QUESTIONS/ANSWERS
PRE-SOLICITATION MEETING
JUNE 19, 2003

"GRAND CHALLENGE" FOR BASIC AND APPLIED RESEARCH FOR HYDROGEN STORAGE

Q.1. When do you expect the solicitation to open and for what period of time?

A.1. The Solicitation opened on July 24, 2003. Applications are due September 30, 2003.

Q.2. Please provide the name and contact information of the DOE National Laboratories that are preparing a virtual center of excellence in hydrogen proposal for funding.

A.2. The list of attendees and presentations from the Pre-Solicitation meeting are posted on the Hydrogen Program website at: http://www.eere.energy.gov/hydrogenandfuelcells/ .

Q.3. Please identify open DOE solicitations that address R&D in water gas shift catalysts, water electrolyzer catalysts, computational chemistry and/or combinatorial material science.

A.3. Please refer to the DOE Industry Interactive Procurement System (IIPS) where all DOE business opportunities are posted. You may search the website for appropriate opportunities for your technology. The website is: http://e-center.doe.gov/ . You may also refer to the Hydrogen Program website in A.2 for financial opportunities.

Q.4. Will CNT production via novel/inexpensive/less elaborate methods using nanoscale metal catalysts, be of interest to DOE?

A.4. Yes. Please refer to the Solicitation for topics including carbon-based storage materials.

Q.5. What incentives will be provided to interests that have already met the 2015 benchmark requirements?

A.5. All Applications will be evaluated based on the evaluation criteria in the Solicitation. No additional incentives can be provided beyond the stated weighting factors. Applications that can clearly show potential for meeting long-term storage system targets are likely to score favorably in the evaluation process.

Q.6. What steps should be taken to participate in the program?

A.6. The basic steps are to register in IIPS, download the Solicitation document, and follow all instructions in the Solicitation.

Q.7. Who should we contact to answer questions or obtain more information?

A.7. See Section II.F in the Solicitation for instructions on submitting questions.

Q.8. Will projects be accepted if they are not expected to fully meet the 2010 objectives?

A.8. It is possible that such projects may be accepted, but project selection is dependent on the technical evaluations and DOE Selection Official actions described in the Solicitation.

Q.9. Will small, disadvantaged businesses be disqualified because they lack (1) equipment and facilities; and (2) prestige within the scientific community even though significant contributions may be made?

A.9. No. However, all Applications will be evaluated per the evaluation criteria in the Solicitation. If an individual Applicant does not have all the necessary capabilities, the Applicant may team with one or more entities to strengthen an Application.

Q.10. Can NASA centers (e.g. NASA-KSC) participate in Category 2 or two proposals? If so, in what form and role?

A.10. Assuming your question refers to participation in Category 1 or 2, NASA or other Federally Funded Research and Development Centers (FFRDCs) may be team members in an application under either Category on one or more applications. Please see Section II.J in the Solicitation for participation by FFRDCs.

Q.11. Can PIs from one university be involved in more than one virtual center proposal?

A.11. Yes.

Q.12. Can there be less than seven universities involved in a given VC [virtual center]?

A.12. Please refer to Section II.A of the Solicitation (6 to 8 university projects are required).

Q.13. If an industrial partner has multiple ideas, should these be structured as separate sections in a single proposal?

A.13. In general, it is preferable to submit a separate Application for each different concept. Technologies in different Topics must be submitted separately. However, if ideas are closely related (for example, different ideas within the framework of carbon-based hydrogen storage), they may be submitted in the same Application.

Q.14. How should it be determined who is coordinating a proposed effort outside of DOE Laboratories?

A.14. See the attendee list and presentation materials from each laboratory that are posted on the Hydrogen Program website from the Pre-Solicitation meeting.

Q.15. Can you participate on different teams?

A.15. Yes.

Q.16. Can one university research group participate with more than one virtual center team? For example, can one group collaborate with one team in carbons and another team in metal hydrides?

A.16. Yes.

Q.17. Can consultants be used?

A.17. Yes.

Q.18. Is industry participation encouraged and/or anticipated in this round? What role is seen for industry?

A.18. Please refer to Section II.A in the Solicitation. Industry participation is required in Category 1. For Category 2, the prime Applicant must be a university or private-sector organization with other team members included at the option of the Applicant. Participation by industry is encouraged in all cases.

Q.19. Is a pre-existing program (not currently getting federal funding) eligible for this program, if we add a new portion to it to comply?

A.19. Yes.

Q.20. Does the proposal in Category 1 need to be coordinated through a designated center of excellence? If so, which lab is taking the lead in a given area (i.e., reversible metal hydrides, chemical hydrides, carbon-based)? While a list of experts in each research area at DOE labs is provided, would DOE provide a specific contact point(s) in each area?

A.20. Yes, Category 1 Applications must be submitted through the lead DOE laboratory. Please refer to the laboratory presentations posted on the Hydrogen Program website for the Pre-Solicitation meeting.

Q.21. Can federal organizations such as DARPA, NASA Jet Propulsion Laboratory, and NASA Glenn Research Center be supported under this solicitation?

A.21. Yes, as team members only, and not as prime recipients of Cooperative Agreements or as a Lead Laboratories.

Q.22. Can a DOD lab like NRL be a center or partner?

A.22. See A.21.

Q.23. Can federal labs like NIST lead virtual centers? Comment: NIST has about 20 mature world-class neutron scattering and imaging instruments that can be invaluable for diagnostics and characterization for all the programs that the national labs have put forward today.

A.23. No. However, see A.21.

Q.24. Can a research group from one university be part of more than one National Lab Virtual Center?

A.24. Yes.

Q.25. What is EERE's view on the national labs co-proposing a Center (e.g., LANL and PNNL)?

A.25. One laboratory must be the lead, with the other as a team member.

Q.26. Under the Lead Laboratory, seven universities are allowed to participate. Is there a limit to the number of National Labs that may participate?

A.26. Please refer to the current eligibility requirements in Section II.A of the Solicitation. For universities, 6 to 8 university projects are required per Center. There is no limit on the number of labs that may participate as team members in a Center.

Q.27. What was the thinking behind the seven universities number? Early on we heard 2-3 universities, why the increase?

A.27. It is believed that a large number of universities is needed to develop a better fundamental understanding and to achieve the required breakthroughs in hydrogen storage materials.

Q.28. Is there any disadvantage to a company submitting more than one proposal to a particular category other than the obvious one of competing with oneself?

A.28. No, as long as different technologies are submitted.

Q.29. Is there any disadvantage to submitting multiple proposals in different categories of this solicitation?

A.29. No.

Q.30. Will National Labs and universities be considered as center team members even if not specifically named in those Lead proposals? Will proposed teams be evaluated for modifications prior to or after awards?

A.30. All team members must be defined in an Application package submitted by the lead lab. DOE reserves the right to modify team membership based on Application evaluation and/or research results.

Q.31. How will proposals from team members "stand out" within a National Lab's overall center proposal?

A.31. Each team member will provide to the lead lab a complete Application package with its own distinct Statement of Objectives.

Q.32. What role will Basic Energy Sciences play in the hydrogen storage solicitation?

A.32. BES will provide technical and programmatic input and evaluation of projects.

Q.33. If there are multiple companies and/or universities involved in a project, who will take the leadership/prime role?

A.33. For Category 1, the lead laboratory will have responsibility for the submission of an application package describing the team member's roles and will be responsible for the overall reporting requirements of the Center as described in Appendix C of the Solicitation. However, the individual cooperative agreements with Center team members will also have award terms and reporting requirements, with DOE receiving reports with a copy to the Lead Laboratory. For Category 2, a single entity must be the Applicant, with other entities as team members. The Applicant has the lead role and will be the recipient of the financial assistance award from DOE.

Q.34. What is the role of each center in selection, coordination and allocation of resources to individual sub-projects? This subject is also pertinent to the intellectual property management – in order to have this in place, we need to know who we may be working with as potential partners.

A.34. The team should be developed before submitting an Application including the budget formation. Each team member (except the lead lab and FFRDC team members) of the Center will have separate cooperative agreements with DOE. Therefore, the Center will not be responsible for allocating resources to the individual team members.

Q.35. Category 1/Topic 1 -- To what extent is the Lead Laboratory responsible or not for reporting requirements (financial and other reports) associated with the cooperative agreements that are part of the Center of Excellence work scope?

A.35. The lead laboratory will have responsibility for the overall reporting requirements of the Center as described in Appendix C of the Solicitation. However, the individual cooperative agreements with Center team members will also have reporting requirements, with DOE receiving reports and a copy to the Lead Laboratory.

Q.36. How focused or broad should centers' R&D effort be?

A.36. Please refer to Appendix C of the Solicitation for the technical topics.

Q.37. Which Labs are doing work or have done work on MgH_2?

A.37. Please see the lab presentations from the Pre-Solicitation meeting that are posted on the Hydrogen Program website.

Q.38. Will the centers be issuing RFPs for specific activities or will the work be proposed during this initial solicitation?

A.38. Each Center will not be issuing RFPs for activities or team members, but the lead lab will be responsible for selecting team members and coordinating the submittal of Center and team member Applications.

Q.39. Will lead centers issue calls for projects?

A.39. See A.38.

Q.40. For virtual centers, will the university proposal have to be submitted to the lab or to DOE directly?

A.40. Center team members provide Applications to the lead lab which will provide a complete Center application package to DOE. Instructions are provided in the Solicitation.

Q.41. Shall the Lead Lab proposals include proposals from participating universities?

A.41. See A.40.

Q.42. What kind of flexibility will centers have to award projects after awards are made for Lead Centers?

A.42. See A.30.

Q.43. Category 1/Topic 1 (Page 5) -- "The level of effort and funding of the lead laboratory should constitute 33% of the total center funding." National Laboratory labor rates are generally higher than for universities so the basis for "33%" needs to be clarified. Also, on that basis, does "33%" represent a specific maximum or merely a

generally expected basis? Do I interpret the sentence correctly that universities will be funded at $300k? Does that level of funding represent a maximum or minimum level?

A.43. Please refer to Appendix C of the Solicitation.

Q.44. Is the funding level of $300,000 per university for Type I participants, cast in stone?

A.44. Please refer to Appendix C of the Solicitation.

Q.45. What variation on $300,000 / yr / university is acceptable?

A.45. See A.44.

Q.46. Will the three centers get equal funding?

A.46. Not necessarily, depending on the scope of the proposed project for each Center.

Q.47. Will the 3-4 virtual centers of excellence be equally funded, or will more support be given to higher priority areas (e.g. metal hydrides)?

A.47. See A.46.

Q.48. If two labs join to lead, how much money would go there and what percent is left? If the two labs take more than 30-35% of the total, you will virtually eliminate industrial participation.

A.48. See A.25.

Q.49. Total program appears to be hopelessly under budgeted in FY 04 - $30 million. Needs about $300 million /yr for 5 years to achieve goals. Need to let DOE Secretary know this now. How was "budget" arrived at?

A.49. Congressional appropriations determine the level of available funding.

Q.50. Could one ask over 400k/yr in Category 2 funding?

A.50. See Appendix C of the Solicitation, Table 2.

Q.51. Can any of the subject funds be contracted or subcontracted overseas to non-US universities, individuals, or firms?

A.51. Yes, under certain conditions as describe in Section II.A of the Solicitation.

Q.52. Are there any cost share requirements?

A.52. Yes, as described in Appendix C of the Solicitation, Table 2.

Q.53. Is in-kind permitted?

A.53. Yes.

Q.54. If a university invests in a piece of capital equipment as part of a Category 1/Topic 1 proposal, can any portion of that cost be included in its cost-share obligation?

A.54. Yes.

Q.55. How is the cost share worked out? (e.g. in-kind services, support from industry; student/post doc match or reduction in indirect costs from universities.)

A.55. Cost share must meet the DOE financial assistance regulations in 10CFR600.123.

Q.56. How will Center IP be handled?

A.56. Please refer to Section V.C of the Solicitation.

Q.57. How will intellectual property be handled in a Center proposal?

A.57. See A.56.

Q.58. For industry participants, what government rights exist to the IP developed by industry participants under the agreement? Also, foreground?

A.58. See A.56.

Q.59. Who owns the intellectual property when DOE funds industrial researchers? What rights does DOE insist on retaining, if any?

A.59. See A.56.

Q.60. Category 1/Topic 1 (Page 5)-- "The application must include a comprehensive project management plan that includes intellectual property agreements among its members." Please comment on the extent to which intellectual property agreements need to be in place when the proposal is submitted or is a description as to how those agreements will be developed satisfactory for the proposal's project management plan? This is particularly important because it is stated "The DOE Golden Field Office will execute and administer cooperative agreements for the university and industry partners." Negotiations, as needed, on intellectual property rights generally take place as part of that process.

A.60. Applications must describe the anticipated intellectual property arrangements among team members. Intellectual property agreements among the team members will be required prior to the start-work date.

Q.61. Category 2/Topic 2 (Page 6) -- "...innovative research and development projects addressing complex metal hydrides, chemical hydrides, or carbon structures will also be considered." Can a Category 2 proposal be submitted by a university and/or an industry proposer and also be included as part of a Category 1/Topic 1 Centers of Excellence proposal and vice-versa?

A.61. Yes, a similar technology application may be submitted by the same Applicant in Category 1 and Category 2. However, DOE anticipates making only a single award in either Category 1 or Category 2 per Applicant per technology if selected.

Q.62. Application Requirements (Page 9) -- Is the presumption correct that those requirements only apply to Category 2 proposals?

A.62. Specific instructions for each Category are included in Section III of the Solicitation.

Q.63. What category would be appropriate for a proposal for a novel high-pressure hydrogen compressor?

A.63. That technology would not be appropriate under this Solicitation. However, it may be suitable for a future solicitation. We recommend that you periodically monitor the Program website at www.eere.energy.gov/hydrogenandfuelcells to determine if an appropriate solicitation is posted.

Q.64. What category would be appropriate for a proposal for the development of a hydrogen liquefier prototype with a relative overall thermodynamic efficiency of greater than 50% of ideal?

A.64. The eligible storage technologies are described in Appendix C of the Solicitation.

Q.65. Recent advances in glass bubble storage of hydrogen show that hydrogen can be stored at high pressure and in secure containment with uptake and release of the hydrogen controlled by light induced, glass permeability change. Under what sections of this program will you consider funding the development of this hydrogen containment system?

A.65. See topics under Category 2 of Appendix C in the Solicitation.

Q.66. How does “Topic 2” project differentiate from a “Topic 1” “centered” project?

A.66. See Appendix C in the Solicitation and "Supporting Documents" on the Hydrogen Program website, Financial Opportunities, under this Solicitation at: http://www.eere.energy.gov/hydrogenandfuelcells/2003_storage_solicitation.html
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Q.67. New Classes of Materials for Hydrogen Storage. This area could cover a range of topics. What does constitute a "new class" of materials?

A.67. Please see Appendix C of the Solicitation and "Supporting Documents" posted on the Hydrogen Program website at: http://www.eere.energy.gov/hydrogenandfuelcells/2003_storage_solicitation.html .

Q.68. How can we solicit the participation of a national lab into a pre-existing project?

A.68. You should contact one the DOE labs that participated in the Pre-Solicitation meeting (see the Hydrogen Program website for lab presentations and contacts).

Q.69. Table 3 "performance requirements" is still preliminary and non-descriptive. Will DOE provide clearer guidelines, especially regarding the cost targets?

A.69. See Appendix C of the Solicitation.

Q.70. Will the programs include the development of safety standards, codes, and testing protocols needed to commercialize the developed technologies?

A.70. No. A separate solicitation is anticipated to be issued for these activities.

Q.71. Will the development of these standards, codes, and test protocols be eligible for funding under the solicitations?

A.71. See A.70.

Q.72. Please define (and categorize with examples) metal hydrides, chemical hydrides, and complex hydrides.

A.72. Please see Appendix C of the Solicitation and "Supporting Documents" posted on the Hydrogen Program website at: http://www.eere.energy.gov/hydrogenandfuelcells/2003_storage_solicitation.html .

Q.73. Can you expand on how "metal" hydride technology differs from "chemical" hydrides?

A.73. Please see Appendix C of the Solicitation and workshop results posted on the Hydrogen Program website.

Q.74. Other than the ASME design requirements, it is difficult to make a clear distinction between on-board and off-board requirements. Shouldn't the off-board targets be a subset of on-board targets? In other words, if one's solution meets the on-board storage targets, by definition that solution is potentially viable for off-board, so why have different criteria?

A.74. That may be the case. However, off-board storage does have certain different performance requirements (such as less stringent system weight and volume requirements) compared to on-board storage, so a different solution could be appropriate.

Q.75. Are you interested in off-board regeneration of metals for use in M-Steam, H_2 production/storage on board?

A.75. Regeneration should be included, as appropriate, in a proposed storage system. However, see Appendix C of the Solicitation for the allowable storage topics under this Solicitation.

Q.76. If simple chemical hydrides are used as an H-source, will their off-board regeneration be of interest?

A.76. Yes. See A.75.

Q.77. Re DOE technical targets: Will you develop targets for CO_2 emissions on a life-cycle basis? Or targets for other environmental emissions?

A.77. The current relevant technical targets are defined in Appendix C of the Solicitation.

Q.78. Is off-board storage expected to be a part of the solicitation? Since goals/targets have not been set, what will be the focus, if included?

A.78. Please see Topic 4 in Appendix C of the Solicitation.

Q.79. What about H_2 storage measurements/standards?

A.79. Standards development will not be supported through this Solicitation. However, DOE is establishing a standard test protocol and independent test facility. All projects addressing reversible hydrogen storage materials must provide test samples to a facility to be specified by DOE.

Q.80. Where do you see alcoholysis of chemical hydrides: Topic 1, chemical hydrides; or Topic 2, project?

A.80. Please see Appendix C of the Solicitation for allowable Topics. It is the responsibility of each Applicant to select the appropriate Topic.

Q.81. Does the multi-year program plan have off-board H_2 storage targets?

A.81. Preliminary targets are included in Table 1 of Appendix C of the Solicitation.

Q.82. Is DOE seriously thinking about the possibility of using chemical hydrides as the fuel for the hydrogen economy? It is nonrenewable.

A.82. Chemical hydrides are only one of several classes of materials being considered by DOE for hydrogen storage. The regeneration of chemical systems, such as chemical hydrides, will be an important factor in determining their viability. Please refer to Appendix C of the Solicitation for allowable Topics and supporting information.