

OFFICE OF ENERGY RESEARCH

Notice 96-06

Global Change Integrated Assessment Research

DEPARTMENT OF ENERGY

OFFICE OF ENERGY RESEARCH

Energy Research Financial Assistance Program Notice 96-06: Global Change Integrated Assessment Research

AGENCY: U.S. Department of Energy (DOE)

ACTION: Notice inviting grant applications

SUMMARY: The Office of Health and Environmental Research (OHER) of the Office of Energy Research, U.S. Department of Energy (DOE) hereby announces its interest in receiving applications to support research and analysis of Global Change Assessment Research. This notice is a follow on to two previous notices published in the Federal Register (Notice 93-4 published December 9, 1992, entitled Economics of Global Change Research Program and Notice 95-12 published December 29, 1994, entitled Global Change Assessment Research Program). The program has expanded since 1992 to include core support for integrated assessment activities and research on assessment in direct support of global change policy. The research program supports the Department's Global Change Research Program, the U.S. Global Change Research Program (USGCRP), and the Administration's goals to understand and mitigate the rise in greenhouse gases.

DATES: Formal applications submitted in response to this notice must be received by 4:30 PM, EST, March 20, 1996, to permit timely consideration for awards in Fiscal Year 1996 and Fiscal Year 1997.

ADDRESS: Formal applications referencing Program Notice 96-06 should 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 96-06. The following address must be used when submitting applications by U.S. Postal Service Express Mail, any commercial mail delivery service, or when hand-carried by the applicant: U.S. Department of Energy, Office of Energy Research, Grants and Contracts Division, ER-64, 19901 Germantown Road, Germantown, MD 20874-1290.

FOR FURTHER INFORMATION CONTACT: Dr. John C. Houghton, Office of Health and Environmental Research, Environmental Sciences Division, ER-74 (GTN), U.S. Department of

Energy, Germantown, MD 20874-1290 (301) 903-8288, fax (301) 903-7363, or by Internet address, john.houghton@oer.doe.gov.

SUPPLEMENTARY INFORMATION: There are two topics that are included in the DOE Global Change Integrated Assessment Research program for FY 1996 and FY 1997. Approximately 80 percent of the funds are expected to be allocated to the first topic; 20 percent for the second topic.

The determination of energy policy, such as that contained in the Department of Energy's National Energy Policy Plan and the President's Climate Change Action Plan, as well as the policy actions taken in response to the first Conference of the Parties in Berlin, 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 as well as helps in presenting the results of the U.S. Global Change Research Program to the policy-setting process.

This research will be judged in part on its potential to improve and/or support the analytical basis for policy development. For instance, research that supports integrated assessment, which in turn supports the policy process, is considered relevant. More broadly applicable research will be preferred to narrowly focussed research on, for example, particular energy technologies, or narrowly-defined geographic regions. One of the requirements of the application is to define the linkage to policy questions that the research expects to address. Applications that involve development of analytical models and computer codes will be judged in part on the basis of proposed tasks to prepare documentation and make the models and codes available to other groups.

A background document that describes the supplementary information in more detail is available from Dr. Houghton. Applicants are expected to be familiar with literature on global climate change. A representative list of relevant literature is also available from Dr. Houghton.

A. Integrated Assessment of Climate Change: Integrated assessment (IA) of climate change is 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. The analysis should include feedbacks and be oriented to evaluating policy options. IA is sometimes, but not always, implemented as a computer model. Under this topic, the Integrated Assessment program will support research that either a) develops IA's for use by the policy-setting process, or b) conducts more narrowly defined research topics, the results of which would be used by the IA community. Note that the research supports the development of methodologies or information rather than the exercise of a model to evaluate specific policy options. In case a), a criterion for selecting awards will be the potential contribution to the policy decision process and the added value of that particular proposed IA effort (particularly for new IA models) over other ongoing IA activities. In case b), a criterion will be the importance of the research results to the IA community.

The following categories are examples of focused research topics that would support IA. They are listed in order of importance.

1. Technology Innovation and Diffusion. This category has been a primary focus of the Integrated Assessment program for the last three years. Potential research projects include such issues as:

the representation of technology innovation and diffusion in IA models. This might include studies such as a) the expected impact of increased R&D programs on technology innovation, b) decomposing technology improvements into various factors, including a residual such as the autonomous energy efficiency improvement index, c) capital vintaging and embodied technology in capital stock, and d) analysis of the "top/down versus bottom/up controversy",

the rate of technology diffusion from the US to developing countries and the prediction of the energy-use path for developing countries, including the influence that future technology improvements in developed countries will have on developing countries, and

the translation of existing literature on the economics of technology innovation into a representation that could be adapted for IA models.

2. Representing Non-Market Impacts in Integrated Assessments:

A major challenge before the integrated assessment modeling community is to expand the range of representations in integrated assessment models of the response of ecosystems, socio-economic systems, human health, and other sectors to potential climate changes. This is especially true for estimates of the consequences of climate change on the "non-market" goods and services provided by ecosystems. This topic will emphasize the interface between impacts sectors and integrated assessment rather than process modeling of the sectors. Of particular importance are analyses that attempt to predict the change of unmanaged ecosystems to transient climate change rather than, for instance, static doubled carbon dioxide regime.

3. Reduced Form Models: This category would support the development of selected simplified models that portray an important aspect of the overall problem and can be used by several of the IA modelers. This category would also support research that addresses paradigms for coordinating research on process studies so that they are more easily reformulated as reduced form models.

4. Uncertainty. Research subjects include how to estimate uncertainty in IA models, how uncertainty affects the effectiveness of policy options, the utility of different representations of uncertainty including surprises, and the value of research on different topics based on an analysis of the utility of uncertainty reduction.

5. Scale Differences: In linking the physical, biological, and social science systems together, information and sub-models are often collected and constructed at different geographical scales and timeframes. For example, impacts averaged across large latitude and longitude cells do not correspond to nations, which are often the appropriate unit in political science models of international negotiating. This category includes research on combining different scales in a consistent manner.

6. Data: Some data sets are so important and common to so many assessment activities that support for collection of that data would prevent duplication. This category includes two subjects. The first is to conduct the research necessary to define specific data sets that are needed by the IA community. The second is to conduct the research necessary to collect and provide a needed data set.

7. Driving Forces: This research will help understand the underlying economic forces that drive global change and that form a foundation for most economic modeling of global change.

B. Assessment in Direct Support of Policy: The following subject areas are defined by categories of policy concerns rather than by research categories themselves. Successful research applications in this area will concentrate on the broader issues of policy activities rather than, for example, specific policy proposals. Although particular examples or case studies may be important to understanding the broader theme, the major goal is the general understanding that can be applied to the broad policy. The categories are listed in order of importance.

1. U.S. Emission Abatement Strategies: The research would help predict the direct and indirect effectiveness of emission abatement strategies, such as cost, impacts, and timing. For example, assessing effectiveness of voluntary actions would be important for some short-term abatement actions.

2. R&D as a Policy Option: Investment or other policies to encourage research and development are options for increasing abatement and improving adaptation. Research in this category would investigate such subjects as how to predict the success of research programs and the effectiveness of alternative modes of implementation, such as direct grants, cooperative research projects, etc.

3. Global Change in the Context of Other Social and Environmental Policy Options: Often global change policy issues are discussed in the context of broader social and environmental goals. This category would support the extension of global change assessment to include measures and concepts that would benefit the broader debate, such as international trade, job formation, and economic competitiveness.

4. International Negotiations: This category includes research on past roles or future prospects for science and integrated assessments in international environmental negotiating processes and the formation and stability of international agreements, for instance, whether agreements can be generated that are both effective in reducing emissions and that do not encourage countries to "drop out".

Potential applicants are strongly encouraged to submit a brief preapplication in accordance with 10 CFR 600.10(d)(2), which consists of two to three pages of narrative describing research objectives. Preapplications will be used to identify potential opportunities for coordinated research, to enable DOE to advise potential applicants of DOE's interest in their research ideas, and to serve as a basis for arranging reviews of formal applications.

Preapplications should include no more than two to three double-spaced pages (10 pt.), including proposed research; names and telephone numbers for all principal investigators (PIs), coprincipal investigators, and collaborators; and telefax number, Internet address (if available) and mail address for the PI. Preapplications referencing Program Notice 96-06 should be sent to Dr. Houghton, Office of Health and Environmental Research, ER-74, Germantown, MD 20874-1290, or to john.houghton@oer.doe.gov. Preapplications arriving close to the deadline for submission of applications may not receive adequate attention.

Preapplications and formal applications will be reviewed relative to the DOE interests described by this notice and in reference to scope and research priorities of the U.S. Global Climate Change Research Program (USGCRP). Preapplications will be reviewed for relevance to Program needs and interests. Formal applications will be subjected to merit review and will be evaluated against the evaluation criteria set forth in 10 CFR Part 605 as well as the specifics referenced above.

It is anticipated that approximately \$2 million will be available for grant awards in Fiscal Years 1996 and 1997, contingent upon availability of appropriated funds. Previous awards for this type of research have ranged from \$30,000 up to \$250,000 per year, with most not exceeding \$150,000. While most awards are expected to range from \$50,000 to \$150,000 per year, a few larger awards may be granted for large integrated assessment activities, which may be funded at up to \$500,000 per year. Funding of multiple year grant awards of up to three years is available and is also contingent upon availability of appropriated funds.

Information about the development and submission of applications, eligibility, limitations, evaluation, 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 Health and Environmental Research, Environmental Sciences Division, ER-74, Germantown, MD 20874-1290. Telephone requests may be made by calling (301) 903-4902. Electronic access to ER's Financial Assistance Guide is possible via the Internet using the following e-mail address: <http://www.er.doe.gov>.

Related Funding Opportunities: Investigators may wish to obtain information about the following related funding opportunities:

National Science Foundation: In concert with other US/GCRP agencies, NSF has established Methods and Models for Integrated Assessment to sponsor 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. For both research categories, NSF encourages participation and collaboration of researchers from all appropriate scientific and engineering disciplines, including the mathematical sciences. In FY 1995, NSF awarded approximately \$3.4 M through the special MMIA competition. Funding in FY 1996 is anticipated at approximately the same level, depending on availability of funds. Proposals submitted for this competition must be postmarked no later than March 11, 1996. For more information on this program, please contact; Dr. Robin Cantor, Directorate for Social,

Behavioral, and Economic Sciences, National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230, PH: (703)306-1757, FAX: (703) 306-0485, Internet: rcantor@nsf.gov.

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, 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 1997 is expected to be in late summer 1996. For further information, contact: Claudia Nierenberg; Office of Global Programs; National Oceanic and Atmospheric Administration; 1100 Wayne Ave., Suite 1225; Silver Spring, MD 20910; Phone: (301) 427-2089, Ext. 46; Internet: nierenberg@ogp.noaa.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.

Issued in Washington, D.C.

John Rodney Clark
Associate Director
for Resource Management
Office of Energy Research

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