

Power Plant Improvement Initiative (B²) Questions & Answers

These questions and answers are for guidance purposes and are not part of the solicitation. For convenience, changes and revisions to the original answers which were posted on Jan. 10, 2001 are shown in *italicized* print.

General Questions

Proposal Preparation Time

- G-1. Will there be an opportunity to extend the due date (or have a second due date) for proposals?
- A. DOE will extend the application due date to April 13, 2001. There will be only one due date for applications under this solicitation.
- G-2. Why sixty days to prepare a proposal versus 90 days?
- A. See answer G-1 above. DOE wants the process to move ahead as quickly as possible.
- G-3. Will DOE consider extending the proposal preparation period to 90 days or April 30, 2001.
- A. See answer G-1 above. To the extent possible, you may want to begin working on the more general aspects of your application now, rather than waiting until the final solicitation is issued.
- G-4. Considering the review period and the potential size of projects, the 2 month proposal period seems brief. Is there consideration of extending this to a more typical three months? Indicator of magnitude is 365 day proposal validity which is twice normal.
- A. See answer G-1 above. The proposal validity period is driven in part by the statutory guidance and timing of funds availability for the Power Plant Improvement Initiative.
- G-5. The type of project being solicited will be complex, and will require lots of coordination with team members. Therefore, we recommend that the proposal response period be extended from 60 days to 90 days, and that the proposal review period be reduced correspondingly.
- A. See answers G-1, G-2, and G-3 above.
- G-6. We would ask that DOE consider extending the acceptance date for the applications, even if it is only a few weeks. There are a number of details that are needed for Volume I, particularly the requirement for the supporting cost detail from all team members.
- A. See answer G-1 above.

Number and Size of Anticipated Projects

- G-7. How many proposals does DOE expect to select? That is, would it be more advantageous for me to request \$3 million in DOE funds or \$25 million?
- A. DOE purposely did not specify, and hesitates to answer because we don't want such guidance to be construed as prescriptive. That said, multiple projects (e.g., 3-10) would not be an unreasonable guess, though that range could certainly be stretched. Of course, this answer depends rather heavily upon the number, quality and size of projects that are actually proposed. Ultimately, each applicant must decide upon the size and funding request that makes the most sense for accomplishing a successful demonstration.
- G-8. Is there a preference for large (e.g., > \$100 million) versus small (e.g., < \$20 million) projects?
- A. No. DOE has a total of \$95 million available to support awards. We expect to make multiple awards. We will make no award where the DOE cost share exceeds 50% of the total project cost. Selected projects are expected to have significant benefit to the existing or near-term new electric power plants.
- G-9. Does the Department have an anticipated typical funding level for awards under this solicitation or range or limit?
- A. See answers G-7 and G-8 above.
- G-10. The solicitation anticipates multiple awards, but the number of projects should be limited. A few large demonstration projects, will better serve the public interest than a larger number of small projects.
- A. See answers G-7 and G-8 above. In a sense, the available funding serves to limit, somewhat, the size and number of demonstration projects that can be conducted under this Power Plant Improvement Initiative. In fact, question G-11 points toward that fact. DOE fully appreciates the difficulty of securing private-sector cost sharing to fund larger projects. However, we have no pre-determined preference for large or small projects, provided they can be conducted with the available funding, meet all of the qualification criteria set forth in Section V.C (Preliminary Evaluation), and satisfy the objectives of this solicitation as measured against the application evaluation criteria.
- G-11. In the solicitation, DOE indicates that it anticipates this program will result in a number of projects. The solicitation also states that the scale of the proposed projects must be large enough to prove the viability of commercial applications. How many projects do you think can go forward in a commercially applicable manner with \$95 million -- not a lot of money for a demonstration project?

A. See answers G-7, G-8, and G-10 above.

Program Areas of Interest

G-12. Is there a relative emphasis on retrofit (ex., emissions controls) versus true clean coal technologies which would likely be repowering or green/brown-field projects?

A. There is no predetermined preference for retrofit versus repowering or green/brown-field projects.

G-13. For co-production oriented solicitations, is there a threshold minimum power generation requirement, example -- a certain percent on a MM Btu basis of fuel (that) must be converted to electric power?

A. As its title suggests, the Power Plant Improvement Initiative is focused primarily on power plant improvement technology. We feel that for co-production oriented applications, at least 75% of the fuel heat input (on a Btu basis) should be applied toward electric power generation.

RI. Upon reconsideration, DOE believes the goal of the Power Plant Improvement Initiative can best be met if not less than 50% of the fuel heat input (on a Btu basis) of the proposed demonstration project (and its commercial embodiment) is converted to electric power. Guidance will be provided in the solicitation.

G-14. The solicitation should provide guidance on the acceptability of projects that evaluate technologies for coproduction of chemicals and chemical feedstocks, but do not address the electricity part of coproduction.

A. See answer G-13 above.

G-15. Co-production to produce electricity and “high-value chemicals” should not exclude low value by-products that might also substantially improve coal-power economics and by-product disposals.

A. We don’t mean to exclude such by-products. However, experience tells us that some markets can assign much lower values to by-products than to naturally occurring materials (e.g., scrubber gypsum), and also that large by-product quantities can help to saturate some markets. Applications touting by-product utilization, be it high-value or low-value, should address those concerns as well as improved coal-power economics and by-product disposals.

G-16. Why would SCR systems and low NOx burners be included in this solicitation if these technologies have been or are planning to be installed at many facilities throughout the country?

A. DOE does not want to demonstrate technologies that have been demonstrated previously.

Rather, we are looking for technologies that offer the potential for achieving significant, not marginal, improvements in power plant performance. If SCR or Low NOx burner projects can be proposed that meet these criteria, and the mandatory preliminary evaluation criteria listed in Section V.C (Preliminary Evaluation) of the solicitation, then they will be subjected to a comprehensive evaluation in accordance with the evaluation criteria listed in Section V of the solicitation.

G-17. Does this mean that the Texaco gasification technology will not be permitted in this solicitation since it has "been previously demonstrated" ?

A. We do not intend to demonstrate the same technology that was demonstrated under clean coal or other demonstration programs. However, one cannot say that a specific developer or technology would be ineligible for participation under the Power Plant Improvement Initiative. For example, improvements to a particular technology may be proposed that achieve the power plant improvement initiative program objectives. Also, some variation of a particular commercial technology may be integrated with a new technology to produce a different product or array of products. The value to the government, public, and industry of the proposed project toward meeting the objectives and criteria stated in the program solicitation is of primary importance.

G-18. I would like to suggest an additional topic of interest to DOE that might be relevant: Gasified coal (low volume, high temperature) is cooled to produce syngas or can be burned hot - I believe the cooling process provides an opportunity to remove mercury prior to combustion - some syngas plants use a methanol (cold) wash system that appears to remove mercury - but to my knowledge nobody has investigated the efficiencies of this approach, nor other approaches to cleaning up the syngas prior to combustion for power generation. I would recommend "precombustion mercury removal technologies for syngas" be added as a DOE priority topic area.

A. From Section II (Program Areas of Interest) of the draft solicitation, we quote, "With this solicitation, DOE is seeking proposals in any of the technical areas described below or in any other area that the applicant believes can make an important contribution to achieving the power plant improvement initiative program objectives. The inclusion of this list of sample technologies is not intended to preclude work on other technologies important to advanced coal based power generation." Also one of the bulletized items is mercury control; so the area is covered in the solicitation.

G-19. A key gap in gasification-based technologies is the characterization of toxics and mercury emissions and control technologies. This topic should be added to the list of possible projects.

A. See answer G-18 above. The program areas of interest are provided as examples, and the list is not meant to be exclusive.

G-20. Will this solicitation have a focus and priority on coal-fired plants or will it be extended to needed natural gas-fired plants as well?

A. Through the Power Plant Improvement Initiative, DOE is seeking projects to demonstrate advanced coal based technologies that can be applied to improve the performance of existing and new electric power plants. This objective however does not preclude the use of other fuels such as natural gas, as long as the use of natural gas can fulfill the objective stated above. Furthermore a proposed project must not utilize more than 25% of any fuel other than coal, as measured on fuel input (Btu) basis. DOE will not share in the cost of any fuel other than coal. In addition, the proposed project must be designed for and operated with coal mined in the United States.

G-21. The technical feasibility of repowering with natural gas has already been demonstrated and should not be funded under this project. The focus of the present project should be on repowering with coal or fuels derived from coal.

A. We agree that the focus of this Power Plant Improvement Initiative should be predominantly on coal, not natural gas or other fuels. However, we have no predetermined preference for repowering versus retrofit or greenfield projects.

G-22. Can funds be used for modeling the chemistry and air/gas flow in combustors of a specific power plant with the goal of efficiency improvement, or emissions reduction?

A. While their development costs can sometimes be staggering, models offer the potential for significant cost savings to end users, often at a very reasonable cost. To the extent that a model can offer a significant efficiency improvement, emissions reduction, or cost savings, it may qualify for funding under the Power Plant Improvement Initiative. However, in keeping with the legislative guidance for the Power Plant Improvement Initiative, a model that is intended for use at existing power plant facilities must be capable of broad electric utility industry application, and not designed solely for one power plant.

G-23. I am part of a multidisciplinary team involving surface scientists, chemical engineers and environmental engineers. Our research is focussed on environmental applications of carbonaceous materials, with a view to using these as catalysts or sorbents for pollutants produced by power plants. As an example we have been looking at how powdered carbons can be used as materials for mercury remediation from coal-fired power plant flue streams. We combine fundamental and applied science and engineering to figure out how carbonaceous materials can be modified and tailored towards specific environmentally relevant applications. Is our research relevant to the "Power Plant Improvement Initiative"?

A. Mercury control technology has been identified as one example of a program area of interest under the Power Plant Improvement Initiative. Under this Power Plant Improvement Initiative, we are seeking projects of a scale large enough such that the technology can be

demonstrated on a commercial scale. Proposed technologies should be mature enough to be ready for commercialization in the next few years. Finally, there is a 50% minimum participant cost share requirement.

G-24. The solicitation states that one of the project goals could be to demonstrate CO₂ Capture, Utilization, and Sequestration. We agree that work is required on this topic in order to maintain the long term viability of fossil fuel, but today there is no policy requiring such action. Also, to our knowledge, there are no CO₂ capture, utilization or sequestration technologies that have been developed sufficiently to allow commercial demonstration. Therefore, we suggest that such criteria for funding under this solicitation be omitted.

A. We've included CO₂ under this Power Plant Improvement Initiative in order to maintain the long term viability of fossil fuels (to borrow from your own statement), in light of increased public concern over CO₂.

Evaluation and Selection

G-25. Is it possible for a proposal to be awarded only partial funding, where certain line items within the proposal are not approved?

A. DOE reserves the right to make partial selections. The ramifications of this would be subject to negotiations. Applications may be withdrawn at any time up to award.

G-26. Page 27 of the solicitation lists three award evaluation criteria, weighted 40%, 30%, and 30% => 100%. How will items E-I (PP. 27 & 28) be included in the award evaluation criterion, if the three award criteria on page 27 account for 100% of the evaluation criteria?

A. The percentage weights apply only to the technical criteria. The other criteria and factors will be considered separately during selection.

G-27. How will you perform the overall assessment of power plants before any work is done?

A. It is the responsibility of the applicant to characterize its project correctly in the application. It is expected that the statement of work would provide activities to compare the pre- and post-demonstration conditions. Projects typically produce such performance information in a routine manner.

G-28. Program targets lack quantification. (Example: efficiency improvement/environmental improvement/cost improvement.) How will projects be scored? What will be baseline(s)?

A. We are looking for significant, rather than marginal, improvements. The performance targets would depend on the specific area (e.g., efficiency, environmental, and/or cost

improvements), but would be necessary for the applicant to evaluate the market reach potential and improvement potential. The technical evaluation criteria, including point scoring percentages, are given in Section V (Evaluation and Selection) of the draft solicitation. The targeted baseline is what the best commercially available technology would do.

G-29. How will project viability be point scored?

A. The technical evaluation criteria, including point scoring percentages, are given in Section V (Evaluation and Selection) of the solicitation. Commercial Viability and Market Potential is worth 30% of the total score for the technical volume. Also, see draft solicitation Section IV (Application Preparation Instructions) for specific guidance on the type of information to be provided in the application. The solicitation will require a business plan as a part of each application.

G-30. The solicitation involves demonstrations of advanced technologies to: 1) increase efficiency, 2) lower emissions, and 3) improve economics. Will DOE overweight any of these 3 criteria in evaluating applications? Will projects that accomplish multiple goals (e.g., increase efficiency and improve economics) be looked at more favorably?

A. We have not assigned weighting factors to these improvement goals yet. However, it is safe to assume that projects proposed that address multiple goals may be viewed more favorably than a project that only addresses one of those goals to the same extent. Programmatic balance is desirable as an outcome of this solicitation. Selection of a range of projects that utilize a broad range of U.S. coals is desirable.

G-31. Evaluation criteria is based on environmental and energy efficiency improvements. Do both of these factors need to be realized for a project to be awarded? Environmental control systems, such as SCRs, will likely impact performance, but provide significant NOx reductions. So, if an advanced control technology offers significant environmental and cost benefits without deleterious impacts to efficiency, yet not improve overall plant efficiency -- would it be looked upon favorably based on these criteria -- or do you need to capture both environmental and system performance improvements?

A. See answer G-30 above. DOE recognizes that a single applicant or project most likely will not be able to equally address each of the stated goals of A) improving electricity reliability and energy security, B) reducing the environmental effects associated with coal-fired electric power generation including air pollutants, carbon dioxide, water usage, and/or solid waste generation, C) increasing the efficiency of electricity production, D) improving the cost-competitiveness of coal-fired power generation, E) applicability to a large portion of existing or new plants, and F) of scale large enough to prove the viability of the technology in commercial applications that can be deployed over the next few years.

G-32. For environmental performance enhancement, what standard emission level should be used as a baseline to measure reduction of emissions? For example -- xx amount of emissions per ton of fuel used.

A. We are looking for technologies with the potential for achieving significant, not marginal, improvements in performance. Environmental performance includes reducing emissions of air pollutants, CO₂, water usage, and/or solid waste generation. A reasonable baseline upon which reduction of emissions could be measured is the “best” or state-of-the-art commercially available technology. The applicant should evidence its view of the relevant state-of-the-art with respect to the proposed technology.

G-33. The competitiveness of proposed new technologies will in part depend on the cost of other fuels and generating technologies. For coal to compete in the future, there clearly has to be a major cost advantage over gas-based technologies. The solicitation should provide guidance on the range of gas prices that proposers can use in developing performance targets for new coal-based technologies.

A. If we’ve learned anything over the past year, it is that natural gas prices are, if anything, volatile. And we’re not sure we can bracket natural gas prices any better than industry can. The stability of supply and cost that coal affords is an important advantage when it comes to maintaining electricity reliability in the United States, and we believe that is a premise for this Power Plant Improvement Initiative. We respectfully decline to provide such a range of gas prices, however. In fact, we don’t agree with the assertion that gas prices should serve as the baseline for every technology application. While that may be true for some power generation technologies, it may not be true for many emissions control technologies. Where gas prices are used as a baseline for comparison, however, an ideal technology would be capable of beating those prices in even a very volatile price market.

Administrative Matters

G-34. Can, or should, multiple proposals be submitted by one applicant?

A. Applicants may submit multiple applications. Multiple projects must not be bundled in a single application, however.

G-35. Will DOE publish a list or summary of project proposals?

A. At this time, we are not planning to publish such a list or summary. However, we do always publish abstracts for those projects that are selected.

G-36. Will a list of prospective applicants be available to the public before the proposals are due?

A. No. We don't release this information, and no longer maintain individual bidders lists for our solicitations.

G-37. Financial and accounting forms have been laid out in a chart in Section VI. Are there other forms that are required for the technical section, Volume II, that I may have overlooked?

A. All forms will be identified in section VI of the official solicitation which is due to be released on or around January 31, 2001. Most of the forms deal with business and cost aspects of the application. However, the Environmental Questionnaire (to be included in Volume I of the application) does apply to the technical aspects of the proposed project(s). The forms are available on the NETL Homepage at: <http://www.netl.doe.gov/business/forms/forms.html>. Please follow the Application Preparation Instructions in Section IV of the solicitation.

G-38. Lastly, and certainly least, the requirement of 12-pitch font is silly particularly when most of DOE's solicitation are written in 10-pitch font - How about a compromise at 11-pitch?

A. The 12-pitch font requirement is meant to ensure consistency among applications in format, and to help establish a reasonable limit on the length of applications that we must review. Toward that end, the 10-pitch font of DOE's solicitation is not particularly relevant.

General/Miscellaneous

G-39. Is the solicitation limited to first-of-a-kind demonstrations? Would projects involving the innovative use of commercially available technology be considered?

A. The legislative guidance for the Power Plant Improvement Initiative states that "Such demonstrations must advance the efficiency, environmental controls and cost-competitiveness of coal-fired capacity well beyond that which is in operation now or has been demonstrated to date." This would imply to us that projects must be first-of-a-kind with regard to achieving higher efficiency, higher emissions reductions, and/or lower costs. The innovative use of commercially available technology would be considered where the applicant presents a persuasive application to the effect that higher efficiency, greater emissions reduction, and or lower costs than have been achieved to date can, in fact, be achieved. Note also that such improvements must be significant, not marginal.

G-40. The project goal of near-term commercial application may in some instances be inconsistent with the goal of first-of-a-kind demonstrations of technologies yielding significant performance improvements. This is because technologies that are appropriate for near-term application will for the most part be associated with incremental performance improvements, not the significant improvements called for in the draft solicitation. We recommend that the final version of the solicitation provide guidance on how the DOE will rate proposals involving technologies that

offer large potential performance improvements, but have significant technology development requirements.

A. See answer G-39 above. The legislative guidance also states “that the program will focus on technology that can be commercialized over the next few years.” Your recommendation is duly noted.

G-41. Since the availability of funding to support first of kind demonstrations is critically lacking, we recommend that all of the proposed \$95 million funding be deployed on full scale utility demonstrations. Rarely has the utility industry recognized a technology as “commercial” without full scale demonstration. First of kind demonstration risks and expense, are a “valley of death” for new technology deployment. Therefore, we recommend that all projects be of a minimum scale of 50 MWe equivalent firing rate in order to meet this industry commercialization need.

A. While 50 MWe (or even 100 MWe) might make a good “rule of thumb”, we do recognize some exceptions and therefore decline to set a minimum MWe size requirement. Rather, each applicant must make a persuasive argument that the proposed demonstration is appropriate for a successful demonstration project and also applicable to the commercial market.

G-42. Would you please elaborate on the level of maturity of a technology that DOE considers acceptable for consideration under this solicitation?

A. The legislative guidance for the Power Plant Improvement Initiative states that “Such demonstrations must advance the efficiency, environmental controls and cost-competitiveness of coal-fired capacity well beyond that which is in operation or has been demonstrated to date.” DOE will consider the extent to which each application would accomplish these goals, provided of course, that the mandatory requirements set forth in draft solicitation subsection V.C, Preliminary Evaluation, are also satisfied.

G-43. Applications that utilize the technical expertise of Federally Funded Research and Development Centers should be encouraged to the extent that such participation is legally allowable. These centers can add significantly to the capabilities of the proposing teams.

A. Applicants can enlist Federally Funded Research and Development Centers at their own expense, and such costs will not be considered allowable project costs.

G-44. Will DOE consider funding under this solicitation for extensions, expansions of projects selected under the mercury control solicitation?

A. If it furthers the objectives of this Power Plant Improvement Initiative solicitation, that is possible. However, work under the two projects, including costs and scheduling, would have to be tracked separately. Duplicative proposals will not be acceptable. Work under an existing project is not considered part of the required cost sharing under the Power Plant

Improvement Initiative.

G-45. DOE will be notifying project participants selected under its recent mercury control solicitation. Will this occur prior to the 3/30/01 proposal due date for this solicitation?

A. All proposals are currently being evaluated under the recent mercury control solicitation, and it is anticipated that selections will be made on or before Feb. 28, 2001. To monitor progress on the mercury control solicitation, visit the NETL website at www.netl.doe.gov and Select 'Business', then 'Solicitations', and then Solicitation # DE-PS26-00NT40769. Questions in response to the mercury control solicitation should be addressed to Martin Byrnes at (412) 386-4486.

G-46. What would happen if during the demonstration project, one or more of the participants incorporated outside of the United States?

A. There is not enough information to respond fully to this question. Please clarify the question and fact situation through the Power Plant Improvement Initiative web page. If a project falls under EPACT Section 2306 and a recipient proposes to move the project to a foreign country, such action would not be permitted.

G-47. Is "demonstration" definable? Do pilot plants qualify? Can experimental lab/pilot scope be included in a project?

A. "Demonstration" means that the project would show that the technology is viable for commercial applications that could be deployed over the next few years. Pilot plants would qualify if they produce information sufficient for commercial deployment of the technology. There is no prohibition against including lab/pilot work scope in the project.

G-48. Under this solicitation, DOE does not plan to fund technologies that have been demonstrated previously. Would a technology that has been (partially) demonstrated but not commercially demonstrated be a candidate for funding under this solicitation?

A. DOE does not intend to demonstrate technologies that have been demonstrated previously. Depending on the specific context under which a partially demonstrated project is presented, it may or may not apply. For example, we do not desire to provide additional funds to a concept or technology that has not shown good potential based on prior development. However, innovative or developmental projects that have good potential for market entry, but to date have lacked demonstration for commercial readiness are the type of projects we are seeking.

G-49. Is there a minimum or maximum time frame for each of the three activities within the solicitation (i.e., design, construction, operations)?

A. No. The legislative guidance does state, however, that "the program will focus on

technology that can be commercialized over the next few years.” Balancing that guidance with DOE’s own assessment that two years to design and permit, two years to construct, and/or two years to operate a technology demonstration project is not unusually long even on a fast-track project schedule, we suggested that typical project durations could range from two to six years. However, that range is not meant to be prescriptive.

G-50. Will DOE provide information beyond what is in the draft solicitation regarding the technical areas of highest interest; the number and size of awards anticipated; and other expectations regarding the technical content of the program?

A. The final solicitation, amendments of the final solicitation (if there are any amendments), and any other information that we deem relevant to the solicitation will be posted on the Power Plant Improvement Initiative web page at the NETL web site. This information will incorporate comments that we receive to clarify common ambiguities that are brought forward during this public comment period.

G-51. Any restrictions/qualifications in regard to the use of coal waste as a fuel?

A. Please refer to Section V.C (Preliminary Evaluation) of the draft solicitation. The proposed project must not utilize more than 25% of any fuel other than coal, as measured on a fuel input (i.e., Btu) basis. Coal waste type feedstocks (e.g., coal fines) would be considered the same as coal for the purposes of complying with the constraint.

G-52. Are coal “fines” or trimmings from coal mines (culm banks, fines, etc.) considered coal for the purpose of this solicitation?

A. Yes.

G-53. Since the Program Areas of Interest (draft solicitation Section II) identifies “combustion or gasification system improvements, including utilization of alternative fuels” as technologies important to advance coal based power generation... Why does the Power Plant Improvement Initiative draft solicitation limit cost sharing of fuel acquisition to coal only? Additionally, why must proposals under the Power Plant Improvement Initiative limit alternative fuel use to no more than 25%?

A. The thrust of the Congressional guidance for the Power Plant Improvement Initiative is focused on improving the performance of facilities using coal to produce electric power. DOE selected the 25% limit on the contribution of alternative fuels as a reasonable way to ensure compliance with the legislative guidance.

G-54. Were the \$95 million in funds previously appropriated to the Clean Coal program -- i.e., is this part of the funds not utilized for the Lakeland project? (I heard \$160 million was not expended.) Are there any commitments placed on this \$95 million?

A. Per the Congressional guidance on the Power Plant Improvement Initiative, “Language also is included transferring \$95,000,000 from the clean coal technology account for a power plant improvement initiative.” So, yes, the \$95 million in funds were previously appropriated to the Clean Coal program.

G-55. "Significant, non Marginal improvements" -- please define significant.

A. The use of the term Significant can take on various levels or magnitudes depending on the technology, subsystem, component, or power plant module that is being proposed by the applicant. The burden is on the applicant to address the potential and probability of the proposed technology, subsystem, component, or module to affect existing or new power plants in a way to enhance coal based power systems reliability, environmental effectiveness, cost competitiveness, efficiency, etc. The applicant must address the quantitative magnitude to which the proposed technology, subsystem, component, or module can enhance coal fired power systems including if applicable, plants that may also be capable of coproducing some combination of heat, fuels, or chemicals. Presentation of knowledge of the current state-of-the art, the magnitude of the improvement that the applicant is proposing and the reach (or market penetration) of the proposed technology to enhance exiting coal fired capacity or penetrate the market with new plants must be addressed by the applicant.

G-56. The solicitation requests demonstration of “technologies that offer the potential of achieving significant, not marginal, improvements in power plant performance.” We agree, and recommend that more quantitative targets be established to guide project responses and selections. We suggest the following as potential targets:

- a) an overall efficiency improvement of not less than 3 percentage points on a unit having a heat rate of 10,000 Btu/kWh (or steam conditions of 1800 psi/1000F/, or
- b) SO₂ removal of 98% of fuel sulfur with average capital and operating cost 25% below commercially available;
- c) NO_x - 80% reduction of baseline uncontrolled levels with average capital and operation costs 25% below commercially available. It would be helpful to specify a quantitative target of 0.10 lb/MBtu.
- d) Overall coal power electricity generation cost reductions of 20 percent below commercially available;
- e) 95% utilization of solid residues into useful by-products.

A. At least three of your suggested targets are close to targets that DOE had considered when compiling the draft solicitation. We refrained, however, from establishing such prescriptive targets. Rather, each applicant is allowed to argue the merits of their own application. For

example, it can be argued that an ultra-low NO_x burner, capable of reducing NO_x emissions by 65%-70% (or alternatively capable of operating on cyclone boilers) might represent a good step forward even though it might not meet an 80% NO_x reduction target. Similar arguments can be made for the other suggested targets. Again, each applicant must make a persuasive argument in its application(s) that the proposed technology offers a significant improvement in power plant performance.

G-57. The solicitation should provide guidance on how to reference the performance baselines for significant improvement in plant efficiency, environmental impact, and cost competitiveness. The solicitation should also describe what is meant by a “significant improvement” from the baselines.

A. See answers G-55 and G-56 above.

G-58. There are four largely separate independent goals in this solicitation, each of which require quite different approaches and solutions for power plants firing coal: (1) control of the criteria pollutants NO_x and SO₂; (2) control of the other air pollutants, like fine particulate and mercury; (3) improved plant efficiency; and last, (4) reduced CO₂ release. At the very least, the PPII objectives are far too broad to address all of these goals at once, and for the kind of money involved will lead to poor solutions for all. \$95 million (times 2) is not nearly enough to address each goal separately, particularly at the full-scale coal-fired plant demonstration level.

We suggest that the PPII demonstrations be specifically focused on item (1); to control the criteria pollutants NO_x and SO₂ with the demonstration of technologies that can retrofit / repower the **existing** US coal-fired power plant fleet **and** not degrade or derate the plants electric capacity. For a technology qualification guide, we suggest the “Repowering definition be used that is given in 40 CFR 72.2 of the 1990 Clean Air Act Amendments.

You will note that commercial technologies for emissions control such as flue gas scrubbers (for SO₂ control) and selective catalytic reduction systems (for NO_x control) have large (7 to 15%) parasitic load requirements; e.g. increased fan horse power for FGD/SCR pressure drop, and heavy electric loads for the systems required to move the large quantities of solids and/or waste products. The PPII objectives of items (3) improved plant efficiency, and (4) reduced CO₂ release will be met with a qualified Repowering technology that can maintain the plants designed electric capacity, particularly when compared to plants that are retrofit with commercial FGD and SCR systems. We foresee the potential for PPII credits for item (2) fine particulate and mercury release, may be included in this Repowering program as well.

A. The goals of the Power Plant Improvement Initiative can be summarized as: A) improving reliability and energy security, B) reducing the environmental effects associated with coal-fired electric power generation including air pollutants, carbon dioxide, water usage, and/or solid waste generation, C) increasing the efficiency of electricity production, D) improving the cost-competitiveness of coal-fired power generation, E) applicability to a large portion of existing or

new plants, and F) of scale large enough to prove the viability of the technology in commercial applications that can be deployed over the next few years. As stated in other answers, we have no predetermined preference for repowering versus retrofit or greenfield projects.

G-59. During the public information meeting held on December 15th, it was emphasized that viable projects would be sought that would be launched in a timely fashion. In particular, it was stated that there was a desire to avoid some of the long delays in launching some of the prior Clean Coal Demonstration Program Projects. It would be helpful if criteria for “project viability” could be established that would help both applicants and DOE determine the viability of projects. Such criteria might include: commitment from officer of project participants, commitments of required non-DOE funds, commitment of site owner, statement from local/state/Federal EPA that says project can be sited, etc.

A. These are good points, much in line with our own thoughts, and we will keep that in mind when drafting the final solicitation, which will require a business plan as a part of each application.

G-60. It is not clear in the solicitation between the goal of improving the “reliability of the US electrical power system”, and the demonstration focus on improved efficiency, emissions, and economics. It would be helpful to clarify the relationship in the final solicitation.

A. This Power Plant Improvement Initiative solicitation deals with improving the reliability of electric power generation. It does not, for the most part, deal with improving the reliability of electric transmission and distribution systems. We believe that meeting the goals of improved efficiency, reduced emissions, and/or lower costs will enhance the reliability of the U.S. electrical power system, partly by allowing that system to continue its utilization of coal as the fuel of choice.

G-61. We believe that there is environmental interest in real-time measurement of polycyclic aromatic hydrocarbons and dissemination of how the level is affected by operating conditions over a long period of time, i.e. day to night, summer to winter, and coal source variation. Could funds be used to construct the instrumentation, bench testing, installation, data collection and reporting? This would be a joint effort by the power company and a U.S. University, and overall, would comply with cost-share guidelines. And, it would be reasonable that the corresponding traditional emission gases would also be reported. Hence, added instrumentation and data collection capability would be indicated.

A. This might make a good R&D project under another environmental solicitation. However, it is unclear to us, from the information provided, how this data collection effort would increase the efficiency, reduce the emissions, and/or lower the costs of electricity production. Thus, it does not appear to satisfy the objectives of this Power Plant Improvement Initiative.

G-62. Could funds be used to construct a pilot, coal-fired power plant for research purposes at a

U.S. University, perhaps 5 MW? The University could consider cost share, provided it is dual fuel capable (coal and gas) and will ultimately be dedicated to providing campus power and building heating (steam) and cooling (absorption refrigeration) needs. A regional power generating company, with coal fired stations would participate in an advisory capacity, with the ultimate goal of implementing technology which appear feasible and accomplishes solicitation objectives with regard to efficiency improvement, emissions reduction, by-product utilization and/or lower capital cost equipment/installed kW capacity. Study areas could include coal fired combustion turbine technology, fluidized bed combustion on high ash, high sulfur coal, and combined cycle or co-gen. technology.

A. We do not wish to preclude small pilot-scale projects, per se. However, the project described raises a number of concerns to us. Is a 5 MW pilot-scale demonstration sufficient to effect widespread commercial deployment in a few years without a further scale-up demonstration? Will either the university or the utility company play a central role in technology commercialization and/or repayment? Can an R&D facility double as a generating facility? And so on. Without digressing further, we have serious reservations about this concept. Look to the final solicitation for further clarification on the allowability of design and equipment costs associated with fuels other than coal.

- G-63. Page 22 shows the Public Abstract included in the Technical Application (it's the first listing in the Technical Application Table of Contents). Also on page 22, third paragraph from the bottom, is the statement "no cost information is to be included in the Technical Application."

On page 23, the Public Abstract section says "This section shall contain...the proposed total cost." This section also says the public abstract is a stand alone document.

So is the public abstract in the Technical Application or is it stand alone, and does it include the total project cost?

A. The Public Abstract is a description of the technical aspects of the project. It is included in the "Technical" Application and included in that Volume of the application. The Public Abstract for projects that are selected is used to inform Congress and the public; therefore, it should be able to be used as a stand alone document. The Public Abstract should NOT contain any cost information. Thank you for pointing out our error about including cost information in the Public Abstract; we will correct it in the final solicitation.

- G-64. Will DOE need to grant permission or will they have any say related to engineering and technical specifications and equipment?

A. DOE reserves the right to exercise technical oversight to the extent it is necessary to protect the public interest in any given demonstration project.

- G-65. Please clarify the approval process at each project stage for budget periods.

A. Funding for each budget period shall be contingent on DOE approval of a continuation application submitted two (2) months prior to the end of the current budget period. The continuation application shall include: 1) a statement of technical status or progress of the project to date; 2) a detailed statement of work for the conduct of the project during the upcoming budget period; and 3) a detailed budget for the upcoming budget period. The amount and award of the continuation funding is subject to the availability of appropriated funds.

G-66. Can DOE funds be used to build a permanent facility on power company property, provided that cost share conditions are met?

A. Yes. In fact, continued operation of such a facility after completion of the Power Plant Improvement Initiative demonstration project can be used as the basis for an alternate repayment plan. Keep in mind, however, that such a facility must meet the other objectives of this Power Plant Improvement Initiative, and not simply the 50% cost share requirement.

G-67. Depending on the findings of 3) above, can this proposal consider funding for installation of improved technology, or should that be covered under some other source? In other words, unless technology is demonstrated, it would be unusual for a power company to commit to installation of indicated equipment. So, it would appear necessary that any new technology be demonstrated.

A. The purpose of this program is not to fund the deployment of previously demonstrated technology. Rather, the Power Plant Improvement Initiative is a technology-forcing program designed to allow industry to leverage its own RD&D funds and to offset some of the risks of demonstrating new technology.

Environmental Questions

Several of the environmental questions received by DOE deal with relief from New Source Review (NSR) requirements for Power Plant Improvement Initiative projects. The authorizing legislation for the Power Plant Improvement Initiative stated that Power Plant Improvement Initiative projects qualify for the same NSR exemptions authorized for Clean Coal Technology demonstration projects under the Clean Air Act and EPA's implementing regulations. In addition to the answers provided below, DOE has posted a more detailed explanation of the exemptions on the Power Plant Improvement Initiative website.

E-1. Will projects under PPII be subject to New Source Review (NSR)?

A. NSR could apply if the project's emissions show net increases for Federal criteria pollutants or other State regulated pollutants. Refer to EPA regulations at 40 CFR 51, 52 & 60, for further definition of the applicability of the exemption to the proposed project.

- E-2. Will new repowering technologies be subject to NSR? Could NSR be waived for these applications?
- A. NSR could be partially waived for repowering technologies that meet requirements under 40 CFR 51, 52 & 60. It is recommended that any exemptions should be reviewed by State agencies having jurisdiction for air permits in order to obtain feedback and acceptance of CFR interpretations.
- E-3. Will host sites be subject to NSR/"major modification" consequences if they participate in this program?
- A. NSR could apply if the project increases net emissions for criteria pollutants or other state regulated pollutants. Refer to EPA regulations at 40 CFR 51, 52 & 60 for further definition of the applicability of the exemption to the proposed project.
- E-4. How can DOE set a drop-dead date for completing Budget Period 1 when completing the NEPA process is DOE's job? Previous DOE-funded projects have taken between 15-30 months to complete an Environmental Impact Statement through a Record of Decision. What is the best (shortest) time that DOE/NETL has completed an EIS/NEPA process?
- A. If it is DOE's cause for delay regarding NEPA, then we will consider revising schedules (as long as the industrial participant has met their informational requirements under Budget Period 1). EISs have been completed in less than 20 months.
- E-5. If a project requires a complex NEPA action, such as an Environmental Impact Statement, how does that affect the specified deadline set for completing Budget Period 1?
- A. The Budget Period 1 activities should not be affected based on NEPA considerations (e.g., informational development). Following selection, which is anticipated by late August or early September of 2001, an Environmental Information Volume should be prepared by the Applicant and submitted to DOE as soon as possible, but no later than the end of Budget period 1, in order to help expedite the NEPA process. Budget Period 2 could be delayed until after a NEPA decision has been made (e.g., if an EIS needs to be developed).
- E-6. The NSR/PSD issue of not obtaining permits when making "improvements" seems to indicate that any of these demonstrations would have to have NSR/PSD review that may affect the timing requirements of the project. Please comment.
- A. Delays in schedule caused by government action or inaction (e.g., obtaining PSD/NSR permits) could be reason for DOE to adjust budget periods and other timed events.
- E-7: I am excited to see this solicitation for financial assistance for improvement of power plants. There are many areas in the power production industry that can be improved. The solicitation

discusses the improvement of older plants. Are you aware that many older plants are exempt from the most stringent EPA Air regulations and are regulated to a less stringent standard. These older plants can lose their exemption if certain types of improvements are completed. If the older plants trigger PSD (Prevention of Significant Deterioration) the exemption is lost. It appears to me that the Federal Government has one department (DOE) trying to help power plants make improvements and another (EPA) trying to shutdown the older power plants. I think it would benefit everyone if projects funded by the Power Plant Improvement Initiative were exempt from being considered for PSD. PSD causes many power plants to not make improvements because of the financial burden undertaken when PSD is triggered.

A. DOE is aware that many older plants are exempt from the most stringent EPA air quality regulations, are regulated to a less stringent standard, and can lose their exemption if certain types of triggers are met (e.g., increases in emissions; new source review required). However, Public Law 101-549 (Clean Air Act Amendments), November 15, 1990, it is stated under section 401: "For permanent clean coal technology demonstration projects that constitute repowering as defined in section 402(1) of this title, any qualifying project shall not be subject to standards of performance under section 111 or to the review and permitting requirements of part C for any pollutant the potential emissions of which will not increase as a result of the demonstration project." It is suggested that the commenter review that section along with the referenced sections of the Clean Air Act Amendments and EPA regulations to determine if opportunities exist for regulatory relief for their proposed project.

E-8. The viability of some projects and technologies will be contingent on obtaining prompt clarification regarding (and possible relief from) New Source Review requirements, at least for the duration of the demonstration project. DOE should commit to working with successful bidders, the EPA, and responsible state and local government agencies to assure prompt resolution of NSR issues.

A. Your comment is duly noted.

Cost & Financial Questions

C-1. Less stringent cost-sharing should be considered, for example 30%, instead of 50%. Increased risk by participant should call for less cost contribution.

A. The minimum 50% participant cost share is Congressionally mandated and therefore not negotiable.

C-2. Consideration should be given to a few projects, at a high funding level, rather than more small projects, at less funding.

A. Your comment is duly noted. However, DOE will consider the quality of applications, and

the extent to which they meet the objectives of this solicitation, as measured by their scores against the stated evaluation criteria. We want good projects that can best achieve the solicitation objectives, and beyond that do not have a strong preference for large or small demonstration projects.

C-3. What information that is auditable can remain confidential?

A. Business sensitive information that may be audited, such as detailed cost and financial data, will remain confidential. Summary-type cost and financial information that becomes part of the cooperative agreement, such as the Budget Period and estimated Project Costs information in Section 2.4 of the Model Cooperative Agreement, will be made available as public information.

C-4. Can procurement expenses be allowed retroactively after an acceptable NEPA review?

A. Subject to prior written approval from the DOE Contracting Officer and an affirmative NEPA decision, procurement expenses (e.g., major equipment costs) may be allowed retroactively.

C-5. Please review what costs are allowable. Confused by this discussion -- direct only? Some indirect?

A. Allowable costs for the cooperative agreements to be awarded under this solicitation are determined in accordance with the applicable Federal cost principles (e.g., FAR Part 31 for commercial organizations). The FAR cost principles can be found on the NETL website (<http://www.netl.doe.gov>) under the 'Business' link and then under the 'Acquisition' section. Allowable costs can be comprised of both direct and indirect costs for a particular organization. In order to be allowable for cost sharing purposes, a cost must be an allowable cost, whether it is a direct or an indirect cost.

C-6. Commercially available components of the proposed system will be included at normal commercial costs. Is this acceptable since it includes some profit?

A. Yes, this is acceptable under certain conditions. If the components are readily available in the marketplace and will be acquired by a competitive bid process, the commercial price of the components would be an allowable cost to the project. If the components are acquired through a sole-source process or obtained at a "less than arms-length" transaction, the offeror must provide some rationale for not acquiring the item competitively and provide evidence that the price is reasonable.

C-7. One participated company would be a private company. They would not provide detailed financial information but would be happy to have an auditor's statement of the company's ability to meet its financial obligations. Is this acceptable?

A. The alternative solution offered within this question would not be sufficient to meet the financial information requirements in Section IV, Volume I, Business & Financial Application. DOE's preference would be to have sensitive or proprietary financial information sent directly to DOE by any team member or subcontractor that cites confidentiality issues with the applicant as a reason not to submit the required financial information.

C-8. Please review when funding commitments have to be in place.

A. A funding commitment or funding plan is to be submitted with the application. However, it may not always be possible to finalize all funding commitments prior to application submittal. Accordingly, all funding commitments must be made prior to award, or roughly six months after selection, at the latest.

C-9. Will tax-exempt financing be allowed?

A. Further clarification or amplification of the question may be required to fully respond to this question. However, tax-exempt financing (e.g., tax-exempt state or municipal bonds) is generally an allowable source of financing. Please note that funds paid under another Federal award, except where authorized by statute, are not allowable for cost sharing purposes.

C-10. Requirement for 50% cost share for all periods is not commensurate with previous DOE practice on high risk research programs. Recommend that this requirement be relaxed for the high risk portions of responses to solicitation (especially in Budget Period 1).

A. The 50% cost sharing requirement was Congressionally mandated. Also, note that demonstration projects entail more mature RD&D technology.

C-11. Will a solicitation be viewed more favorably if the funding level requested from DOE is significantly less than 50%?

A. One aspect of the evaluations covers "priority placed by management on financing the project." A greater cost share by the participant would be viewed more favorably under this criteria.

C-12. Where are the allowable costs located, i.e., CFR reference number or other sources?

A. For commercial organizations, the applicable cost principles are found in FAR Part 31. The FAR (Federal Acquisition Regulation) system is found at 48 CFR Chapter 1, but can be accessed more easily through various web sites. The FAR cost principles can be found on the NETL web site (<http://www.netl.doe.gov>) under the 'Business' link and then under the 'Acquisition' section.

For nonprofit and educational organizations, the applicable cost principles are found in OMB

Circulars A-122 and A-21, respectively. These circulars can be found at the following web site: <http://www.whitehouse.gov/OMB/circulars/index.html>.

Guidance on cost sharing can be found in 10 CFR 600.123, which is part of the DOE Financial Assistance Rules. These rules can be accessed through the NETL web site at <http://www.netl.doe.gov> under the 'Business' link and then under the 'Financial Assistance' section.

C-13. To be more specific, when I spoke of monies already expended, I was referring to research dollars already spent. We are in the middle stages of developing a process that economically reduces NOx in coal-fired boilers. I was wondering if we apply for and receive a grant for this specific research, if we could include in our budget well documented capital that we have already spent specifically to develop this exciting new technology?

A. No, previously expended research costs are unallowable as project costs and would not qualify as allowable cost sharing. Please check Section III, H, Cost Sharing. The eighth (8th) bullet states that previously expended research, development, or exploration costs are unallowable.

C-14: It is noted that no fee or profit is allowed in the project. Is it possible to break a large project into a DOE project piece that meets the solicitation criteria, including 50% cost share and no fee, and a non-DOE project piece that might contain a fee? Alternatively, if a project involves multiple parties, can a fee be paid from one party to another, so long as it is not part of the cost of the demonstration project to DOE?

A. The project submitted for DOE review and potential DOE funding under this solicitation must satisfy all of the preliminary and comprehensive evaluation criteria. If a large project is broken into a DOE project piece and a non-DOE project piece, only the DOE project piece will be reviewed and evaluated. The applicant runs the risk under this scenario that information under the DOE project piece may not be complete and thus lessens the chance of selection under this solicitation. However, a fee can be paid by one team member to another, so long as it is not part of the cost of the demonstration project to DOE. Side agreements entered into between team members will not become part of the DOE Cooperative Agreement.

It should also be noted that under the National Environmental Policy Act (NEPA), there is a possibility that by segmenting the proposed project into a "DOE project piece" and a "non-DOE project piece," the "non-DOE project piece" may be construed as being a "related action." If this is determined to be the case, a NEPA review will need to be performed on the "non-DOE project piece," even if no DOE funds are being used to design, construct and operate this part of the project.

Intellectual Property Questions

IP-1. Will DOE grant a waiver of patent rights if it is requested in a proposal?

A. In order to be granted an advance patent waiver, the Participant must submit a DOE advance patent waiver petition. The petition can be submitted as part of the application, and the petition will be considered if the application is selected for award.

IP-2. When will DOE decide whether it will grant a class waiver on patent rights under the PPII program?

A. We hope to decide by the time the final solicitation is issued whether we will pursue a class patent waiver. The actual granting of the waiver would not occur until some later date -- after concurrence from DOE Headquarters. If a class waiver is not granted, participants will be given sufficient time to submit an advance patent waiver petition.

IP-3. If I understood the conference call correctly, we would have the right to develop this technology commercially and retain certain key proprietary information regarding the specifics of the process. Is this correct?

A. The government is obligated to protect any proprietary information brought into the program from public disclosure. In order for this obligation to apply, the information must meet the definition in FAR 52.227-14 of "limited rights data" (i.e., data, other than computer software, developed at private expense that embody trade secrets or are commercial or financial and confidential or privileged). Because of the requirement that the data be "developed at private expense," data generated under any government funded agreement (including any award resulting from this solicitation) does not qualify as limited rights data. In addition, in order to be obligated to protect such data, the government must be notified that the data is proprietary. Thus, the provider of the data must attach the appropriate markings, as specified in the data provisions of the award, to the data when submitted to DOE. Certain data generated under an award that results from this solicitation may qualify for limited protection from public disclosure for up to 5 years after the conclusion of the operating phase of the project.

The intent of this solicitation is for the private sector parties to commercialize the technology being developed. In fact, DOE will expect the technology owner to commit to such commercialization. Thus, DOE expects that the private sector party would have or be given the right to develop the technology commercially.

Repayment Questions

R-1. Is repayment limited to the amount of DOE's contribution?

A. Yes.

R-2. If the principal proposer is a utility and the supplier of the advanced technology is a team participant, which organization is liable for the repayment? How would this be handled by the government?

A. Ordinarily, the Participant is liable for repayment. However, other team members may be

made liable if doing so makes more sense.

1/19/01