in substantively similar areas, especially if DOE is funding efforts that appear to be similar.
- ***Mission Impact Section*** - In this section (suggest 3 - 4 pages), address why your proposed project is transformational. What potential impact (both quantitatively and qualitatively) on the ARPA-E Mission Areas and the Administration's Energy and Environment Agenda do you foresee arising from further development of the technology project you propose? Justify briefly how you derived the quantitative impact. If your technology might be interpreted as supporting one of the ARPA-E Mission Areas while being detrimental to another, please explain why this is not so. Briefly describe the key technical risks that must be overcome for your technology to be accepted by industry for further development and incorporation into products. How would your R&D plan accomplish this? What is your transition strategy for this technology and its applicable market?
- ***Cost Summary*** - Include a one (1) page summary of direct costs. Identify the general number, types, and percentage of time anticipated to be work for people funded under the project. Identify any major equipment purchases. If multiple team members are proposed, include a top-level break-down of costs by team member. Note that the cost summary is not binding. It is merely included to give reviewers a sense of how the applicant proposes to spend funds to accomplish its tasks.

## E. Application Structure and Submission Information – Common Requirements for All Full Applications

**NO FACSIMILE OR HARD COPY SUBMISSIONS WILL BE ACCEPTED.**

### Application Structure

All applications must be in the format given below. Nonconforming applications may be rejected without review. Applications shall consist of two volumes. All pages shall be formatted to fit on 8-1/2 by 11 inch paper with type not smaller than 12 point and margins not less than one inch on every side. The page limitation for applications includes all figures, tables, and charts. The submission of other supporting materials along with the applications is strongly discouraged as it will not be considered for review. All applications must be written in English.

The concept paper notification will contain specifics on the electronic submission process for full applications, including a submission deadline.

**Application Submission**

Applicants must complete the mandatory forms and any applicable optional forms (Appendix 3) in accordance with the instructions on the forms and the additional instructions below. Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement.

**The following application forms and/or instructions are found in Appendix 3.**

**Application Forms**

**1. Full Application Cover Sheet (instructions and form will be provided with concept paper notification)**

**2. SF 424 - Application for Federal Assistance**

Complete all required fields in accordance with the instructions to the form.

**3. Full Application Format**

The full Application is composed of 4 items: (1) Cover Sheet Form, (2) Volume I – Technical, (3) Volume II – Budget, and (4) One Power Point Slide (summarizing your proposed project; applicant's discretion on format).

The applicant's concept paper notification will include information on how to prepare the full application cover sheet form and how to submit the full application.

**Volume I – Technical**

Total page limit for volume I is 50 pages, excluding appendices. Volume I must contain the following sections, in the order given. The bullets under each heading are given to guide the applicant in its writing. The specific content of each section should be tailored to best describe the proposed R&D and its impact. Note that in some sections, the guidance is different for early stage transformational technologies versus late stage transformational technologies. Applicants should read and understand the evaluation criteria (given in Section V) and keep the criteria in mind while preparing the application.

1. Abstract

   - The Abstract should summarize your full application in not more than one page. At a minimum, it should include the R&D objectives, the essence of the proposed R&D approach, and its transformational impact.

2. Technical R&D Plan

- Innovativeness and uniqueness (the following information is required).
  - Describe how your technology and planned R&D is unique and innovative.
  - Distinguish your proposed work from other similar efforts.
    - Identify all other funding the proposed Principal Investigator currently receives from DOE. Explain why the proposed work is not redundant with on-going DOE funded work.
    - Identify all other funding sources, whether Federal or not, that the proposed Principal Investigator currently receives which support the substance of the proposed work.
    - Identify whether the proposed Principal Investigator has previously submitted the substance of this work to DOE, regardless of whether it was funded. If so, identify when it was submitted and to what DOE Program.
- Technical objectives.
- Technical approach.
- Critical technical risks.
- Program phases, schedule, and milestones.
  - Must include a 6 month milestone and any other milestones as appropriate.
  - List the TRL level at the beginning of your proposed effort and the expected TRL level at the end of your R&D effort.
- Final deliverables.

1. Mission Impact

- Quantitative claims for contribution to one or more ARPA-E Mission Areas – describe how your proposed new technological development will quantitatively contribute to one or more of the ARPA-E Mission Areas. For example, what is the projected number of tons of carbon dioxide prevented from going into the atmosphere? What is the projected number of barrels of oil not consumed? Briefly describe how you estimated these contributions to the ARPA-E Mission Areas and the Administration's Energy and Environment Agenda. When is your technology likely to be available for use and how quickly is the market likely to absorb the technology into the installed base? If there is any possible perception that your technology may contribute positively to one ARPA-E Mission Area and negatively to another, describe why this is not the actual case.

- Describe how the process or task that your new technology will displace or modify is currently performed. Compare the projected performance of your new technology when it is market-ready to the projected performance of the standard technology/approach at the same future date. Briefly discuss the benefits of your new technology and why it is likely to be absorbed by the market.

- Intellectual Property Strategy – what new intellectual property and data do you think you will create as part of this effort? What background intellectual property will be necessary to exercise the new intellectual property? What is the plan for disposition/ownership of the intellectual property? How does the intellectual property strategy further the

probability that your transformational technology will reach market and widely penetrate the installed base?

- Transition Strategy for Early Stage Transformational Technology Applicants.
  - Describe how your proposed R&D will lead to transformational technology options in the future. Describe the breadth of application of your innovation. How will the results of your R&D be made available to next stage developers of the technology? What about your technical innovations, results from your planned R&D, intellectual property strategy, or other factors will lead to a future transformational impact on ARPA-E Mission Areas?

- Transition Strategy for Late Stage Transformational Technology Applicants.
  - For this technology and its applicable manufacturing base and customer base, discuss what level of maturity is required to make transition probable.
  - Discuss how your R&D plan brings the technology to the level of maturity required for commercial transition.
  - Discuss specific transition plans, including any existing agreements by industry to absorb the technology when successful.

- Amplify as appropriate how your proposed effort will benefit the economic and energy security of the U.S.

4. Qualifications, Experience, and Capabilities.
   - Personnel involved – discussion of qualifications and experience to conduct the R&D proposed.
     - Note that you may include Curricula Vitae (CV) for up to four (4) key personnel in an appendix.
   - Organizations involved –
     - Give the organizations involved in the work and why they are qualified to accomplish their portion of the proposed R&D.
     - Note that the lead organization may not be an FFRDC, Federal laboratory, or foreign entity.
     - If an FFRDC is a team member, include authorization letters in Appendix 2.
     - If one or more foreign entities are on the team, address what work will occur outside the U.S. (Must not exceed 10%.)
   - Facilities and equipment required, available, requested.
     - Describe facilities and equipment necessary to accomplish the proposed R&D. Indentify any additional equipment or other facilities that are needed to complete the project that the applicant does not already have access to.
     - For equipment acquired as part of the proposed effort, give the proposed disposition of the equipment after the project is completed or state if it is your intent to continue using the equipment for the authorized purpose of the project for its useful life.

5. Sound Management Plan
   - Provide and justify the qualifications and experience of the proposed senior project manager to manage a project of this complexity.

- Management plan for people and resources – if multiple entities are involved, discuss responsibilities, authorities, and dependencies across organizational lines.
- Technical risk management plan. For the technical risks identified, what are the fallback plans?

6. Budget Summary
   - Include a short (one to three pages) summary of the budget.
     - Broken out by year
     - Broken out by major tasks
     - Broken out by performer
     - List of major equipment purchases
   - If costs are less than would normally be expected due to large amounts of previous R&D done by one or more members of your team, please describe.

7. Other Programmatic Issues
   - Cost Share
     - What is the cost share that you propose to offer? Which of the entities are contributing what amounts? What is the proposed form of contribution – monetary, in-kind or both? Describe all in-kind contributions and what the relevance of that contribution is to the work.
   - TIAs
     - Is the applicant requesting consideration for a TIA? If so, why? What is the benefit to the project?

8. Appendices
   1. Curricula Vitae (CV) for up to four (4) key people.
   2. Authorization letters for FFRDCs.
   3. Cost Share Commitment Letters.
   4. Recovery Act Metrics Reporting.
      - List the number of scientists, engineers, and technologists funded under your proposed effort. Report the number of these personnel who would devote less than <20% time to the project, the number of people between 20% and less than <40% time, and the number of people at 40% and above.
      - Estimate for 10 years in the future the annual savings in tons of carbon released to the atmosphere if your project is successful.
      - Estimate for 10 years in the future the annual savings in barrels of petroleum if your project is successful.

## Volume II – Budget

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

You must provide a separate budget for each year of support requested and a cumulative budget for the total project period. Use the SF 424 A Excel, "Budget Information Non-Construction Programs" form (Appendix 3).

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. Save the information in a single file named "SF424A.xls."

### Budget Justification File

You must justify 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.

You must have a letter from each third party contributing cost sharing (i.e., a party other than the organization submitting the application) stating that the third party is committed to providing a specific minimum dollar amount of cost sharing. In the budget justification, identify the following information for each third party contributing cost sharing: (1) the name of the entity; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project cost; and (4) the proposed cost sharing - cash, services, or property. By submitting your application, you are providing assurance that you have signed the letter of commitment. Successful applicants will be required to submit these signed letters of commitments. Save the budget justification information in a single file named "Budget.pdf."

### Recovery Act Additional Budget Justification Information

Applications shall provide information which validates that all laborers and mechanics on projects funded directly by or assisted in whole or in part by and through funding appropriated by the Act are paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by subchapter IV of Chapter 31 of title 40, United States Code (Davis-Bacon Act). For guidance on how to comply with this provision, see http://www.dol.gov/esa/whd/contracts/dbra.htm.

**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 (which ever is less). Use the SF 424 A Excel for Non Construction Programs or the SF 424 C Excel for Construction Programs (Appendix 3). Save each Subaward budget in a separate file. Use up to 10 letters of the subawardee's name (plus .xls) as the file name (e.g., ucla.xls or energyres.xls).

**Budget for DOE/NNSA Federally Funded Research and Development Center (FFRDC) Contractor, if applicable**

If a DOE/NNSA 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 http://management.energy.gov/business_doe/business_forms.htm. Use up to 10 letters of the FFRDC name (plus .pdf) as the file name (e.g., lanl.pdf or anl.pdf).

**4. Restrictive Markings on Concept Papers and Applications**

It is the policy of ARPA-E to treat all concept papers and applications as competitive information and to disclose their contents only for the purpose of evaluation. No concept papers or applications will be returned. The original of each concept paper and application received may be retained at ARPA-E and all other copies of non-accepted concept papers and applications destroyed.

In conducting review of concept papers and the merit review evaluation of full applications, 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 be bound by appropriate obligations of confidentiality prior to reviewing an application. Applications may also be handled, for administrative purposes only, by a support contractor. This support contractor is bound by appropriate obligations of confidentiality.

Patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may harm the applicant, should be included in a concept paper or 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 [Insert 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. Any disclosure outside the Government shall be made only to a party subject to an appropriate obligation to the Government to protect the confidentiality of the application. 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."

### 5. SF-LLL Disclosure of Lobbying Activities (Appendix 3)

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."

### 6. Summary of Required Forms/Files

Your full application must include the following documents:

| Name of Document | Format | File Name |
|---|---|---|
| Application Cover Sheet | MS Word | AppCoverSheet.doc |
| Application for Federal Assistance – SF424 | Form | App424.pdf |
| Volume I – Technical and Management | PDF | TechVolume.pdf |
| Volume II – Cost | | |
| - SF 424A File - Budget Information for Non-Construction Programs | Excel | SF424A.xls |
| - ARRA 2009 Additional Budget Justification Information | PDF | N/A |
| - Budget Justification File | PDF | Budget.pdf |
| - Subaward Budget File(s) | Excel | See Instructions |
| - Budget for FFRDC Contractor, if applicable | PDF | See Instructions |
| - All other applicable Budget Forms (Appendix 3) | Vary | See Instructions |
| Program Summary Chart | Power Point | N/A |
| SF-LLL Disclosure of Lobbying Activities, if applicable. (Appendix 3) | Form | N/A |

| | | |
|---|---|---|
| Assurances (Appendix 3) | PDF | N/A |

### 7. Submissions from Successful Applicants

If selected for negotiations, ARPA-E 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.
- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5).
- Representation of Limited Rights Data and Restricted Software, if applicable.
- Commitment Letter from Third Parties Contributing to Cost Sharing, if applicable.
- Certification as to U.S. status of prime awardee or national status of any subawardee.

## F. Submission Dates and Times

### Concept Paper Due Date

Concept papers must be received 2 June 2009, not later than 8:00 PM Eastern Time.

### Application Due Date

Applications must be received 31 days after notification of the concept paper determination. The specific date will be provided in the concept paper response, which will be faxed and emailed to the Technical Representative listed on the concept paper cover page. You are encouraged to transmit your concept paper/application well before the deadline. CONCEPT PAPERS/APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.

## G. Intergovernmental Review

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

## H. 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.

## I. Other Submission and Registration Requirements

### How to Submit

The application package (Appendix 3) is provided with this FOA and may also be obtained through the "Apply for Grants" function at www.Grants.gov by downloading the application

package and its instructions. Save these files to your computer for future reference and use. You do not need Internet access to read the instructions or to complete the application once you save them to your computer. Once your application is completed, submit it through FedConnect at www.FedConnect.net.

## Registration Process

You must be registered with FedConnect in order to submit your concept paper/application. Guidance on registering can be found at www.FedConnect.net through the link "Have Questions? Need help getting started? Click here." **We recommend you register and become familiar with FedConnect as soon as practicable**.

## Section V - APPLICATION REVIEW INFORMATION

### A. Criteria

**Initial Review Criteria**

Prior to a comprehensive merit evaluation, ARPA-E 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.

**Mandatory Requirements**

- Total cost to ARPA-E does not exceed $20 million.
- Period of Performance does not exceed 36 months.
- Lead organization is a U.S. entity.
- Lead organization is not an FFRDC, federal agency, nor federal laboratory.
- No less than 90% of total project costs (exclusive of equipment not available in the U.S.) performed on U.S. soil.
- No less than 75% of the proposed R&D must be performed by U.S. entities.
- Focus of R&D effort is transformational technology.

**Merit Review Criteria**

Applications that pass the initial review will be subject to a merit review in accordance with the guidance provided in the "Department of Energy Merit Review Guide for Financial Assistance and Unsolicited Proposals." This guide is available under Financial Assistance, Regulations and Guidance at http://www.management.energy.gov/documents/meritrev.pdf

Evaluation of concept papers will be accomplished through a merit review using the following criteria, in descending order of importance: (1) Impact to ARPA-E Mission Areas and (2) Overall Scientific and Technical Merit. Concept papers and applications will not be evaluated against each other since they are not submitted in accordance with a common work statement. The following are descriptions of the above listed criteria:

**Concept Paper Criteria for <u>Early Stage</u> Transformational R&D**

1. Impact on ARPA-E Mission Areas

   The technology proposed will have a transformational impact in one or more ARPA-E Mission Areas when it becomes a significant portion of the installed base (in wide-spread use). The proposed technology must not have a negative impact on the other mission areas. It is not sufficient for the R&D effort to be merely relevant to an ARPA-E mission area. The technology must have the potential for causing a radical shift in one or more energy-related fields in a way that opens up the potential for new products and applications, which together

or singly can have a major impact on the ARPA-E Mission Areas. The applicant must have an intellectual property strategy and transition strategy that 1) supports either the widespread use of the applied research results or 2) the transition into a focused technology maturation program that will lead to a single application area with the potential for major impact on the ARPA-E Mission Areas by itself. The expected outcome of the R&D is that it will enhance the economic and energy security of the United States.

2. Overall Scientific and Technical Merit

   The applicant has a sound technical approach to accomplish the proposed R&D objectives. The proposed work may be high risk, but must be feasible. The work must be unique and innovative. The potential technical outcome for the R&D must support the range of potential impacts given when describing mission impact.

**Concept Paper Criteria for <u>Late Stage</u> Transformational R&D**

1. Impact on ARPA-E Mission Areas

   The technology proposed will have a transformational impact in one or more ARPA-E mission area when it becomes a significant portion of the installed base (in wide-spread use). The proposed technology must not have a negative impact on the other mission areas. It is not sufficient for the R&D effort to be merely relevant to an ARPA-E mission area. The proposed technology will be matured enough under the proposed R&D effort that industry would be willing to invest in the remaining R&D to incorporate the technology in products and bring it to market. Further, the technology must make a significant, quantitative impact which strongly contributes to the Administration's Energy and Environment Agenda. The applicant has a strong and believable transition strategy, including a feasible pathway to transition the results of the R&D to the next stage developer and a proposed intellectual property strategy that will not interfere with and optimally will support industry interest and investment in the technology. The proposed R&D projects mature the technology far enough that transition is possible, but does not carry the R&D significantly beyond the point when industry-only investment should begin. The expected outcome of the R&D will enhance the economic and energy security of the United States.

2. Overall Scientific and Technical Merit

   The applicant has a sound technical approach to accomplish the proposed R&D objectives. The proposed work may be high risk, but must be feasible. The work must be unique and innovative. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final prototype and accompanying test data that achieves the goal can be expected as a result of award.

## Application Evaluation Criteria for Early Stage Transformational R&D

Evaluation of full applications will be accomplished through a merit review using the following criteria, in order of descending importance: (1) Impact to ARPA-E Mission Areas; (2) Overall Scientific and Technical Merit; (3) Qualifications, Experience, and Capabilities; and (4) Sound Management Plan. Full applications will not be evaluated against each other since they are not submitted in accordance with a common work statement. The following are descriptions of the above listed criteria:

1. Impact on ARPA-E Mission Areas

   The technology proposed will have a transformational impact in one or more ARPA-E Mission Areas when it becomes a significant portion of the installed base (in wide-spread use). The proposed technology must not have a negative impact on the other mission areas. It is not sufficient for the R&D effort to be merely relevant to an ARPA-E mission area. The technology must have the potential for causing a radical shift in one or more energy-related fields in a way that opens up the potential for new products and applications, which together or singly can have a major impact on the ARPA-E Mission Areas. The applicant must have an intellectual property strategy and transition strategy that 1) supports either the widespread use of the applied research results or 2) the transition into a focused technology maturation program that will lead to a single application area with the potential for major impact on the ARPA-E Mission Areas by itself. The expected outcome of the R&D is that it will enhance the economic and energy security of the United States.

2. Overall Scientific and Technical Merit

   The applicant has a sound technical approach to accomplish the proposed R&D objectives. The proposed work may be high risk, but must be feasible. The work must be unique and innovative. The potential technical outcome for the R&D must support the range of potential impacts given when describing mission impact.

3. Qualifications, Experience, and Capabilities

   The proposed Principal Investigator or technical team has the expertise and experience needed to accomplish the proposed project. In addition, the applicant has access to all facilities required to accomplish the R&D effort or has proposed the necessary missing equipment as part of the effort. The applicant's prior experience must demonstrate an ability to perform R&D of similar risk and complexity.

4. Sound Management Plan

   The proposed effort has a workable plan to manage people and resources. Appropriate levels of people and resources are allocated to tasks. The application identifies major technical R&D risks and has adequately planned mitigation efforts that are clearly defined and feasible. The proposed schedule is reasonable. The applicant's prior experience in similar efforts must clearly demonstrate an ability to manage an R&D project of the same proposed

complexity that meets the proposed technical performance within the proposed budget and schedule.

**Application Evaluation Criteria for Late Stage Transformational R&D**

Evaluation of full applications will be accomplished through a merit review using the following criteria, in order of descending importance: (1) Impact to ARPA-E Mission Areas; (2) Overall Scientific and Technical Merit; (3) Qualifications, Experience, and Capabilities; and (4) Sound Management Plan. Concept papers and full applications will not be evaluated against each other since they are not submitted in accordance with a common work statement. The following are descriptions of the above listed criteria:

1. Impact on ARPA-E Mission Areas

   The technology proposed will have a transformational impact in one or more ARPA-E Mission Areas when it becomes a significant portion of the installed base (in wide-spread use). The proposed technology must not have a negative impact on the other mission areas. It is not sufficient for the R&D effort to be merely relevant to an ARPA-E mission area. The proposed technology will be matured enough under the proposed R&D effort that industry would be willing to invest in the remaining R&D to incorporate the technology in products and bring it to market. Further, the technology must make a significant, quantitative impact which strongly contributes to the Administration's Energy and Environment Agenda. The applicant has a strong and believable transition strategy, including a feasible pathway to transition the results of the R&D to the next stage developer and a proposed intellectual property strategy that will not interfere with and optimally will support industry interest and investment in the technology. The expected outcome of the R&D will enhance the economic and energy security of the United States.

2. Overall Scientific and Technical Merit

   The applicant has a sound technical approach to accomplish the proposed R&D objectives. The proposed work may be high risk, but must be feasible. The work must be unique and innovative. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final prototype that achieves the goal can be expected as a result of award.

3. Qualifications, Experience, and Capabilities

   The proposed Principal Investigator or technical team has the expertise and experience needed to accomplish the proposed project. In addition, the applicant has access to all facilities required to accomplish the R&D effort or has proposed the necessary missing equipment as part of the effort. The applicant's prior experience must demonstrate an ability to perform R&D of similar risk and complexity.

4. Sound Management Plan

The proposed effort has a workable plan to manage people and resources. Appropriate levels of people and resources are allocated to tasks. The application identifies major technical R&D risks and has adequately planned mitigation efforts that are clearly defined and feasible. The proposed schedule is reasonable. The applicant's prior experience in similar efforts must clearly demonstrate an ability to manage an R&D project of the same proposed complexity that meets the proposed technical performance within the proposed budget and schedule.

Award(s) will be made to applicants whose applications are determined to be the most advantageous to the objectives of ARPA-E in enhancing public stimulation of transformative R&D efforts, all factors considered, including the effort's evaluation against the criteria listed above and programmatic considerations. ARPA-E will consider the programmatic balance of the awards; the distribution across ARPA-E missions, the application areas, and scientific disciplines; the match to national energy priorities; the economic benefits under the Recovery Act; and other programmatic concerns.

## B. Other Selection Factors – Program Policy Factors

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

a) Application selection may optimize the appropriate mix of applications to best achieve the ARPA-E Mission Areas (see Section I.B) and applicable priorities of the Administration's Energy and Environmental Agenda.
b) Programmatic balance of risk and application areas.
c) Degree to which proposed projects optimizes use of available ARPA-E funding to achieve ARPA-E goals and objectives.
d) Cost/budget considerations.
e) Period of performance of 24 months or less is preferred
f) Whether award would serve the economic interest of the United States, including but not limited to:

- Proposed transition path is likely to lead to significant increased employment in the United States; and
- Agreement by the applicant with respect to technology arising from or further developed under the award under this FOA to promote manufacturing within the U.S. of products that embody the technology.

## C. Review and Selection Process

### Selection

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

### Discussions and Award

ARPA-E 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) ARPA-E 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 ARPA-E will preclude award to the applicant.

## D. Anticipated Notice of Selection and Award Dates

ARPA-E anticipates notifying applicants selected for negotiations within ninety (90) days after the full application deadline.

## Section VI - AWARD ADMINISTRATION INFORMATION

### A. Award Notices

#### Selected Applicants Notification

ARPA-E will notify applicants selected for negotiations; this notice is not an authorization to begin performance.

#### Non-selected Notification

Respondents whose applications have not been selected will be advised as promptly as practicable.

#### Notice of Award

A Notice of Financial Assistance Award or Assistance Agreement issued by the contracting officer is the authorizing award document. It normally includes either as an attachment or by reference: (1) Special Terms and Conditions; (2) Applicable program regulations, if any; (3) Application as approved by ARPA-E; (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

#### Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR Part 600 (See: http://ecfr.gpoaccess.gov). Grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular A-110 are subject to the Research Terms and Conditions located on the National Science Foundation web site at http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp.

#### Recovery Act Award Administration Information

Special Provisions relating to work funded under the American Recovery and Reinvestment Act of 2009, P. L. 111-5 shall apply. Also, the Office of Management and Budget may be promulgating additional provisions or modifying existing provisions. Those additions and modifications will be incorporated into the Special Provisions as they become available.

#### 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://management.energy.gov/business_doe/business_forms.htm. The National

Policy Assurances to be incorporated as award terms are located at DOE http://management.energy.gov/business_doe/business_forms.htm.

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.

**Statement of Substantial Involvement**

After the selection of your application, a Statement of Substantial Involvement will be negotiated, as applicable, to the cooperative agreement awarded to implement the project and included as an Attachment to the award.

## C. Reporting Requirements

Six-Month Milestone Report.
A report must be submitted to ARPA-E no later than the seventh month of the effort describing progress toward the required six-month milestone and the success or failure to accomplish the milestone.

Monthly Reports.
A monthly technical and financial report must be sent to the ARPA-E Program Manager. The report is meant to be a short summary of technical progress and financial status. Any significant deviations from the plan should be identified and discussed.

**FOR RECOVERY ACT REPORTING REQUIREMENTS, SEE SECTION VIII F, OTHER INFORMATION.**

## Section VII - QUESTIONS/AGENCY CONTACTS

### A. Questions

ARPA-E will endeavor to respond to all submissions in an expeditious and timely manner. ARPA-E will assign a control number that should be used in all further correspondence regarding this submission.

Questions regarding the content of the announcement must be submitted through FedConnect. You must register with FedConnect to respond as an interested party to submit questions; responses to questions will be posted to the ARPA-E website. More information is available at http://www.fedconnect.net. ARPA-E will make its best effort to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions relating to the registration process or submittal process must be directed to FedConnect at support@fedconnect.net. Questions relating to how an application form works must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov.

Questions regarding program requirements must be directed to:

| | |
|---|---|
| Program: | Advanced Research Projects Agency - Energy |
| E-mail address: | ARPA-E@hq.doe.gov |

### B. Agency Contact

| | |
|---|---|
| Name: | Bradley J. Poston |
| Title: | Contracting Officer |
| Address: | U. S. Department of Energy<br>1000 Independence Ave. SW<br>Washington, D.C. 20585 |
| E-mail: | Bradley.Poston@hq.doe.gov |
| Telephone: | (202) 287-1389 |

## Section VIII - OTHER INFORMATION

### A. Modifications

Notices of any modifications to this announcement will be posted on FedConnect. 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 after release of the FOA as possible to ensure you receive timely notice of any modifications or other announcements. More information is available at http://www.fedconnect.net

### B. Government Right to Refuse to Negotiate

ARPA-E 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. Intellectual Property Developed Under This Program

INTELLECTUAL PROPERTY RIGHTS

Patent Rights (IP). In a grant or cooperative agreement, the government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. For a grant or cooperative agreement, the Bayh-Dole Act (35 U.S.C. 202) assures that a domestic small business, university or a non-profit awardee will have the option to retain title to their own inventions, subject to the Government retaining a government purpose license, march-in rights and a U.S. preference in licensing. The patent clause that will apply these provisions can be found at 10 C.F.R. Part 600 Appendix A to Subpart D, PATENT RIGHTS-SMALL BUSINESS FIRMS AND NONPROFIT ORGANIZATIONS. For awardees who are not subject to the Bayh-Dole Act, 42 U.S.C. 5908 provides that title to such inventions vests in the United States, unless a "waiver" is granted. For this FOA, ARPA-E intends to issue a "class waiver" which will assure that those awardees who are not subject to the Bayh-Dole Act will also have the option to retain title to their own inventions, subject to the same government retained rights identified above and provided they are cost sharing at least 20% and they agree to manufacture new technology created under an award resulting from this FOA in the U.S. or provide other net economic benefits to the U.S. The patent clause that will apply these provisions can be found at http://www.gc.doe.gov/documents/patwaivclau.pdf. The class waiver will allow for the negotiation of the requirement to manufacture new technology in the U.S. For those who are not subject to Bayh-Dole or do not meet the criteria of the class waiver, they may still 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 recipient will have a continuing right under the award to request a waiver of the rights of the United States in the title to identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any individual patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784; http://www.gc.doe.gov/documents/patwaivclau.pdf.

This FOA allows applicants to request a TIA. In a TIA the intellectual property rights are not subject to the requirements of the Bayh-Dole Act or 42 U.S.C. 5908 and are negotiable. If ARPA-E determines it is appropriate to award a TIA, patent rights will be negotiated pursuant to the guidance set out in 10 C.F.R. 603.840 through 10 C.F.R. 603.875.

Rights in Technical Data. DOE normally retains unlimited rights in technical data first produced under the Agreement. Proprietary software or data developed solely at private expense will not normally be required to be delivered to the Government except as specifically negotiated in a particular agreement to satisfy ARPA-E's own needs to monitor work progress. For this FOA, ARPA-E has determined that special protected data rights may apply. The provisions provide for the protection from public disclosure, for a period of up to five (5) 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 C.F.R. 600 Appendix A to Subpart D), would apply, but will be modified to list and 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 identify data that will be recognized by the parties as protected data.

To assist you in understanding how IP rights will be addressed you may contact:

Paul Gottlieb
Assistant General Counsel for Technology Transfer and Intellectual Property
202-586-3439, Paul.Gottlieb@HQ.DOE.GOV

He is available to respond to questions regarding IP rights, but will not engage in any negotiations. Information/questions useful to all potential applications will be posted at www.FedConnect.net.

## E. 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.

## F. ARPA – E Special Terms and Conditions –Financial Assistance

Preamble

The American Recovery and Reinvestment Act of 2009, P. L. 111-5, (Recovery Act) was enacted to preserve and create jobs and promote economic recovery, assist those most impacted by the recession, provide investments needed to increase economic efficiency by spurring technological advances in science and health, invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits, stabilize State and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive State and local tax increases. Recipients shall use grant funds in a manner that maximizes job creation and economic benefit.

The Recipient shall comply with all terms and conditions in the Recovery Act relating generally to governance, accountability, transparency, data collection and resources as specified in the Act and as discussed below.

Recipients should begin planning activities for their first tier subrecipients, including obtaining a data universal numbering system (DUNS) number (or updating the existing DUNS record), and registering with the Central Contractor Registration (CCR) at http://www.ccr.gov/.

Be advised that Recovery Act funds can be used in conjunction with other funding as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the Recovery Act and related guidance. For projects funded by sources other than the Recovery Act, recipients must keep separate records for Recovery Act funds and to ensure those records comply with the requirements of the Act.

The Government has not fully developed the implementing instructions of the Recovery Act, particularly concerning specific procedural requirements for the new reporting requirements. The Recipient will be provided these details as they become available. The Recipient must comply with all requirements of the Act. If the recipient believes there is any inconsistency between ARRA requirements and current award terms and conditions, the issues will be referred to the Contracting Officer for reconciliation.

Definitions

For purposes of this clause, Covered Funds means funds expended or obligated from appropriations under the American Recovery and Reinvestment Act of 2009, P. L. 111-5. Covered Funds will have special accounting codes and will be identified as Recovery Act funds in the grant, cooperative agreement or TIA and/or modification using Recovery Act funds. Covered Funds must be reimbursed by September 30, 2015.

Non-Federal employer means any employer with respect to covered funds - the contractor, subcontractor, grantee, or recipient, as the case may be, if the contractor, subcontractor, grantee, or recipient is an employer; and any professional membership organization, certification of other professional body, any agent or licensee of the Federal government, or any person acting directly

or indirectly in the interest of an employer receiving covered funds; or with respect to covered funds received by a State or local government, the State or local government receiving the funds and any contractor or subcontractor receiving the funds and any contractor or subcontractor of the State or local government; and does not mean any department, agency, or other entity of the federal government.

Recipient means any entity that receives Recovery Act funds directly from the Federal government (including Recovery Act funds received through grant, loan, or contract) other than an individual and includes a State that receives Recovery Act Funds.

Special Provisions

1. Flow Down Requirement

Recipients must include these special terms and conditions in any sub award.

2. Segregation of Costs

Recipients must segregate the obligations and expenditures related to funding under the Recovery Act. Financial and accounting systems should be revised as necessary to segregate, track and maintain these funds apart and separate from other revenue streams. No part of the funds from the Recovery Act shall be commingled with any other funds or used for a purpose other than that of making payments for costs allowable for Recovery Act projects.

3. Prohibition on Use of Funds

None of the funds provided under this agreement derived from the American Recovery and Reinvestment Act of 2009, P. L. 111-5, may be used by any State or local government, or any private entity, for any casino or other gambling establishment, aquarium, zoo, golf course, or swimming pool.

4. Wage Rates

All laborers and mechanics employed by recipients, sub recipients and contractors on projects funded directly by or assisted in whole or in part by and through the Federal Government pursuant to the American Recovery and Reinvestment Act of 2009, P. L. 111-5, shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code. With respect to the labor standards specified in this section, the Secretary of Labor shall have the authority and functions set forth in Reorganization Plan numbered 14 of 1950 (64 Stat. 1267, 5 U.S.C. App.) and section 3145 of title 40 United States Code.

5. Reporting Requirements for Recipients

Not later than 10 days after the end of each calendar quarter, each recipient shall submit a report to the Contractor Officer or to an address or website designated by the Contracting Officer that contains:

* The total amount of American Recovery and Reinvestment Act of 2009, P. L. 111-5, covered funds received from that agency;
* The amount of American Recovery and Reinvestment Act of 2009, P. L. 111-5, covered funds received that were expended or obligated to projects or activities; and
* A detailed list of all projects or activities for which American Recovery and Reinvestment Act of 2009, P. L. 111-5, covered funds were expended or obligated including:
    - Name of project or activity
    - Agreement number
    - Description of project or activity
    - Evaluation of the completion status of project or activity
    - Estimate of number of jobs created and retained by project or activity in the manner and form prescribed o Infrastructure investments made by State and local governments, purpose, total cost, rationale of agency for funding infrastructure investment, name of agency contact.
    - Information on sub grants awarded by recipient to include data elements required to comply with the Federal Accountability and Transparency Act of 2006 (P. L. 109-282).

This information shall be reported to and published on the Internet at: www.Recovery.gov.

Recipients required to report must register with the Central Contractor Registration (CCR) database. Recipients shall ensure that all first-tier sub recipients have a DUNS number and are registered in the CCR no later than the date the first report is due under paragraph 5 above.

Failure to comply with this reporting requirement may result in termination of that part of the award funded by the Recovery Act.

6. Access to Records

With respect to each financial assistance agreement awarded utilizing at least some of the funds appropriated or otherwise made available by the American Recovery and Reinvestment Act of 2009, P. L. 111-5, any representative of an appropriate inspector general appointed under section 3 or 8G of the Inspector General Act of 1988 (5 U.S.C. App.) or of the Comptroller General is authorized -

(1) to examine any records of the contractor or grantee, any of its subcontractors or sub grantees, or any State or local agency administering such contract that pertain to, and involve transactions relation to, the subcontract, subcontract, grant, or sub grant; and
(2) to interview any officer or employee of the contractor, grantee, sub grantee, or agency regarding such transactions.

7. Publication

Information about this agreement will be published on the Internet and linked to the website www.recovery.gov , maintained by the Accountability and Transparency Board. The Board may exclude posting contractual or other information on the website on a case-by-case basis when necessary to protect national security or to protect information that is not subject to disclosure under sections 552 and 552a of title 5, United States Code.

8. Protecting State and Local Government and Contractor Whistleblowers.

The requirements of Section 1553 of the Act are summarized below. They include, but are not limited to:

Prohibition on Reprisals: An employee of any non-Federal employer receiving covered funds under the American Recovery and Reinvestment Act of 2009, P. L. 111-5, may not be discharged, demoted, or otherwise discriminated against as a reprisal for disclosing, including a disclosure made in the ordinary course of an employee's duties, to the Accountability and Transparency Board, an inspector general, the Comptroller General, a member of Congress, a State or Federal regulatory or law enforcement agency, a person with supervisory authority over the employee (or other person working for the employer who has the authority to investigate, discover or terminate misconduct, a court or grant jury, the head of a Federal agency, or their representatives information that the employee believes is evidence of:

- gross management of an agency contract or grant relating to covered funds;
- a gross waste of covered funds;
- a substantial and specific danger to public health or safety related to the implementation or use of covered funds;
- an abuse of authority related to the implementation or use of covered funds; or
- as violation of law, rule, or regulation related to an agency contract (including the competition for or negotiation of a contract) or grant, awarded or issued relating to covered funds.

Agency Action: Not later than 30 days after receiving an inspector general report of an alleged reprisal, the head of the agency shall determine whether there is sufficient basis to conclude that the non-Federal employer has subjected the employee to a prohibited reprisal. The agency shall either issue an order denying relief in whole or in part or shall take one or more of the following actions:

- Order the employer to take affirmative action to abate the reprisal.
- Order the employer to reinstate the person to the position that the person held before the reprisal, together with compensation including back pay, compensatory damages, employment benefits, and other terms and conditions of employment that would apply to the person in that position if the reprisal had not been taken.
- Order the employer to pay the employee an amount equal to the aggregate amount of all costs and expenses (including attorneys' fees and expert witnesses' fees) that were reasonably incurred by the employee for or in connection with, bringing the complaint regarding the reprisal, as determined by the head of a court of competent jurisdiction.

Nonenforceablity of Certain Provisions Waiving Rights and remedies or Requiring Arbitration: Except as provided in a collective bargaining agreement, the rights and remedies provided to aggrieved employees by this section may not be waived by any agreement, policy, form, or condition of employment, including any predispute arbitration agreement. No predispute arbitration agreement shall be valid or enforceable if it requires arbitration of a dispute arising out of this section.

Requirement to Post Notice of Rights and Remedies: Any employer receiving covered funds under the American Recovery and Reinvestment Act of 2009, P. L. 111-5, shall post notice of the rights and remedies as required therein. (Refer to section 1553 of the American Recovery and Reinvestment Act of 2009, P. L. 111-5, www.Recovery.gov, for specific requirements of this section and prescribed language for the notices.)

[If the award will have Recovery Act and non-Recovery Act funds, reimbursement costs must be done by receipt of an SF-270, Request for Advance or Reimbursement, through the Automated Clearing House and VIPERS. Include the provision below to require the Recipient to distinguish between the funds.]

9. Request for Reimbursement

Recipients must provide information with its submission of the SF-270 (form available at www.Grants.gov), Request for Advance or Reimbursement, to identify the portion of the request that is associated with Recovery Act projects.

10. False Claims Act

Recipient and sub-recipients shall promptly refer to the ARPA-E or other appropriate Inspector General any credible evidence that a principal, employee, agent, contractor, sub-grantee, subcontractor or other person has submitted a false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict or interest, bribery, gratuity or similar misconduct involving those funds.

11. Information in supporting of Recovery Act Reporting

Recipient may be required to submit backup documentation for expenditures of funds under the Recovery Act including such items as timecards and invoices. Recipient shall provide copies of backup documentation at the request of the Contracting Officer or designee.

12. Availability of Funds

Funds appropriated under the Recovery Act and obligated to this award are available for reimbursement of costs until September 30, 2015.

## G. 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 an award.

## H. American Recovery and Reinvestment Act of 2009

Projects under this Funding Opportunity Announcement (FOA) will be funded, in whole or in part, with funds appropriated by the American Recovery and Reinvestment Act of 2009, P. L. 111-5, (Recovery Act or Act). The Recovery Act's purposes are to stimulate the economy and to create and retain jobs. The Act gives preference to activities that can be started and completed expeditiously, including a goal of using at least 50 percent of the funds made available by it for activities that can be initiated not later than June 17, 2009. Accordingly, special consideration will be given to projects that promote and enhance the objectives of the Act, especially job creation, preservation and economic recovery, in an expeditious manner.

Be advised that special terms and conditions may apply to projects funded by the Act relating to:

- Reporting, tracking and segregation of incurred costs;
- Reporting on job creation and preservation;
- Publication of information on the Internet;
- Access to records by Inspectors General and the Government Accountability Office;
- Prohibition on use of funds for gambling establishments, aquariums, zoos, golf courses or swimming pools;
- Ensuring that iron, steel and manufactured goods are produced in the United States;
- Ensuring wage rates are comparable to those prevailing on projects of a similar character;
- Protecting whistleblowers and requiring prompt referral of evidence of a false claim to an appropriate inspector general; and
- Certification and Registration.

These special terms and conditions will be based on provisions included in Titles XV and XVI of the Act. The exact terms and conditions are located in Section VIII, Other Information.

The Office of Management and Budget (OMB) has issued Initial Implementing Guidance for the Recovery Act (see M-09-15, Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009). Applicants should consult the DOE website, www.energy.gov, the OMB website http://www.whitehouse.gov/omb/, and the Recovery website, http://www.recovery.gov regularly to keep abreast of guidance and information as it evolves.

Recipients of funding appropriated by the Act shall comply with requirements of applicable Federal, State, and local laws, regulations, DOE policy and guidance, and instructions in this FOA, unless relief has been granted by ARPA-E. Recipients shall flow down the requirements of applicable Federal, State and local laws, regulations, DOE policy and guidance, and instructions in this FOA to subrecipients at any tier to the extent necessary to ensure the recipient's compliance with the requirements.

Be advised that Recovery Act funds can be used in conjunction with other funding as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the Recovery Act and related OMB Guidance. Applicants for projects funded by sources other than the Recovery Act should plan to keep separate records for Recovery Act funds and ensure those records comply with the requirements of the Act. Funding provided through the Recovery Act that is supplemental to an existing grant is one-time funding.

Applicants should begin planning activities for their first tier subawardees, including obtaining a DUNS number (or updating the existing DUNS record) and registering with the Central Contractor Registration (CCR). The extent to which subawardees will be required to register in CCR will be determined by OMB at a later date. For additional information on ARPA-E requirements, refer to Section VIII, Other Information.

Similar efforts completed/ongoing by the applicant in this area must be fully described, including identification of other Government sponsors.

## Section IX - APPENDICES/REFERENCE MATERIAL

**Appendix 1 - Concept Paper/Application Cover Sheet**
**Appendix 2 – Cost Share Information**
**Appendix 3 – Application Forms/Instructions (from Grants.gov)**
**Appendix 4 – Technology Readiness Levels (TRL)**