NOTICE

Modifications to this Funding Opportunity Announcement (FOA) may have been made since this version was posted. Applicants are strongly advised to consult the FOA version posted on www.FedConnect.com, the official application website, for the latest changes regarding the application materials, dates, and other requirements.

The FedConnect system can be accessed through the following steps:

1. Go to http://www.FedConnect.net/
2. Click on "Search Public Opportunities"
3. Select "Reference Number" in the Search Criteria drop down box and then enter the Reference Number of the funding opportunity you are interested in (DE-FOA-XXXXXXX), followed by clicking the "Search" button
4. Click on the Title hyperlink after search results are displayed
5. On the right side of the screen, click on "BODY" under the "Solicitation" or "Amendment" folder; if multiple amendments exist, click on the most recent award amendment for the latest changes.

If you are new to the Federal grant application process, it can take 21 days or more to complete all of the registration processes needed to submit questions or application. These activities include acquiring a DUNS number, completing a Central Contract Registration (CCR), and FedConnect.com registration. Hence, if you are considering applying for this or another Funding Opportunity, we recommend beginning the registration process as soon as possible.

For further assistance throughout the application process, contact the following numbers:

- **General inquiries:** 1-888-DOE-RCVY (1-888-363-7289), https://recoveryclearinghouse.energy.gov/
- **Central Contract Registration (CCR) system**: 1-888-227-2423, http://www.ccr.gov/Help.aspx
- **FedConnect**: 1-800-899-6665, support@fedconnect.net
- **Specifics on FOA**: see "Questions" portion of the FOA

FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT

U. S. Department of Energy

National Energy Technology Laboratory

Recovery Act: Carbon Capture and Sequestration from Industrial Sources and Innovative Concepts for Beneficial CO_2 Use

Funding Opportunity Number: DE-FOA-0000015

Announcement Type: Amendment 001

CFDA Number: 81.089 Fossil Energy Research and Development

FOA Issue Date:	**June 8, 2009**
Amendment 001 Issue Date:	**July 17, 2009**
Letter of Intent Due Date:	**Not Applicable**
Pre-Application Due Date:	**Not Applicable**
Application Due Date:	**August 7, 2009 at 8:00:00 PM Eastern Time**

Amendment 001 - The purpose of this amendment is to clarify that beneficial use that permanently prevents the CO_2 from entering the atmosphere is an allowable form of sequestration under Technology Area 1. A change has been made on page 5 of this Funding Opportunity document.

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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 (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contractor Registration (CCR), and register with FedConnect). Applicants who are not registered with CCR and FedConnect, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible.

Applicants must obtain a DUNS number. DUNS website: http://fedgov.dnb.com/webformhttp://fedgov.dnb.com/webform

Applicants must register with the CCR. CCR website: http://www.ccr.gov/

Applicants must register with FedConnect to submit their application. FedConnect website: www.fedconnect.net

Questions

Questions relating to the **system requirements or how an application form works** 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 **submission** of applications through FedConnect 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. Grants.gov website: http://www.grants.gov/
(Additional instructions are provided in Section IV.A of this FOA.)

Applicants must submit their application through the FedConnect portal. FedConnect website: www.fedconnect.net
(Additional instructions are provided in Section IV.H of this FOA.)

Section I - FUNDING OPPORTUNITY DESCRIPTION

American Recovery and Reinvestment Act of 2009 (ARRA 2009)

Projects under this FOA will be funded, in whole or in part, with funds appropriated by the American Recovery and Reinvestment Act of 2009, Pub. 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 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 special terms and conditions can be found at http://management.energy.gov/policy_guidance/1672.htm.

The Office of Management and Budget (OMB) has issued Initial Implementing Guidance for the Recovery Act. See M-09-10, Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009 and M-09-15, Updated Implementing Guidance for the American Recovery and Reinvestment Act of 2009. OMB will be issuing additional guidance concerning the Act in the near future. Applicants should consult the DOE website, www.energy.gov, the OMB website http://www.whitehouse.gov/omb/, and the Recovery website, 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 DOE. 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 require their first tier subawardees to obtain a DUNS number (or update the existing DUNS record) and register with the Central Contractor Registration (CCR).

A. FUNDING OPPORTUNITY SUMMARY

The United States Department of Energy, National Energy Technology Laboratory (DOE/NETL, or DOE) is competitively soliciting applications for a requirement titled "Carbon Capture and Sequestration from Industrial Sources and Innovative Concepts for Beneficial CO_2 Use."

The CO_2 Capture and Sequestration (CCS) and CO_2 use is a cost-shared collaboration between the Government and industry to increase investment in clean industrial technologies and sequestration projects.

In accordance with the American Recovery and Reinvestment Act of 2009, and Section 703 of Public Law 110–140, for this Funding Opportunity Announcement, DOE's two specific objectives, identified as Technology Areas, are to demonstrate: (1) Large-scale industrial CCS projects from industrial sources ($1,321,765,000) and (2) Innovative concepts for beneficial CO_2 use ($100,000,000). The Applicants shall clearly identify the technology area under which the application is being submitted.

Technology Area 1 - Large-scale industrial CCS projects from industrial sources: The objective is to demonstrate advanced technologies that capture and sequester carbon dioxide emissions from industrial sources into underground formations **or put to beneficial use that permanently prevents the CO_2 from entering the atmosphere**. The large-scale CCS projects include integration of CO_2 capture, transportation and sequestration incorporating comprehensive monitoring, verification & accounting (MVA). The projects may include plant efficiency improvements for integration with CO_2 capture technology. The industrial sources include, but are not limited to, cement plants, chemical plants, refineries, steel and aluminum plants, manufacturing facilities, and power plants using opportunity fuels (petroleum coke, municipal waste, etc.). Plants with electric power output greater than 50% of total energy output that operate on more than 55% coal as a feedstock are ineligible.

The sequestration opportunities include deep saline formations, and deep geologic systems including basalts, operating oil and gas fields, depleted oil and gas fields, and unmineable coal seams. The CO_2 sequestration commercial benefits include enhanced oil recovery (EOR) and enhanced methane recovery from unmineable coal seams. DOE's objective is that Recipients are able to operate at commercial scale in an industrial setting, technologies that make progress toward capture and sequestration of 75% of CO_2 from the treated stream comprising at least 10% CO_2 by volume that would otherwise be emitted to the atmosphere and at a scale sufficient to evaluate full impact of the CO_2 capture technology on plant operations, economics, and performance. Additionally, the objective is to demonstrate geologic sequestration options in a variety of geologic settings in order to evaluate costs, operational processes, and the technical performance. DOE's target is for one million tons per year of CO_2 emissions from each plant to be captured and sequestered.

The evaluation process will give greater weights to applications for projects that capture and sequester amounts of CO_2 approaching or exceeding DOE's Industrial Carbon Capture and Sequestration (ICCS) target of one million tons per plant per year by 2015 as an integral component of commercial operation. Long-term commitments from the suppliers or purchasers or users of CO_2 would strengthen an application. Coordination with a large scale sequestration test, including EOR, is one way to demonstrate participation by a long term purchaser, or supplier of CO_2, although other approaches to demonstrating sequestration will be given equal consideration in the merit review process.

Technology Area 2 - Innovative concepts for beneficial CO_2 use: The objective is to demonstrate innovative concepts for beneficial CO_2 use, which include, but are not limited to, CO_2 mineralization to carbonates directly through conversion of CO_2 in flue gas; use of CO_2 from power plants or industrial applications to grow algae/biomass; or, conversion of the CO_2 to fuels and chemicals. The carbonates produced from the mineralization processes must have the ability to result in permanent storage of the CO_2 through end uses such as cement additives or long term underground storage. "Use" of CO_2 is defined as the permanent conversion of CO_2 from flue gas into another form such as solid carbonates (i.e., mineralization), plastics, and fuels.

CO_2 use efforts focus on pathways and novel approaches for reducing CO_2 emissions by developing beneficial uses for the CO_2, such as the conversion of CO_2 to useable products and fuels and other breakthrough concepts that will mitigate CO_2 emissions in areas where geologic storage may not be an optimal solution. Examples of CO_2 use include the use of algae or another medium to convert CO_2 to biomass (which in turn can be used for fuel, chemicals, or plastics production), direct conversion to fuels or chemicals, or direct or indirect mineralization of CO_2 to solid carbonates.

Application(s) selected for funding under this Funding Opportunity Announcement will result in Phase 1 award(s) initially, with Phase 2 to be selected in accordance with the competitive Renewal Application process described in the Model Cooperative Agreement, attached as a separate file to this Announcement. Accordingly, the Applicant shall propose two project phases.

The cost-share by the Applicant must be at least 20% of the total allowable project cost for each budget period and each Subphase under the Cooperative Agreement or Technology Investment Agreement (TIA). DOE expects the Applicant's share to be proportionately greater than 20% for projects with reduced technological risk or reduced uncertainty. DOE's target for recipient cost share for commercial-scale demonstration projects is 50%. Each project shall be broken down into two phases, with Subphases identified in Phase 2. For funding purposes, projects will also be broken down into two budget periods coinciding with these two phases. Additionally, Decision Point(s), corresponding with Subphases, will be negotiated into a Phase 2 Statement of Project Objectives at the time of any Renewal Award.

Multiple awards are expected with each award having two phases such that DOE can down-select based on merit and other criteria set forth in the cooperative agreements. A brief description of the phases follows:

Phase 1 – Phase 1 shall be seven months and may encompass work anywhere from project definition activities through preliminary design and permitting. Project definition activities include, but are not limited to, development of a project baseline, detailed project management plan, project schedule, project cost estimate, firm host site commitments and firm financial commitments and funding plan for the non-DOE share of the project costs. Applicants who have completed such activities need not include them in their Phase 1 scope. Also during Phase 1 information will be prepared to assist the Department in performing its obligations pursuant to the National Environmental Policy Act (NEPA).

Preliminary design activity permitted in Phase 1 includes, but is not limited to: overall design, the process concept and how it operates (including process flow diagram(s) with major equipment items and energy and material balances); process chemistry and engineering concepts; identifying the technology hardware, describing the attributes of the devices or modules or major pieces of equipment; principles and engineering or R&D analysis and process data to support the design, and the capital and operating costs for the project. Additionally, for large scale industrial sources projects, design and plan for the sequestration method including, but not limited to, well drilling, pipelining, and surface equipment including compressors, tanks, and fluid processing towers, as appropriate.

Phase 1 awardees interested in continuing their project into Phase 2 will have the opportunity to submit a Renewal Application no later than five months after award. Renewal Applications are requests for additional funding for a period subsequent to that provided by a current award. Renewal Applications for Phase 2 will be limited to Phase 1 awardees. Detailed information on the Renewal Application requirements and submission procedure has been provided in the Model Cooperative Agreement document attached as a separate file to the Announcement.

Phase 2 – Subphase 2a: Design, Subphase 2b: Construction, and Subphase 2c: Operation: In order to be considered for Phase 2 funding, Phase 1 Recipients will be required to submit a detailed Renewal Application in accordance with the guidance provided in the Model Cooperative Agreement and their Phase 1 Cooperative Agreement or TIA. DOE will evaluate the Renewal Application against established criteria as part of a competitive Renewal Application process. For successful Phase 2 Applications, the DOE funds will be obligated no later than September 30, 2010, and be available for reimbursement of costs until September 30, 2015. NEPA analyses will continue during Phase 2. Recipients will not be authorized to begin detailed design and site specific project work until DOE has fulfilled its NEPA obligations. During Phase 2 Recipients will be required to provide additional project and environmental information to DOE.

B. OBJECTIVES

1) Large-scale industrial CCS projects from industrial sources:

The purpose of this CCS Announcement is to expedite and carry out large-scale testing of CO_2 sequestration systems in a range of geologic formations, including the expansion of CO_2 EOR to new settings, while providing information on the cost and feasibility of deployment of sequestration technologies. Projects may include plant efficiency improvements for integration with CO_2 capture technology. A greater weight will be given to those projects that capture and sequester at least 75% of the CO_2 from the treated stream comprising at least 10% CO_2 by volume that would otherwise be emitted to the atmosphere.

This CCS Announcement is seeking projects with technologies that have progressed beyond the research and development stage to a point of readiness for operation at a scale that, once operated, can be readily replicated and

deployed into commercial practice within the industry.

The industrial technologies may produce heat, fuels, chemicals, hydrogen or other useful products with or without production of electricity. The industrial sources include, but are not limited to, cement plants, chemical plants, refineries, steel and aluminum plants, manufacturing facilities, and power plants using opportunity fuels (petroleum coke, municipal waste, etc.). Plants with electric power output greater than 50% of total energy output and that operate on more than 55% coal as a feedstock are ineligible. The large-scale CCS projects include integration of CO_2 capture, transportation and sequestration incorporating comprehensive MVA. Proposed CO_2 capture technologies must be integrated within existing or new industrial facilities. Project activities, including carbon dioxide capture, transport, sequestration, and MVA, must be conducted in the United States. Projects must be at a sufficient scale to show the potential for market penetration upon successful demonstration of the technology. Prospective projects must also be integrated with commercial plant operation. DOE is also interested in operating leading-edge technologies not currently deployed in the utility marketplace or CO_2 injection industry, as opposed to new applications of commercial technologies or incremental improvements of commercial technologies or previously demonstrated technologies.

2) Innovative concepts for beneficial CO_2 use:

The objective is to demonstrate innovative concepts for beneficial CO_2 use, which include, but are not limited to, CO_2 mineralization to carbonates directly through conversion of CO_2 in flue gas; use of CO_2 to grow algae/biomass; or, conversion of the CO_2 to fuels and chemicals. The carbonates produced from the mineralization processes must have the ability to result in permanent storage of the CO_2 through end uses such as cement additives or long term underground storage.

The purpose of the beneficial CO_2 use part of this announcement is to carry out testing of CO_2 use technologies and processes such as (but not limited to) those stated above that will provide information on the cost and feasibility of implementation and operation. Projects sought are those that have progressed beyond the research and development stage and are ready for implementation at the pilot-scale level to evaluate or demonstrate feasibility of operations at commercial-scale.

C. TECHNOLOGY AREAS

Technology Area 1 - Large-scale industrial CCS projects from industrial sources

CO_2 Capture and Sequestration

Fossil fuels provide over 80% of world energy today. For the near future, fossil fuels will continue to be a significant fuel in the industry. Processes to convert energy into useful forms entail various types of emissions and potential impacts on the environment. Likely increases in fossil fuel use in the coming decades will result in significant increases in CO_2 emissions, with the potential for changes in the global climate. To address this issue, applications are sought that focus on the capture and storage of CO_2 and other greenhouse gases that would otherwise be emitted to the atmosphere. The priority for this Announcement is to capture a stream of CO_2 from large, stationary emission point sources and sequester this CO_2 into underground geologic formations including oil bearing formations.

1. CO_2 Capture. The purpose of CO_2 capture is to produce a concentrated stream that can be readily transported to a CO_2 storage site. CO_2 capture and storage is most applicable to large, centralized sources, such as, cement plants, chemical plants, refineries, steel and aluminum plants, manufacturing facilities, and power plants using opportunity fuels (petroleum coke, municipal waste, etc.). The energy required to operate CO_2 capture systems reduces the overall efficiency of a plant relative to a plant without CCS, thus resulting in increased fuel requirements and solid wastes and reduced power output. Minimization of energy requirements for capture, together with improvements in the efficiency of plant operating processes, will continue to be high priorities for future technology development to minimize overall environmental impacts and cost of CCS implementation.

2. CO_2 Sequestration. Simply capturing the CO_2 is not enough; once it is captured, it must be safely stored or sequestered in such a way that it will not contribute to atmospheric CO_2. Applicants with enhanced oil recovery projects are encouraged to seek out and partner with entities that can provide a source of CO_2 (industrial sources

only) in addition to entities that can provide CO_2 transportation.

Regional and site characterization is necessary to determine which geologic formations are potentially suitable for long-term storage. Reservoir simulations are used to predict injectivity and storage capacity (based on available data concerning porosity and permeability.).

For large-scale industrial CCS projects, potential sequestration options include saline formation, enhanced oil recovery (EOR), unmineable coal seams, basalt formations, or stacked storage.

2.1. EOR. EOR involves the placement of the CO_2 into formations of porous rock that hold crude oil. The oil industry has demonstrated that injecting CO_2 can enable one to economically pump additional oil left behind by primary recovery and water flooding; thus, part of the costs of sequestering the CO_2 can be offset by the amount of oil produced. Because such strata retained the oil over geological time, it is known to have an impermeable cap rock that will prevent the CO_2 from migrating upwards. Some of the CO_2 ends up being pumped to the surface along with the oil and must be separated and re-injected. Challenges that are being researched include the fact that established oil and gas fields have been extensively drilled. These old wells are potential leakage pathways, since they were not likely sealed to today's high standards when they were abandoned. In addition, depending on the age of the oil field, there may be unmapped or poorly mapped abandoned wells; NETL has recently developed remote sensing and geophysical techniques to locate such abandoned wells. Applicants who intend to use EOR as the storage technique should identify how their approach will be different from conventional EOR in terms of increased long-term retention of the CO_2 and are encouraged to demonstrate advanced EOR as a commercial method for increasing both oil recovery and the quantity of CO_2 sequestered.

2.2. Saline Formations. Placing CO_2 in saline formations (or brine fields) is similar to EOR except that there is no expectation that oil will be produced as a result of the CO_2 injection. Saline ground water exists at depth beneath much of the United States. Abandoned wells are less of an issue than in old oil fields, though old exploration wells may be present. However, the integrity of the cap rock can be a major concern, since the saline water is not buoyant like oil and natural gas. The permeability and porosity of the reservoir formation must be sufficiently high to allow injection but the cap rock strata must be almost impermeable to prevent the CO_2 from escaping. Research conducted at NETL has so far not indicated any problems involving chemical reactions between the brine and the CO_2 but that does not mean that problems might not develop with unusual brine chemistry. Of perhaps greater concern are possible interactions between the cap rock and carbonic acid that forms when the CO_2 dissolves in the ground water. For example, if a fault exists that contains carbonaceous cement, rendering it impermeable, cement dissolution would create a leakage pathway. Applicants selecting this sequestration option should address how potential problems with a selected site will be investigated and addressed. Applicants should address how the proposed demonstration will advance the viability of injection into saline formations as a commercial method for CO_2 sequestration.

2.3. Unmineable Coal Seams. Another major option for geological sequestration of CO_2 is injection into deep underground coal seams. CO_2 adsorbs onto coal. It is important that the coal seam be one that cannot be economically mined, even in the future, which generally limits injection to deeper coal beds; the enhanced pressures should also help limit CO_2 desorption. Coal preferentially adsorbs CO_2 rather than methane, so injection of CO_2 can actually increase production of coal bed methane, potentially offsetting some of the costs of the injection. However, the coal swells as it adsorbs CO_2, which decreases permeability. Depending on the nature of the coal and its permeability, CO_2 injectivity may be limited by such swelling. As the permeability decreases, the CO_2 may move out of the coal seam into other strata that will not adsorb it; if this happens, the likelihood that it will remain isolated from the atmosphere decreases significantly. Applicants selecting this sequestration option should address how potential problems with a selected site will be investigated and addressed and whether the strata above the coal seam can prevent leakage to the atmosphere if the CO_2 escapes. Applicants should also address how the proposed demonstration will advance the viability of injection into coal seams as a commercial method for CO_2 sequestration.

2.4. Basalt Formations. Basalt formations are solidified lava and have a unique chemical makeup that, in theory, could potentially convert injected CO_2 into mineral matter, thus isolating it from the atmosphere permanently. Research is being conducted on possible ways to facilitate such a reaction, but Applicants selecting this option would have to present data demonstrating that they have found a way to overcome the kinetic barriers, in addition to addressing how they plan to inject large volumes of CO_2 into a basalt formation.

2.5 Stacked Storage. Stacked storage involves placement of CO_2 in multiple strata at various depths at a single site, using one or more of the options discussed in 2.1 to 2.4 above. Applicants proposing such an approach should address the relevant issues already discussed in those paragraphs, and should, in addition, address how the injection will be handled and what will be done to differentiate potential leakage from the various strata.

Monitoring, Verification, and Accounting

The monitoring, verification, and accounting (MVA) is aimed at providing an accurate accounting of stored CO_2 and a high level of confidence that the CO_2 will remain sequestered permanently in geologic formations. Successful MVA involves application of innovative, advanced technologies and protocols for MVA of CO_2 sequestration in geologic formations, namely, monitor the movement of CO_2 into, through, and out of the targeted geologic storage area, verify the location of CO_2 that has been placed in geologic storage, and account for the entire quantity of CO_2 that has been transported to geologic storage sites. A successful MVA effort will enable storage project developers to ensure human health and safety, and prevent damage to the host ecosystem. The goal is to provide sufficient information and safeguards to enable developers to obtain permits for sequestration projects. MVA also seeks to support a system of emissions reduction credits that approach 100% of injected CO_2, thereby contributing to the economic viability of sequestration projects. Finally, MVA will provide improved information and feedback to sequestration project operators, thus accelerating technology progress.

Technology Area 2 - Innovative concepts for beneficial CO_2 use

For the beneficial CO_2 use part of this Funding Opportunity, the DOE seeks Applications to conduct pilot-scale field-testing of technologies for chemical conversion of CO_2 captured from industrial sources, for permanent storage (e.g., mineralization) or processes that have a beneficial use of CO_2 that result in the production of fuels or chemical products. The Applicants shall demonstrate in the technical narrative that laboratory scale research has been completed and the results have been used to perform a detailed systems and economic analysis. Details regarding the proposed end use of CO_2 shall be used to evaluate the technology merit.

Section II - AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

DOE anticipates awarding either Cooperative Agreements or Technology Investment Agreements (TIAs) under this program announcement. (See DOE TIA regulations at 10 CFR Part 603.)

B. ESTIMATED FUNDING

Total DOE funding for Phase 1 and 2 combined is expected to be limited to the amount appropriated, $1,321,765,000 for large-scale industrial CCS projects and $100,000,000 for innovative concepts for beneficial CO_2 use projects, which will be split among all selected Recipients.

C. MAXIMUM AND MINIMUM AWARD SIZE

Phase 1 and Phase 2

Ceiling (i.e., the maximum amount for an individual award made under this Announcement): NONE
However, the maximum DOE share is limited to the funds allocated for this Announcement.

Floor (i.e., the minimum amount for an individual award made under this Announcement): NONE

D. EXPECTED NUMBER OF AWARDS

For Phase 1, DOE anticipates making 10 to 12 awards for large-scale industrial sources projects and 6 to 8 for beneficial use of CO_2 under this Announcement depending on the size of the awards. NETL anticipates that the competitive down select after Phase 1 will result in between 4 and 6 industrial sources projects and 4 to 6 beneficial

use of CO_2 projects continuing for Phase 2 - Design, Construction and Operation.

E. ANTICIPATED AWARD SIZE

The award size for Phase 1 is expected to be in the range of (but not limited to) $500,000 to $3,000,000 (DOE share not to exceed 80%). DOE expects the amount of funding requested for Phase 1 will be commensurate with the proposed Phase 1 scope.

Phase 1 awardees interested in continuing their project into Phase 2 will have the opportunity to submit a Renewal Application no later than five months after award. Renewal Applications are requests for additional funding for a period subsequent to that provided by a current award. Renewal Applications for Phase 2 will be limited to Phase 1 awardees. Detailed information on the Renewal Application requirements and submission procedure has been provided in the Model Cooperative Agreement document attached as a separate file to the Announcement.

The award size for the large scale industrial CCS projects for Phase 2 is expected to be in the range of (but not limited to) $50,000,000 to $400,000,000 (DOE target cost share is 50% but shall not exceed 80%).

The Government reserves the right to fund the proposed Government share, in whole or in part, on any, all, or none of the applications submitted in response to this Announcement and will award that number of financial assistance instruments which serves the public purpose and is in the best interest of the Government.

F. PERIOD OF PERFORMANCE

The period of performance for awards resulting from this Announcement will vary by phase as follows:

Phase 1 will be 7 months initially with Renewal Applications due by the end of the 5^{th} month. Projects that are selected for Phase 2 will receive no more than a 4 month extension to Phase 1 to allow DOE and the Phase 2 Recipient(s) sufficient time to negotiate the full scope and budget for Phase 2. DOE reserves the right to award Phase 2 anytime during this 4 month period. Projects that are not selected for Phase 2 will end at 7 months.

The period of performance for Phase 2 should not exceed 60 months for large-scale industrial source projects and 36 months for beneficial CO_2 use projects.

The overall period of performance (including Phase 1 and Phase 2) should not exceed 72 months for large-scale industrial source projects and 48 months for beneficial CO_2 use projects. Federal funds under this FOA will be available for reimbursement of costs until September 30, 2015.

G. TYPE OF APPLICATION

DOE will accept only new applications under this Announcement.

Section III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS

All types of entities are eligible to apply, except other Federal agencies, Federally Funded Research and Development Center (FFRDC) Contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.

B. COST SHARING

In accordance with the Energy Independence and Security Act of 2007, P.L. 110-140, section 703(a)(5), the cost share must be at least 20% of the total allowable costs of the project (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 costs of the project) and must come from non-Federal sources unless otherwise allowed by law. (See 10 CFR Part

600 for the applicable cost sharing requirements.) However, DOE's target for recipient cost share for commercial-scale demonstration projects is 50% of the total allowable costs of the project.

Applicants shall share at least 20% of the total project costs and at least 20% during each budget period and each Subphase of the project. All costs will be shared between DOE and the recipient on an "as expended", dollar-for-dollar basis. In order to be recognized as allowable cost sharing, a cost must be otherwise allowable in accordance with the applicable Federal cost principles and DOE Regulations (10 CFR 600.123, 224, and 313) governing cost sharing. Cost sharing may be in various forms or combinations, which includes but is not limited to cash outlays and in-kind contributions. All allowable project costs, whether cash or in-kind, shall be shared by DOE when such costs are incurred by applying the share ratios set forth in the Cooperative Agreement or TIA. The value of in-kind contributions not requiring cash outlays (i.e., existing assets) shall be prorated over the life of the project, beginning when the in-kind contribution is initially required for performance of the Cooperative Agreement or TIA.

For large-scale industrial source Phase 2 projects, DOE funds would be applicable to the project cost for CCS activities and also be applicable to plant efficiency improvements for integration with CO_2 capture technologies. Nonetheless, the Project scope shall be those activities specified in the Statement of Project Objectives related to the fully integrated plant or facility, coupled with CCS.

> Example 1: If an Applicant proposes to cost share 50% of a greenfield plant that would cost $1 billion without CCS and $1.3 billion with CCS, DOE's maximum contribution to the project is $150 million, or 50% of the costs associated with the CCS portion of the project.
>
> Example 2: If an Applicant proposes to cost share 20% on a project to retrofit CCS to an existing facility with a state-of-the-art CO_2 scrubber system at a cost of $400 million, DOE's maximum contribution to the project is $320 million, or 80% of the total project costs.

Cost Overruns. The Government is under no obligation to share any cost overruns (i.e., costs incurred during the Project that are more than those estimated at the date of award). DOE does not plan to set-aside funds for overruns. If funds are available in the future for supporting overruns, the Government may share in overruns at the sole discretion of the Government. In each case, the Government's share of overruns will not exceed the Government's percentage cost share for the overall project and then only up to 25 percent of the original Government contribution as specified in the initial Cooperative Agreement.

C. OTHER ELIGIBILITY REQUIREMENTS

1. Under Technology Area 1, facilities with electric power output greater than 50% of total energy output and that operate on more than 55% coal as a feedstock are not eligible.

2. Federally Funded Research and Development Center (FFRDC) Contractors. FFRDC contractors may be proposed as a team member on an eligible entity's application subject to the following guidelines:

Authorization for non-DOE 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 application. 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 FFRDCs. The cognizant contracting officer for the FFRDC must authorize in writing the use of a DOE FFRDC contractor on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization.

"Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complimentary to the missions of the laboratory, will not adversely impact execution of the DOE 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 will fund a DOE FFRDC contractor through the DOE field work proposal system and other FFRDC contractors through an interagency agreement with the sponsoring agency.

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

FFRDC Contractor Effort. The FFRDC contractor effort, in aggregate, shall not exceed 25% of the total estimated cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

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

D. OTHER MANDATORY ELIGIBILITY REQUIREMENTS

Applications that fail to meet one or more of these mandatory requirements will be rejected at the initial review stages for each Phase. In the event that an application is so rejected, a notice will be sent to the Applicant stating the reason(s) that the application will not be considered for an award. Applications passing the initial review shall be subject to a comprehensive merit evaluation in each phase.

- The project must be conducted in the United States.
- The applicant must provide an application demonstrating a cost share of at least 20% of the total allowable project cost and of each budget period and each Subphase within the project.
- The applicant must identify the project site.
- The application must be submitted by a responsible official of the applying organization authorized to contractually bind the organization to performance of the Cooperative Agreement or TIA in its entirety.
- The applicant must agree that it will not seek to hold the U.S. Government liable, or seek contribution from the U.S. Government, for environmental liabilities and third parties liabilities arising from design, construction, or operation of the Facility or from any activity performed as part of the Project except to the extent that such liabilities are expressly allowable under the applicable cost principles and then, only to the extent of funds obligated by the Government to the cooperative agreement or TIA.

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 the Fedconnect portal. **DO NOT use the Save & Submit selection in 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 FORM OF APPLICATION

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

Complete this form first to populate data in other forms. Complete all required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 21 can be found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm under Certifications and Assurances.

NOTE: For the purposes of completing Block 18, Estimated Funding, the Applicant shall include only Phase 1 project costs (DOE share and Cost share).

2. Project/Performance Site Location(s)

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

Note that the Project/Performance Site Congressional District is entered in the format of the 2 digit state code followed by a dash and a 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.

3. Other Attachments Form

PHASE 1 Application

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

Project Narrative File -Mandatory Other Attachment
The Phase 1 project narrative must not exceed 30 pages, single 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). EVALUATORS WILL REVIEW ONLY THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE. The font must not be smaller than Arial 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application. See Section VIII.D for instructions on how to mark proprietary application information. Save the information in a single file named "Project.pdf," and click on "Add Mandatory Other Attachment" to attach.

The project narrative must address both Phase 1 and Phase 2 activities:

A) General
The Project Narrative consists of a discussion of: Technology Merit, Technical Plan and Site Suitability; Project Organization and Project Management Plan; Commercial Potential; and Funding Plan. Additional information including resumes, letters of commitment, financial statements, project management plan, and additional pertinent publications shall be placed in the Appendices. Sections 1 through 7 are submitted as the Project Narrative File, named Project.pdf. Appendices A through E are each submitted separately as separate files.

Information contained in the appendices shall not count toward the 30 page limit. No material may be incorporated in any application by reference as a means to circumvent the page limitation. Illustrations shall be legible with all text in legible font. Pages shall be sequentially numbered.

B) Project Narrative Format

The applicant shall include a Project Narrative in the format specified below to facilitate the review process and to ensure the applicant addresses all the technical review criteria. This format relates to the technical evaluation criteria, Section V.A.2. Applicants shall follow the outline shown below, but additional sub-headings may be included as desired.

C) Project Narrative Content The Project Narrative shall consist of the following information. In order to produce a comprehensive application for this Announcement, the applicant is required to address, at a minimum, the areas listed below. The applicant shall submit the information described in each section.

1. CONTENTS AND DEFINITIONS.
Information in this section is self explanatory.
Table of Contents
List of Tables
List of Figures
List of Abbreviations with Definitions
Definitions

2. SUMMARY AND INTRODUCTION

Provide a brief introduction to the project, including a description of the technology and an overview of the ownership and financing structure. The Applicants shall clearly identify the technology area under which the application is being submitted: Technology Area 1. Large-scale industrial CCS projects from industrial sources or Technology Area 2. Innovative concepts for beneficial CO_2 use. Briefly introduce the main parties to the project, and provide the current status of the project. Provide a summary regarding how the project meets the eligibility requirements listed in Section III.D, Other Mandatory Eligibility Requirements, including a statement to address the Mandatory Eligibility Requirement regarding liability.

3 TECHNOLOGY MERIT, TECHNICAL PLAN AND SITE SUITABILITY:

Provide a description supporting the merit of the proposed technology and technical plan, and suitability of the proposed site, including the following information.

Applicable to both large scale industrial sources and beneficial CO_2 use applications:

- A conceptual description of the project, including process flow diagrams, equipment descriptions, and the technical plan for achieving the objectives proposed for the project;
- Information and data that demonstrate the project's technical and economic merit and ability of the proposed technology to achieve the objectives of the Announcement;
- Information and data that illustrate the advancements and proposed advantages of the proposed technology relative to commercial technologies or previously demonstrated technology;
- Scientific, engineering, and technical information and data that support the readiness of the proposed technology for operation at the scale proposed;
- Discussion including evidence regarding the availability of the proposed site and alternatives; Evidence of site availability may include ownership of the site, signed option to purchase the site from the site owner, letter of intent by the site owner to sell the site to the Applicant or provide the Applicant access to the site for the project (Include supporting documents in Appendix A);
- A complete project schedule including construction and operation.

Applicable to large-scale industrial sources applications only:

- Discussion of the commercial viability of the proposed technology. Discussion of the degree to which the project makes progress toward capture of 75% of the CO_2 from the treated stream comprising at least 10% CO_2 by volume that would otherwise be emitted and adequacy of the proposed project scale for demonstrating the impact of CCS on plant operations (staffing, auxiliary systems integration, space), economics (capital investment and operating costs), and performance (power and steam requirements); The CO_2 capture, sequestration, and emission values shall be reported on metric tons per hour and metric tons per year basis under normal operating conditions. The CO_2 capture and sequestration percentages shall be calculated based on the total carbon dioxide, present in the treated stream, including low-concentration (10% to 50% by volume) CO_2 gas streams which would otherwise be released into the atmosphere as industrial emission of greenhouse gas. The following shall be provided: chemical composition and flow rate (tons per hour) of the captured CO_2 stream, plant operating efficiency with and without CCS, and tons of CO_2 sequestered per dollar of CCS capital cost and per dollar of CCS operating cost (on an annual basis);
- Descriptions of the proposed site (both surface facilities and sequestration sites) and any alternatives. Descriptions of the infrastructure available at each site demonstrating that the proposed site(s) can meet the needs of the proposed technology operation, including but not limited to, availability of power and steam, fuel supply, water supply, pipelines, carbon dioxide transportation, and transmission interconnect. Descriptions of the environmental setting and nearby environmental conditions, demonstrating the proposed site can fully meet all environmental health, safety, socioeconomic, and public policy requirements. Discussion of the process and analysis used by the applicant to select the site(s);
- Discussion of the Applicant's approach to sequestration of carbon dioxide. Information supporting coordination with a supplier or purchaser or user of carbon dioxide, coordination with a large-scale sequestration test, or other method demonstrating the project's capability to sequester carbon dioxide; Identification of technical issues with the approach that must be resolved to confirm the approach as a viable option for widespread sequestration, and the approach to resolving these issues; For the sequestration site(s), provide detailed information on the characteristics of the geological formations, and ability and capacity of the geologic formations to adequately sequester the carbon dioxide. For information not available, the approach to obtaining necessary information; Plans and description of monitoring, verification, and accounting for the CO_2 sequestration site;
- Discussion of the proposed project's ability to capture and sequester one million (or greater) tons per year of carbon dioxide as an integral component of commercial operation.

Applicable to beneficial CO_2 use applications only:

- A description of the degree to which the proposed work makes progress on the technology or process concepts, thereby increasing the likelihood of successful scale-up;
- A comprehensive discussion that supports the Applicant's approach to the pilot-scale test design and evaluation metrics. Identification of technical issues with the approach that must be resolved to confirm the technical viability of the approach, and the approach to resolving these issues;

- Discussion of the technical and process risks associated with the proposed technology or process.
- Discussion of the performance metrics of the proposed technology in terms of, but not limited to, rate of CO_2 conversion to product(s) (per hour and/or per year), tons of CO_2 converted per net operational cost (net operational cost = conversion operational cost – estimate/expected revenues from conversion product), and tons of CO_2 converted per dollar of capital cost;
- Descriptions of the proposed site and any alternatives. Descriptions of the infrastructure available at each site demonstrating that the proposed site(s) can meet the needs of the proposed pilot test operation, Descriptions of the environmental setting and nearby environmental conditions, demonstrating the proposed site can fully meet all environmental health, safety, socioeconomic, and public policy requirements. Discussion of the process and analysis used by the Applicant in their site(s) selection;
- Description of the laboratory scale research that has been completed and the results that have been used to perform systems and economic analysis.

4. PROJECT ORGANIZATION AND PROJECT MANAGEMENT PLAN:

Provide a discussion that supports the Applicant's organizational and management capabilities to successfully implement the project plan and achieve the objectives of the Announcement, including the following information:

Applicable to both large-scale industrial sources and beneficial CO_2 use applications:

- Information to support that the Applicant has assembled a Project Team with the skills and resources needed to implement the project. Identify the skills and resources provided by and available to the proposed Project Team necessary for implementing the proposed project and achieving the objectives of the Announcement;
- Descriptions of knowledge, experience, adequacy, and degree of involvement of proposed key personnel. Include resumes in the Resume File titled "bio.pdf" described in Section IV.C. Content and Form of Application;
- Proposed organizational structure with respect to responsibilities and authorities among elements of the project team;
- A brief Project Management Plan for implementing the proposed project and achieving the objectives of the Announcement. The Project Management Plan establishes the baseline for the scope, schedule, and budget for the project. The Project Management Plan should be provided as Appendix C; A detailed description of work to be performed under each task in Phase 1, known as a Statement of Project Objectives (for format see model cooperative agreement, which is a separate attachment to this Announcement); A brief scope and summary budget is required for the Phase 2 effort.
- Relevant prior or current corporate background and experience of the applicant, Engineering Procurement and Construction (EPC) contractor, and suppliers of major subsystems or equipment, and other important team members which supports the capabilities of the applicant and its team members to design, construct, permit, and operate the facility. The applicant should demonstrate that the team members have a corporate history of successful completion of similar projects.

Applicable to large-scale industrial sources applications only:

- Commitment of the supplier, purchaser, or user of captured carbon dioxide.

Applicable to beneficial CO_2 use applications only:

- Commitment of the purchaser or user of fuel or chemical produced from the CO_2 use technology with a description of the market size and demand for the product.

5. COMMERCIAL POTENTIAL:

Applicable to large-scale industrial sources applications only:

- Provide a Commercial Assessment that includes:
    - economic assessments of proposed technology and competing technologies, including sequestration options;
    - applicability or retrofittability of the proposed technology.
- Provide a narrative addressing the applicability and economic viability of the CCS technology to be applied

to a wide range of geologic formations in different regions throughout the U.S., including the startup of new enhanced oil recovery projects;

Applicable to beneficial CO_2 use applications only:

- Include a discussion on the merit of the proposed project for demonstrating the potential commercial viability of the proposed technology or process including a discussion of the economics of the technology proposed
- Provide an explanation of the potential market segment within the target industry that could adopt their technology or process.

6. FUNDING PLAN:

At the time of application submission, the applicant must have a plan to obtain the funding for the entire non-DOE share of the total project cost.

The Applicant shall provide sufficient evidence to demonstrate the applicant's financial capability to fund, or obtain funding, for the non-DOE share of the proposed project costs. The applicant shall include a full description of any liabilities, limitations, conditions or other factors which could affect the availability of applicant's funding. If Third Party (i.e., not from the applicant or its parent organization) financing will be a source of project funds, the applicant shall discuss the terms and conditions of such financing. If the application is based on funds from third party sources, such as banks or the capital markets, the timing and conditionality of any such funding shall be clearly described.

For Phase 1, the funding plan must demonstrate funds necessary for the Phase will be committed at the time of Phase 1 award.

Financial Statements. The applicant must provide current financial statements for all business quarters reported on in the current fiscal year, along with audited financial statements for the most recent three fiscal years. Any non-DOE source of financing (e.g., team member, subrecipient or third party) that will commit to funding some portion of the applicant's share of the project costs must also provide audited financial statements as indicated above. If the applicant or another party does not have audited financial statements, the applicant or the party should provide equivalent financial statements prepared by the applicant or the party, in accordance with Generally Accepted Accounting Principles, and certified as to accuracy and completeness by the Chief Financial Officer of the party providing the statements. Financial statements should be provided in Appendix D. If in-kind contributions are to be provided to the project, then the applicant must explain their valuation.

7. APPENDICES TO PROJECT NARRATIVE (each submitted as a separate file under Add Optional Other Attachment on the Other Attachments Form):

APPENDIX A: SITE DOCUMENTATION
File name: site.pdf

Provide documents supporting evidence of site availability, such as ownership of the site, signed option to purchase the site from the site owner, letter of intent by the site owner to sell the site to the Applicant or provide the Applicant access to the site for the project. Provide any site maps, plot plans, site photographs, etc. necessary to support claims. Save the information in a single file named "Site.pdf" and click on "Add Optional Other Attachment" to attach.

APPENDIX B: TEAM LETTERS OF COMMITMENT AND AGREEMENTS
File name: Team.pdf

Provide signed agreements or letters from team members demonstrating that the proposed team members are fully committed to the project. Save the information in a single file named "Team.pdf" and click on "Add Optional Other Attachment" to attach.

APPENDIX C: PROJECT MANAGEMENT PLAN
File name: pmp.pdf

Provide a Project Management Plan including the following information: a Statement of Project Objectives (SOPO)* giving a description of work to be performed under each task; a Project Schedule for the entire project (Phase 1 and 2); a Baseline Cost Plan identifying the planned cost for each task on a monthly basis for Phase 1; a description of the project management system for monitoring and controlling scope, schedule, and cost; a Project Communication Protocol to establish the frequency and type of communication between the Recipient and DOE. A brief scope and summary budget is required for Phase 2 effort. However, the details of the Phase 2 effort must be provided as required in the Renewal Application instructions. Save the information in a single file named "pmp.pdf" and click on "Add Optional Other Attachment" to attach.
*The format for the SOPO is contained within the Model Cooperative Agreement.

APPENDIX D: FINANCIAL STATEMENTS (Phase 1 only)
File name: fin_statement.pdf

Provide financial statements for the applicant and for any team member, subrecipient, third party, etc. that will commit to funding some portion of the applicant's share of the Phase 1 project costs. Save the information in a single file named "fin_statement.pdf" and click on "Add Optional Other Attachment" to attach.

APPENDIX E: FINANCIAL COMMITMENT LETTERS (Phase 1 only)
File name: fin_commitment.pdf

Provide financial commitment letters from the applicant and third parties, including commitments or expressions of interest from funding sources for limited recourse project financing for Phase 1. Save the information in a single file named "fin_commitment.pdf" and click on "Add Optional Other Attachment" to attach.

Cover Letter File
The cover letter must be from the Recipient and must identify the Funding Opportunity Announcement number (*DE-FOA-0000015*), FOA title (*Carbon Capture and Sequestration from Industrial Sources and Innovative Concepts for Beneficial CO_2 Use*), and Technology Area (*Technology Area 1: Large-scale Industrial CCS Projects from Industrial Sources OR Technology Area 2: Innovative Concepts for Beneficial CO_2 Use*) in response to which the Application is being submitted. The letter must be signed by a responsible official of the Applicant's organization authorized to contractually bind the organization to the performance of the Cooperative Agreement or TIA in its entirety. Save this information in a file named "Letter.pdf," and click on "Add Optional Other Attachment" to attach.

Project Summary/Abstract File

The project summary/abstract must contain a summary of the proposed CCS/CO_2 use activity (Phase 1 and 2) 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), technology area under which the application is being submitted (Technology Area 1: Large-scale industrial CCS projects from industrial sources OR Technology Area 2: Innovative concepts for beneficial CO_2 use), 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 one (1) page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right) single spaced with font no smaller than 11 point. Save this information in a file named "Summary.pdf," and click on "Add Optional Other Attachment" to attach.

Resume File

Provide a resume for each key person proposed, including subawardees and consultants if they meet the definition of key person. A key person is any individual who contributes in a substantive, measurable way to the execution of the project. The biographical information for each resume must not exceed 2 pages when printed on 8.5" by 11" paper

with 1 inch margins (top, bottom, left, and right) single spaced with font no smaller than 11 point and should include the following information, if applicable:

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

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

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

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

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

Save all resumes in a single file named "bio.pdf" and click on "Add Optional Other Attachment" to attach.

SF 424 A Excel, Budget Information - Non-Construction Programs File (for Phase 1 only)

You must provide a budget for Phase 1. Use the SF 424 A Excel, "Budget Information - Non Construction Programs" form on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm.

You may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this Announcement (See Section IV, G). Save the information in a single file named "SF424A.xls," and click on "Add Optional Other Attachment" to attach.

Budget Justification File (for Phase 1 only)

Budget justification information consists of Cost Detail information and associated Narrative Explanations. Save the budget justification information, including both Cost Detail and Narrative Explanations, in a single file named "Budget.pdf," and click on "Add Optional Other Attachment" to attach. A sample format for providing this Cost Detail information is available as a separate attachment to this announcement. See Budget Justification Guideline.xls. Cost detail shall be submitted as indicated by the instructions on the Budget Justification Guideline form and as described below. The applicant shall provide a detailed budget for Phase 1. The proposed budget must include all costs (both DOE funded as well as non-DOE funded costs, i.e., cost sharing). Narrative Explanations of budget items should be provided to supplement the Cost Detail Requirements described below. There is no specific format for the Narrative Explanations.

Cost Detail Requirements

The following cost detail is required for the proposed cost elements. Failure to provide the detailed cost information as described in the instructions will result in an incomplete application. A 20% minimum cost share is required by this Announcement, therefore, the applicant shall stipulate in the application the source and amount of cost sharing and the value of third party in-kind contributions proposed to meet the requirement. Additionally, teaming members and subrecipients are also required to submit the information described below with their budgets using separate Budget Justification Guideline forms including Narrative Explanations.

ARRA 2009 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.

Personnel (Direct Labor) -- In support of the proposed personnel costs, provide a schedule that identifies the labor hours, labor rates, and cost by labor classification for Phase 1. Also indicate the basis of the labor classification, number of hours, and labor rates. An example of the basis for the labor classification and number of hours could be past experience, engineering estimate, etc. An example of the basis for the labor rates could be actual rates for the individuals who will perform the work or an average labor rate for the labor classification or a departmental average rate.

Fringe Rate -- Provide the method used to calculate the proposed rate amount. If a fringe benefit rate has been negotiated with, or approved by, a Federal Government agency, provide a copy of the agreement. If no rate agreement exists, provide a detailed list of the fringe benefit expenses (e.g., payroll taxes, insurances, holiday and vacation pay, bonuses) and their associated costs. Identify the base for allocating these fringe benefit expenses.

Travel -- For each proposed trip, provide the purpose, number of travelers, travel origin and destination, number of days, and a breakdown of estimated costs for airfare, lodging, meals, car rental, and incidentals. The basis for the airfare, lodging, meals, car rental, and incidentals must be provided, such as past trips, current quotations, current version of the Federal Travel regulations, etc.

Equipment -- Provide an itemized list of each piece of equipment, its unit cost, and the basis for estimating the cost, for example, vendor quotes, catalog prices, prior invoices, etc.

Supplies -- Provide an itemized list of supplies that have an acquisition cost greater than $5,000, identify the quantity of each item, its unit cost, and the basis for estimating the cost, for example, vendor quotes, catalog prices, prior invoices, etc.

Subrecipients (Subawardees) -- Identify EACH planned subrecipient and its total proposed costs. Each **subrecipient** must provide an SF424, Application for Federal Assistance, an SF 424A, Budget Information, Cost Detail including Narrative Explanations as part of the **applicant's** submittal. (See Subaward Budget Files below.) In addition, the applicant shall provide the following information for EACH planned subaward: a brief description of the work to be subcontracted; the number of quotes solicited and received; the cost or price analysis performed by the applicant; names and addresses of the subrecipients tentatively selected and the basis for their selection (i.e., competitively selected - low bidder from 2 or more comparable (apples to apples) subcontract quotes; delivery schedule, or technical competence); type of subaward and estimated cost and fee or profit; and affiliation with the applicant, if any.

Each recipient and subrecipient must comply with the standards prescribed in 10 CFR 600.144(e), 226(a) or 331(c)(3), as applicable, to provide access to their supporting cost records and financial statements when required.

Consultants -- Provide the hourly or daily rate along with the basis for the rate. Furnish resumes or similar information regarding qualifications or experience. Provide at least two invoices reflecting hourly or daily rates charged to customers other than the Government. A statement signed by the consultant certifying his or her availability and salary must be provided. If travel or incidental expenses are to be charged, give the basis for these costs.

Other Direct Costs -- Provide an itemized list with costs for any other item proposed as a direct cost and state the basis for each proposed item.

Indirect Costs -- 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. If indirect rates have been negotiated with or approved by a Federal Government agency, please provide a copy of the latest rate agreement. If you do not have a current rate agreement, submit an indirect cost rate application which includes the major base and pool expense groupings by line item and dollar amount. In either case, provide a breakdown of the proposed indirect costs for each of your accounting periods included in the application. Identify the rate and allocation base for each indirect cost, such as Overhead, General and Administrative, Facilities Capital Cost of Money, etc.

Cost Sharing -- Identify the percentage level and source of cost sharing for the proposed project. Additionally, the impact of DOE's cost share to the viability of the project must be addressed, to include justification for the need for Federal Funds.

NOTE: The total project cost (i.e., sum of applicant and other participants plus DOE cost shares) must be reflected in each budget form.

A detailed estimate of the cash value including its basis and nature, (e.g., equipment, labor, facilities, cash, etc.), of all contributions to the project by each participant must be provided. Note that "cost-sharing" is not limited to cash investment. In-kind contributions (e.g., contribution of services or property; donated equipment, buildings, or land; donated supplies; or unrecovered indirect costs) incurred as part of the project may be considered as all or part of the cost share. The "cost-sharing" definition is contained in 10 CFR 600.30, 600.101, 600.123, 600.202, 600.224, 600.302, and 600.313.

Fee or profit will not be paid to the recipients of financial assistance awards. Fee or profit paid to any member of the proposing team having a substantial and direct interest in the commercialization of the demonstration technology is unallowable. Additionally, foregone fee or profit by the applicant shall not be considered cost sharing under any resulting award. Reimbursement of actual costs will only include those costs that are allowable and allocable to the project as determined by DOE, with reliance on the advice of DCAA, in accordance with the applicable cost principles prescribed in 10 CFR 600.127, 600.222, 600.317 or 10 CFR 600.318.

Royalty Information:

(a) **Cost or Charges for Royalties --** When the response to this Announcement contains costs or charges for royalties totaling more than $250, the following information shall be included in the response relating to each separate item of a royalty or license fee:

(1) Name and address of licensor.

(2) Date of license agreement.

(3) Patent numbers, patent application serial numbers, or other basis on which the royalty is payable.

(4) Brief description, including any part or model numbers of each cooperative agreement or TIA item or component on which the royalty is payable.

(5) Percentage or dollar rate of royalty per unit.

(6) Unit price of cooperative agreement or TIA item.

(7) Number of units.

(8) Total dollar amount of royalties.

(b) **Copies of Current Licenses --** In addition, if specifically requested by the Contracting Officer before execution of the cooperative agreement or TIA, the applicant shall furnish a copy of the current license agreement and an identification of applicable claims of specific patents.

Subaward Budget File(s) (For Phase 1 only)

You must provide a separate budget for each subawardee that is expected to perform Phase 1 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. These forms are found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm. 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), and click on "Add Optional Other Attachment" to attach.

Note that teaming members and subawardees are required to submit a detailed cost narrative as part of the Budget Justification Guidelines (Budget.pdf).

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

If a DOE FFRDC contractor is to perform a portion of the Phase 1 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), and click on "Add Optional Other Attachment" to attach.

Other

Environmental Questionnaire(s) (Phase 1 and Phase 2)
You must submit a separate Environmental Questionnaire for EACH location/site where work will be performed. The Environmental Questionnaire can be found at the following website: http://www.netl.doe.gov/business/forms/451_1-1-3.doc, or as a separate attachment to this Announcement. Save all completed, signed questionnaires as one integrated PDF document named ENVQUES.pdf and click on "Add Optional Other Attachment" to attach.

Financial Management System
In order to qualify for a financial assistance award or TIA, the applicant must demonstrate a financial management system that satisfies 10 CFR 600.121 or 10 CFR 600.311, Standards for Financial Management Systems, or, in the case where a TIA is requested, 10 CFR 603.615 or 10 CFR 603.620. The Applicant shall describe how its system meets the criteria outlined in the applicable 10 CFR Section.

The major attribute of an acceptable financial management system is an accounting system that can accumulate, record, and report costs by project. Please include a signed letter certifying that you have reviewed and agree to comply with 10 CFR 600.121, 10 CFR 600.311, 10 CFR 603.615, or 10 CFR 603.620. Save the information in a single file named "FIN MGMT.pdf," and click on "Add Optional Other Attachment" to attach.

3. SF-LLL Disclosure of Lobbying Activities

If applicable, complete SF- LLL. Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement/TIA, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying."

Summary of Required Forms/Files

Your application must include the following documents:

Name of Document	Format	File Name
Application for Federal Assistance – SF424	**Form**	**N/A**
Project/Performance Site Location(s)	**Form**	**N/A**
Other Attachments Form (Attach the following files to this form:)	**Form**	**N/A**
Project Narrative File	PDF	Project.pdf

Appendix A: Site Documentation	PDF	Site.pdf
Appendix B: Team Letters of Commitment and Agreements	PDF	Team.pdf
Appendix C: Project Management Plan	PDF	Pmp.pdf
Appendix D: Financial Statements	PDF	Fin_statement.pdf
Appendix E: Financial Commitment Letters	PDF	Fin_commitment.pdf
Cover Letter File	PDF	Letter.pdf
Project Summary/Abstract File	PDF	Summary.pdf
Resume File	PDF	Bio.pdf
SF 424A File - Budget Information for Non-Construction Programs **(Phase 1 only)**	Excel	SF424A.xls
Budget Justification File **(Phase 1 only)**	PDF	Budget.pdf
Subaward Budget File(s) **(Phase 1 only)**	Excel	See Instructions
Budget for FFRDC Contractor	PDF	See Instructions
Environmental Questionnaire **(Phase 1 and Phase 2)**	PDF	Envques.pdf
Financial Management System	PDF	Fin Mgmt.pdf
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 Computer Software, if applicable

E. SUBMISSION DATES AND TIMES

1. Pre-application Due Date

Pre-applications are not required.

2. Application Due Date

Applications should be received by August 7, 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 organization are in FAR Part 31.

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

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

H. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS

1. Where to Submit

APPLICATIONS MUST BE SUBMITTED THROUGH FEDCONNECT TO BE CONSIDERED FOR AWARD. Submit electronic applications through the FedConnect portal. Information regarding how to submit applications via Fed Connect can be found at
https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf
Further, it is the responsibility of the applicant, prior to the offer due date and time, to verify successful transmission.

2. Registration Process

There are several one-time actions you must complete in order to submit an application in response to this Announcement (e.g., obtain a DUNS number, register with the CCR, and register with FedConnect). Applicants who are not registered with CCR and FedConnect should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible.

Section V - APPLICATION REVIEW INFORMATION

PHASE 1 REVIEW

A. CRITERIA

1. Initial Review Criteria

Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant meets all eligibility requirements stipulated in Section III; (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 Announcement.

2. Merit Review Criteria

2.1. Technical Evaluation Criteria

A technical evaluation will determine the responsiveness of the application to the technical requirements of this Announcement and the merits of the application with regard to: (1) the potential for the proposed project, given the proposed technology, technical plans, and site, to achieve the objectives of the Announcement, (2) the degree to which the organizational, management, and operational plans can lead to successful operation of the project, and (3) the potential for future commercial applications of the proposed technology. Applications will be evaluated for their quality and completeness. Applications submitted in response to this Announcement will be evaluated and

numerically scored against the technical evaluation criteria listed below.

Criterion 1: Technology Merit, Technical Plan, and Site Suitability (Weight: Large-Scale Industrial Source 50%; CO_2 use 40%)

Applicable to both large-scale industrial source and CO_2 use applications:

- Soundness, adequacy, and significance of the description of the proposed project's technology and technical plan, overall merit of the proposed technology and technical plan, and ability of the technology and technical plan to achieve project objectives.
- Soundness, adequacy, and significance of the information and data provided to support the ability of the proposed technology to meet the objectives of this Announcement.
- Degree of advancement relative to commercially available or previously demonstrated technology.
- Soundness, adequacy, and significance of the scientific, engineering, and technical information and data provided to support readiness of the proposed technology for operation at the scale proposed.
- Strength of the commitment(s) for use and availability of the host sites and any proposed alternate sites to support the proposed project.
- Reasonableness and appropriateness of the proposed schedule for completion of the project.

Applicable to large-scale industrial sources applications only:

- Adequacy of the proposed project for demonstrating the commercial viability of the proposed technology. Degree to which the project makes progress toward capture of 75% of the CO_2 from the treated stream comprising at least 10% CO_2 by volume that would otherwise be emitted and adequacy of the proposed project scale for demonstrating the impact of CCS on plant operations (staffing, auxiliary systems integration, space), economics (capital investment and operating costs), performance (power and steam requirements, CO_2 capture efficiency), and incremental oil production in the case of an EOR-based sequestration option. Adequacy and merit of chemical composition and flow rate (tons per hour) of the captured CO_2 stream, plant operating efficiency with and without CCS, and tons of CO_2 sequestered per dollar of CCS capital cost and per dollar of CCS operating cost (on an annual basis).
- Quality and adequacy of the proposed site(s) for supporting performance of the proposed project. Ability of the infrastructure at the proposed site to meet the needs of the technology to be operated, including availability of necessary power and steam, accessibility to fuel supply, water supply, pipelines, carbon dioxide transportation, transmission interconnect and other necessary infrastructure requirements. Compatibility of the operation at the proposed site with the conditions of the surrounding environment, and ability to meet any other appropriate public policy requirements.
- Quality and adequacy of the Applicant's approach to sequestration of carbon dioxide with regards to: information supporting coordination with a purchaser or supplier or user of carbon dioxide, coordination with a large-scale sequestration test, or other method demonstrating the project's capability to sequester carbon dioxide; identification of technical issues with the approach that must be resolved to confirm the approach as a viable option for widespread sequestration, and the approach to resolving these issues; information on the sequestration site and geologic formations including oil-bearing reservoirs to support the ability of the approach to adequately sequester carbon dioxide; plans and description of monitoring, verification, accounting for the CO_2 sequestration site.
- Proposed project's ability to capture and sequester one million tons (or greater) per year of carbon dioxide as an integral component of commercial operation.

Applicable to beneficial CO_2 use applications only:

- Degree to which the proposed work makes progress on the technology or process concepts, thereby increasing the likelihood of successful implementation.
- Applicant's approach to the pilot-scale test design and evaluation metrics. Identification of technical issues with the approach that must be resolved to confirm the technical viability of the approach, and the approach to resolving these issues.
- Adequacy of the discussion of the technical and process risks associated with the proposed technology or process.
- Significance of the performance metrics of the proposed technology.
- Quality and adequacy of the proposed site and any alternatives. Adequacy of the description of the

environmental setting and nearby environmental conditions, demonstrating the proposed site can fully meet all environmental health, safety, socioeconomic, and public policy requirements.
- Quality and adequacy of laboratory scale research that has been completed and the results that have been used to perform the detailed systems and economic analysis.

Criterion 2: Project Organization and Project Management Plan (Weight: Large-Scale Industrial Source 30%; CO_2 use 30%)

Applicable to both large-scale industrial sources and beneficial CO_2 use applications:
- Completeness of the proposed Project Team and ability of the proposed team to successfully provide the skills and resources needed to implement the project as proposed. Degree of Project Team member commitment to the project as evidenced by letters of commitment or signed agreements among team members.
- Knowledge, experience, adequacy, and degree of involvement of key personnel for the successful performance of the proposed project.
- Clarity and logic of the proposed organizational structure with respect to responsibilities and authorities among elements of the project team.
- Soundness and completeness of the Project Management Plan for successfully implementing the proposed project and achieving the objectives of the Announcement. Soundness and completeness of the Project Management Plan for establishing the baseline scope, schedule, and cost for the project.
- Adequacy of corporate background and experience to support successful performance, including design, construction, permitting and operation of the proposed project as evidenced by corporate history of successful completion of similar projects.

Applicable to large-scale industrial sources applications only:
- Commitment of the supplier or purchaser or user of captured carbon dioxide.

Applicable to beneficial CO_2 use applications only:
- Commitment of the purchaser or user of fuel or chemical produced from the CO_2 use technology.

Criterion 3: Commercial Potential (Weight: Large-Scale Industrial Source 20%; CO_2 use 30%)

Applicable to large-scale industrial sources applications only:
- Adequacy and completeness of the commercial assessment of the proposed CCS technology. Economic viability of the proposed technology compared with competing technologies, including sequestration options.
- Applicability and economic viability of the CCS technology to be applied to a wide range of geologic formations in different regions throughout the U.S., including the startup of new enhanced oil recovery projects.

Applicable to beneficial CO_2 use applications only:
- The soundness of the proposed project to demonstrate the potential commercial viability of the proposed technology or process.
- Explanation of the potential market segment within the target industry that could adopt their technology or process.

2.2. Financial Evaluation Criteria

An evaluation will determine the responsiveness of the application to the financial requirements of this Announcement and will determine the merits of the application with regard to the potential for the applicant to meet the funding requirements of this Announcement. The criteria for evaluation are:

- Adequacy, completeness and viability of the proposed Funding Plan.
- Financial condition and capacity of proposed funding sources to provide their portion of project costs, including development costs.
- Financial commitment to meet the non-DOE cost share requirements of the project.

The Technical Evaluation and Financial Evaluation represent the total evaluation scoring.

2.3. Budget Information and Financial Management System Evaluation Criteria

Phase 1 Budget Information and the Financial Management System of Applications submitted in response to this Announcement will be evaluated against the criteria listed below.

- Reasonableness, allowability, and allocation of the proposed cost and the proposed cost share.
- Completeness and adequacy of the supporting documentation for the cost estimate.
- Applicant's understanding of the Project Objectives by ensuring that all work elements included in the Statement of Project Objectives (SOPO) have associated costs and that all cost elements in the proposed budget have corresponding work elements included in the SOPO.
- Adequacy of the Applicant's Financial Management System.

This evaluation is not point scored. The Selection Official may consider the results of this evaluation when making selections.

2.4. Environmental Evaluation Criteria

The Environmental Questionnaire will be evaluated to: (1) ensure that environmental factors are considered in the decision-making process; (2) determine adequacy and completeness of furnished data; and (3) assess the applicant's awareness of project-related requirements, including requirements for mitigating any project-related environmental risks and impacts. The Questionnaire will be used to assist DOE in complying with NEPA and for making a preliminary assessment regarding the level of documentation necessary to completely fulfill its NEPA obligations.

This evaluation is not point scored. The Selection Official may consider the results of this evaluation when making selections.

3. Other Selection Factors

Program Policy Factors

The Selection Official (SO) will consider the following program policy factors in the selection process: These factors, while not indicators of the applicant's merit, e.g., technical excellence, cost, applicant's ability, etc., may be essential to the process of selecting the application(s) that, individually or collectively, will best achieve the objectives of the CCS/CO_2 use program. Such factors are often beyond the control of the applicant. Applicants should recognize that some very good applications may not receive an award because they do not fit within a mix of projects and technologies that maximize the probability of achieving DOE's overall objectives. Therefore, the following Program Policy Factors may be used individually or collectively by the SO following application of the evaluation criteria to determine which of the ranked applications shall receive DOE funding support.

- Degree of Federal cost share commensurate with technology maturation and risk
- Diversity of technology approaches and methods in the CCS/CO_2 use Program
- Priority to the long term storage of CO_2 over other sequestration options for Technology Area 1
- Degree of application/replication of technologies to a wide variety of U.S. CCS sites
- Geographic distribution of potential sites and/or CO_2 markets
- Presentation of unique environmental, economic, or efficiency benefits
- Federal cost share per ton of CO_2 captured and sequestered annually for Technology Area 1
- Selection of Applications which promote and enhance the objectives of the American Recovery and Reinvestment Act of 2009, P.L. 111-5, especially job creation, and/or preservation and economic recovery in an expeditious manner

The above factors will be independently considered by the SO in determining the optimum mix of applications that will be selected for support. These policy factors will provide the SO with the capability of developing, from the competitive Announcement, a broad involvement of organizations and organizational ideas, which both enhance the overall technology research effort and upgrade the program content to meet the objectives of the DOE.

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 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.

Furthermore, if funds become available as a result of unsuccessful negotiations on a selected project(s), or in the event a selected applicant(s) withdraws from negotiations, DOE reserves the right to select an additional project(s).

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES

DOE anticipates notifying applicants selected for award in September 2009 and making awards soon thereafter.

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.)

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

If a Technology Investment Agreement is utilized, the agreement will be structured in accordance with 10 CFR Part 603.

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.

ARRA 2009 Award Administration Information
Special Provisions relating to work funded under American Recovery and Reinvestment Act of 2009, Pub. L. 111-5 shall apply. These provisions can be found at http://management.energy.gov/policy_guidance/1672.htm.

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, Cooperative Agreements, and TIAs 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

There will be substantial involvement between the DOE and the Recipient during performance of this Cooperative Agreement or TIA. The DOE and Recipient will collaborate and share responsibility for the management of the project as further described in this section.

RECIPIENT'S RESPONSIBILITIES.

The Recipient shall be responsible for all aspects of project performance as set forth in the Cooperative Agreement or TIA and the Statement of Project Objectives contained therein. The Recipient Project Director shall serve as the Recipient's authorized representative for the technical elements of all work to be performed under the Cooperative Agreement or TIA. The Recipient Business Officer shall serve as the Recipient's authorized representative for administrative elements dealing with the Cooperative Agreement or TIA. Specific examples of Recipient responsibilities include:

- Performing the activities delineated in the Cooperative Agreement or TIA and associated Statement of Project Objectives in accordance with the Project Management Plan, including providing the required personnel, facilities, equipment, supplies and services.

- Managing and controlling project activities in accordance with established processes and procedures to ensure tasks and subtasks are completed within the schedule and budget constraints defined by the current Project Management Plan.

- Notifying the DOE Project Officer in a timely manner of issues that arise during the course of the project that jeopardize the technical, schedule and/or budget objectives.

- Implementing an approach to identify, analyze and respond to project risks that is commensurate with the complexity of the project.

- Defining and revising technical and managerial approaches and plans, (i.e. Test Plans) submitting the plans to DOE for review and concurrence, and incorporating DOE comments.

- Coordinating project activities with external organizations, including subrecipients, consultants and DOE M&O contractors (as applicable), to ensure effective integration of all work elements.

- Attending annual program review meetings and reporting project status.

- Submitting technical reports and incorporating DOE comments.

- Reporting per ARRA requirements.

- Presenting the project results at appropriate technical conferences or meetings as directed by the DOE Project Officer.

- Facilitating DOE inspection and/or evaluation of project work on the premises of the Recipient or a subrecipient, at all reasonable times and in a manner that will not unduly delay the work. The Recipient shall furnish and shall require subrecipients to furnish all reasonable facilities and assistance for the safe, efficient and convenient performance of these duties.

DOE RESPONSIBILITIES

DOE shall monitor the Recipient's progress in performing the project and shall have a substantial role in project decision making. This involvement includes collaboration and management of the project. Specific examples of DOE responsibilities include:

- Collaboration with Recipient on project plans to include project management, test, and technology transfer plans and making recommendation for alternate approaches if the plans do not address critical programmatic issues.

- Collaborating with Recipient regarding technical progress and recommending alternate approaches or shifting work emphasis, if needed, to adequately address critical project and/or programmatic issues. The DOE Project Officer shall have the authority to issue written technical advice shifting the emphasis among different tasks or directing specific lines of inquiry likely to assist in accomplishing the Statement of Project Objectives. Note: The DOE Project Officer is not authorized to issue, and the Recipient is not required to follow, any technical advice that constitutes work which is not within the scope of the Statement of Project Objectives; which in any manner causes an increase or decrease in the total estimated cost or in the time required for performance of the project; which has the effect of changing any of the terms or conditions of the Cooperative Agreement or TIA; or which interferes with the Recipient's right to perform the project in accordance with the terms and conditions of the Cooperative Agreement or TIA.

- Conducting semiannual program review meetings to evaluate progress with respect to project and program objectives.

- Participating in project management planning activities, including risk analysis, to ensure DOE's program requirements or limitations are considered in performance of the work elements.

- Promoting and facilitating technology transfer activities, including disseminating project results through presentations and publications.

- Serving as scientific/technical liaison between awardees and other program or industry staff.

- At the DOE's discretion, physically inspecting and evaluating the work performed or being performed under the Cooperative Agreement or TIA, including associated documentation, and the premises where the work is being performed.

- Substantial direct operational involvement or participation is anticipated to ensure compliance with statutory requirements such as environmental protection.

- Reviewing and concurring with ongoing technical performance to ensure that adequate progress has been obtained within the current Subphases authorized by DOE before work can commence on subsequent Subphases as addressed within the "DECISION POINT" provision of the Cooperative Agreement or TIA.

C. REPORTING

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2 and in the Deliverables section of the Statement of Project Objectives, attached to the award agreement. See model cooperative agreement, included as a separate attachment with this announcement, for the reporting requirements for this program**.**

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

B. AGENCY CONTACT

Name:	Brittley K. Robbins
E-mail:	Brittley.Robbins@netl.doe.gov
Telephone:	(412) 386-5430

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. More information is available at http://www.fedconnect.net and http://www.compusearch.com/products/fedconnect/fedconnect.asp.

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 agreements, and be subject to obligations to the Government, of confidentiality, prior to reviewing an application. Non-Federal personnel conducting administrative activities must also be subject to such an obligation of confidentiality.

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM

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

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

G. CLASS PATENT WAIVER

DOE intends to issue a class patent waiver to Recipients under the Program that do not obtain rights under the Bayh-Dole Act as indicated in the following paragraph.

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

H. NOTICE REGARDING ELIGIBLE/INELIGIBLE ACTIVITIES

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

I. NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE

The National Environmental Policy Act of 1969 (NEPA) establishes a national policy to ensure that consideration is given to environmental values and factors in Federal planning and decision making. DOE’s policy is to comply fully

with NEPA. To ensure that environmental factors are considered in the decision making process and to promote environmentally responsible decisions, DOE incorporates NEPA requirements early in the planning process for proposed actions. Consistent with Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500-1508) and DOE NEPA regulations (10 CFR Part 1021), an overall strategy for compliance with NEPA has been developed. This includes performing project-specific environmental reviews under 10 CFR 1021.216 of environmental issues pertinent to each proposed project before projects are selected, followed by site-specific environmental reviews under NEPA of each project after selection.

Prior to the completion of the site-specific analysis, no action taken by DOE with regard to any application, including project selection or award, shall be a final decision on availability of DOE funds for project activities that could adversely affect the environment or limit the choice of reasonable alternatives.

Selection of a NEPA Contractor

Should an Environmental Assessment (EA) or Environmental Impact Statement (EIS) be necessary, DOE reserves the right to use a third party contract arrangement. The term "third party contract" refers to the preparation of an EA or EIS by a contractor paid by the applicant. The "third party" is DOE which, in accordance with Council on Environmental Quality Regulations at 40 CFR 1506.5(c), must select the consulting firm, even though the applicant pays for the cost of preparing the EA or EIS. The applicant may propose a consulting firm to DOE, but DOE will make the selection.

The applicant will hire the consulting firm once a third-party agreement or memorandum-of-understanding has been signed by DOE, the consulting firm, and the applicant. The firm must sign a conflict of interest form indicating that it has no financial or other interest in the outcome of the project. DOE will not be involved in the fee and contractual negotiations between the applicant and the consulting firm. Cost incurred by the consultant will be reimbursable at the cost-share ratio established in the cooperative agreement to the extent the costs are allowable under the applicable cost principles.

The consulting firm is responsible to DOE for preparing an EA or EIS that meets the requirements of the NEPA regulations and DOE's NEPA procedures. The consulting firm will work exclusively under the direction of DOE. DOE will be solely responsible for the contents of the EA or EIS. Additional information on DOE NEPA procedures is available at http://www.eh.doe.gov/nepa.

J. GOVERNMENT'S RIGHT TO NEGOTIATE THIRD PARTY STATUS

DOE reserves the right to negotiate becoming a third-party insured on project-specific policies for the project.