

Summary Responses to Questions and Comments

The Clean Coal Power Initiative Round 3 (CCPI 3) Draft Funding Opportunity Announcement (FOA) was issued on October 3, 2007 for public comment. A public workshop was held on November 1, 2007, which was attended by 105 individuals representing utilities, technology vendors, and project developers. Questions and comments were taken at the public workshop and a transcript is posted on NETL's web site. In addition, a public comment period was held open until November 23, 2007, where questions and comments were submitted through the Industry Interactive Procurement System (IIPS) system. Because there were a large number of questions and comments submitted by the public (both at the workshop and through IIPS), the questions and comments were categorized and summarized. Responses were developed for each category, which are presented below. For each category, there is a summary of the issue, a response by DOE, and an indication of whether DOE's response resulted in a change to the FOA.

Table of Contents

[Top](#)

1. [Requirement to capture and sequester 50% of plant CO₂ emissions, including comments on appropriate project size or scale](#)
2. [Requirement that 50% of energy output must be electricity](#)
3. [Requirement that 75% of energy input must be U.S. coal](#)
4. [Definitions of advanced technology and commercial technology, including definitions of incremental improvements, etc](#)
5. [Restrictions on project following demonstration](#)
6. [Beneficial Reuse. Definition and identification of technologies that fall in this category. This would include conversion of CO₂ into chemicals or fuels](#)
7. [Handling of proprietary information, intellectual property](#)
8. [Identification of appropriate or allowable sequestration options, favoring of saline over EOR](#)
9. [Funding allocation per EPACT Title IV Section 402, that is, the 70/30 split](#)
10. [Baseline for Cost of Electricity Calculations](#)
11. [Acceleration of project schedule to achieve goals earlier](#)
12. [Length of demonstration phase](#)
13. [Sites, are alternate sites required, etc](#)
14. [NEPA](#)
15. [Program Policy Factors, including geographic diversity and all others](#)
16. [Allowable costs, including pre-award costs](#)
17. [Inadequate Funding Levels](#)
18. [Repayment including tax implications of CCPI Funding](#)
19. [Time line for proposal submittal](#)
20. [Cost share and project risk](#)
21. [Definitions, including project, Demonstration project, etc](#)
22. [Transfer data and technology knowledge](#)
23. [Tax Credits/Implications](#)
24. [Project Schedule](#)
25. [Project Financial Feasibility](#)
26. [Carbon Capture Readiness](#)
27. [Pipeline Rights](#)
28. [Quality of Sequestered CO₂](#)

1. Comment and Question Category: Requirement to capture and sequester 50% of plant CO₂ emissions, including comments on appropriate project size or scale

Issue Summary: The comments/questions are specific information requests or recommendations falling into the following two areas: (A) project size and scale requirements and (B) the requirement to capture and sequester 50% of plant CO₂ emissions.

The comments/questions regarding project size/scale requirements are summarized as follows: (1) Comments provided stated the project scale should be defined in a volume (tonnage) of CO₂ captured per day/year, and that project scale cannot be based on host size, (2) a case was presented that technology is not ready for scale up to the size required by the Announcement and that demonstrations of reasonable sized scale-ups representing lower technological and financial risk are favored by industry over significantly larger demonstrations, (3) the recommendation for DOE to define slipstream relevant to the solicitation and include slipstream applications as eligible under the FOA, (4) one comment called for full scale (>100 MW) demonstrations and was in stark contrast to another comment recommending pilot-scale demonstrations given the state of the technologies,

The comments/questions involving the requirement to capture and sequester 50% of plant CO₂ emissions are listed as follows: (1) This requirement will severely limit the number and type of applications submitted, (2) Numerous utilities or host sites have expressed interest in developing projects that would represent an advancement to CCS technology, but do not meet the 50% capture requirement, (3) Carbon capture technology is not ready for deployment at the scale necessary to capture 50% at most potential host sites, which are at the 300 – 600 MW scale, (4) A request for DOE to define the CO₂ capture requirements so as to not exclude any pre/post/oxy-combustion technology, (5) a request for DOE to consider a 90% CO₂ capture requirement, (6) a request that the percentage of CO₂ removal be modified (reduced) or deleted. There were 27 comments/questions in this section.

A question in this category asked how DOE might value on a small integrated power plant with 90% capture rate operating in a full commercial mode, compared with a slipstream of the same size operating at a larger plant.

Change Required to FOA

For Clarification Only

Response: Based on comments received during the public comment period, DOE would like to revise the requirement that 50% of plant CO₂ be captured and sequestered. Comments received were overwhelmingly opposed to this requirement. Potential applications indicated this requirement would exclude numerous projects from submitting applications. The following reasons were cited for requesting a change in this requirement.

Numerous facilities currently under consideration for siting carbon capture and sequestration projects are existing full-scale plants (as large as 300 to 600 MW). The scale of the anticipated projects is sufficient to demonstrate commercial operation, but is not 50% of total plant output. Capture technology is not sufficiently developed for deployment on the existing fleet at 300 to 600 MW scale. Deployment at smaller facilities is not practical. Smaller facilities are generally older and not equipped with appropriate sulfur emissions control systems required for installation of carbon capture systems. Further, utilities are not interested in investing in deployment of capture (and associated sulfur control systems) at smaller, older facilities which are more likely to be retired, rather than upgraded.

Public comment favored establishment of a minimum threshold project size in terms of tons of carbon dioxide captured and sequestered. **Thus, the Final Announcement will be revised to establish that a minimum of 300,000 tons of carbon dioxide must be captured and sequestered per year. Further, the Final Announcement will be revised to establish a minimum carbon dioxide capture efficiency of 90%. A definition of carbon dioxide efficiency will be added as follows: “Capture Efficiency” means the amount of carbon dioxide removed from the process stream expressed as a percentage of the amount of carbon dioxide entering the carbon capture system.**

This minimum threshold size is roughly equivalent to capture of 50% of carbon dioxide emissions from a 100 MW facility. The 100 MW facility is viewed to be a small scale utility plant, from which a technology may be scaled up to a full scale plant. Thus, this project scale is consistent with the purpose of the CCPI, which is to “accelerate the readiness of advanced technology for commercial deployment”, and to enable advanced

technology to overcome technical risks bringing them to the point of commercial readiness.” Carbon dioxide capture systems are currently available to other industries, and typically operate at a capture efficiency 90% or greater. Thus, the capture efficiency requirement of 90% is consistent with the state of the technology.

As noted under Criterion 1, the degree to which the project exceeds sequestration or beneficial reuse of 300,000 tons per year of carbon dioxide will be a factor in the evaluation of applications.

However, the DOE is not inclined to further delineate points or weight solely on the basis of the capture percentage. Overall volume of the capture and the permanence of sequestration, and other evaluation criteria listed in Part V, Application Review Information, will also play a role in the evaluation process.

2. Comment and Question Category: Requirement that 50% of energy output must be electricity

Issue Summary: The comments fell into three categories: (1) the relaxation or elimination of the “50% of energy output must be electricity” requirement, (2) the acceptability of the plant producing a non-electricity output, and (3) technical questions about gross vs. net output and the energy equivalence of a plant’s steam output. One question requested a sample calculation for the electrical energy equivalence of a plant’s steam output. There were five comments/questions in this group.

Change Required to FOA

For Clarification Only

Response: The Clean Coal Power Initiative program has been structured to bring technological enhancements and environmental improvements to the generation of electricity, particularly with the use of coal as a fuel source, since its inception. Proposals that do not include the generation of electricity for commercial consumption would have a high hurdle in proving that the technology has broad application and is likely to achieve widespread commercial deployment in the utility industry.

The National Energy Policy (Chapter 5 – Energy for a New Century; Increasing Domestic Energy Supplies) discusses the critical national importance of coal in providing electricity supply to the country and highlights the near exclusive (~90%) consumption of coal for electricity production. The discussion of clean coal technologies within the National Energy Policy is exclusively presented in the Electricity section of Chapter 5 as the category of technologies that will allow continued use of coal to generate electricity while meeting environmental regulations at low cost. That section establishes the near-term, mid-term, and long-term goals (ending in low-cost, zero-emissions power plants with much higher efficiencies) for the clean coal program and contains the \$2 billion recommendation for clean coal research focused on technology to help meet the goals of increasing electricity generation while protecting the environment. In addition, Congressional Budget Requests for the Clean Coal Power Initiative program have specified that this program responds to the National Energy Policy recommendation to invest in the development of clean coal technologies in response to meeting electricity supply and availability.

DOE’s Office of Clean Coal Strategic Plan, published in September 2006 defines the Clean Coal Power Initiative as:

A series of competitions conducted over a 10 year period (2002-2012) to encourage the Nation’s energy industry to identify and cost-share the final stages of development for the best emerging new coal-based *power-generating* technologies.

The Strategic Plan goes on to define the Program Goals for the Clean Coal Power Initiative as:

To reinvigorate private sector development of new coal-based *power* technologies that can meet increasingly stringent environmental regulations; and

To begin establishing the technological foundation within the Nation's *power* industry for "zero" emission coal-based energy technologies

However, carbon capture technologies are very energy intensive and result in significant parasitic power losses when applied to coal-fueled power systems. **Therefore, DOE would like to clarify its position regarding the requirement for technology demonstration projects to produce at least 50% of their energy output as electricity. Any electricity produced by the project that is also consumed by the project, shall count toward the energy output in the form of electricity. This statement will be added to the Announcement.**

Applicants should calculate the percentage of electrical energy of the total energy output as follows. At least 50% of the total energy output of the energy conversion system (boiler or gasifier) must be used to produce electrical energy. For example, in the case of a steam production of a co-generation facility, at least 50% of the steam flow must be used to produce electricity, while the other half of the steam flow may be used for other purposes. In the case of a gasification-based system, the total energy output of the gasifier consists of the energy content of the syngas stream plus the energy content of the steam produced. At least 50% of the total energy output of the gasifier must be used to generate electricity.

The definitions of "electricity" and "energy output" are added to the Announcement. "Electricity" means gross electricity produced by the project. Any electricity produced by the project that is also consumed by the project shall be considered to be electrical output.

"Energy Output" means 1) in the case of a boiler, the energy content of the steam produced by the boiler and 2) In the case of a gasification system, the total energy output consists of the energy content of the syngas stream plus the energy content of the steam.

In the case of a co-generation facility, the "50% of energy equivalent output" requirement would eliminate from consideration a coal-fired boiler producing steam for an industrial application or commercial heating while having a small percentage of the steam flow used to drive a turbine and electric generator. Demonstration of the capture and storage of CO₂ in an industrial application would not likely prove the commercial viability and potential widespread deployment of the technology throughout the US electric industry.

The requirement to produce electricity as "at least 50% of the energy-equivalent output" would be gross output. That is, electricity generated that is consumed by the project is counted as electrical output. Co-generation or poly-generation plants may consume a significant fraction of the electrical energy that they produce, which is essentially displacing electricity that they project would otherwise consume from the grid.

3. Comment and Question Category: Requirement that 75% of energy input must be U.S. coal

Issue Summary: Comments/questions ranged from whether petroleum coke, as an alternate fuel, would qualify as coal and if the requirement for use of domestic coal could be eliminated. There were three questions in this category.

Change Required to FOA

For Clarification Only

Response: The Draft FOA requires that proposed carbon capture technologies must be integrated within existing or new power plant facilities that use U.S. mined coal or coal refuse for at least 75% of the energy input. The 75% minimum for coal as energy input is based on past national energy policy and will be retained.

The use of U.S. coal has historically been part of DOE’s clean coal programs. The requirement to use U.S. coals is founded on the premise that the DOE clean coal programs are intended to benefit our nation by, among other things, making available to both eastern and western states improved power systems capable of using the full spectrum of U.S. coals.

Therefore, DOE will retain the requirement that 75% of the energy input must be from U.S. mined coal or coal refuse.

Thus, up to 25% of the energy input to the system may be petroleum coke, imported coal, biomass, or other energy sources.

4. Comment and Question Category: Definitions of advanced technology and commercial technology, including definitions of incremental improvements, etc

Issue Summary: Comments/questions ranged from further clarification of advanced and commercial technologies to requests for further guidance on incremental improvements to various processes. Additional guidance was requested on what constituted commercial scale for both pre- and post-combustion technologies. More guidance was requested on the definition of incremental advancements to new processes. Also, questions were raised on the applicability of specific processes to the FOA. One commenter raised the issue whether amine processes were commercially available since they cover a huge range. One company asserted that there are no commercially available technologies for post-combustion capture of CO₂ and it is not an appropriate role for DOE to deem technologies commercial for any industry. The same company also recommended two separate solicitations addressing a scale-up of technologies previously demonstrated on coal flue gas and a separate pilot-scale program for innovative technologies. There were eight comments/questions in this category.

Change Required to FOA

For Clarification Only

Response: DOE would like to clarify its position regarding commercially available technology and existing technology. Commercial technology must be defined with regard to the utility industry. For technology to be classified as commercial or commercially available to the utility industry, it must meet all of the following criteria:

- The technology has been fully demonstrated at the scale typical of use by the utility industry
- The technology has demonstrated on line reliability required by the utility industry
- The technology is widely available to the utility industry with commercial guarantees with regard to process cost, performance, and availability
- The cost of the technology can be accurately estimated

The term “existing technologies” is used twice on page 8, but is not used again in the Announcement. This term is replaced with “commercial technologies or previously demonstrated technologies” to maintain consistency with requirements of the Project Narrative (page 18) and Evaluation Criteria (page 34). The term “existing commercial technologies” is replaced with “commercial technology” on page 18. Thus, the following revision to the Project Objectives are as follows including deletion of a redundant sentence:

...Prospective projects must also be integrated with commercial plant operation. DOE is interested in demonstrating leading edge technologies not currently deployed in the utility marketplace, as opposed to new applications of commercial technologies or marginal improvements of commercial technologies or previously demonstrated technologies.

DOE will not fund deployment of commercial technology. DOE is seeking advancements to technologies that are commercially available to the utility industry or that have previously been demonstrated on coal-fueled

systems or non-coal-fueled systems. DOE recognizes that most capture technologies have not been applied at utility scale. DOE will accept testing of capture technology if it can be shown that the technology has never been applied to utility scale applications. The degree of advancement relative to commercial technology or previous demonstrations must be substantiated. Technologies that are not yet commercial must base advancements relative to previous demonstrations. Advancements may include, but are not limited to:

- Increase in scale making progress toward utility scale
- Addressing unique issues associated with integration of capture technologies with coal-fueled systems or sequestration demonstrations
- Improvements in cost or energy requirements of capture technologies
- Improvements to EOR resulting in increased long-term retention of CO₂.

The degree or significance of advancement will be evaluated. Applications proposing a relatively low degree of advancement will receive a relatively low score for this aspect of the evaluation. However, if this application fully addresses aspects of integration of capture and sequestration at a power facility, it might be a good overall project and receive appropriate consideration.

These definitions of commercial technology and technology advancements will be added to the Announcement.

5. Comment and Question Category: Restrictions on project following demonstration

Issue Summary: These questions/comments address fuel and also carbon capture and sequestration (CCS) requirements for the plants after the demonstration period. The concerns focus on specific operations questions once the demonstration has concluded and the plants begin a post-demonstration operational mode for the balance of their lifetimes. One commenter was concerned about the need to continue CCS operation after the demonstration. Another questioned restrictions on fuel use over the life of the facility. There were two comments/questions in this group.

Change Required to FOA

For Clarification Only

Response: There is no restriction on fuel use once the demonstration has been completed. DOE does not intend to impose requirements on project operation once the demonstration has been completed.

6. Comment and Question Category: Beneficial Reuse. Definition and identification of technologies that fall in this category. This would include conversion of CO₂ into chemicals or fuels

Issue Summary: These comments/questions request a higher level of definition of the beneficial use of captured CO₂, especially in terms of storing as a feedstock for a chemical process. Additional comments address sequestration specifics such as the (1) limiting of sequestration to sedimentary formations, (2) inclusion of mineral carbonates as an acceptable sequestration formation along with those mentioned in the FOA (3) and limiting EOR application to those certified to result in permanent sequestration. There were three comments/questions in this group.

Change Required to FOA

For Clarification Only

Response: Beneficial reuse is defined as follows, and this definition is added to the Appendices/Reference

Materials section of the FOA.

“Beneficial Reuse” means the production of a useful product as the result of sequestering carbon dioxide in such a way that it will not end up in the atmosphere, which includes, but is not limited to enhanced oil recovery and enhanced coal-bed methane recovery. “Beneficial Reuse” also means the production of useful energy products from captured carbon dioxide, which includes, but is not limited to, production of biodiesel fuel via algae produced using carbon dioxide.

Part I, Section D, of the Funding Opportunity Announcement states “The priority for this announcement is to capture a stream of CO₂ from a large, stationary emission point source and sequester it in an underground geologic formation or reuse it in a beneficial manner.” Part I, Section D, paragraph 2 goes on to state, “Simply capturing the CO₂ is obviously not enough; once it is captured, it must be stored or sequestered in such a way that it will not end up in the atmosphere, or it must be put to beneficial reuse.”

The intent of the Announcement is to sequester carbon dioxide in an underground geologic formation in such a way that it will not end up in the atmosphere or to reuse the carbon dioxide. However, if an applicant is integrating the carbon dioxide into a chemical process, for example, which ties it up in a way that it is not released into the atmosphere, there may be a positive result. For example, formation of stable mineral carbonates is a potential approach to sequestration. Clearly, though, this point would have to be logically demonstrated.

Conversion of CO₂ to produce a fuel subsequently used in a combustion process releasing CO₂ to the atmosphere is not consistent with the objective of the Announcement. Industrial uses of CO₂ including food freezing and use in carbonated beverages are not consistent with the objective of the Announcement.

The Announcement states in Part I Section D paragraph 2.1 “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 CO₂ and advance EOR as a commercial method for carbon sequestration.” This statement is an indication that standard enhanced oil recovery would not be adequate and that the project would have to demonstrate long term retention of CO₂. Additional text identifying Monitoring, Mitigation, and Verification (MMV) requirements and field operations to ensure that the CO₂ would remain sequestered has been added to the Announcement.

7. Comment and Question Category: Handling of proprietary information, intellectual property

Issue Summary: The protection of financial and confidential information is the central theme of these comments/questions. Specifically, the need for protecting the details of competitive power purchase agreements and the technical details of proprietary processes required for submission in an application are addressed. Specific assurances for the protection of their sensitive information were requested. There were two comments/questions in this category.

Change Required to FOA

For Clarification Only

Response: DOE requires the information requested in the Announcement to fully evaluate the proposed technology and project, and to substantiate claims made by the Applicant. Information requested is consistent with past rounds of the CCPI and with other DOE Fossil Energy programs. The requirement of Part IV Project Narrative Content will not be modified to reduce the level of information required.

DOE employs concrete means of protecting proprietary information from disclosure. All persons involved with DOE’s review of the applications must sign a Conflict-of-Interest/Non-Disclosure Certificate. Additionally, if there is a request under the Freedom of Information Act (5 U.S.C. Section 552) (FOIA) for any data contained in an application, DOE's response to the request will be made in accordance with regulations set forth in 10 CFR

Section 1004.11. After receiving a FOIA request, DOE may ask the applicant to explain why it believes the requested information should be withheld. The applicant's prompt cooperation will ensure that DOE makes a fully informed and justifiable decision on the FOIA request.

Additionally, in Part VIII of the FOA, the following sections directly address how proprietary information in applications and intellectual property developed during a project are handled.

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.”

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM.

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

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

Special Protected Data Statutes. The provisions of EAct 2005 that cover DOE's Clean Coal Power Initiative (CCPI) include special data protection for CCPI cooperative agreements. These provisions allow for protection from public disclosure (including exemptions from subchapter II of chapter 5 of title 5, United States Code) for a period not exceeding 5 years after completion of the operations phase of a cooperative agreement, of information that: (1) results from demonstration activities carried out under the clean coal power initiative program; and (2) would be a trade secret or commercial or financial information that is privileged or confidential if the information had been obtained from and first produced by a non-Federal party participating in a clean coal power initiative project. "

[8. Comment and Question Category: Identification of appropriate or allowable sequestration options, favoring of saline over EOR](#)

Issue Summary: The comments/questions address specific recommendations for favoring certain sequestration options for CO₂. One comment requests DOE to include technical criteria that favors sequestration in saline formations. However, the other comment requests not penalizing enhanced oil recovery (EOR) applications that demonstrate long-term storage of CO₂. These requests appear to be in conflict with each other. There were two comments/questions in this category.

Change Required to FOA

For Clarification Only

Response: The Announcement does not favor one sequestration approach or one method of beneficial reuse over another.

9. Comment and Question Category: Funding allocation per EPACT Title IV Section 402, that is, the 70/30 split

Issue Summary: The comments/questions concerning the 70%/30% split of funding are either requesting clarification of technology eligibility for the 70% funding split or are offering their own guidance as to what the technology eligibility should be. The comments offering guidance on technology eligibility fell into two groups, specific technology eligibility for the 70% funding recommendations, and waiving the 70%/30% split resulting in a technology neutral stance. The comments concerning specific technology eligibility for the 70% funding split recommended the inclusion of oxy-combustion and post combustion CO₂ capture and storage technologies. There were five comments/questions in this group.

Change Required to FOA

For Clarification Only

Response: DOE is considering whether the 70/30 funding split of EPACT 2005 Title IV, Subtitle A, Section 402(b) applies in the context of the FOA. Please look for clarification to follow in the near future.

10. Comment and Question Category: Baseline for Cost of Electricity Calculations

Issue Summary: The comments/questions are requests for guidance on determining the baseline for the cost of electricity (COE) prior to applying the increase due to the additional costs from carbon capture and sequestration (CCS). One comment/question looks to factor in the cost reduction of future commercialization into their COE determinations. One commenter has a novel technology that does not lend itself to COE calculations without CO₂ capture and requests guidance. There were two comments/questions in this category.

Change Required to FOA

For Clarification Only

Response: The baseline for cost of electricity calculations should be from the applicant's own experience if available. If the applicant is unable to provide calculations based on internal data, the "[Fossil Energy Cost and Performance Baseline Studies](#)" published by DOE, which are available at NETL's web site <http://www.netl.doe.gov/technologies/coalpower/refshelf.html> may be used as the baseline.

Applicants should identify specific areas of potential cost savings, and the steps required to achieve these cost savings, i.e. through research and development efforts, improved efficiencies with scale up, etc. Applicants should also quantify potential cost savings through commercialization. Comparison of cost reductions through

commercialization of similar technologies can be used to project cost savings for the proposed technology. Simply stating that “costs decrease through commercialization” is insufficient to justify the potential of the technology to meet the stated cost goals.

11. Comment and Question Category: Acceleration of project schedule to achieve goals earlier

Issue Summary: The comments on project schedule were focused on the value (to DOE) of accelerating the project schedule. The proposers were interested in accelerating their proposed schedule to specific dates earlier than the goals/milestones contained in the FOA and what (credit) they might receive for such an accelerated schedule. There were four comments/questions in this category.

Change Required to FOA

For Clarification Only

Response: Applicants who proposed to complete projects and/or meet DOE program goals at an accelerated schedule will receive appropriate credit as part of the evaluation process because the degree to which the proposed schedule can meet or accelerate DOE’s ability to meet program goals is a factor in the evaluation process. Specifically, the evaluation of the Applicant’s Project Organization and Project Management Plan includes an assessment of the ability of the project to achieve the objectives of the Announcement in a timely manner.

Projects that have a shorter time to completion because they have significant development work completed may receive favorable evaluations compared to projects that are conceptual in nature. Favorable evaluations could result to the extent that such a project has data and information available that fully substantiates the appropriate evaluation criteria, whereas projects conceptual in nature may lack certain information. Such projects would also expect to have lower exposure to risk elements that have potential to impede project progress.

However, the other evaluation criteria listed in Part V, Application Review Information, will play a factor in the overall evaluation of the project, and selection will not be solely based on the proposed schedule. In addition, claims that a project will achieve goals at an accelerated pace must be substantiated. Applications that propose unreasonably short schedules, unsubstantiated by technical, business, financial, permitting and other appropriate factors will not receive favorable ratings.

12. Comment and Question Category: Length of demonstration phase

Issue Summary: Clarification of the operating period for projects with carbon capture and sequestration was requested. Questioners wanted to know if a three-to-five year demonstration period would be reasonable and, in one instance, whether DOE would consider cost sharing a 20 year operating period. There were two comments/questions in this group.

Change Required to FOA

For Clarification Only

Response: DOE intends to negotiate a reasonable time period for the demonstration phase of the project and a three to five-year project life would likely be considered reasonable. An operating period of 20 years or longer would exceed the time frame of projected DOE involvement. It is expected that demonstration, documentation (including a Final Report), and commercial deployment of the technology would be completed in a shorter time frame. DOE’s purpose in provided funding is to enable advanced technologies to overcome technical risks,

bringing them to the point of commercial readiness. This can be accomplished in the three to five-year time frame.

13. Comment and Question Category: Sites, are alternate sites required, etc

Issue Summary: Questioners wanted to know if alternate site requirements would be required if the proposing team owns the site for the proposed project or the proposer has only one viable site and only one is proposed. In these instances, may alternative sites requirements be avoided? There were two questions in this group.

Change Required to FOA

For Clarification Only

Response: Alternative sites are not required by the CCPI 3 Funding Opportunity Announcement. However, if alternative sites are proposed, all sites, primary and secondary, should be fully described and addressed in the proposal.

14. Comment and Question Category: NEPA

Issue Summary: Questioners wanted to know if Federal NEPA requirements could be expedited if their proposed project has already undergone, either partially or fully, a state environmental review. One question asked if alternate sites are required under the NEPA process. There were three questions in this group.

Change Required to FOA

For Clarification Only

Response: Information required by DOE to complete the NEPA process is necessary for completion of the project, and therefore NEPA activities would be eligible for cost-sharing as pre-award or post-award costs. Information required by any state EIS related or permitting process is necessary for completion of the project, and therefore state EIS or permitting related activities would be eligible for cost-sharing as pre-award or post-award costs. (Reference Comment and Question Category 17, paragraph 6 with regards to pre-award costs and prior approval requirements.)

DOE will need an analysis of the participant's site selection process. If the participant can show that there is only one reasonable site for the project, then alternative sites would not have to be considered. DOE must be able to support a conclusion that consideration of alternative sites by DOE is not reasonable.

Full or partial completion of a state EIS process should allow an expedited Federal NEPA process because much of the information required is the same for both processes. However, even if the state process is complete, DOE is still required to complete the Federal NEPA process. The Federal and State environmental reviews can be completed under a joint process, although there will likely be some aspects of the Federal NEPA process that will not be covered by the state process (e.g., floodplains/wetlands assessment, consultations with other state/Federal agencies or Native American tribes). In addition, the scope of alternatives considered could be different for the state and Federal processes.

15. Comment and Question Category: Program Policy Factors, including geographic diversity and all others

Issue Summary: The comments/questions on policy factors range from burning imported coal to geographic location of projects, to funding access and to CO₂ emissions credits. EPRI would like to see imported coal included in the solicitation. Another question asks whether a greater value should be given to a project that captures and stores CO₂ from a coal power plant located in the Northeast. One comment suggested that post-combustion technologies should be given equal access to funding. Also, the Coal Utilization Research Council would like to see DOE make explicit a position that any sequestered CO₂ should be eligible for CO₂ emissions credits under any future emissions control regime, if enacted. There were four questions/comments in this category.

Change Required to FOA

For Clarification Only

Response: Applications will be evaluated and ranked based solely on the Merit Review Criteria (Technical Review Criteria and Financial Review Criteria) specified in Part V.A.2 of the Funding Opportunity Announcement. However, after the applications have been evaluated and ranked the Source Selection Authority (SSA) may take into consideration the Program Policy Factors that are listed under Part V.A.5. The application of Program Policy Factors is optional and may be used as needed by the SSA.

Specifically, the intent of listing “geographic distribution of potential markets” as a Program Policy Factor is not to give priority during the technical evaluation to projects that are located in a specific geographic area. Instead, the intent is to allow DOE the flexibility to select a mix of projects that demonstrate technologies with commercialization potential in various regions of the United States.

16. Comment and Question Category: Allowable costs, including pre-award costs

Issue Summary: The focus of the comments/questions in this category is largely the eligibility of specific expenses for allowable costs with a few questions about spending DOE funding in the U.S. The comments/questions concerning allowable costs covered a wide range of topics, which are listed as follows: (1) the determination of specific incremental costs that are allowable, (2) compensation for hedging risk, (3) compensation for opportunity costs, (4) qualification of allowable costs due to losses from parasitic electric power for CO₂ capture and sequestration, (5) and the pre-award cost/cost-share eligibility of an environmental impact statement. One project will be built on Navajo land which raises a sovereignty issue with the commenter. There were nine comments/questions in this group.

Change Required to FOA

For Clarification Only

Response:

1. Definition of Operating Costs: The day-to-day normal operating costs of the plant/host site/demonstration site will not be recognized as allowable project costs and therefore, will not be allowed for cost sharing purposes. To expand this definition, day-to-day normal operating costs are all costs that the demonstration site would incur daily without performing the CCPI-3 project. If the plant is incurring costs now without the CCPI project, the same costs cannot be proposed under the CCPI project.

Allowable Operating Costs are those costs that will be incurred specifically/directly associated with the proposed work effort of the CCPI project (i.e., incremental costs (increased costs) distinct from the daily operational costs) may be recognized as allowable costs for cost-sharing purposes if adequately supported and properly documented. The incremental costs are the costs incurred for the CCPI project that are above and beyond what

the demonstration site would incur if they were not performing the objectives of the CCPI project. The incremental costs must be adequately documented and explained in detail as required in the budget justification section of the FOA.

2. Plant depreciation as cost share: A demonstration site may propose plant depreciation as a basis for a plant use charge, as long as the depreciation for the plant is not being charged as an indirect /overhead cost. DOE will recognize a use fee for plant/facilities only to the extent that the plant/facilities are necessary to perform the CCPI-3 project objective.

3. Equipment depreciation as cost share: A demonstration site may propose equipment depreciation on a piece of equipment being used in the CCPI-3 project as a basis for an equipment use fee, as long as the equipment depreciation is not being capitalized and charged as an indirect/overhead cost. DOE will recognize a use fee for the equipment only to the extent the equipment is necessary to perform the CCPI-3 project objectives.

4. Business losses: Neither business losses nor lost opportunity costs can be reimbursed or used for cost sharing purposes.

5. Parasitic energy associated with the power plants for CO₂ capture: The actual production cost of the electricity or steam that is being diverted and used in the CCPI-3 project would be an allowable cost to the project. This would be viewed as a material necessary for the successful completion of the Statement of Project Objectives. (Historically, the actual production cost of electricity or steam necessary to operate previous demonstrations has not been significant, and it was not considered to be an allowable cost under previous demonstration programs.)

6. State Environmental Impact Statement as pre-award cost: If an Environmental Impact Statement is required under a state law for this project and, it is necessary to move the project forward, it would qualify as an allowable pre-award cost.

Financial Assistance Regulations 10 CFR Part 600.125(e)(1) and 600.315(c)(4) state that the potential recipient can incur pre-award costs 90 calendar days prior to award without prior approval or more than 90 calendar days with the prior approval of DOE. All pre-award costs are incurred at the recipient's risk (i.e., DOE is under no obligation to reimburse such costs if for any reason the recipient does not receive an award or if the award is less than anticipated and inadequate to cover such costs.

Simply because of the time involved in negotiating these awards, it is recommended that prior approval is received for all pre-award costs. A letter should be submitted identifying the amount of pre-award costs with the DOE share and the specific work/tasks identified.

7. Eligibility of CCPI projects for other forms of Government funding including tax credits available under IRS Section 48A: For projects with multiple Federal funding sources, projects must ensure that the Recipient's cost sharing or matching contributions are not paid by the Federal Government through another award (except where authorized by Federal statute). Projects must also ensure that cost sharing or matching contributions for a CCPI project are not included as contributions for any other federally-assisted project or program.

With regard to cost sharing or matching the Applicant should refer to the regulation, 10 CFR 600.123, 10 CFR 600.224, or 10 CFR 600.313 applicable to the recipient's organization type.

There is no legal prohibition on receiving a Tax Credit authorized under IRS Section 48A for projects receiving CCPI funding.

8. Expenditures for subsurface storage activities and premiums for long-term liability insurance for subsurface carbon dioxide storage: In general, activities related to subsurface storage (sequestration) of carbon dioxide and expenditures for liability insurance for the duration of the project period of performance are allowable costs provided they are necessary for completion of the approved Statement of Project Objectives.

Costs eligible for cost sharing: Reference 10 CFR 600.123 Cost sharing or matching, Subpart B – Uniform Administrative Requirements for Grants and Cooperative Agreements With Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations; 10 CFR 600.224 Matching or cost sharing, Subpart C – Uniform

Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments; and 10 CFR 600.313 Cost Sharing or matching, Subpart D – Administrative Requirements for Grants and Cooperative Agreements with For-Profit Organizations.

For each kind of recipient, there is a set of Federal principles for determining allowable costs. Allowability of costs shall be determined in accordance with the cost principles applicable to the entity incurring the costs. Thus, allowability of costs incurred by State, local or federally-recognized Indian tribal governments is determined in accordance with the provisions of OMB Circular A-87, “Cost Principles for State and Local Governments.”

The allowability of costs incurred by non-profit organizations is determined in accordance with the provisions of OMB Circular A-122, “Cost Principles for Non-Profit Organizations.”

The allowability of costs incurred by institutions of higher education is determined in accordance with the provisions of OMB Circular A-21, “Cost Principles for Educational Institutions.”

The allowability of costs incurred by hospitals is determined in accordance with the provisions of Appendix E of 45 CFR part 74, ”Principles for Determining Costs Applicable to Research and Development Under Grants and Contracts with Hospitals.”

The allowability of costs incurred by commercial organizations and those non-profit organizations listed in Attachment C to Circular A-122 is determined in accordance with the provisions of the Federal Acquisition Regulation (FAR) at 48 CFR part 31.

9. Incremental costs of CCS equipment, plant design, and modifications to host site: Any equipment specifically required for the project performance to meet the statement of work objectives would be allowable and therefore, eligible for cost-sharing. This would include, but not be limited to, equipment necessary for capture and sequestration of carbon dioxide. Plant design, if included in the project scope of work, could be an allowable cost and thus eligible for cost-sharing. Modifications that must be made to the host site necessary for performance of the CCPI-3 project are allowable project costs. The DOE will only recognize equipment/facilities required to perform the CCPI-3 project.

10. The proposed project must be conducted at a facility located in the United States as part of the Mandatory Eligibility Requirements, Part III Other (2). Projects located in Native American territory meet this requirement. There are no restrictions for locating a project in Native American territory. Funds expended on a project located in Native America territory are expended in the United States.

17. Comment and Question Category: Inadequate Funding Levels

Issue Summary: Basically, all of the comments/questions centered on the adequacy of funding and a couple questioned if \$250 million funding level is an authorization cap or the result of legislation. Comments questioned whether the funding will enable enough meaningful awards, including questions regarding if there are (1) sufficient funds for multiple awards, (2) suggestion that DOE direct a larger portion of funds under this FOA towards post-combustion capture technologies, (3) belief that the level of funding is not adequate for a true government/private-sector partnership, and (4) comment that funding is not sufficient to support even one small-scale process at a coal-fired power plant. There are seven questions in this category.

Change Required to FOA

For Clarification Only

Response: The amount of DOE funding anticipated to be available for awards made under CCPI Round 3 is approximately \$340 million. DOE has revised the carbon dioxide capture requirement which will reduce the overall project scale. Given this change and taking into account Recipient cost share, DOE believes that this is a

sufficient level of funding to attract meaningful applications.

18. Comment and Question Category: Repayment including tax implications of CCPI Funding

Issue Summary: The comments/questions are very specific information requests or recommendations concerning repayment of DOE funding and associated tax implications. The comments/questions about repayment were concerned with: (1) a request for information about the existence of a requirement for paying interest, (2) a comment that repayment should not be required when permanently storing CO₂ in saline formations, and (3) a suggestion that repayment be eliminated to change the tax status of the DOE funding. The comments/questions on tax implications included a general request for overall tax treatment information of DOE funding. There were seven comments/questions in this category.

Change Required to FOA

For Clarification Only

Response: At the time the Draft Funding Opportunity Announcement (FOA) was issued, repayment was required by legislation, specifically, the annual appropriations (up to and including FY 2007) that were passed subsequent to EAct 2005. However, since the Draft FOA was issued in October and the public workshop was held in November, the Consolidated Appropriations Act, 2008 eliminated the repayment requirement. Thus, the repayment requirement will be removed from the Final FOA. DOE encourages applicants to discuss the impact of this change in program requirements with their tax advisors.

19. Comment and Question Category: Time line for proposal submittal

Issue Summary: One question was received regarding whether projects could be selected by mid-2008 so that integration with DOE's Carbon Sequestration Regional Partnerships could be accomplished. The schedule discussed by DOE representatives at the CCPI-3 Public Meeting would not enable projects awarded under this FOA to meet this objective. One company wanted an extension of the proposal submittal due date because of the one month delay in issuing the final FOA.

Change Required to FOA

For Clarification Only

Response: Applications will be due to DOE 168 calendar days after the Final Funding Opportunity Announcement is issued. The application due date will be corrected when the Final FOA is issued.

Applicants are encouraged, but not required, to coordinate with the Regional Partnerships.

20. Comment and Question Category: Cost share and project risk

Issue Summary: The comments/questions on cost share and project risk range from interstate indemnification to other forms of federal assistance, to specific cost share questions and to environmental risk. The question of

interstate indemnification for putting CO₂ into the ground is raised. The Coal Utilization Research Council questions the applicability of other forms of federal assistance. One company suggests that the high technological risk of CCS development warrants a higher Government cost-share. Another company suggests a parallel solicitation allowing pilot-scale development of many emerging innovative CO₂ technologies and also suggests increasing the government cost share. There are many very specific questions related to risk and cost share including, but certainly not limited to, environmental risk, long term liability, insurance costs, etc. There were seven major questions with one of these having nine specific sub-questions.

Change Required to FOA

For Clarification Only

Response: DOE believes that the available funding will be sufficient to offset a level of risk associated with the projects and lead to a sufficient interest, particularly among technology suppliers and utility industry entities that have developed a reputation for being avant-garde or early adopters of innovative technologies.

While project risks are significant, the level of risk is consistent with past rounds of CCPI, PPII, and the Clean Coal Technology Development Program. The Secretary has not determined a reduction in the non-Federal share to be necessary and appropriate.

[21. Comment and Question Category: Definitions, including project, Demonstration project, etc](#)

Issue Summary: A definition of the word “plant” was requested by one questioner.

Change Required to FOA

For Clarification Only

Response: The Announcement has been revised and the requirement to capture “50% of carbon emissions from the demonstration plant” or “50% of the carbon dioxide from the proposed project” has been modified. As such, the definition of “plant” is not required, and the definitions of “project” and “demonstration project” do not need to be modified.

The statement on page 19 listed as example 1, "... a carbon dioxide capture system processing a flue gas stream provided a power plant owned by a third party..." does not imply that the flue gas stream could be something less than the entire flue gas stream from the entire capacity. This statement makes no reference, implied or explicit, regarding whether the flue gas stream is the entire stream or not.

[22. Comment and Question Category: Transfer data and technology knowledge](#)

Issue Summary: A questioner wanted to know if there was a process in place for technology and knowledge transfer from the international leadership forum.

Change Required to FOA

For Clarification Only

Response: Technology synopses are available on the Carbon Sequestration Leadership Forum web site.

23. Comment and Question Category: Tax Credits/Implications

Issue Summary: This question revolves around investment tax credits and their availability and how they would relate to industry cost share. There was one question in this category.

Change Required to FOA

For Clarification Only

Response: Applicants should discuss the tax implications of CCPI funding with their tax advisors.

There is no legal prohibition on receiving a Tax Credit authorized under IRS Section 48A for projects receiving CCPI funding.

24. Comment and Question Category: Project Schedule

Issue Summary: This questioner requested that DOE define what is meant by “a reasonable period of time to complete the construction or demonstration phase.”

Change Required to FOA

For Clarification Only

Response: During the negotiation period DOE will work with the Applicant and DOE will establish a “reasonable period of time to complete the construction or demonstration phase” of the project. As a condition of award, the Recipient will agree not to seek an extension to this period of time. This period of time to complete the project may be extended by the Secretary of Energy if, at his/her discretion, the owner or operator cannot complete the construction or demonstration phase of the project within the time period due to circumstances beyond control of the owner or operator.

The Applicant should submit a realistic schedule for completion of the project. If, for example, the Applicant proposes a project where the demonstration phase will be completed within a five year period, DOE may establish a reasonable period of time such as six years, for the owner or operator (Recipient) to complete the project. The Recipient will agree not to request an extension of this six year period. Only the Secretary may extend this period at his/her discretion. The five year project schedule may be extended to a maximum of six years through the normal financial assistance processes.

25. Comment and Question Category: Project Financial Feasibility

Issue Summary: Questions revolved around showing a minimum internal rate of return (IRR), or some metric of return investment or return invested capital in order to prove project financial feasibility and whether there are ways in which the plant operator could be compensated for its incremental O&M costs in order for the project to be profitable. There were two questions in this category.

Change Required to FOA

For Clarification Only

Response: There is no minimum Internal Rate of Return required for the projects proposed.

26. Comment and Question Category: Carbon Capture Readiness

Issue Summary: Questioners asked if DOE's program unnecessarily excludes the whole concept of CO₂ capture readiness.

Change Required to FOA

For Clarification Only

Response: The focus of the CCPI is to demonstrate the whole system, from capture to sequestration. Carbon capture readiness is just one part of the entire effort. The objective of this Announcement is to capture and sequester carbon dioxide. While the NO_x, SO_x and particulate pollutants for any project must be within attainment levels, and any impacts of these pollutants on the carbon capture and sequestration system must be addressed, the focus of this Announcement is not NO_x, SO_x and particulate control.

27. Comment and Question Category: Pipeline Rights

Issue Summary: A questioner asked if their status for connecting to the CO₂ pipeline is acceptable since they are in the process of negotiating these rights of way.

Change Required to FOA

For Clarification Only

Response: Projects that are in the process of obtaining pipeline rights for transport of carbon dioxide are eligible for award. Such activities would fall under those implemented during a Project Definition Phase.

28. Comment and Question Category: Quality of Sequestered CO₂

Issue Summary: A questioner asked if DOE has any positions on the quality specifications of the CO₂ that would be sequestered, especially into saline aquifers.

Change Required to FOA

For Clarification Only

Response: DOE has not established specific requirements for the quality of carbon dioxide to be sequestered. This would depend on the individual project. There may be specific requirements for EOR or for pipelines. The applicant should identify what the requirements for the individual project are, and discuss how these requirements are being addressed in the application.