

Office of Energy Research

Notice 97-06

Integrated Assessment of Global Climate Change Research Program

**Department of Energy
Office of Energy Research**

Energy Research Financial Assistance Program Notice 97-06; Integrated Assessment of Global Climate Change Research Program

Agency: U.S. Department of Energy

Action: Notice inviting research grant applications.

SUMMARY: The Office of Health and Environmental Research (OHER) of the Office of Energy Research (ER), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications for the Integrated Assessment of Global Climate Change research grants Program. This notice is a follow on to three previous notices published in the Federal Register (Notice 93-4 published December 9, 1992, entitled Economics of Global Change Research Program; Notice 95-12 published December 29, 1994, entitled Global Change Assessment Research Program; and Notice 96-06 published January 30, 1996, entitled Global Change Integrated Assessment Research). The program has a more narrowly defined scope this year to emphasize specific topics in support of integrated assessment. The research program supports the Department's Global Change Research Program, the U.S. Global Change Research Program and the Administration's goals to understand and mitigate the rise in greenhouse gases.

DATES: Applicants are encouraged (but not required) to submit a brief preapplication for programmatic review. There is no deadline for the preapplication, but early submission of preapplications is encouraged to allow time for meaningful dialogue. A preapplication should consist of two to three pages of narrative describing the research objectives and methods of accomplishment together with a brief summary of the principal investigator's publication and research background. The deadline for receipt of formal applications is 4:30 p.m., E.S.T., March 27, 1997, to be accepted for merit review and to permit timely consideration for award in fiscal year 1997 or early fiscal year 1998. An original and seven copies of the application must be submitted; however, applicants are requested not to submit multiple applications using more than one delivery or mail service.

ADDRESSES: If submitting a preapplication, referencing Program Notice 97-06, it should be sent E-mail to john.houghton@oer.doe.gov. Formal applications referencing Program Notice 97-06 on the cover page must be forwarded to: U.S. Department of Energy, Office of Energy Research, Grants and Contracts Division, ER-64, 19901 Germantown Road, Germantown, MD

20874-1290, ATTN: Program Notice 97-06. This address must also be used when submitting applications by U.S. Postal Service Express Mail or any other commercial overnight delivery service, or when hand-carried by the applicant.

FOR FURTHER INFORMATION CONTACT: Dr. John Houghton, Environmental Sciences Division, ER-74, Office of Health and Environmental Research, Office of Energy Research, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290, telephone: (301) 903-8288, E-mail: john.houghton@oer.doe.gov, fax: (301) 903-8519.

SUPPLEMENTARY INFORMATION: The determination of energy policy, such as the administration analysis of international protocols for global climate change, is tied to understanding the benefits and costs of potential actions with respect to the control of greenhouse gases and possible climate change. The research described in this notice supports the analysis of those benefits and costs.

This research will be judged in part on its potential to improve and/or support the analytical basis for policy development. The program is narrowly focused and will primarily concentrate support on three specific topics, described below. Applications that involve development of analytical models and computer codes will be judged partly on the basis of proposed tasks to prepare documentation and make the models and codes available to other groups.

Integrated Assessment of Global Climate Change: Integrated assessment of climate change is defined here as the analysis of climate change from the cause, such as greenhouse gas emissions, through impacts, such as changed energy requirements for space conditioning due to temperature changes. Integrated Assessment is sometimes, but not always, implemented as a computer model. A description of Integrated Assessment may be found in Chapter 10: "Integrated Assessment of Climate Change: An Overview and Comparison of Approaches and Results", in *Climate Change 1995: Economic and Social Dimensions of Climate Change*, edited by Bruce, James P.; Lee, Hoesung; and Haites, Erik F., Cambridge University Press, 1996.

The following categories are requested research topics:

1. Technology Innovation and Diffusion. This category has been a primary focus of the Integrated Assessment of Global Climate Change Program since its initiation four years ago. Potential research projects include such issues as:

- Decomposing the effect of technology innovation and diffusion on carbon emissions into such components as changes in GDP, sectoral mix, capital stock, innovation, and diffusion. Historical records might be used to estimate trends and make projections that vary as a function of price effects and policy options.
- Technology innovation and diffusion is an important part of several aspects of integrated assessment models, such as backstop technologies, adaptation, resource depletion, labor productivity, and substitution parameters for shifting factor shares. Investigations might include studies to help predict changes in these parameters both for a base case and for various policy options, as well as studies to analyze the internal consistency among these aspects.

- The rate and nature of technology diffusion from the US to developing countries. Relevant factors include the prediction of the energy-use path for developing countries, the effects of changes in international trade policies and patterns, and "carbon leakage".
- The translation of existing literature on the economics of technology innovation into a representation that could be adapted for IA models.
- Investment or other policies to encourage research and development are options for increasing abatement and improving adaptation. Research in this topic would investigate such subjects as evaluating the effectiveness of alternative modes of implementation, such as direct grants, cooperative research projects, etcetera.

2. Representing Impacts in Integrated Assessments. A major challenge before the integrated assessment modeling community is to improve and expand the range of representations in integrated assessment models of the response of ecosystems, socio-economic systems, and other sectors to potential climate changes. Two criteria for selection will be (1) the degree of collaboration with scientists working on the ecological and socio-economic consequences of climate change, and (2) the utility of the results (output) to the integrated assessment community, such as the ability to represent potential ecological or socio-economic consequences of climate change in integrated assessment models. Proposed research at a regional or more detailed scale will need an explicit description of the potential of the expected results to be expanded to a national or continental scale for use directly or indirectly by the integrated assessment community. Academic researchers interested in regional-scale impact studies or in developing methods and models for conducting regional-scale assessments of the consequences of climate change may also contact Dr. Jerry Elwood, E-mail address jerry.elwood@oer.doe.gov, for information about applying to DOE's National Institute for Global Environmental Change (NIGEC) research program.

Topics of high importance include:

- For the OECD countries, unmanaged ecosystems (including marine) and energy sectors.
- For the non-OECD countries, energy, water, unmanaged ecosystems (including marine), and sea level rise.

Themes that increase the importance to the integrated assessment community include:

- Explicit analysis and treatment of adaptation.
- Analysis of transient climate changes rather than static climate scenarios.
- Analysis of thresholds.
- Analysis of variability and extremes (including low-probability/high-consequence events).
- The combination of several impact sectors so that cross-sector issues (such as water or land availability) are explicitly considered.

3. Analysis of Environmental Technologies. It is difficult to send the "proper price signals" (measures of full environmental impacts) to designers, manufacturers, policy makers, and research managers so that decisions can reflect the full societal impact by the manufacturing process of resource use and byproduct disposal, including greenhouse gases. The following

industries represent 80 percent of the energy consumption in the manufacturing sector: chemicals, petroleum refining, forest products, steel, aluminum, glass, and metal casting. We would welcome applications that propose to prepare an integrated assessment framework of these sectors to investigate such issues as life cycle analysis, "industrial ecology" and "sustainability", the expected improvement in technologies in response to various policy options, and the value of improved technologies. Applicants responding to this specific topic are encouraged to develop working collaborations with appropriate and relevant industries; applications involving industrial collaboration will receive preference over applications of equal scientific merit but lacking such collaboration.

ADMINISTRATIVE INFORMATION: The preparation and submission of grant applications must follow the guidelines given in the Application Guide for the Office of Energy Research Financial Assistance Program 10 CFR Part 605.

Information about the development, submission of applications, eligibility, limitations, evaluation, the selection process, and other policies and procedures may be found in 10 CFR Part 605, and in the Application Guide for the Office of Energy Research Financial Assistance Program. The Application Guide is available from the U. S. Department of Energy, Office of Energy Research, ER-74, 19901 Germantown Road, Germantown, MD 20874-1290. Telephone requests may be made by calling (301) 903-3338. Electronic access to ER's Financial Assistance Application Guide and forms is possible via the World Wide Web at: <http://www.er.doe.gov/production/grants/grants.html>. The research description must be 15 pages or less, exclusive of attachments, and must contain an abstract or summary of the proposed research. Attachments include curriculum vitae, a listing of all current and pending federal support, and letters of intent when collaborations are part of the proposed research.

Applications will be subjected to formal 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;
4. Reasonableness and Appropriateness of the Proposed Budget.

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

It is anticipated that up to \$1.5 million will be available for multiple awards to be made in FY 1997 and early FY 1998 in the categories described above, contingent on availability of appropriated funds. Applications may request project support up to three years, with out-year support contingent on availability of funds, progress of the research, and programmatic needs. Annual budgets are expected to range from \$30,000 to \$150,000 total costs.

Although the required original and seven copies of the application must be submitted, researchers are asked to submit an electronic version of their abstract of the proposed research in ASCII format and their E-mail address to Karen Carlson by E-mail at karen.carlson@oer.doe.gov. Additional information on the Integrated Assessment Program is available at the following web site: <http://www.er.doe.gov/production/oher/john/iapage.html>. For researchers who do not have access to the world wide web, please contact Karen Carlson; Environmental Sciences Division, ER-74; U.S. Department of Energy; 19901 Germantown Road; Germantown, MD 20874-1290; telephone: (301) 903-3338; fax: (301) 903-8519; E-mail: karen.carlson@oer.doe.gov; for hard copies of background material mentioned in this solicitation. Curriculum vitae should be submitted in a form similar to that of NIH or NSF (two to three pages), see for example: <http://www.nsf.gov:80/bfa/cpo/gpg/fkit.htm#forms-9>.

RELATED FUNDING OPPORTUNITIES: Investigators may wish to obtain information about the following related funding opportunities:

National Science Foundation/ Methods and Models for Integrated Assessment: In concert with other USGCRP agencies, NSF sponsors high-quality, fundamental and methodological research in two related categories: (1) research that advances the development of methodologies and models that will integrate or couple multiple component systems; and (2) research that develops and enhances the scientific components of the integrated approach. NSF encourages participation and collaboration of researchers from all appropriate scientific and engineering disciplines, including the mathematical sciences. In FY 1996, NSF awarded approximately \$3.4 million through the special MMIA competition. Funding in FY 1997 is anticipated at approximately the same level, depending on availability of funds. Proposals submitted for this competition must be received by NSF by February 14, 1997. For more information on this program, please contact; Dr. Keith Crank, Directorate for Mathematical and Physical Sciences, National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230, telephone: (703) 306-1885, fax: (703) 306-0555, Internet: kcrank@nsf.gov. NSF also supports related research in all fields of science and engineering. Information on NSF environment and global change funding opportunities is available at: <http://www.nsf.gov/stratare/egch/>.

National Oceanic and Atmospheric Administration: Within the context of its Economics and Human Dimensions of Climate Fluctuations Program, the Office of Global Programs of the National Oceanic and Atmospheric Administration will support research that identifies and analyzes social and economic impacts associated with seasonal, year-to-year, and intradecadal climate variability; improves our understanding of factors that determine human vulnerability to such fluctuations; and identifies options for reducing vulnerability. The program is particularly interested in learning how advanced climate information (e.g., ENSO-based probabilistic climate forecasts), as well as an improved understanding of current coping mechanisms, could be used

for reducing vulnerability and providing for more efficient adjustment to these variations. Notice of this program is included in the Program Announcement for NOAA's Climate and Global Change Program, which is published each spring in the Federal Register. The deadline for proposals to be considered in fiscal year 1998 is expected to be in late summer 1997. For further information, contact: Caitlin Simpson; Office of Global Programs; National Oceanic and Atmospheric Administration; 1100 Wayne Ave., Suite 1225; Silver Spring, MD 20910; telephone: (301) 427-2089, ext. 47; Internet: simpson@ogp.noaa.gov.

Environmental Protection Agency: In 1997 the Environmental Protection Agency (EPA) will support research on Consequences of Global Change on Ecosystems by joining the interagency Terrestrial Ecology and Global Change (TECO) Program, administered by the National Science Foundation (NSF). Related requests for applications that are currently advertised on the EPA Home Page include "Ecosystem Indicators"; "Ecosystem Restoration"-sponsored jointly with National Aeronautics and Space Administration; and "Water/Watersheds"- sponsored jointly with the NSF. The EPA offers grants in global climate change through its "National Center for Environmental Research and Quality Assurance". Information is available through web site: <http://www.epa.gov/ncerqa> or hotline 1-800-490-9194. For further information, contact Barbara M. Levinson, EPA (8723), Washington, DC 20460, telephone: (202) 260-5983, fax: (202) 260-4524, E-mail: Levinson.barbara@epamail.epa.gov.

The Catalog of Federal Domestic Assistance Number for this program is 81.049, and the solicitation control number is ERFAP 10 CFR Part 605.

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for Resource Management
Office of Energy Research

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