Calendar Year (CY)
1995 NSTC Accomplishments

Joint NSTC-OMB Fiscal Year (FY) 1997 R&D Budget Priorities

On April 28, 1995, Alice M. Rivlin, the Director of OMB, and I issued joint budget guidance to the Head of Executive Departments and Agencies. Our intent was to convey the guiding principles developed by the NSTC and approved at the March 23, 1995, NSTC Deputies Meeting. Agencies were expected to reflect these principles and priorities in their FY 1997 budget submittal. The NSTC developed six budget R&D priorities which remained unchanged from FY 1996:

- Maintain World Leadership in Science, Engineering, and Mathematics
- Promote Long-term Economic Growth that Creates Jobs
- Sustain a Healthy, Educated Citizenry
- Harness Information Technology
- Improve Environmental Quality
- Enhance National Security

R&D budget data collection guidelines were concurrently issued. Data collection goals and principles were established to streamline the data collection process and implement lessons learned from the prior year. For example, the number of priority/crosscut areas was reduced from 8 to 7; OMB Circular A- 1 1 definitions were modified to better align its definitions with NSTC activities; budget data was collected later in the process when the estimates are more reliable; and crosscut data was submitted to OMB as part of the normal Agency budget process, rather than through NSTC Committees.

The NSTC Committees, with the general R&D budget priorities in mind, developed a list of recommended general strategic focus areas for the Small Business Innovative Research (SBIR) Program. On May 28, 1995, I asked the Agency and Department Heads to give careful consideration to these recommendations when developing their SBIR Program solicitation notices.

Federal Laboratory Review

Under NSTC's auspices, a Federal Laboratory Review of the Department of Energy (DoE), the National Aeronautics and Space Administration (NASA), and the Department of Defense (DoD) was completed in May 1995. These three laboratory systems account for at least one-fifth of the entire federal investment in R&D--approximately $15 billion of an approximate $70 billion total. The core purpose of this review was to assess the continuing value of these laboratories in serving vital public needs, including options for change that would cut costs and improve R&D productivity. Prior to the Federal Laboratory Review, all three agencies recognized that their laboratory systems faced downsizing, as missions are more sharply focused and unnecessary duplication is eliminated. As a result of the Federal Laboratory Review, the President concluded in late September that the laboratory systems of the DoE, NASA, and DoD provide essential services to the Nation in fundamental science, national security, environmental protection, energy, aerospace, and technologies that contribute to industrial competitiveness.

State-Federal Technology Partnership Task Force

In January 1995, the Chair of the National Governors' Association (NGA) and I announced the establishment of a State-Federal Technology Partnership Task Force. The Task Force's primary objective was to identify ways to strengthen State-Federal science and technology partnerships to advance the Nation's goals and, in particular, the economic benefits of greater cooperation. The Task Force built on the work of the State-Federal Technology Partnership, a joint effort of the Carnegie Commission on Science, Technology and Government, the NGA, the National Conference of State Legislatures, and the American Society of Mechanical Engineers. The partnership consisted of 20 national leaders, including four governors, state legislators, and chief executives from business, academia, and non-governmental

organizations. Former Governors Richard Celeste of Ohio and Richard Thornburgh of Pennsylvania Co-Chaired the initiative.

The Task Force identified a set of overarching and operational principles essential to the development and flourishing of any State-Federal partnership. Their report offered four recommendations, under the following headings:

- Renewing the National Science and Technology System
- Building the role of the States in the National Science and Technology
- System Catalyzing Private Sector Investments in Technology
- Building National Excellence in Manufacturing

The Task Force's final report was issued on September 5, 1995. An NSTC Working Group, chaired by Mary Good, Department of Commerce's Under Secretary for Technology, assessed the report and made recommendations to the NSTC regarding opportunities we can pursue as part of the renewed national effort. In an effort to encourage demonstrable State-Federal partnerships, a broad range of potential outreach activities have been identified.

National Bioethics Advisory Commission (NBAC)

OSTP, in consultation with members of the NSTC, developed a proposal to create a standing body of experts to consider bioethical issues arising from research on human biology and behavior, and the applications of such research. The result was the establishment of the National Bioethics Advisory Commission (NBAC). A public announcement regarding the establishment of NBAC coincided with the release of the *Human Radiation Experiment Report* on October 3, 1995.

The NBAC will be appointed by the President from knowledgeable non-government experts and community representatives with special qualifications and competence to deal effectively with bioethical issues of concern to the participating departments and agencies. As a first priority, the Commission will direct its attention to consideration of issues in the management and use of genetic information and protection of the rights and welfare of research subjects.

Education Technology Initiative

The President announced this major education initiative on October 10, 1995, as a national effort to prepare American students for the 21st century. This four part initiative includes: 1) making modern computers and learning devices accessible to every student 2) connecting classrooms to one another and the outside world 3) including educational software as an integral part of the curriculum and 4) training teachers to use effectively education technology. An inherent element of the Education Technology Initiative is a national public-private partnership to connect every classroom in America to the information superhighway by the year 2000. Also included are a variety of activities--the Challenge Grants Program, the Tech Corps, and the American Technology Honor Society. The Challenge Grant Program is strongly supported by the NSTC Committee on Education and Training (CET) and has drawn upon the technical expertise of the CET agencies. Other activities under this initiative build upon the interagency cooperation established by the NSTC. Additional Presidential education technology announcements are scheduled for CY 1996.

The NSTC established an Interagency Learning Technology Office (ILTO) to achieve its strategic vision of quality education through cross-agency cooperation. A major ILTO task is to, produce a series of interagency learning technology demonstrations, ensuring the best federal research and development products are systematically transitioned to public and commercial uses. The ILTO will also serve as a focal point for communication with state and local governments, as well as with industry. The establishment of the ILTO supports the Administration's effort to reinvent the Federal Government and achieve greater efficiencies and productivity.

Seismic Networks

On November 14, 1995, key members of Congress received a letter summarizing the results of a year-long NSTC interagency process to improve the coordination of Federal seismic research and monitoring activities. The letter was written to call attention to the importance of U.S. seismic network programs and their relationship to test ban negotiations. These programs provide data to the U.S. in the areas of monitoring of nuclear weapons tests, geoscience research, and earthquake hazard monitoring. Each application has different requirements and the Administration

examined the appropriate funding and potential for multiple use of such networks.

The analysis reaffirmed the synergy among seismic network applications, and that data should be collected and shared to maximize the benefit to all three areas. Included was a commitment to carry out a program of global monitoring of nuclear weapons tests in accordance with the position taken by the U.S. in recent test ban negotiations, which explicitly included a role for auxiliary seismic stations.

The letter recommended, starting in FY 1997, funding for the Global Seismic Network by the agency most directly responsible for a network, rather than on a centralized basis by the DoD. The importance of fully funding the DoD's request for primary seismic arrays for nuclear test monitoring was emphasized in the letter.

NSTC Presidential Review Directives

The NSTC, through the issuance of NSTC Presidential Review Directives (PRD's), directs member agencies and departments to undertake reviews and analyses. In May 1995, the NSTC issued two PRD'S, as follows:

- Space Policy Review--The President established an Interagency Working Group, co-chaired by OSTP and the National Security Council, to conduct a comprehensive review of national space policy. The intent of this review is to ensure that written policies reflect the Administration's civilian, national security, and commercial space policies. The Interagency Working Group was also tasked with identifying and recommending changes to related national security directives containing guidance on space policies and programs. External advice may be sought from the President's Committee of Advisors on Science and Technology (PCAST) and other appropriate representatives of industry, academia, the non-profit sector, as well as state and local governments. Recommendations are expected by spring 1996.

- Global Positioning System (GPS) Policy Review--The President directed OSTP and the National Security Council to lead a comprehensive review of policy issues related to the future management and use of the GPS. GPS uses a constellation of 24 earth-orbiting satellites that transmit timed radio signals giving their locations. By combining information from any four or more GPS satellites, someone on earth can compute his or her location very precisely, at any time of day, or in all kinds of weather. While GPS was originally created for national security purposes, from its inception it has been considered a dual-use resource, with civilian as well as military applications. Civilian use of GPS is rising dramatically. A clear statement of national policy is needed to balance commercial and civil uses of GPS with essential national security aspects of the system. The Interagency Working Group reviewed a broad range of GPS-related technology and policy issues affecting national security, economic policy, and foreign policy, and made recommendations for a comprehensive national policy for GPS management and use. (Note: A Presidential Decision Directive (PDD) was signed March 28, 1996.)

U.S. Antarctic Program Review

In response to a Senate Appropriation Committee request (Report 104-140), NSTC was directed to review the U.S. presence in the Antarctic, expressing a concern about the ability to continue to fund a U.S. permanent presence on the continent given severe budget constraints. An examination of the U.S. scientific program in the Antarctic was initiated, including an analysis of the roles of the NSF, DoD, and other Federal Agencies. The study will also consider the potential for international collaboration and the importance of maintaining and operating the South Pole Station and two coastal stations on a year-round basis. Study results will be forwarded to Congress in April 1996.

Presidential Decision Directive (PDD)

Subsequent to the NSTC laboratory review initiated by NSTC PRD 1, DoE and DoD, in coordination with the NSC, conducted an examination of capabilities and functions necessary to conduct an effective science-based stockpile stewardship program. On the basis of this review, the President issued an NSTC PDD on September 25, 1995. This PDD reflected that the continued vitality of all three DoE nuclear weapons laboratories are essential to the Nation's ability to fulfill the requirements of stockpile stewardship as we enter into a Comprehensive Test Ban regime. The PDD directed the DoE to maintain nuclear weapons responsibilities and capabilities adequate to support the science-based stockpile stewardship program required to ensure continued confidence in the safety and reliability of the nuclear

weapons stockpile in the absence of nuclear testing.

This PDD directed NASA, DoE and DoD to reform their federal laboratory systems, by adhering to the following general guidelines and principles:

- Agencies will review and, as appropriate, rescind internal management instructions, regulations, and redundant oversight that impede laboratory performance

- Agencies will clarify and focus mission assignments for their laboratories, eliminating redundance and restructuring the laboratory systems, as appropriate and necessary

- In their efforts to achieve greater efficiency and effectiveness in their laboratory systems, agencies will first seek to achieve all possible savings through streamlining and improving management. Then, as necessary, they will reduce or eliminate lower priority programs, in accordance with guidance from the Office of Management and Budget and OSTP, based on priorities set by the NSTC and, as appropriate the National Security Council (NSC)

- Agencies will continue to explore opportunities to coordinate and integrate laboratory resources and facilities on an interagency and inter-service basis, eliminating unnecessary duplication and establishing joint management where appropriate

Attached is a listing and summary description of NSTC PRD's and PDD's issued to date.

NSTC Committee Sponsored Fora and Colloquia

The NSTC is committed to outreach and collaboration with the private sector, academia, and the public, to ensure that federal science and technology policies reflect the full spectrum of the Nation's needs. A primary means of obtaining input from outside the Federal Government is through the sponsorship of fora and colloquia designed to enable interaction among a variety of stakeholders. Major fora and seminars held in the first 8 months of 1995 include:

- *Science in the National Interest* Regional Meetings: In August 1994, Science in the National Interest was released. This policy document presents the first formal statement by the Administration on science policy since 1979. Released by Vice President Gore, *Science in the National Interest* links scientific research and education to the broad national goals of health, prosperity, national security, environmental responsibility, and improved quality of life. As a means of engaging a broad range of stakeholders--state and local governments, academia, and private industry--NSTC has participated in a series of regional meetings. In 1995, regional meetings were held in Massachusetts, Texas, and Florida.

- *Forum on Future Directions in Transportation R&D*: The NSTC Committee on Transportation R&D and the National Academy of Sciences co-sponsored this forum on March 6 and 7, 1995. The purpose of the forum was to solicit input, principally from private industry, to help the Department of Transportation and the NSTC guide future transportation research. Several hundred people participated in this public forum. Findings/Proceedings from this meeting were made publicly available in October 1995.

- *Science Leadership Exchange*: The Committee on Fundamental Science (CFS), in conjunction with the Office of Science and Technology Policy, organized the Science Leadership Exchange in March 1995. This forum provided individuals serving in an advisory capacity at CIPS member agencies to expand their understanding of the total Federal support for science. OSTP and eight NSTC agencies provided insight into their FY 1996 budget.

- *The Role of Science and Technology in Promoting National Security and Global Stability*: The NSTC Committee for National Security and Committee on International Science Engineering and Technology and Environment, the Council on Foreign Relations, and the American Association for the Advancement of Science co-hosted a 2-day forum. Individuals from the sponsoring organizations participated, along with science diplomats and governmental policy makers from the executive and legislative branches. The purpose of this March 29-30, 1995, forum was to explore ways of using the science and technology enterprise to advance the goals of greater national security, sustainable development, and economic prosperity. The forum enabled open discussion of our Nation's ability to most effectively organize and use our science and technology to support preventive diplomacy, nonproliferation of weapons of mass

destruction, military capabilities, economic security, and sustainable development. The results of these discussions were incorporated into the National Security Science and Technology Strategy that was released on September 19, 1995.

- *Colloquium on Assessing the Contribution of Fundamental Science*: The NSTC Committee on Fundamental Science sponsored a forum on May 17, 1995. One purpose of the forum was to enable scientists, policymakers, research managers, assessment practitioners, and stakeholders to discuss the new emphasis on programmatic accountability and its impact on fundamental science. A second purpose was to develop issues and options for building assessment strategies that will fully represent the contribution of science to the national well-being. At this colloquium, diverse members of the public and private scientific enterprise probed the complexities of the new assessment environment and explored methods that might be adapted to fundamental science. Key themes from the background studies, workshop, and colloquium will be summarized in a series of reports--one published in 1994, the others to be published in 1996. The NSTC is drafting a paper that identifies a set of principles and other information for use by Federal science agencies in designing and testing methods for improved assessment of fundamental science. This paper is expected to be published in the spring of calendar year 1996.

- *America in the Age of Information: A Forum on Federal Information and Communications R&D*: On July 6-7, 1995, the NSTC Committee on Information and Communications R&D sponsored this forum as a follow-on activity to the publication of their March 1995 Strategic Planning Document. The purpose of the forum was to obtain community comment on, enhancement to, and refinement of the Plan in order to address national goals and to be responsive to the needs of the American workforce and citizenry. White Papers were solicited from university organizations, professional societies, industrial organizations, other Federal and State organizations, and concerned citizens on subjects addressed in this Strategic Implementation Plan. Authors of selected White Papers presented their papers and participated in a discussion at the forum.

- *Forum on Emerging Infectious Diseases*: The NSTC Committee on International Science, Engineering and Technology Policy (CISET) sponsored a public forum on emerging and re-emerging infectious diseases on July 25, 1995. At the forum, the NSTC CISET Working Group released a report, *Emerging and-Re-emerging Infectious Diseases*. The relationship between infectious disease, public health, and national security was discussed before several hundred participants, including many members of the press.

- *Making it Happen: First in the World in Science and Mathematics Education*: The July 26-27, 1995, forum was designed to elicit discussion and debate about policy options for producing the finest scientists and engineers for the future and improving science literacy for all Americans. This NSTC sponsored national forum brought together a broad range of stakeholders--over 200 experts from academia, private industry, consumer groups, and state and Federal government--to identify the critical issues, discuss the current status of their collective efforts, and to address the country's short and long-term objectives. The forum was co-sponsored by the NSTC Committees on Fundamental Science and Education and Training.

- *Partnership for a New Generation of Vehicles (PNGV Symposia*: The Federal Government and USCAR (Ford, Chrysler, and General Motors) together with suppliers, other businesses and universities, developed a joint R&D program. The purpose of this program is to develop commercially-viable technology that, over the long term, can preserve personal mobility while reducing the environmental impact of cars and light trucks and the U.S. dependence on imported petroleum. In February and September 1995, the Vice President hosted two symposia on technical areas related to the PNGV project. The February 1995 symposium focused on the subject of materials, while the September 1995 symposium discussed energy storage. Scientists and engineers working in these subject matter areas, from the public, private, and university sectors, were invited to participate.

- *Conference on Human Health and Climate Change*: The NSTC co-sponsored, with the Institute of Medicine and the National Academy of Sciences, a 2-day Conference on Human Health and Climate Change on September 11-12, 1995. The purpose of the conference was two-fold: 1) to bring together a diverse group of experts to address the potential effects of climate change and ozone depletion on the current and future incidence of disease, heat stress, food and water supplies and air pollution and 2) to discuss initial strategies for improving R&D, global health surveillance systems, health care and disease prevention, medical and public health community education, international cooperation, and public outreach. Several hundred people from the public, private, and university communities participated in the activities.

- *High Performance Computing and Communications (HPCC) Workshops*: The Federal HPCC Program provides essential stimulation and coordination to accelerate progress in crucial areas of computation, information, and communications. This program accelerates deployment of easy-to-use information technology and encourages the information revolution. During CY 1995 the NSTC Committee on Information and Communication sponsored several HPCC-related workshops, briefings and conferences. For example, in January 1995, the Second Pasadena Workshop on System Software and Tools for High Performance Computing Environment was held. Sponsored by the Institute of Electrical and Electronic Engineers and the Association for Computer Machinery, *Federal Strategies and Programs in the Age of Information Workshop: The SUPERCOMPUTING '95 Conference* was held in San Diego, California on December 3-8, 1995. The NSTC Committee on Information and Communications (CIC) sponsored a workshop at the conference, addressing issues associated with the future of federally funded supercomputing research. Agency plans for the High Performance Computing and Communications (HPCC) program were discussed, including highlights of the current HPCC program and its accomplishments. Participants discussed the concept of high performance computing research centers and networks. In addition, the CIC Forum Program Committee led a discussion-of the six strategic focus areas of the CIC's Strategic Implementation Plan.

NSTC Reports

In an effort to highlight the federal government's investment in S&T to the American public, the following reports were published. The NSTC has adopted the policy of providing Internet World Wide Web access to its reports.

- *NSTC Strategic Plans*: In March 1995, each of the nine NSTC committees--Fundamental Science; Health, Safety, and Food; Environment and Natural Resources; Information and Communications; National Security; Civilian Industrial Technology; Transportation; Education and Training; and International Science, Engineering and Technology--published strategic planning documents that articulate the goals and objectives of their specific science and technology areas. These plans identified the major goals of each Committee, the relevant policy issues and questions confronting the Committee and the scientific/technological goals and research priorities necessary to achieve the goals. This strategic planning activity required the agencies to review major science and technology initiatives in terms of appropriate agency roles, milestones, performance measures, resources, private sector input and international issues.

- *1995 Biennial National Critical Technologies Report*: The Office of Science and Technology Policy's March 1995 National Critical Technologies Report addresses the state of development of 27 critical technologies and the U.S. competitive position relative to Europe and Japan. The principal areas covered by the report are energy, environmental quality, information and communication, living systems, manufacturing, materials and transportation. The report notes that the U.S. is at parity with, or ahead of, Europe and Japan for all 27 areas. Nevertheless, Japan is outpacing the U.S. in 10 areas and Europe is outpacing the U.S. in four areas. NSTC and PCAST members were integral in developing the report.

- *Preparing for the Future Through Science and Technology, An Agenda for Environmental and Natural Resources Research* was published in March 1995. This multidisciplinary strategy provides the scientific and technical information needed for national and international policy formulation and to assure the most efficient use of scarce research and development resources. The strategy was developed by NSTC, with assistance from stakeholders from academia, industry, and state and local governments.

- *Bridge to a Sustainable Future: Bridge to a Sustainable Future* was published in April 1995, as a follow-on to *Technology for a Sustainable Future*. This national environmental technology strategy focuses on five themes--Performance, Flexibility, and Accountability; Innovation for Environmental Res