

Opportunity for Participation in Multiclient Initiative on Renewable Energy Potential

September 5, 2006

Summary

Estimates of the potential of renewable energy (RE) are needed to support decisions about energy investments and energy policy. While some estimates for RE resource, technical, economic, and market potential have been made, they are not detailed or comprehensive. Energy businesses, investors, and public policymakers have expressed interest in using RE to meet a larger share of U.S. energy needs, but this would require more robust analysis of RE potential. The National Renewable Energy Laboratory (NREL) is seeking partners for developing a Renewable Energy Potential Initiative. The major goal of this initiative is to analyze and explore, in a comprehensive and systematic manner, the long-term potential of RE to support a substantial share of U.S. energy use. NREL is a national laboratory owned by the Department of Energy and managed and operated by Midwest Research Institute and Battelle under DOE Contract No. DE-AC36-99-GO10337.

The Renewable Energy Potential Initiative will address the tough questions about RE:

- Is it cost competitive today? If so, which types, which markets, and which regions? If not, will it be and when?
- What indications do we have that cost/performance might improve significantly for specific RE technologies?
- How fast could the RE industries expand if there were a rapidly increasing market demand?
- What market factors might increase market demand for RE?
- What policies might help or hinder the market penetration of RE?
- What is limiting specific RE technologies? Can those barriers be overcome?

This initiative will be a multiyear, public-private collaborative analytic effort to advance the understanding of all aspects of RE potential, including resource potential, technical potential, economic potential, and market potential. While many of these elements of RE potential are partially understood, energy businesses, investors, and public policymakers need a more comprehensive and detailed understanding of RE potential so that they can make decisions with awareness of key implications of RE investments or policies.

The objective of this notice is to identify partners that want to participate in analyzing and exploring RE potential as part of a multiyear, collaborative, systematic process. Major components of this effort will include: (1) renewable energy technical potential methodology and estimation; (2) renewable energy scenarios (3) data and trends; (4) application of modeling tools; (5) publication of results; (6) proprietary analysis (as negotiated).

Renewable Energy Potential Analysis Specifications

A successful Renewable Energy Potential Initiative would result in the following:

- Formalized renewable energy potential assumptions and methodologies
- Detailed high-penetration renewable energy scenarios
- Comprehensive compilation of relevant data and trends
- Improved application of modeling tools

Partner Contributions

NREL seeks a range of partners, and will engage in individual negotiations based on mutual interests. The following general guidelines will frame these negotiations:

1. Partners may contribute funding, in kind, or both. The partner contributions will determine the terms of the agreement between NREL and each partner.
2. Partners may participate in the initiative and also may negotiate related proprietary tasks.
3. Partners joining on or before December 31, 2006, will influence the agenda and publications for Year 1.
4. Agenda and cost for Year 2 will be determined by September 30, 2007.

Schedule

	Year 1: Establish Capability and Demonstrate Value	Year 2-4: Expand Capability and Increase Value	Year 5: Targeted Accomplishments
RE Scenarios	Develop a reference high-penetration RE scenario and define it in detail. Develop a list of other scenario concepts and determine priorities for analysis. Define highest-priority scenarios in greater detail.	Identify additional detail needed to improve existing two-three scenarios (defined in Year 1). Define additional scenarios as needed. Critically examine state and local implications for the scenarios.	Three to five major scenarios include substantial detail on technologies, regions, investments, manufacturing, and market behavior. Side cases and sensitivity analyses augment the scenarios. Public and private sectors use scenarios to explore implications of policy and investment decisions, and major new insights influence their actions.
RE Technical Potential Methodology and National Potential Estimate	Develop the fundamental sets of assumptions and methods necessary to assess RE technical potential in a valid and consistent manner across all resources. Apply these assumptions and methods to develop a refined assessment of national RE resource and technical potential.	Perform state and regional analysis with appropriate partners and use these to revise and improve the national estimate.	RE Technical Potential Methodology is fully developed, widely used, and includes flexible assumptions, methods, and definitions. The National Potential Estimate is widely used and referenced. Mechanism for periodic updates is established. Limitations are clearly identified.
Data and Trends	Identify data and trends to track and update, establish tracking, and obtain initial data such as: resource assessments, technology cost and performance, policies, financial investments, utility actions, and manufacturing trends. Include RE and other energy technologies that are important under high-penetration scenarios: energy efficiency, carbon sequestration, and nuclear technologies.	Gather additional detail needed to support scenario work. Update core data and trends. Add regional details on markets, costs, and policies.	Core data and trends information is broad, deep, credible, and widely used and recognized. RE and other relevant energy technologies are well characterized at comparable levels of detail in the data and trends. Data gaps and limitations are well understood.
Modeling	Perform initial energy-sector modeling of reference high-penetration RE scenario and 1-2 other scenarios.	Perform more detailed energy-sector modeling of scenarios. Add macroeconomic modeling to address: consumer surplus, employment, national product, electric-sector investment, and electricity costs. Produce additional regional results from the scenarios	Several different energy models have been used and improved. Macroeconomic modeling has been applied. Modeling issues are identified. Regional results are being used by local planners.
Reports and Outreach	Publish new results, data, and trends in NREL reports. Establish a project Web site. Provide partners and funders with additional detail, draft versions, earlier releases of final reports, and proprietary results as contracted.	Publish new results, data, and trends in NREL reports and on project Web site. Provide partners and funders with additional detail, draft versions, earlier releases of final reports, and proprietary results as contracted.	Substantial publication record provides readily available and accessible resource for a variety of users. Partners and funders gain added value through additional detail, earlier releases, and proprietary results.

Evaluation Criteria

Selection of partners for the Renewable Energy Potential Initiative will be solely at the discretion of NREL management. The following criteria shall be used by NREL in evaluating all submissions.

1. The amount of resources and funds proposed by the partner toward the improvement of RE potential estimation. (25%)
2. The level to which the proposed partnership contributes to NREL analytic goals and objectives as they relate to estimation of RE potential. (25%)
3. Willingness to allow public access to the results (e.g., if a partner is providing proprietary data, when can studies using that data be published?). (25%)
4. The likelihood of a successful partnership as determined by letters of intent, identified resources, demonstrated previous successful analytic efforts, and similar information. (25%)

Supplemental Information

NREL works with, and for, a wide range of parties, and a variety of technology partnership agreement tools are available. NREL will develop the most appropriate agreement for the specific partnership, depending on whether the partner will be performing collaborative work on the project. Under these agreements, NREL can conduct both proprietary and nonproprietary work.

A cooperative research and development agreement (CRADA) is most appropriate for partnerships involving resources from both parties. If the partner performs work in collaboration with NREL, a "funds-in CRADA" is likely to be most appropriate.

If NREL will conduct the work on the project alone, without the partner's collaboration, a work-for-others (WFO) agreement is likely to be most appropriate. If the partner is a federal agency other than DOE, we use an interagency agreement-government (IAG) WFO. If the partner is any nonfederal entity, we use a funds-in agreement (FIA) WFO. If a nonfederal partner requires a specified set of tests or characterizations that are inside the normal course of business, a special, simplified analytical services agreement (ASA) will be used.

NREL-developed intellectual property can be licensed to third parties interested in commercializing a particular technology. The terms and conditions are negotiable to meet the economic and business needs of the licensee.

Next Steps

Interested parties should submit a letter of interest, preferably via e-mail by **October 2, 2006**. This letter should specify the name and contact information of the party and may list questions or discuss the potential partner's ability to meet the evaluation criteria. Letters of interest will be used to facilitate communication with interested parties.

NREL will determine whether or not to proceed with this initiative by **October 31, 2006**. If the initiative will proceed, a Webcast will be scheduled with all interested parties to address questions.

Additional information will be posted at http://www.nrel.gov/analysis/re_potential_initiative.html and will be updated periodically.

Contractual agreements should be complete by **December 31, 2006**, for Year 1 work.

Letters of interest and all inquiries should be directed to:

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