



Department of Energy
Office of Science
Washington, DC 20585

July 23, 2003

Office of the Director

Dr. Keith Hodgson
Director, Stanford Synchrotron Radiation Laboratory
Department of Chemistry
Stanford University
Stanford, California 94305

Dear Dr. ^{Keith}Hodgson:

As you may know, uncertainties about the magnitude and range of radiative forcing from natural and anthropogenic aerosols continue to be important sources of uncertainty in modeling climate change and estimating climate sensitivity to human-induced forcing from greenhouse gases and aerosols. To help address some of the uncertainties, the Department of Energy's Office of Biological and Environmental Research (BER) has decided to reconfigure its Atmospheric Science Program. It is our desire to have the program fully reconfigured and implemented to focus on aerosol radiative forcing by the end of FY 2005.

I am requesting that the Biological and Environmental Research Advisory Committee (BERAC) assemble a small group of experts to provide guidance to BER on how the program should be reconfigured in terms of scope, priorities, and areas of primary focus on aerosol radiative forcing of climate. The group is requested to provide guidance on what a reasonable and appropriate program would be considering (1) the major scientific uncertainties and knowledge gaps concerning both direct and indirect effects of aerosol radiative forcing; (2) a limited budget to fund the reconfigured program, (3) the research currently funded in this topical area by DOE and other Federal agencies, especially those supporting significant amounts of focused research on this topic; and (4) the facilities and capabilities currently available and that potentially will become available for such research within the DOE laboratory system. These facilities include, or could include, depending on FY 2004 funding, the existing Atmospheric Radiation Measurement (ARM) Cloud and Radiation Testbed (CART) facilities and instruments and a potentially new mobile ARM-CART facility for which FY 2004 funding for construction and implementation has been requested, the high-end scientific computers at our laboratories, the Environmental Molecular Sciences Laboratory at the Pacific Northwest National Laboratory, the unmanned aerial vehicles supported by the ARM program and the Battelle G-1 aircraft, and the scientific expertise in atmospheric science and climate modeling at DOE laboratories.



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Considering all of these factors, the group is requested to identify and provide its recommendations to me through BERAC on where the Office of Science should target its investments in aerosol radiative forcing research, in terms of scope, priorities, and areas of specific emphasis so as to ensure they yield substantial and important scientific payoffs. I am requesting that the group provide a draft report for review by BERAC in September and a final report in time to present for concurrence by the full Committee at its next meeting in November 2003.

Funds to support this activity will be provided by the Oak Ridge Institute for Science and Education (ORISE). A representative from ORISE will be in touch with you about this. If you have any questions about this request, please contact Jerry Elwood at 301-903-3281.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ray', written in a cursive style.

Raymond L. Orbach
Director

cc: Ari Patrinos
Jerry Elwood
David Thomassen
Warren Washington
Peter Lunn