

**Office of Science
Financial Assistance
Funding Opportunity Announcement
DE-PS02-08ER08-18**

***Basic Research and Modeling to Support Integrated
Assessment of Climate Change Impacts and Adaptations***

The Office of Biological and Environmental Research (BER) of the Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving grant applications for *basic research and modeling to support integrated assessment of climate change impacts and adaptations* under the Integrated Assessment Research Program (IARP). The IARP, located within the Climate Change Research Division (CCRD) of BER, supports the U.S. Climate Change Science Program in efforts to understand, model, and assess the complex interaction of the integrated human-natural system on climate forcing as well as the impacts to the human-natural system from climate change. Past work of the IARP has emphasized understanding and predicting anthropogenic drivers of climate change. Future work seeks to improve our scientific understanding of the impacts to human and natural systems from climate change and the potential capacity to adapt to such change. Applications are requested that advance the fundamental methodologies for analysis of climate change impacts and adaptations, including innovative models and approaches. Grant applications that approach these elements in the context of a critically important area for DOE - potential climate change impacts on energy systems and their capacity to adapt - are especially encouraged.

PREAPPLICATIONS

Preapplications are **REQUIRED** and must be received by email no later than **March 10, 2008**, 4:30 p.m., EST.

Potential applicants are **required** to submit a two-page preapplication by email referencing Funding Opportunity Announcement DE-PS02-08ER08-18 in the subject line of the email header. The intent in requesting a preapplication is to save the time and effort of applicants in preparing and submitting a formal project application that may be inappropriate for the program.

Preapplications must be received by DOE by **4:30 p.m., Eastern Time, March 10, 2008**. (**The preapplication should be sent from the email address that will be monitored for the response.**) Feedback on the preapplications encouraging or discouraging formal applications will be communicated to the applicants through email by **March 14, 2008**. Applicants who have not received a response regarding the status of their preapplication by this date are responsible for contacting the program to confirm the status. Note that notification of a successful preapplication is not a guarantee that an award will be made in response to a formal application and only those preapplicants that receive notification from DOE encouraging a formal application may submit full applications. No other applications will be considered.

Preapplications will be reviewed relative to the scope and research needs as outlined in the summary paragraph and in the SUPPLEMENTARY INFORMATION. In preparing the preapplication, the first page of the two-page (maximum length) submission should identify (1) the Principal Investigator's name, telephone number, and email address; (2) the name of the Principal Investigator's employing institution and physical address; (3) the title of the proposed project, (4) a clear and concise description of the proposed research and research objectives, (5) a brief (two sentence) statement of background and significance of the proposed project, (6) a couple of sentences describing the proposed research methods, and (6) a rough dollar approximation of the budget for each year of the proposed research. Page two of the preapplication must include (1) a curriculum vita that highlights the Principal Investigator's expertise and background in successful research related to the subject of this announcement and the proposed research, and (2) the proposed research team and brief statements of their expertise.

All preapplications should be sent as Word file attachments, set with 1 inch margins, referencing Funding Opportunity Announcement

DE-PS02-08ER08-18. Preapplications should be directed by email to:

bob.vallario@science.doe.gov. It is critical that applicants include "**Preapplication DE-PS02-08ER08-18**" in the subject line of the email and only e-mail preapplications will be accepted. **No FAX or mail submission of preapplications will be accepted.**

APPLICATION DUE DATE: April 14, 2008, 8:00 pm, Eastern Time

Applications must be submitted using Grants.gov, the Funding Opportunity Announcement can be found using the CFDA Number, 81.049 or the Funding Opportunity Announcement number, DE-PS02-08ER08-18. Applicants must follow the instructions and use the forms provided on Grants.gov.

GENERAL INQUIRIES ABOUT THIS NOTICE SHOULD BE DIRECTED TO:

Technical Program Contact:

Mr. Robert W. Vallario

Phone: (301) 903-5758

Email: bob.vallario@science.doe.gov

SUPPLEMENTARY INFORMATION:

Background:

The CCRD has established the following Long Term Measure (LTM) for its programs: *Deliver improved scientific data and models about the potential response of the Earth's climate and terrestrial biosphere to increased greenhouse gas levels for policy makers to determine safe levels of greenhouse gases in the atmosphere*. The IARP directly supports this LTM with three main goals:

1. Advance the fundamental understanding of the complex interactions of human and natural systems in driving and responding to climate change.

2. Develop the leading, integrated scientific models, tools, and data sets that reveal key insights into human-natural systems interactions in climate change and that are accessible and useful to policymakers for analysis of key issues.
3. Serve the broader scientific community, in particular the climate and earth system modeling communities by providing knowledge and key data on human systems and human-natural systems interactions required for decades-to-century predictions of climate change.

A recent review of the IARP completed by the Biological and Environmental Research Advisory Committee (BERAC) can be found at

http://www.sc.doe.gov/ober/berac/IARP_Report_Final.pdf. The BERAC report summarizes a broad range of research needs and opportunities including research on methodological improvements and impacts and adaptation. Additionally, a report by the U.S. Climate Change Science Program at <http://www.climatescience.gov/Library/sap/sap4-5/default.php> identified research needs to understand the effects of climate change on energy production and use in the U.S.

IARP-sponsored research is intended to provide scientific insights and defensible science-based tools to address a critical national need and provide scientific foundations for long-term decision making. However, the IARP is by nature a basic research program and does not seek to apply the tools for the analysis of specific policy options. Rather, the Program aims to develop the scientific knowledge, data, and underlying tools that can be used by others to evaluate the implications of, for example, alternative policy options. This announcement marks a shift in the IARP to begin addressing research in support of integrated assessment of the consequences of climate change - impacts and adaptation capacity - in a more substantive way.

Request for Grant Application:

All applications submitted in response to this announcement must explicitly state how the proposed research will support accomplishment of the BER CCRD's Long Term Measure of Scientific Advancement: "Deliver improved scientific data and models about the potential response of the Earth's climate and terrestrial biosphere to increased greenhouse gas levels for policy makers to determine safe levels of greenhouse gases in the atmosphere."

Because of the early stage and significant consequences of improving our national capacity to address climate change impacts and adaptation within integrated assessments and IA models, DOE is committed to early innovative thinking and development of the analytic foundations for advancing this line of inquiry. This announcement requests applications that improve the fundamental knowledge and methodologies for analysis of climate change impacts and adaptations, including innovative general approaches to modeling impacts and adaptation, development of different measures of impacts, techniques for accommodating thresholds and tipping points, concepts and approaches to addressing probabilities and uncertainties, and methods for addressing data limitations. Grant applications may pursue these topics absent the context of a particular area of impact and adaptation focus. However, applications are encouraged that illustrate methodological advances and innovations for evaluation of impacts and adaptations to energy systems from climate change - a topic of vital interest to DOE. Furthermore, modeling experiments are encouraged in this announcement insofar as they

illustrate or test new approaches and concepts for representing impacts and adaptation in integrated assessments of climate change. Physical experimentation and observational research is beyond the scope of this announcement.

For those applicants that seek to improve our methodological approaches for understanding and analyzing the potential impacts and adaptations to energy systems, several areas of particular interest to DOE include:

- *Implications for energy systems to potential changes in water availability resulting from climate change* - challenges to water dependent energy systems and potential increased need for energy to move and manage water resources of the future.
- *Vulnerabilities of energy systems to potential climate-induced extreme events* - e.g., storms, droughts, heat waves.
- *Adaptive capacity of energy systems* - agility and flexibility of energy systems, including the potential role of science-driven innovations, to respond to the future challenges of climate change.

Applicants should not feel constrained by this list of specific energy system topics but where non-generic methodological improvements are proposed, they must be focused on energy systems and/or their interactions with other elements. Where possible, research should demonstrate how improvements in methodologies will strengthen our understanding of economic and security issues.

Program Funding

It is anticipated that approximately \$850,000 will be available under this announcement, contingent on satisfactory peer review and the availability of appropriated funds. Although the exact number of awards will depend upon the quality and number of applications received, it is expected that approximately 7-10 awards will be made. Requests should be commensurate with the level of work involved; they may range from \$50,000/yr to \$150,000/yr. Applications may request project support up to three years, with out-year support contingent on the availability of funds, progress of the research and programmatic needs. Awards are expected to begin in FY 2008. DOE is under no obligation to pay for any costs associated with preparation or submission of preapplications and applications. DOE reserves the right to fund, in whole or in part, any, all, or none of the applications submitted in response to this Notice.

Merit Review Criteria

Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following evaluation criteria which are listed in descending order of importance codified at 10 CFR 605.10(d):

1. Scientific and/or Technical Merit of the Project;
2. Appropriateness of the Proposed Method or Approach;
3. Competency of Applicant's Personnel and Adequacy of Proposed Resources; and
4. Reasonableness and Appropriateness of the Proposed Budget.

The evaluation process will include program policy factors such as the relevance of the proposed research to the terms of the announcement and the agencies' programmatic needs. Note that external peer reviewers are selected with regard to both their scientific expertise and the absence of conflict-of-interest issues. Both Federal and non-Federal reviewers may be used, and submission of an application constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

Posted on the Office of Science Grants and Contracts Web Site
February 14, 2008.