MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: NEAL LANE AND JACOB J. LEW

SUBJECT: Follow-on Guidance for FY 2001 Interagency Research and Development Activities

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This memorandum serves to emphasize those activities highlighted in the President's FY 2001 Budget that will continue to require significant levels of interagency coordination to sustain the strength of national efforts. We would like to thank the agencies for helping to pull together a very strong, well balanced, FY 2001 research and development (R&D) budget that is captured in the 21st Century Research Fund. This budget highlights the emphasis we placed on basic research; balance among agencies and fields of science; important initiatives such as information technologies and nanotechnology; research conducted at universities; and competitive, peer-review processes. We urge agencies to continue to work together, through the National Science and Technology Council (NSTC), to ensure that we are prepared to implement these important efforts as promised in the FY 2001 budget and have them ready for a future Administration.

Investment Principles

The Federal government's investments in science and technology have been guided by several fundamental principles. These principles include the following: a) sustain and nurture America's world-leading science and technology enterprise, through pursuit of specific agency missions and through stewardship of critical research fields and scientific facilities; b) strengthen and expand access to high quality science, mathematics, and engineering education, and contribute to preparing the next generation of scientists and engineers; c) focus on activities that require a Federal presence to attain national goals, including national security, environmental quality, economic growth and prosperity, and human health and well being; or d) promote international cooperation in S&T that would strengthen the advance of science and achievement of national priorities.

Interagency Priorities for Research and Development Budgets

During the remainder of FY 2000 and in preparation for FY 2001, the NSTC expects to focus on 10 interagency activities highlighted in the President's FY 2001 Budget. Each of the activities listed below should continue to develop the fol1owing: 1) a clear and concise definition of program activities and priorities; and 2) an inventory of the programs in the baseline budget. The U.S. Global Change Research Program, Information Technology R&D, Integrated Science for Ecosystem Challenges, and Nanotechnology activities should also continue to develop and improve implementation plans to ensure that interagency coordination is as strong as possible. Descriptions of and specific action items for each of the activities are listed below.

1) National Nanotechnology Initiative (NNI) – The program supports long-term nanoscale R&D leading to potential breakthroughs in materials, electronics, energy, biotechnology, medicine, agriculture, environmental improvement and information technology. The NNI incorporates long-term research leading to new fundamental understanding and discoveries of phenomena, processes, and tools for nanotechnology, and applies them towards grand challenges that support agency missions. The NNI will create centers and networks of excellence to encourage research networking and shared academic users' facilities, develop enabling infrastructures to accelerate commercialization, and prepare a new generation of skilled workers with the multidisciplinary perspectives necessary for rapid progress in nanotechnology. Agency investments must be consistent with interagency planning documents such as the NNI implementation plan.

2) Information Technology R&D - The program will stimulate information technology innovations -- including digital government, tele-health, universal access, crisis management, real-time environmental monitoring using networked sensors, the development of a "Digital Earth," and advanced manufacturing -- and serve a broad range of scientific and engineering needs. Agencies must justify investment levels based on commitments made in 2000 interagency planning documents, such as the Information Technology for the 21st Century and High Performance Computing and Communications implementation plans. The President's Information Technology Advisory Committee will conduct its annual assessment of the program by September 2000.

3) Energy Initiatives – This program consists of five different initiatives. They are: 1) Biobased Products and Bioenergy, to work toward a goal of tripling U.S. use of biomass; 2) the Climate Change Technology Initiative, to promote research aimed at technologies, such as products and production methods that reduce greenhouse gas emissions and increase the efficiency of energy and materials used in transportation, buildings, and manufacturing, for reducing U.S. carbon emissions at the lowest possible cost; 3) the International Clean Energy Initiative, to encourage open competitive markets and remove market barriers to clean energy technologies in developing and transition countries and to provide new incentives for clean energy technology innovation and export; 4) Partnership for a New Generation of Vehicles, to achieve the goal of increasing fuel economy of cars, while improving performance and affordability; 5) Partnership for Advancing Technology in Housing, to develop and promote the adoption of advanced housing technologies that will reduce energy consumption in building, heating/cooling and maintenance of the nation's residential housing.

4) Integrated Science for Ecosystem Challenges – The goal of this program is to develop the knowledge base, information infrastructure, and modeling framework to help resource managers predict/assess environmental and economic impacts of stress on vulnerable terrestrial and marine ecosystems, with particular focus on invasive species, hypoxia and harmful algal blooms, recovery of Pacific salmon, restoration of damaged ecosystems, bioinformatics, and integrated monitoring.

5) U.S. Global Change Research Program – The goal of this program is to improve our understanding of climate change and other global changes, with a particular focus on the storage of carbon in terrestrial ecosystems, the effects of climate change on the hydrological cycle, the relationship of land cover and land use change to changes in climate and loss of biodiversity, coordination of programs in marine resources, and the development of better tools for observing, monitoring, and projecting future rates of climate change.

6) Interagency Education Research Initiative – The program supports research to strengthen understanding of the learning process and to apply that understanding to the development and evaluation -- particularly through large-scale, long-term, and experimental studies -- of educational systems, technologies, and other approaches aimed at improving educational outcomes. Agency plans should reflect a coordinated, five-year interagency plan, a draft of which has been prepared by the Interagency Working Group of the Interagency Education Research Initiative. The final plan will be completed by May 2000, and address previously identified priorities, including recommendations contained in the report from the PCAST on the Use of Technology to Strengthen K-12 Education in the United States.

7) Protecting Against 21st Century Threats – The program promotes and coordinates research to reduce vulnerabilities in our nation's critical infrastructures and promotes the research and development of technologies that will detect, contain, and mitigate attacks or other failures in these infrastructures. The Critical Infrastructure Protection R&D Interagency Working Group will draft recommendations based on PDD-63 by May 2000. The program also promotes and coordinates research to enhance our ability to detect, respond to, and heal the effects of possible terrorist attacks using chemical, biological, radiological, and related weapons. The Weapons of Mass Destruction Prevention R&D Interagency Subgroup will draft recommendations based on PDD-62 by May 2000.

8) Emerging Infectious Diseases (EID) – The program continues to implement the second phase of the interagency effort to address emerging infectious diseases, pursuant to PDD/NSTC-7. Program priorities include Hepatitis C, antimicrobial resistance, emerging viral infections, pandemic influenza, vaccine development, and the effort to address global emerging infectious disease challenges. Activities will address technologies and methodologies for surveillance and response, factors associated with emergence and reemergence, research, training, and capacity building. The NSTC Committee on International Science, Engineering, and Technology EID Task Force will draft recommendations based on PDD/NSTC-7 by Fall 2000.

9) Aviation Safety, Security, Efficiency, and Environmental Technologies – The program supports research and development aimed at (a) reducing the aviation fatal accident rate by eighty percent by 2007; (b) strengthening the security of our aviation system; (c) continuously improving our national airspace system and airports to increase their capacity and efficiency of operations; and (d) fostering the environmental compatibility of our aviation system. These activities encompass the recommendations of the White

House Commission on Aviation Safety and Security and implement the NSTC report, National Research and Development Plan for Aviation Safety, Security, Efficiency and Environmental Compatibility.

10) Plant Genome – The program promotes the coordinated development of plant genomic information, new technologies, and resources that will improve our understanding of plant biology and be applied to the enhancement of economically important plants. Agency plans are based on existing coordinated interagency plans that address the program priorities contained in the 1999 NSTC report, National Plant Genome Initiative: Progress Report (http://www.whitehouse.gov/WH/EOP/OSTP/html/genome/genome_1.html). By September 2000, agencies will be expected to provide OSTP an interim status report on FY 2000 activities with a full report due in January 2001. In addition, the interagency working group will provide the NSTC Committee on Science with an assessment of how Federal funding for plant genome research relates to the broader needs of plant science and make recommendations if appropriate.

R&D Performance Measures

We continue to encourage agencies to include the following R&D goals and measures in their agency performance plans.

· Federally funded research will be of the highest quality. (1) Each agency should establish a goal for the percent of its research project portfolio (by amount of funds) that will be allocated through a merit-based competitive process. The goal should reflect a thoughtful balance between those mission-driven research programs that are managed by other processes, and research for which the merit-based competitive process is most appropriate. (2) Each agency should ensure that independent assessments of its research programs evaluate both the quality and the progress of the agency's research toward stated goals. The goal will be to achieve a "satisfactory" rating from such assessments, consistent with the format provided in the Government Performance and Results Act. Existing advisory committees, groups within the National Academy of Sciences, or other outside groups could conduct the assessment.

· Major scientific facilities will be built and operated efficiently. As established by law in the Federal Acquisition Streamlining Act, agencies will keep the development and upgrade of facilities on schedule and within budget, not to exceed 110 percent of estimates. Agencies will establish a goal for scheduled operating time for each facility and request operating funds consistent with that goal.