

simulated VNT–M test booklets (dual language and English-only versions). The English language version of this booklet will be the same as the one for the “NAEP Special Form” described earlier.

Subtask C

Evaluating the psychometric equivalence of the dual language and English-only booklets via traditional quantitative analyses. Six hundred bilingual and LEP students will be recruited and randomly assigned to complete either the dual language or English-only version of the test booklet. Quantitative analyses will be conducted to examine the psychometric equivalence of the two test versions (mean differences; differential item functioning; correlations).

Subtask D

Conducting focus groups of students immediately after they take the VNT–M to document students’ overall experience with the two types of booklets. Sixty students will be recruited to do these focus groups, in order to obtain their insights and general reactions to the booklets.

Subtask E

Conducting cognitive laboratory studies to obtain in-depth information on the validity of the translation and about how students use the dual language test. An additional nine LEP and nine English-speaking students will be asked to participate in this study, in order to explore the performance of both Anglo and Hispanic LEP students to identify solution pathways that students choose to use.

Subtasks C through E will allow for a thorough investigation into the cognitive processes that bilingual and limited English proficient (LEP) students employ when using the dual language version of the VNT–M. In addition, they will provide information about factors other than mathematical knowledge and problem-solving ability that may have an effect on their performance on the test.

The five subtasks listed above will offer answers to the following research questions to examine the quality of the dual language test, taking into account several features of the items:

Cognitive: Do students understand the native language version of the test questions as a vehicle for assessing mathematics? (Subtasks C, D, E)

Content: Is the content of the native language version of the test questions the same as the English version? (Subtasks B, C, D, E)

Format: What considerations should be given to how the test questions appear on the pages of the test booklet? (Subtasks A, B)

Cultural: Is the native language version clear and acceptable to the various communities in the United States for whom this is the native language? (Subtasks A, B, C, D, E)

Academic: Are the grammar and language structure used in the native language version correct? (Subtasks B, D, E)

Scoring: What considerations need to be made for scoring dual language test booklets? (Subtask A)

Psychometric Equivalence: Is there a psychometric equivalence between the dual language version and the English only versions of the test? (Subtask C)

A total of 10,800 students is expected to participate in the two studies (4800 4th graders and 4800 8th graders in the calibration linkage feasibility study; 1,200 LEP and bilingual students taking the dual language or English-only math test (from which there will be 60 focus group participants); and 18 cognitive laboratory participants). These students will be recruited from 300 schools. Students in the motivated condition of the calibration linkage study, focus group participants and cognitive laboratory participants will receive a token monetary incentive. Also under consideration is a modest monetary incentive for each participating school.

Burden Statement: Assuming a 2 hour burden for each of the 10,800 students expected to participate in the two studies, a total of 21,600 hours is estimated. An additional 300 hours of school burden (one hour per participating school) is expected, reflecting the time it would take to collect student background data for our research purposes. Participation in this study is voluntary. State, local, and non-public education agencies will not be mandated or required to participate.

II. Request for Comments

The National Assessment Governing Board is especially interested in public comments that will assist it:

(a) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the Governing Board, including whether the information will have practical utility;

(b) Evaluate the accuracy of the Governing Board’s estimates of the burden of the proposed collection of information;

(c) Enhance the quality, utility and clarity of the information to be collected;

(d) Minimize the burden of the collection of the information on those who are to respond, including through the use of appropriate automated, mechanical or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Dated: February 15, 2000.

Roy Truby,

Executive Director, National Assessment Governing Board.

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DEPARTMENT OF ENERGY

Notice of Availability of a Financial Assistance Solicitation.

AGENCY: National Energy Technology Lab (NETL), Department of Energy (DOE).

ACTION: Notice of Availability of a Financial Assistance Solicitation.

SUMMARY: Notice is hereby given of the intent to issue Financial Assistance Solicitation No. DE–PS26–00FT40775 entitled “Biomass Cofiring Opportunities.” The Department of Energy announces that it intends to conduct a competitive Program Solicitation and award financial assistance (cooperative agreements) to successful applicants. Financial assistance awards made to Universities and Colleges selected under Topic E will be grants. Awards will be made to a limited number of applicants based on evaluation of the responses. Availability of DOE funding will also be a factor in limiting the number of awards.

DATES: The solicitation will be available in Portable Document Format (PDF) on the DOE/NETL’s Internet address at <http://www.netl.doe.gov/business/> solicit on or about February 23, 2000. The anticipated closing date is April 4, 2000.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: The Office of Biopower and Hydropower Technologies of the Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE) has authorized DOE’s National Energy Technology Lab (NETL) to act on its behalf and solicit cost-shared applications for research and

development that seek to develop technologies for cofiring biomass feedstocks with fossil fuels.

Biomass co-firing is the practice of substituting 5%–20% biomass (by weight) for fossil fuels (i.e., coal or natural gas) in utility or industrial boilers. Cofiring biomass is one of the few viable, low-cost options for dramatically increasing the generation of biomass power in the United States. The DOE is pursuing the development of fossil fuel/biomass co-firing energy systems for several reasons:

- Biomass cofiring is an attractive way to utilize existing (coal and natural gas) power plants to increase the efficiency of biomass use and reduce overall costs.
- The use of current fossil-fueled systems provides readily available access to the current electricity market.
- Biomass is an available domestic resource and can contribute to energy security.
- Biomass is considered CO₂ neutral, cofiring serves to reduce greenhouse gas emissions.
- Biomass is renewable and its use promotes sustainability and local economic growth.
- Biomass cofiring offers the potential to reduce fossil SO₂ and NO_x emissions.
- Landfill burdens are reduced when waste biomass is utilized as the cofiring fuel.

The DOE Biomass Cofiring Program, to date, has focused mainly on demonstrating cofiring plant-derived biomass in pulverized coal and cyclone boilers. Several successful test campaigns have generated data for some systems that could be useful in determining cofiring is feasible.

Based on prior successful results, the DOE Biomass Cofiring Program seeks to expand the investigation of biomass cofiring with the aim of demonstrating the cost-effective and sustained usage of biomass.

It is anticipated that multiple financial assistance awards, Cooperative Agreements, will result from this solicitation. Subject to availability of funds, DOE expects to provide funds totaling \$18–22 million. Project period duration and cost-sharing requirements are given below.

The program seeks to sponsor both Budget Period I: Feasibility Studies and Small-Scale Research, with an anticipated duration of 12 months, and Budget Period II: Limited Term Cofiring Demonstrations Phase, with an anticipated duration of 24–30 months, on the following topics:

A. Biomass Cofiring as an Emission Reduction Technique

B. Gasification-Based Cofiring Strategies

C. Closed-Loop Biomass Cofiring

D. Low Rank Coal Cofiring—Subbituminous & Lignite

The program will only sponsor Budget Period I: Feasibility Studies and Small-Scale Research activities on the following topic:

E. University and Colleges Cofiring Applications

Applicants may propose to conduct both Budget Period I and Budget Period II programs in sequence or may offer to forgo Budget Period I and proceed directly to Budget Period II based on completed assessments.

All applicants will be required to submit cost sharing according to the level of the project. The cost-sharing for Budget Period I (Feasibility and Small-Scale Research) is 20%.

These costs must be explicitly identified. Topic E is only a Budget Period I project and will require 20% cost-sharing.

Cost-Sharing:

Budget Period I: Feasibility Studies and Small-Scale Research 20%

Budget Period II: Limited Term Cofiring Demonstration Phase 50%

For the purposes of this solicitation, proposals for Topics A–D should be of the municipal, large industrial or electric utility scale. A future solicitation may address smaller scale-cofiring systems. No preference is made for any type of boiler system as long as it satisfies the objectives of the solicitation.

Common Definitions for all Areas

Biomass refers to plant materials and/or animal waste used as a source of fuel.

Animal Waste refers to the manure produced and any associated bedding material mixed within the manure and excludes animal processing waste.

Co-firing refers to the combustion of biomass and coal (or lignite) for power production.

Multiple-firing refers to the combustion of biomass, coal, and one or more additional components that seek to complement the combustion of the coal and biomass.

Gasification-Based Cofiring Strategies refers to the ability to gasify the biomass and utilize the produced gas as a co-fired fuel in either a coal-fired or natural gas-fired boiler or other part of the system for fuel usage.

Open-loop refers to operations that utilize biomass from operations that are not specifically set-up for biomass production for the energy application (i.e. sawdust from a saw-mill operation, manure from animal production, etc.).

Closed-loop refers to operations that specifically plant, grow, harvest, use,

and regrow, at the same production site, any biomass fuel or feedstock in a sustainable, permanent manner that is in whole or in part used for energy application.

Low-Rank Coal refers to viability of cofiring biomass with lignite or subbituminous coal for application within the fossil-fuel industry.

Note: Unsegregated Municipal Solid Waste (MSW), hazardous waste, and medical waste will not be considered as a cofiring fuel. Segregated MSW is an acceptable cofiring fuel for this solicitation and would include non-recyclable paper and non-treated wood waste. There is no interest in receiving applications for aerobic or anaerobic digesters, landfill gas, or animal gas production.

Topic Areas of Interest

A. Biomass Cofiring as Emission Reduction Technique

This focus area attempts to capitalize on the benefits of biomass as an emission (i.e. SO_x, NO_x, and/or CO₂) reduction fuel. Previous research projects have dealt with cofiring in pulverized coal and cyclone boilers in a range of around 5–20% by mass. Cofiring has the potential to help reduce emissions and increase the usage of biomass in numerous situations. Some of these may include for example utilizing biomass as a reburn fuel to control NO_x (replace natural gas) thereby taking advantage of the volatility of the fuel, and other potentially novel cofiring arrangements such as the use designer fuels. This topic deals with emission reduction demonstrations. These demonstrations generally will utilize “open-loop” feedstock supplies and should be more than just demonstrating a cofiring of wood/wood-waste with coal.

Designer fuel blends or opportunity fuel blends can be developed from mixtures of biomass with coal and additional components that complement each other as far as costs and emission reduction potentials. Designer fuels have the ability to make biomass cofiring cost effective while reducing emissions and/or address an environmental concern. Demonstrations of various designer fuels would increase the potential use of biomass. The designer fuel must contain at least coal and biomass as significant fractions in the mix. Demonstrations are sought that utilize designer fuel or opportunity fuel blends to increase the usage of biomass in the energy mix. Cofiring has been shown in many instances to reduce NO_x emissions in cofiring in a pulverized coal, tangentially-fired, or cyclone boiler. Separated Overfire Air (SOFA) has also been shown to work as a NO_x

management strategy. However, by themselves, neither strategy may provide the complete technique required to meet projected EPA regulations. Possible combinations of SOFA and cofiring of biomass at greater than 10% by mass has the potential to achieve the desired 0.15 LB NO_x/MMBtu emissions in T-fired boilers. Testing this hypothesis in a demonstration may prove the indications valid. If so, the demonstration would open up a very large market for biofuels in the cofiring arena. Further, it would provide a mechanism for coal-fired boilers to achieve the required NO_x emissions without expensive capital investments in post-combustion controls. As such, it would maintain the economic viability of many PC boilers throughout the U.S. Demonstrations are sought to show significant reductions in NO_x from a coal-fired boiler utilizing biomass. The reduction in NO_x must be more than that found in simple fuel substitution of biomass for coal. The demonstration needs to optimize the injection method and location for the biomass and then demonstrate NO_x management with cofiring on a long-term basis.

The Department of Energy is interested in receiving research applications that develop and demonstrate systems that utilize biomass as an emission reduction technology. This can be accomplished with any one or combination of the previously described methods or with any other demonstration method that meets the goal of emission reduction and biomass utilization. Note: Any project and demonstration proposed must address the issue of why this project is unique and different from other past cofiring projects (i.e. demonstrating biomass/coal cofiring directly).

B. Gasification-Based Cofiring Strategies

This method is an indirect way of utilizing the biomass for cofiring versus the direct utilization of feeding the biomass into the furnace. Likewise, the direct application of cofiring is not amenable to gas-fired systems. Gasification-based strategies can overcome this obstacle as well as being more biomass fuel flexible than a direct cofiring system. Gasification of the biomass and then utilization of the gas produced and possibly any residues from the gasification process in a cofiring application permits a greater range of usage of biomass. This method will also keep the resultant coal and biomass ash from being commingled and thus permit ongoing coal ash sales if currently being conducted.

Applications are sought which address this issue from distinct phases of engineering feasibility to demonstration of the technology. Impacts on the complete system cycle and efficiency must be taken into account.

C. Closed-Looped Biomass Co-Firing

Applications are sought that develop and validate co-firing technology using a "closed-loop" feedstock supply. Respondents are encouraged to form appropriate consortia or other business arrangements with the agricultural community, industry, power producers, or other applicable organizations for the conduct of this venture. This arrangement will demonstrate and foster the efforts required for a sustained, economically beneficial, biomass cofiring power generation. The applicant should demonstrate an approach to the integration and successful application of a "closed-loop" feedstock supply system and a technically viable co-firing boiler system for power production.

D. Low Rank Coal Cofiring— Subbituminous & Lignite

The DOE has, in the past, cooperated with power producers in testing and analyzing biomass cofiring in coal-fired boilers that use bituminous and some subbituminous coals. However, the program has not tested co-firing biomass in a lignite-fired boiler or extensively demonstrated subbituminous coals. Through this subtopic, the Biomass Cofiring Program intends to add lignite and subbituminous coals to the fossil fuels being demonstrated in other projects. The U.S. has a significant resource base of these fuels. Cofiring of lignite with biomass can be significantly different than cofiring subbituminous or bituminous coals due to the ash chemistry and moisture and other factors. A potentially attractive feature of cofiring biomass with lignite is that the boilers are designed for a fuel with low heat and high moisture content that is consistent with the properties of biomass. As such, DOE is seeking, through this solicitation, to demonstrate the viability of cofiring biomass with lignite or subbituminous coal for application within the fossil-fuel industry.

E. University and Colleges Cofiring Applications

Cofiring in utility boilers can consume large amounts of biomass and produce power from this fuel source; however, this is also a detriment due to the large-scale nature of the utility. Biomass can become more expensive

than the coal that is fired in the boiler if it has to be transported long distances. Due to these economics, it makes cofiring at some electric utilities unfeasible. Comparing fuel costs and quantities of biomass required to cofire, another major market can be identified, that is, the market that has smaller-scale boilers that pay more for their fuel than a large scale utility. These markets would include stokers (paying upwards of twice the cost of coal than that paid at a large utility) and fluidized bed combustors at the heating plants of our nation's colleges and universities. The size of the unit may permit the usage of biomass due to its location within a reasonable transportation distance along with the cost of the current boiler fuel, thus allowing more to be spent on obtaining and transporting the biomass. Fuels may include, but are not limited to, agricultural residues, dedicated crops, animal manures, and segregated MSW from university systems. Many universities and colleges have complimentary departments, such as engineering and agricultural departments, that could collaborate on this issue. Applications are sought from Universities and Colleges that will perform feasibility and small-scale R&D studies in utilizing biomass cofiring in their heating plant. Based on the results of the feasibility studies, subject to congressional appropriations, it is DOE's intent to issue a future open solicitation for cost-shared demonstrations in this area if funding is available. Prospective applicants who would like to be notified as soon as the solicitation is available should register at <http://www.netl.doe.gov/business>. Provide your E-mail address and click on the heading "Energy Efficiency and Renewable Energy." Once you subscribe, you will receive an announcement by E-mail that the solicitation has been released to the public. Telephone requests, written requests, E-mail requests, or facsimile requests for a copy of the solicitation package will not be accepted and/or honored. Applications must be prepared and submitted in accordance with the instructions and forms contained in the solicitation. The actual solicitation document will allow for requests for explanation and/or interpretation.

Issued in Pittsburgh, PA on February 3, 2000.

Dale A. Siciliano,

Deputy Director, Acquisition and Assistance Division.

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