Testimony prepared by
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University Corporation for Atmospheric Research (UCAR)
Submitted March 16, 2006 to the
Subcommittee on Energy and Water Development and Related Agencies
U.S. House of Representatives Appropriations Committee
Regarding FY 2007 Appropriations for the Department of Energy (DOE) Office of Science

On behalf of the University Corporation for Atmospheric Research (UCAR) and the university community involved in weather and climate research and related education, training and support activities, I submit this written testimony for the record of the House Committee on Appropriations, Subcommittee on Energy and Water Development.

UCAR is a 69-university member consortium that manages and operates the National Center for Atmospheric Research (NCAR) and additional programs that support and extend the country’s scientific research and education capabilities. In addition to its member research universities, UCAR has formal relationships with approximately 100 additional undergraduate and graduate schools including several historically black and minority-serving institutions, and 40 international universities and laboratories. UCAR’s principal support is from the National Science Foundation with additional support from other federal agencies including the Department of Energy (DOE).

DOE Office of Science

The atmospheric and related sciences community appreciates Congress’ support for the DOE Office of Science, and enthusiastically supports the inclusion of the DOE Office of Science in the American Competitiveness Initiative within the President’s Budget Request for FY 2007. The needs of the country demand that DOE continue to produce a world-class program in science and energy security research. The Office of Science manages fundamental research programs in basic energy sciences, biological and environmental sciences, and computational science, and supports unique and vital parts of U.S. research in climate change, geophysics, genomics, life sciences, and science education. The prospect of halting the recent slide in research funding within DOE and actually doubling the agency’s research budget holds great promise for DOE’s investment in and contribution to our nation’s future.

I urge the Subcommittee to fund the DOE Office of Science at the level of the President’s FY07 Budget Request, or $4.1 billion, and to enable the agency to apply that entire amount toward planned agency research priorities. This level of research funding will augment and reinvigorate critical work of researchers throughout the nation.

Biological and Environmental Research (BER)

Within the Office of Science, the Biological and Environmental Research (BER) program develops the knowledge necessary to identify, understand, and anticipate the potential health and environmental consequences of energy production and use. These are issues that are absolutely critical to our country’s wellbeing and security. The President’s BER Request for FY07 is $510.3
million, an approximate increase of $60.5 million over FY06 funding when FY06 congressionally directed programs are removed. While this is a healthy increase, it should be seen in the context of past appropriations and the decline of BER funding that has taken place over the past several years. The FY05 final appropriation for BER was $502.0 million with add-ons subtracted. The FY07 request therefore makes up much ground lost recently, but does not get BER back to level funding when inflation is factored in.

Peer-reviewed research programs at universities, national laboratories, and private institutions play a critical role in the BER program by involving the best researchers the nation has to offer, and by developing the next generation of researchers. Approximately 27% of BER basic research funding supports university-based activities directly and 40% supports basic research at national laboratories. All BER research projects, other than those in the “extra projects” category, undergo regular peer review and evaluation. I urge the Subcommittee to fund Biological and Environmental Research at the level of the FY07 Budget Request, or $510.3 million, and to enable BER to apply that entire amount toward planned agency research priorities that are peer-reviewed and that involve the best researchers to be found within the nation’s university research community as well as the DOE labs.

Climate Change Research. Within BER, the Climate Change Research contributes substantially to the nation’s Climate Change Research Initiative (CCRI) goals of understanding and predicting climate change, including its causes and consequences. The long-term DOE goal is to deliver improved climate data and models for policy makers and to substantially reduce differences between observed temperature and model simulations at regional scales. This work is critical to the ability of policy makers and stakeholders to provide stewardship resulting in a healthy planet – and it is particularly important as signs of increasingly dramatic change in our climate and environment appear. The Climate Change Research Request of $134.9 million is a 4.6% decrease from the FY06 appropriated level at a time when the request for BER is up 13.4% after congressionally directed projects are removed. I urge the Subcommittee to fund Climate Change Research at an FY07 level that is consistent with the request for BER stated above, and to enable DOE to apply the entire amount toward planned national research priorities.

Advanced Scientific Computing Research (ASCR)

Within DOE’s Office of Science, the Advanced Scientific Computing Research program delivers leading edge computational and networking capabilities to scientists nationwide enabling advances in computer science and the development of specialized software tools that are necessary to research the major scientific questions being addressed by the Office of Science. Development of this capacity is a key component of DOE’s strategy to succeed in its science, energy, environmental quality, and national security missions.

ASCR’s continued progress is of particular importance to atmospheric scientists involved with complex climate model development, research that takes enormous amounts of computing power. By their very nature, problems dealing with the interaction of the earth’s systems and global climate change cannot be solved by traditional laboratory approaches. The Intergovernmental Panel on Climate Change (IPCC) is compiling its Fourth Assessment Report to be completed in
2007, and ASCR’s contribution to this international document is critical. Therefore, it is encouraging to see the increase for ASCR in the President’s Request for FY07. *I urge the Committee to support the President’s FY07 request of $318.6 million for DOE Advanced Scientific Computing Research, and to enable DOE to apply the entire amount toward planned national priorities.*

Within ASCR, two programs are of particular importance to climate change computer modeling work: the National Energy Research Scientific Computing Center (NERSC) operated by Lawrence Berkeley National Laboratory, and the Energy Sciences Network (ESnet). NERSC is the high performance production computing facility for the Office of Science, serving thousands of scientists throughout the country at laboratories, universities, and other Federal agencies. Computing time is awarded to research groups based on peer review of submitted proposals. NERSC represents an important element of the Administration’s American Competitiveness Initiative strategy as outlined in the President’s State of the Union address referencing the doubling of “the federal commitment to the most basic research programs in the physical sciences over the next ten years. This funding will support the work of America’s most creative minds as they explore promising areas such as nanotechnology, supercomputing, and alternative energy sources.”

ESnet enables researchers at laboratories, universities and other institutions to communicate with each other using collaborative capabilities that are unparalleled. This high-speed network enables geographically distributed research teams to collaborate effectively on some of the world’s most complex problems. Researchers from industry, academia and national labs, through this program, share access to unique DOE research facilities, support the frequent interactions needed to address complex problems, and speed up discovery and innovation. The FY07 budget request will enable DOE to deliver a network with two-to-four times the capability of today’s ESnet.

NERSC and ESnet play complementary roles in advancing the complex and challenging science of climate change and other scientific areas of extreme importance to the security and quality of life of our citizens. *I urge the Committee to support the President’s FY07 requests of $54.79 million for the National Energy Research Scientific Computing Center (NERSC), and $22.7 million for the Energy Sciences Network (ESnet).*

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DOE plays a vital role in sustaining U.S. scientific leadership and generating U.S. competitiveness in a time when other countries are investing heavily in scientific research and technology. On behalf of UCAR and the atmospheric sciences research community, I want to thank the Subcommittee in advance for your attention to the recommendations of our community concerning the FY 2007 budget of the Department of Energy. We understand and appreciate that the nation is undergoing significant budget pressures at this time, and support absolutely the effort to enhance U.S. security and quality of life through the American Competitiveness Initiative, of which the DOE Office of Science is a critical component.