

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



**U. S. Department of Energy
National Energy Technology Laboratory**

**Support Of Advanced Coal Research At U.S. Colleges And
Universities**

Funding Opportunity Number: DE-FOA-0000146

Announcement Type: Initial

CFDA Number: 81.057 University Coal Research

Issue Date:	10/14/2009
Letter of Intent Due Date:	Not Applicable
Pre-Application Due Date:	Not Applicable
Application Due Date:	11/24/2009 at 8:00 PM EST

NOTE: Applications in response to this FOA must be submitted through Grants.gov.

NOTE: REGISTRATION/SUBMISSION REQUIREMENTS

Registration Requirements

There are several one-time actions you must complete in order to submit an application in response to this Announcement: 1) obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, 2) register with the Central Contractor Registration (CCR), 3) register with Grants.gov, and 4) register with FedConnect. If not previously registered, Applicants should allow at least 10 business days to complete these requirements. It is suggested that the process be started as soon as possible.

Applicants must obtain a DUNS number. Instructions can be found at:

<http://fedgov.dnb.com/webform>

Applicants must register with the CCR. The CCR website is:

<http://www.ccr.gov/>

Applicants must register with Grants.gov to submit their application. The Grants.gov website is:

<http://www.Grants.gov>

Applicants must register with FedConnect. The FedConnect website is:

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

Questions

Questions relating to the Grants.gov **registration process, system requirements, how an application form works** or submission of applications through Grants.gov must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov.

Questions regarding the **content** of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at <http://www.compusearch.com/products/fedconnect/fedconnect.asp>. DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions pertaining to the FedConnect registration process should be directed by e-mail to support@FedConnect.net or by phone to FedConnect Support at 800-899-6665.

Application Preparation and Submission

Applicants must download the application package, application forms and instructions, from Grants.gov. **The Grants.gov website is:**

<http://www.grants.gov/>

Additional instructions are provided in Section IV, A and Section IV, H of this FOA.

Applicants must submit their application through Grants.gov.

Applicants must identify the Area of Interest they are applying for (i.e. 1, 2 or 3). The required format for the title will be: “AOI [1, 2 or 3 - specify one] (project title).” See Section IV, C.1 and C.2.

TABLE OF CONTENTS

PART I – FUNDING OPPORTUNITY DESCRIPTION	5
PART II – AWARD INFORMATION	11
A. TYPE OF AWARD INSTRUMENT	11
B. ESTIMATED FUNDING	11
C. MAXIMUM AND MINIMUM AWARD SIZE	11
D. EXPECTED NUMBER OF AWARDS	11
E. ANTICIPATED AWARD SIZE	11
F. PERIOD OF PERFORMANCE	11
G. TYPE OF APPLICATION	11
PART III - ELIGIBILITY INFORMATION	13
A. ELIGIBLE APPLICANTS	13
B. COST SHARING	13
C. OTHER ELIGIBILITY REQUIREMENTS	14
PART IV – APPLICATION AND SUBMISSION INFORMATION	15
A. ADDRESS TO REQUEST APPLICATION PACKAGE	15
B. LETTER OF INTENT AND PRE-APPLICATION	15
C. CONTENT AND APPLICATION FORMS	15
D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS	25
E. SUBMISSION DATES AND TIMES	25
F. INTERGOVERNMENTAL REVIEW	25
G. FUNDING RESTRICTIONS	25
H. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS	26
Part V - APPLICATION REVIEW INFORMATION	28
A. CRITERIA	28
B. REVIEW AND SELECTION PROCESS	30
C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES	31
Part VI - AWARD ADMINISTRATION INFORMATION	32
A. AWARD NOTICES	32
B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS	32
C. REPORTING	33
PART VII - QUESTIONS/AGENCY CONTACTS	34
A. QUESTIONS	34
B. AGENCY CONTACT	34
PART VIII - OTHER INFORMATION	35
A. MODIFICATIONS	35
B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE	35
C. COMMITMENT OF PUBLIC FUNDS	35
D. PROPRIETARY APPLICATION INFORMATION	35
E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL	36
F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM	36
G. NOTICE REGARDING ELIGIBLE/INELIGIBLE ACTIVITIES	36

Section I - FUNDING OPPORTUNITY DESCRIPTION

STATUTORY AUTHORITY

The statutory authority for the University Coal Research (UCR) Program is provided by Public Law 95-224, as amended by 97-258 and Public Law 109-58 (Energy Policy Act of 2005).

Description

The Department of Energy (DOE), National Energy Technology Laboratory (NETL) seeks applications for the UCR Program. Since its inception in FY1979, the primary objective of the UCR Program has been threefold: (1) to improve our understanding of the chemical and physical processes involved in the conversion and utilization of coal in an environmentally acceptable manner; (2) to maintain and upgrade the coal research capabilities and facilities of U.S. colleges and universities; and (3) to support the education of students in the area of coal science.

For the past 30 years, DOE's Office of Fossil Energy (OFE) and the NETL have competitively sought applications annually from U.S. colleges and universities for research on the science and technology of coal conversion and utilization. Subject Matter Experts from universities, industry, and DOE are used to evaluate these applications, and the most meritorious applications are selected for grant awards under the UCR Program. This process will continue in FY2010, where research again will be sought to improve our fundamental understanding of the chemical and physical processes that govern coal conversion and utilization, by-product utilization, and technological development for Fossil Energy's Advanced Research Programs in an environmentally acceptable manner.

The current landscape of the U.S. energy industry, not unlike that in other parts of the world, is undergoing a drastic transformation driven by the significant cost and supply volatility of oil and gas as well as the deregulation of power generation, more stringent environmental standards and regulations, climate change concerns, and other market forces. With these changes come new players and a refocusing of existing players in providing energy services and products. The traditional settings of how energy (both electricity and fuel) is generated, transported, and utilized are likely to be very different in the coming decades. As market, policy, and regulatory forces evolve and shape the energy industry both domestically and globally, the opportunity exists for university, government, and industry partnerships to invest in advanced fossil energy technologies that can return public and economic benefits many times over. These benefits are achievable through the development of advanced coal technologies for the marketplace.

Energy from coal-based power plants will continue to play a dominant role as an energy source, and therefore, it is prudent to use this resource wisely and ensure that it remains part of the sustainable energy solution.

In that regard, our focus is on pathways to clean, affordable energy achieved through a combination of technology evolution and innovation aimed at creating the most advanced collection of flexible, clean, efficient, competitively priced coal-derived products, and low-cost environmental compliance energy systems.

Subsequently, this focus remains key to this nation's continuing prosperity and our commitment to tackle environmental challenges, including climate change. It is envisioned that these advanced systems can competitively produce low-cost electricity at efficiencies higher than 60% with coal. This class of facilities will involve "near-zero discharge" energy plants—virtually no emissions will escape into the environment. Sulfur dioxide and nitrogen oxide pollutants would be removed and converted into environmentally benign substances, perhaps fertilizers or other commercial products. Carbon dioxide (CO₂) could be (1) concentrated and either recycled or disposed of in a geologically permanent manner, (2) converted into industrially useful products, or (3) sent to newly created natural sinks for CO₂.

Coal-based power plants remain the major source of electricity for the world while distributed generation, including renewables, will assume a growing share of the energy market. Technological advances finding their way into future markets could result in advanced co-production and co-processing facilities around the world, based upon technologies developed through universities, government, and industry partnerships.

Recent improvements within advanced coal-based power systems, in many ways are the culmination of decades of power and fuels research and development. The most advanced systems have the full energy potential of fossil fuel feedstocks and "opportunity" feedstocks such as biomass, petroleum coke, and other materials that might otherwise be considered as wastes, can be tapped by integrating advanced technology "modules." These technology modules include fuel-flexible coal gasifiers and combustors, gas for fuels and chemical synthesis and can be built in the configuration best suited for its market application by combining technology modules. Designers of these systems would tailor their use of the desired feedstocks and produce the desired products by selecting and integrating the appropriate "technology modules."

The DOE goals for these advanced systems are to effectively eliminate, at competitive costs, environmental concerns associated with the use of fossil fuel for producing electricity and transportation fuels. Research objectives for these advanced power systems are based on three premises: 1) that we will need to rely on fossil fuels for a major share of our electricity and transportation fuel needs well into the 21st century; 2) that it makes sense to rely on a diverse mix of energy resources, including coal, gas, oil, biomass and other renewables, nuclear, and so-called "opportunity" resources, rather than on a reduced subset of these resources; and 3) that R&D directed at resolving our energy and environmental issues can find affordable ways to make energy conversion systems meet ever stricter environmental standards.

In order to meet these aggressive goals, advanced simulation capability and development of materials for these advanced systems are expected to help enable future power generation, using hydrogen derived from coal with variable levels of carbon monoxide and methane (CO, CH₄) and diluents. Designs for such future technology are hindered by the inability to computationally predict such key features as flame stability and pollutant emissions. Even for near-term applications, the effect of changing from one fuel type to another cannot be reliably predicted.

PURPOSE/OBJECTIVES

To develop and sustain a national program of university research that advances the previous stated objectives, the DOE is interested in innovative and fundamental research pertinent to coal conversion and utilization. This year, research is limited to three broad areas: Computational Energy Sciences, Material Science, and Novel Materials for Sensing or Monitoring in Extreme Environments of Fossil Energy Systems. These areas are detailed below. An application must propose research that is responsive to one of these areas.

AREA 1 - COMPUTATIONAL ENERGY SCIENCES: MULTIPHASE FLOW RESEARCH

Multiphase flow is prevalent in fossil fuel processes, appearing in processes such as coal gasifiers, reactors used for post- and pre- combustion CO₂ capture, and emerging technologies such as chemical looping combustion that help efficient CO₂ separation. It is necessary to reduce the cost and time required to scale-up such reactors, and physics-based or computational fluid dynamic (CFD) models are sought to help with the scale-up. The flows in multiphase reactors invariably span multiple time and length scales and pose enormous computational and experimental challenges. For example, the granular flow in a fluidized bed may range from incompressible to hypersonic, while the granular media may undergo a phase change similar to a gas-to-solid transition, all within the same reactor. The volume fraction, stress, and energy typically fluctuate spatially and temporally with amplitudes comparable to the mean. The interaction of the phases with boundaries is often complex and poorly understood. Because multiphase flows may not exhibit a clear separation among the spatial and temporal micro-, meso-, and macro-scales, advanced multi-scale theories may be needed to analyze them. Therefore, it is critical to understand and be able to model gas-solids systems for building highly efficient, near-zero emission fossil energy plants (Refer to the 2006 Workshop Report₁).

NETL is already funding research in the development of, for example, models for poly-dispersed systems, frictional flow regimes, gasifiers and carbon capture devices; noninvasive capacitance imaging tomography; and measurement techniques and models for non-spherical particles.

1 "Report on Workshop on Multiphase Flow Research, Morgantown, WV, June 6-7, 2006," ed. M. Syamlal, DOE/NETL-2007/1259, December 2006 available from http://www.netl.doe.gov/events/06conferences/mfr_workshop/Multiphase%20Workshop%20Report%206.pdf.

Applications are sought for conducting research in areas complementary to these.

Research may be proposed for developing theory and advanced computational models, collecting data from experiments or finer-scale simulations or both, and validating the models. All applications must clearly show how the proposed work will help to achieve the vision set forth in the 2006 Workshop Report by filling substantial data gaps to help constitutive-equations development and model validation, by developing missing critical constitutive relations to increase the fidelity of CFD models, by developing novel algorithms to greatly increase computational speed, or by explaining and resolving inconsistencies in model predictions. It is desired that the modeling and computational advances be demonstrated in NETL's open-source multiphase CFD code MFIX (<http://mfix.netl.doe.gov>) and measurement techniques be demonstrated in NETL's Circulating Fluidized Bed (CFB) cold flow riser.

The specific topics proposed may include the following:

- Develop CFD models of gas-liquid and gas-solid-liquids flow. Identify flow-regimes in gas-liquid and gas-liquid-solids flows and develop appropriate constitutive relations and simplified models.
- Develop computational techniques that explicitly recognize and account for the micro/meso/macroscale picture that is emerging from studies at different scales.
- Develop methods to model adsorption/desorption and heterogeneous gas-solids chemical reactions in the context of multiphase CFD.
- Develop (multiphase CFD) radiation model for particle-particle and particle-wall heat transfer in gas-solids systems with solids volume fractions ranging from 0 to 0.5.
- Develop image analysis software to quantitatively identify and track granular solid in flow fields recorded in high resolution video images and extract high-quality data.
- Develop analysis methodologies to objectively and quantitatively assess the ability of CFD models to simulate physical phenomena observed in hydrodynamic measurements taken across micro/meso/macroscales.
- Develop diagnostic tools capable of measuring local gas and solids concentration, velocities, or fluxes to advance the state of the art accuracies and which can be demonstrated in NETL's CFB cold flow riser.
- Develop diagnostic tools capable of measuring solids flux in a high temperature CFB riser which can be demonstrated first in NETL's CFB cold flow riser, second in a pilot-scale device such as Power Systems Development Facility (PSDF) transport gasifier, and which advances accuracies compared to the state of the art.

AREA 2 - MATERIAL SCIENCES: COMPUTER-AIDED DEVELOPMENT OF NOVEL NEW MATERIALS FOR ENERGY CONVERSION FROM COAL

Novel materials that can withstand high temperatures and extreme environments are dominant themes in materials development for efficient energy systems.

Basic requirements are elevated melting temperatures, high oxidation and corrosion resistance, the ability to resist creep, and high toughness, and encompass some of the most challenging problems in materials science.

An effective way to accelerate research in this field is to use advances in materials simulations and high performance computing and communications to guide experiments. This synergy between experiment and advanced materials modeling will significantly enhance the synthesis of novel high-temperature materials. Computer simulation to study the structure, properties, and processing of materials on the atomic scale is needed to speed the advancement of innovative strategies that would replace traditional, trial-and-error experimental methods which are costly and time-consuming. A wide range of computer modeling tools, ranging from highly accurate quantum mechanics (electronic structure) methods to simple interatomic potentials and databases to support the models, could be brought to bear on addressing critical materials needs.

Grant applications are sought for the development of computational tools and simulations that will reliably predict properties of materials for fossil energy systems in advance of fabrication. Step improvements in the performance of existing materials are not the goal of this solicitation; rather the focus is on the development of new materials with high performance potential that have not been previously considered or identified for fossil energy applications. Consideration will be given to alloys based on refractory metal elements such as Tungsten, Niobium, Molybdenum, and Chromium (W, Nb, Mo and Cr respectively) which are emerging as a potential solution for this challenging application. Reliability of performance, fabricability, and affordability are also key viability indicators for these new material concepts.

One example of a responsive application would be a simulation of the interactions that occur at the grain boundary of alloys containing refractory metal elements. For high-strength alloys such as refractory metals, grain boundary segregation of alloying (impurity) elements can weaken grain boundary cohesion substantially and directly lead to brittle intergranular fracture. Understanding grain boundary segregation behavior and its impact on grain boundary cohesion is of great importance in predicting extrinsic ductility of the alloys. Multiscale computer simulations in this area will reveal valuable information on changes in atomic configuration, electronic structure and thermodynamics due to grain boundary segregation, ranging from quantum mechanical calculations, and molecular dynamics to Monte Carlo simulations. Effect of grain boundary types, alloys compositions (impurity, dilute and concentrated), types of segregants (substitutional and interstitial), and temperatures must be taken into consideration.

AREA 3 - SENSORS AND CONTROLS: NANO DERIVED MATERIALS FOR THE FORMATION OF MULTI DIMENSIONAL SENSING STRUCTURES FOR THE SELECTIVE DETECTION OF FOSSIL ENERGY GASES AT HIGH TEMPERATURES

Innovative research is sought in the identification and development of nano derived multi dimensional, multi functional sensor materials that will support the development of high temperature (500°C-1500°C) micro and nano gas sensors. Non carbon based nano structures are of interest for high temperature operation in environments containing oxygen including those that permit the use or incorporation of active sensing materials such as metal oxides. The formation of multi dimensional sensor structures using ceramics, optically responsive materials, and piezoelectric type materials suitable for high temperature environments are of interest. Materials which function in less than 25% of the targeted temperature range (500°C -1500°C) should not be included in the proposed work.

High temperature gas sensing will contribute to the full-scale implementation and operation of highly efficient near zero emission power generation technologies such as advanced combustion, gasification, turbines, gas cleaning, and carbon capture technologies.

Common Fossil Energy derived gases include Hydrogen (H₂), Carbon Monoxide (CO), Carbon Dioxide (CO₂), Oxygen (O₂), Water vapor/Steam (H₂O), Methane (CH₄), Nitrogen Oxides (NO_x), Sulfur Oxides (SO_x), and Hydrogen Sulfide (H₂S). Successful research in high temperature sensor materials will facilitate the design and development of novel sensor structures including sensorbots, injectable sensors, and sensor nets.

Applicants must identify the Area of Interest they are applying for (i.e. 1, 2 or 3). See labeling instructions under Section IV, C. 1 and C.2 below.

APPLICATIONS SHALL BE SUBMITTED SEPARATELY FOR EACH AREA OF INTEREST. A SINGLE APPLICATION WITH MULTIPLE AREAS OF INTEREST PROPOSED WILL BE REJECTED AND CONSIDERED NON-RESPONSIVE TO THE ANNOUNCEMENT.

Section II - AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

DOE anticipates awarding grants under this Funding Opportunity Announcement.

B. ESTIMATED FUNDING

Approximately \$2,041,000 is expected to be available for new awards under this announcement.

C. MAXIMUM AND MINIMUM AWARD SIZE

- Ceiling (i.e. the maximum amount for an individual award made under this announcement): \$ 300,000.00 (DOE Share)
- Floor (i.e. the minimum amount for an individual award made under this announcement): \$ 0.00

D. EXPECTED NUMBER OF AWARDS

DOE anticipates making approximately 6-7 awards under this announcement.

E. ANTICIPATED AWARD SIZE

DOE anticipates that awards will not exceed \$300,000.00 (DOE share) for the total project period.

F. PERIOD OF PERFORMANCE

DOE anticipates making awards that will be approximately 36 months in duration.

G. TYPE OF APPLICATION

DOE will accept only new applications under this announcement. Applications may be submitted by an individual college/university or from a team of two colleges/universities submitting an application. The college/university submitting the application on behalf of both colleges/universities will act as the bargaining agent and will be the Recipient of the DOE award. (Note: An Application requires only one university to participate, however, two universities partnering together may submit.) Private industry collaboration is permissible. The definition of an Industrial Collaborator for an application is as follows: Small businesses, large businesses, and 501c organizations qualify as an "Industrial Collaborator." The following are specifically EXCLUDED from recognition as industrial collaborators: Federal, State or Local government agencies, DOE National Laboratories, and other colleges or universities.

Types of Industrial Collaboration may include but are not limited to the following:

- Designation of one or more industry scientists as co-investigators for a project including performing experiments related to the project or acting as a resource person to others working on the project.
- Offering Industrial Internships to faculty and/or students involved in the project.
- Providing industrial facilities and/or equipment to the university to conduct work related to the project.

Section III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS

In accordance with 10 CFR 600.6(b), eligibility for award is restricted to U.S. colleges, universities, and university-affiliated research institutions. Grants awarded through the UCR Program are for maintaining and upgrading the educational, training and research capabilities of U.S. universities and colleges in the fields of science, environment, energy and technology related to coal. The involvement of professors and students generates fresh research ideas and enhances the education of future scientists and engineers. To assure the program continues to support the performance of high quality fundamental research by professors and students at U.S. colleges and universities, applications may be submitted by U.S. colleges, universities and university-affiliated research institutions provided the following criteria are met:

- Principal Investigator or a Co-Principal Investigator listed in the application is a teaching professor at the submitting university. If this condition is met, other participants, Co-Principal Investigators or research staff, who do not hold teaching positions may be included as part of the research team.
- Applications from university-affiliated research institutions must be submitted through the college or university with which they are affiliated.
- At least one student registered at that university is to receive compensation for performing research.

B. COST SHARING

Cost sharing is encouraged but not required.

To make the research more meaningful in its application to real-world problems, limited industrial collaboration is encouraged. Note, however, that private industry must be a participant and not an Applicant. Industrial collaboration of any of the following types will be considered appropriate for the UCR Program:

1. Cash cost-sharing (5% or more of DOE support for a project) received by the university awardee from participant(s).
2. Subcontracting (limited to a total maximum of 25% of DOE support for project) by university awardee with the industrial participant(s) to provide consultation and experimental data and/or equipment not available at the university (this 25% limit excludes equipment included in the university budget).

3. No-cost collaboration with the industrial participant(s) agreeing to consult with the Principal Investigator and to share non-proprietary information that will assist in improving the experimental plan and/or assist in analyzing data obtained by the Principal Investigator. Free use of industrial experimental facilities not available at the university is included in this category of collaboration.

The DOE views the UCR program as an assistance program and, as such, will not permit payout of any fees to industrial participants.

C. OTHER ELIGIBILITY REQUIREMENTS

DOE will accept only new applications under this announcement. Applications may be submitted by an individual college/university or from a team of two colleges/universities submitting an application. The college/university submitting the application on behalf of both colleges/universities will act as the bargaining agent and will be the Recipient of the DOE award. (Note: An Application requires only one university to participate, however, two universities partnering together may submit.) Private industry collaboration is permissible. The definition of an Industrial Collaborator for an application is as follows: Small businesses, large businesses, and 501c organizations qualify as an "Industrial Collaborator." The following are specifically EXCLUDED from recognition as industrial collaborators: Federal, State or Local government agencies, DOE National Laboratories, and other colleges or universities.

Types of Industrial Collaboration may include but are not limited to the following:

- Designation of one or more industry scientists as co-investigators for a project including performing experiments related to the project or acting as a resource person to others working on the project.
- Offering Industrial Internships to faculty and/or students involved in the project.
- Providing industrial facilities and/or equipment to the university to conduct work related to the project.

Section IV - APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION PACKAGE

Application forms and instructions are available at Grants.gov. To access these materials, 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 save the application package. Once you have SAVED the application package and completed all the required documentation, you will submit your application via Grants.gov.

B. LETTER OF INTENT AND PRE-APPLICATION

1. Letter of Intent.

Letters of Intent are not required.

2. Pre-application

Pre-applications are not required.

C. CONTENT AND APPLICATION FORMS

You must complete the mandatory forms and any applicable optional forms (e.g., Disclosure of Lobbying Activities (SF-LLL)) 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.

1. SF 424 (R&R)

Complete this form first to populate data in other forms. Complete all the required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 17 can be found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm under Certification and Assurances.

NOTE: The title provided in the SF424 must specify the Area of Interest. The required format for the title will be: "AOI [1, 2 or 3 - specify one] (project title)".

2. RESEARCH AND RELATED Other Project Information

Complete questions 1 through 6 and attach files. The files must comply with the following instructions:

Project Summary/Abstract (Field 7 on the Form)

The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the public. It should be a self-contained document that identifies the name of the Applicant, the project director/principal investigator(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants (for collaborative projects). This document must not include any proprietary or sensitive business information as the Department may make it available to the public. The project summary must not exceed 1 page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right) single spaced with font not smaller than 11 point. To attach a Project Summary/Abstract, click "Add Attachment."

NOTE: The title provided in the SF424 must specify the Area of Interest. The required format for the title will be: "AOI [1, 2 or 3 - specify one] (project title)."

Project Narrative (Field 8 on the Form)

The project narrative must not exceed 26 pages, double spaced, including cover page, table of contents, charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) with font not smaller than 11 point.

EVALUATORS WILL ONLY REVIEW 26 pages. The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application, because the information contained in these sites will not be reviewed. See Part VIII.D for instructions on how to mark proprietary application information. To attach a Project Narrative, click "Add Attachment."

The project narrative must include:

- Project Objectives: This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.
- Merit Review Criterion Discussion: The section should be formatted to address each of the merit review criterion and sub-criterion listed in Part V.A. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria.

DOE WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH OF THE MERIT REVIEW CRITERION AND SUB-CRITERION.

- Relevance and Outcomes/Impacts: This section should explain the relevance of the effort to the objectives in the program announcement and the expected outcomes and/or impacts.

- Roles of Participants: For multi-organizational or multi-investigator projects, describe the roles and the work to be performed by each participant/investigator, business agreements between the Applicant and participants, and how the various efforts will be integrated and managed.
- Multiple Principal Investigators: The Applicant, whether a single organization or team/partnership/consortium, must indicate if the project will include multiple PIs. This decision is solely the responsibility of the Applicant.

If multiple PIs will be designated, the application must identify the Contact PI/Project Coordinator and provide a "Coordination and Management Plan" that describes the organization structure of the project as it pertains to the designation of multiple PIs. This plan should, at a minimum, include:

- process for making decisions on scientific/technical direction;
- publications;
- intellectual property issues;
- communication plans;
- procedures for resolving conflicts; and
- PIs' roles and administrative, technical, and scientific responsibilities for the project.

- Statement of Project Objectives (SOPO): The project narrative must contain a single, detailed SOPO that addresses how the project objectives will be met. The SOPO must contain a clear, concise description of all activities to be completed during project performance and follow the structure discussed below. The SOPO may be released to the public by DOE in whole or in part at any time. It is therefore required that it shall not contain proprietary or confidential business information. The SOPO is generally less than 10 pages in total for the proposed work. Applicants shall prepare the SOPO in the following format:

TITLE OF WORK TO BE PERFORMED

(Insert the title of work to be performed. Be concise and descriptive.)

A. OBJECTIVES

Include one paragraph on the overall objective(s) of the work. Also, include objective(s) for each phase of the work.

B. SCOPE OF WORK

This section should not exceed one-half page and should summarize the effort and approach to achieve the objective(s) of the work for each Phase.

C. TASKS TO BE PERFORMED

Tasks, concisely written, should be provided in a logical sequence and should be divided into the phases of the project, as appropriate. This section provides a brief summary of the planned approach to this project. An outline of the Project Management Plan (referenced in Task 1.0 below and required to be submitted with your application) is provided later in this Section.

Task 1.0 - Project Management and Planning

(Description includes work elements required to revise and maintain the Project Management Plan and to manage and report on activities in accordance with the plan)

Subtask 1.1
(Description)

Task 2.0 - (Title)

Task 3.0 - (Title)

D. DELIVERABLES

The periodic, topical, and final reports shall be submitted in accordance with the attached "Federal Assistance Reporting Checklist" and the instructions accompanying the checklist. [Note: The Recipient shall provide a list of deliverables other than those identified on the "Federal Assistance Reporting Checklist" that will be delivered. These reports shall also be identified within the text of the Statement of Project Objectives. See the following examples]:

1. Task 1.1 - (Report Description)

2. Task 2.2 - (Report Description)

E. BRIEFINGS/TECHNICAL PRESENTATIONS

The Recipient shall prepare detailed briefings for presentation to the Project Officer at the Project Officer's facility located in Pittsburgh, PA or Morgantown, WV. Briefings shall be given by the Recipient to explain the plans, progress, and results of the technical effort as requested by the Project Officer.

The Recipient shall provide and present a technical paper(s) at the DOE/NETL Annual (June) Contractor's Review Meeting to be held in Pittsburgh, PA or Morgantown, WV.

(END OF STATEMENT OF PROJECT OBJECTIVES)

- **Bibliography & References Cited Appendix:** Provide a bibliography of any references cited in the Project Narrative. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. Include only bibliographic citations. Applicants should be especially careful to follow scholarly practices in providing citations for source materials relied upon when preparing any section of the application.

In order to reduce the number of files attached to your application, please provide the Bibliography and References Cited information as an appendix to your project narrative (Field 8). Do not attach a file in Field 9. This appendix will not count in the project narrative page limitation.

- **Facilities & Other Resources Appendix:** This information is used to assess the capability of the organizational resources, including subawardee resources, available to perform the effort proposed. Identify the facilities to be used (Laboratory, Animal, Computer, Office, Clinical, and Other). If appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work. Describe other resources available to the project (e.g., machine shop, electronic shop) and the extent to which they would be available to the project. In order to reduce the number of files attached to your application, please provide the Facility and Other Resource information as an appendix to your project narrative (Field 8). Do not attach a file in Field 10. This appendix will not count in the project narrative page limitation.
- **Equipment Appendix:** List major items of equipment already available for this project and, if appropriate identify location and pertinent capabilities. In order to reduce the number of files attached to your application, please provide the Equipment information as an appendix to your project narrative (Field 8). Do not attach a file in Field 11. This appendix will not count in the project narrative page limitation.

Other Attachments (Field 12 on the form):

If you need to elaborate on your responses to questions 1-6 on the "Other Project Information" document, attach a file in field 12.

Also, attach the following files:

Project Management Plan

Submission of this plan is mandatory and should be formatted to include the following sections with each section to include the information as described below:

A. **Executive Summary:** Provide a description of the project that includes the objective, project goals, and expected results. For purposes of the application, this information is included in the Project Narrative (Field 8) and should be simply copied to this document for completeness, so that the Project Management Plan is a stand-alone document.

B. **Risk Management:** Provide a summary description of the proposed approach to identify, analyze, and respond to perceived risks associated with the proposed project. Project risk events are uncertain future events that, if realized, impact the success of the project. As a minimum, include the initial identification of significant technical, resource, and management issues that have the potential to impede project progress and strategies to minimize impacts from those issues.

C. **Milestone Log:** Provide milestones for each budget period (or phase) of the project. Each milestone should include a title and planned completion date. Milestones should be quantitative and show progress toward budget period and/or project goals.

[Note: During project performance, the Recipient will report the Milestone Status as part of the required quarterly Progress Report as prescribed under Attachment 3, Reporting Requirements Checklist. The Milestone Status will present actual performance in comparison with Milestone Log, and include]:

- (1) the **actual** status and progress of the project,
- (2) specific progress made toward achieving the project's milestones, and,
- (3) any proposed changes in the project's schedule required to complete milestones.

D. **Funding and Costing Profile:** Provide a table (the Project Funding Profile) that shows, by budget period, the amount of government funding going to each project team member. Also provide a table (the Project Costing Profile) that forecasts, by month, the expenditure of government funds for the first budget period, at a minimum.

E. **Project Timeline:** Provide a timeline of the project (similar to a Gantt chart) broken down by each task and subtask, as described in the Statement of Project Objectives. The timeline should include for each task, a start date, and end date. The timeline should show interdependencies between tasks and include the milestones that are identified in the Milestone Log (Section C).

F. Commitment Letters from Third Parties Contributing to Cost Sharing:

If a third party, (i.e., a party other than the organization submitting the application) proposes to provide all or part of the required cost sharing, the Applicant must include a letter from the third party stating that it is committed to providing a specific minimum dollar amount of cost sharing. The letter should also identify the proposed cost sharing (e.g., cash, services, and/or property) to be contributed.

Letters must be signed by the person authorized to commit the expenditure of funds by the entity and be provided in a PDF format. Save this information in a single file named "CLTP.pdf" and click on "Add Attachments" in Field 12 to attach.

G. Teaching Professor/Student Employment Certification:

The Principal Investigator or Co-Principal Investigator listed on the application must be a teaching professor at the submitting college/university. Additionally, applications submitted have an additional requirement that at least one (1) registered student at the college/university must receive compensation for work performed in conducting the proposed research.

The Teaching Professor/Student Employment Certification (see format below) must be signed by the Principal Investigator or a Co-Principal Investigator of the submitting university/college and be provided in PDF format. Save this information in a single file named "TeachCert.pdf" and click on "Add Attachments" in Field 12 to attach.

This certification must also be provided by any other college/university participating in the proposed effort.

TEACHING PROFESSOR/STUDENT EMPLOYMENT CERTIFICATION FUNDING
OPPORTUNITY EXTENSION NO. DE-FOA-0000146

I, _____, certify that I am a teaching professor at _____
_____. Furthermore, if a grant is awarded from this application, at least one student registered at the University will receive compensation throughout the performance period of research proposed in the application.

(Name of Principal Investigator or
Co-Principal Investigator and title)

(Date)

3. RESEARCH AND RELATED - Senior/Key Person

Complete this form before the Budget form to populate data on the Budget form. Beginning with the Project Director/Principal Investigator(s) (PD/PI), provide a profile for each senior/key person proposed. A senior/key person is any individual who contributes in a substantive, measurable way to the scientific/technical development or execution of the project, whether or not a salary is proposed for this individual. Subawardees and consultants must be included if they meet this definition. For each senior/key person provide:

Biographical Sketch

Complete a biographical sketch for each senior/key person and attach to the "Attach Biographical Sketch" field in each profile. The biographical information for each person must not exceed 2 pages when printed on 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) with font not smaller than 11 point and must include:

Education and Training: List undergraduate, graduate and postdoctoral training, provide institution, major/area, degree and year.

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

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

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

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

Current and Pending Support

Provide a list of all current and pending support (both Federal and non-Federal) for the Project Director/Principal Investigator(s) (PD/PI) and senior/key persons, including subawardees, for ongoing projects and pending applications. For each organization providing support, show the total award amount for the entire award period (including indirect costs) and the number of person-months per year to be devoted to the project by the senior/key person.

Concurrent submission of an application to other organizations for simultaneous consideration will not prejudice its review. Save the information in a separate file and attach to the "Attach Current and Pending Support" field in each profile.

4. RESEARCH AND RELATED BUDGET (TOTAL FED + NON-FED)

Complete the Research and Related Budget (Total Fed & Non-Fed) form in accordance with the instructions on the form and the following instructions. You must complete a separate budget for each year of support requested. The form will generate a cumulative budget for the total project period. You must complete all the mandatory information on the form before the NEXT PERIOD button is activated.

You may request funds under any of the categories listed as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (See Section IV.G).

Budget Justification (Field K on the form)

Provide the required supporting information for the following costs: equipment; domestic and foreign travel (including the annual meeting); participant/trainees; material and supplies; publication; consultant services; ADP/computer services; subaward/consortium/contractual; equipment or facility rental/user fees; alterations and renovations; and indirect cost type. Provide any other information you wish to submit to justify your budget request.

If cost sharing is required, provide an explanation of the source, nature, amount, and availability of any proposed cost sharing. Attach a single budget justification file for the entire project period in Field K. The file automatically carries over to each budget year.

5. R&R SUBAWARD (Total Fed + Non-Fed) FORM

Budgets for Subawardees of applications with more than one institution

You must provide a separate cumulative R&R budget for each subawardee that is expected to perform work under the project that is estimated to be more than \$100,000 or 50 percent of the total work effort (whichever is less). Download the R&R Budget Attachment from the R&R SUBAWARD BUDGET (Total Fed + Non-Fed) FORM and e-mail it to each subawardee that is required to submit a separate budget. After the Subawardee has e-mailed its completed budget back to you, attach it to one of the blocks provided on the form. Use up to 10 letters of the subawardee's name as the file name.

6. PROJECT/PERFORMANCE SITE LOCATION(S)

Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided.

Note that the Project/Performance Site Congressional District is entered in the format of the 2 digit state code followed by a dash and a 3 digit Congressional district code, for example VA-001. Hover over this field for additional instructions.

Use the Next Site button to expand the form to add additional Project/Performance Site Locations.

7. DISCLOSURE OF LOBBYING ACTIVITIES (SF-LLL)

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."

8. SUMMARY OF REQUIRED FORMS AND FILES

Your application must include the following documents:

Name of Document	Format	Attach to
SF 424 (R&R)	Form	N/A
RESEARCH AND RELATED Other Project Information	Form	N/A
Project Summary/Abstract	PDF	Field 7
Project Narrative, including required appendices	PDF	Field 8
Project Management Plan	PDF	Field 12
Commitment Letters from Third Parties	PDF	Field 12
Teaching Professor/Student Employment Certification	PDF	Field 12
RESEARCH & RELATED SENIOR/KEY PERSON	Form	N/A
Biographical Sketch	PDF	Attach to appropriate block
Current and Pending Support	PDF	Attach to appropriate block
RESEARCH AND RELATED	Form	N/A

BUDGET (Total Fed + Non-Fed)		
Budget Justification	PDF	Field K
R&R SUBAWARD BUDGET (Total Fed + Non-Fed) ATTACHMENT(S) FORM, if applicable	Form	N/A
PROJECT/PERFORMANCE SITE LOCATION(S)	Form	N/A
SF-LLL Disclosure of Lobbying Activities, if applicable	Form	N/A

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS

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

- Indirect cost information
- Other budget information
- 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
- Environmental Questionnaire: This form is available at:
http://www.netl.doe.gov/business/forms/451_1-1-3.doc

E. SUBMISSION DATES AND TIMES

1. Pre-application Due Date

Pre-applications are not required.

2. Application Due Date

Applications must be received by 11/24/2009, not later than 8:00 PM Eastern Time. You are encouraged to transmit your application well before the deadline. APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.

F. INTERGOVERNMENTAL REVIEW

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

G. FUNDING RESTRICTIONS

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

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

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

Foreign Travel: It is not anticipated that foreign travel will be needed for this program. Recipients may request advanced written approval from the Contracting Officer based on programmatic needs.

H. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS

1. WHERE TO SUBMIT

APPLICATIONS MUST BE SUBMITTED THROUGH GRANTS.GOV TO BE CONSIDERED FOR AWARD.

Submit electronic applications through the *Apply for Grants* function at www.Grants.gov. If you have problems completing the registration process or submitting your application, call Grants.gov at 1-800-518-4726 or send an email to support@grants.gov.

2. REGISTRATION PROCESS

You must COMPLETE the one-time registration process (all steps) before you can submit your first application through Grants.gov (See www.grants.gov/GetStarted). We recommend that you start this process at least three weeks before the application due date. It may take 10 calendar days or more to complete the entire process. Use the Grants.gov Organizational Registration Checklists at <http://www.grants.gov/assets/OrganizationRegCheck.pdf> to guide you through the process. IMPORTANT: During the CCR registration process, you will be asked to designate an E-Business Point of Contact (EBIZ POC). The EBIZ POC must obtain a special password called *Marketing Partner identification Number* (MPIN). When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e., Grants.gov registration).

3. APPLICATION RECEIPT NOTICES

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of five e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2.

When the AOR receives email Number 5, it is their responsibility to follow the instructions in the email to logon to IIPS and verify that their application was received by DOE. You will need the Submission Receipt Number (email Number 1) to track a submission. The titles of the five e-mails are:

Number 1 - Grants.gov Submission Receipt Number

Number 2 - Grants.gov Submission Validation Receipt for Application Number

Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number

Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number

Number 5 - DOE e-Center Grant Application Received

The last email will contain instructions for the AOR to register with the DOE e-Center. If the AOR is already registered with the DOE e-Center, the title of the last email changes to:

Number 5 - DOE e-Center Grant Application Received and Matched

This email will contain the direct link to the application in IIPS.

The AOR will need to enter their DOE e-Center user id and password to access the application.

Section V - APPLICATION REVIEW INFORMATION

A. CRITERIA

1. Initial Review Criteria

Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the Applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the Funding Opportunity Announcement.

2. Merit Review Criteria

Merit Review Criteria: All applications that pass the initial review process will receive a detailed and consistent technical evaluation utilizing the general evaluation criteria described below.

Criterion 1 - Scientific and Technical Merit (45%)

The application will be evaluated to determine the overall technical merit of the proposed concept and the ability of the project to achieve the objectives of the FOA. The application will be evaluated on the overall quality, soundness, and reasonableness of the Applicant's proposed work, including the following:

- Purpose and objectives of the proposed work and its relationship to the goals and objectives of this Funding Opportunity Announcement.
- Degree to which the proposed project identifies novel concepts and/or makes progress on new/existing concepts.
- Degree to which the Applicant comprehensively advances the proposed concepts by providing supporting detail that outlines the need for the project work, distinguishes the proposed project from prior or ongoing work, or existing literature.
- Potential for the proposed work to contribute to a scientific or technical breakthrough in the topic area being addressed.
- Degree to which the proposed work is based on sound scientific and engineering principles.

Criterion 2 - Technical Approach/Statement of Project Objectives (30%)

The application will be evaluated to determine the overall quality, soundness, and reasonableness of the Applicant's technical approach to fulfill the requirements of the proposed work, including the following:

- Adequacy and feasibility of the Applicant's approach to achieving the Funding Opportunity Announcement's stated objectives.
- Appropriateness, rationale, and completeness of the proposed Statement of Project Objectives.
- Adequacy of the proposed labor categories and staffing plan.
- Adequacy and appropriateness of technology transfer including any plans for utilization of the proposed technology, if applicable.

Criterion 3 - Technical Capabilities, Facilities, and Equipment (15%)

The application will be evaluated in terms of the qualifications and relative experience of key personnel assigned to the project (including subcontractors and consultants, if considered key personnel), the qualifications of the participating organizations, the proposed management of the effort, and the facilities and equipment, as outlined according to the following factors:

- Technical credentials, capabilities, and demonstrated experience of the key personnel relevant to the proposed work.
- Prior experience in managing projects of similar type, size and complexity, within budget and on schedule.
- Adequacy and availability of proposed facilities, equipment, and materials to be utilized in executing the proposed work.

Criterion 4 - Project Management Plan (10%)

This criterion relates entirely to the stand-alone Project Management Plan described in this Funding Opportunity Announcement. If the application does not include this stand-alone Project Management Plan, evaluators will be instructed to assign a score of zero to this criterion.

- Adequacy and completeness of the Project Management Plan in defining the organizational structure and the roles and responsibilities of the project team members.

- Adequacy and completeness of the Project Management Plan in establishing the technical scope, budget, and schedule baselines, in identifying key milestones and decision points and the criteria upon which decisions are made, in controlling project performance relative to these baselines and decision points, and in defining the actions taken when these baselines must be revised.
- Adequacy and completeness of the Project Management Plan in identifying, assessing and managing project risk.

3. Other Selection Factors

Program Policy Factors to Be Applied By the Source Selection Official in Making Final Source Evaluation Decisions

The Source Selection Official (SSO) will consider the relative technical ranking of the applications and recommendations from the Merit Review Committee (MRC). The number of awards will be based on the recommendations of the MRC and the available funding allotted. The following program policy factors may be used to determine which applications best satisfies program objectives.

- (a) Geographic/Regional Balance
- (b) Broad University Participation
- (c) Collaborative Participation - when two applications are considered equal, consideration will be given to those with collaboration.
- (d) Programmatic Needs

B. REVIEW AND SELECTION PROCESS

1. Merit Review

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

2. Selection

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

3. Discussions and Award

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

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES

DOE anticipates notifying Applicants and making awards by the end of the third quarter of Fiscal Year 2010.

Section VI - AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

1. Notice of Selection

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

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

2. Notice of Award

An 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 DOE/; (4) DOE assistance regulations at 10 CFR Part 600; (5) National Policy Assurances To Be Incorporated As Award Terms; (6) Budget Summary; (7) Statement of Project Objectives (SOPO); and (8) Federal Assistance Reporting Checklist, which identifies the reporting requirements.

For grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular A-110 the Award also includes the Research Terms and Conditions located at <http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp> .

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

1. Administrative Requirements

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

2. Special Terms and Conditions and National Policy Requirements

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.

C. REPORTING

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement. For a sample Checklist, see <http://management.energy.gov/documents/DOEF4600pt292009.pdf>

Section VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

Questions regarding the content of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. DOE/ will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions and comments concerning this FOA shall be submitted not later than seven (7) calendar days prior to the application due date. Questions submitted after that date may not allow the Government sufficient time to respond.

Questions pertaining to the submission of applications through Grants.gov should be directed by email to support@grants.gov or by phone to 1-800-518-4726.

B. AGENCY CONTACT

Name: Nicholas Anderson
E-mail: Nicholas.anderson@netl.doe.gov

Section VIII - OTHER INFORMATION

A. MODIFICATIONS

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

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE

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

C. COMMITMENT OF PUBLIC FUNDS

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

D. PROPRIETARY APPLICATION INFORMATION

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

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

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

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

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL

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

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM

Policies and procedures for patents, data, and copyrights are in accordance with 10 CFR 600.136(a), (c-d).

G. 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.