Council on Competitiveness

December 3, 1993

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The Honorable John H. Gibbons
Director
Office of Science and Technology Policy
OEOB, Room 424
17th Street & Pennsylvania Ave., NW
Washington, DC 20500

Dear Jack:

The Council released its *Technology Policy Implementation Assessment 1993* today monitoring all the good work that you have been doing during the past year to advance the national technology policy agenda. I wanted to make sure that you received a copy. Please let me know if you have any questions or comments.

We look forward to working with you closely to build on the progress you have made to date.

Sincerely,

Daniel F. Burton
President

enclosure

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News

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GEORGE FISHER TO PROVIDE VIEWS ON FIRST-YEAR PERFORMANCE OF CLINTON ADMINISTRATION, AS COMPETITIVENESS COUNCIL RELEASES FIRST ANNUAL REPORT CARD

On **December 3, from 12:30 to 1:30 p.m. in the Imperial Room II of the ANA Westin Hotel, 2401 M Street, N.W.,** the Council on Competitiveness will release its first annual report on the progress made toward implementing technology policies that have a major impact on U.S. competitiveness.

The Assessment benchmarks the technology policy pronouncements of the President during his campaign against progress made by Congress and the Administration the past year. It reveals that significant progress has been made toward implementing some technology policies, but fewer than half of those which are critical to strengthening our economy have been fully implemented.

In addition to providing an assessment of the status of these policies, the report makes a series of recommendations in four major categories: 1) tax policy; 2) Federal R&D; 3) coordination and cooperation among government agencies and between government and industry; and 4) manufacturing.

Mr. Fisher will provide his perspectives on technology policy and other competitiveness issues as the newly appointed chairman and CEO of Eastman Kodak, and the chairman of the Council on Competitiveness for the last three years.

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COUNCIL ON COMPETITIVENESS

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TECHNOLOGY POLICY IMPLEMENTATION ASSESSMENT 1993

FOREWORD

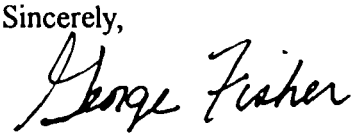
The Clinton Administration came to office emphasizing the importance of technology to America's economic growth and outlining a series of policies designed to stimulate U.S. competitiveness. As the Administration nears its first year in office, it is appropriate to benchmark these policy pronouncements against progress. This report, which is a joint product of the Council's members and its National Affiliates, attempts to determine how well the Administration and Congress have succeeded in implementing eleven longstanding policy recommendations that enjoy wide, bipartisan support in both the public and private sectors. Individually, these recommendations are neither very costly nor especially controversial; combined, they can have a major impact on U.S. competitiveness.

The recommendations fall into four categories: 1) tax policy; 2) Federal R&D; 3) coordination and cooperation; and 4) U.S. manufacturing. Many of them can be traced to the Council's 1991 report, ***Gaining New Ground: Technology Priorities for America's Future***. In some areas, such as refocusing the Federal R&D budget, real progress has been made, and both the Administration and Congress should be congratulated for their contributions. In others areas, such as tax policy, deficit reduction and other priorities took precedence during this year's budget negotiations, and as a result, we still need to do much more.

It is essential that the Administration convey the importance of technology investment programs in a tight budget climate. Congress also has a responsibility. It cannot allow issues of agency jurisdiction, committee control and special interest politics to delay passage of bills that define new roles for government support of civilian R&D. The culture and bureaucracies of many Federal agencies must also change. The United States needs a streamlined, coordinated Federal government to meet the global economic challenges of the next century.

The seeds of a national technology policy were planted in the 1980's. During the past year, we have witnessed renewed emphasis on this critical policy agenda. In the future, technology policy must be integrated with the other policies that collectively determine industry's ability to compete at home and abroad, including tax, regulatory, trade and human resource policy. The Council looks forward to working with the Administration and Congress to implement fully a national policy agenda that advances U.S. economic competitiveness.

Sincerely,



George M.C. Fisher
Council Chairman
Chairman, President and Chief Executive Officer
Eastman Kodak Company

HIGHLIGHTS

Tax policies for U.S. investment in R&D and technology surfaced as the weak link in an otherwise commendable effort to implement a national technology policy. This is primarily the result of other priorities, such as deficit reduction, taking precedence in the FY1993 budget negotiations. The Administration and Congress have demonstrated a strong commitment to refocusing the federal R&D budget on industrial competitiveness and have begun putting in place programs that promote industry-government cooperation and better coordination of Federal R&D. However, government also has a critical role in implementating a tax policy that encourages more ***private-sector*** investment in R&D and manufacturing. Essential components of such a policy, including a permant Research and Experimentation (R&E) tax credit and an investment tax credit for small businesses, are broadly supported and should be fully implemented.

TAX POLICY: The Congress again failed to enact a permanent R&E tax credit and a permanent solution to Treasury Regulation 1.861-8, opting for three-year extensions (two future years plus one year retroactive) in the 1993 Budget Reconciliation Act. A targeted capital gains tax cut was also included for stock held in small businesses for at least five years. The investment tax credit included early on in the tax bill was dropped altogether, partly because of divisions within industry. ***The lack of progress in this area indicates a need for a more in-depth understanding of the impact that tax policy has on private industry's ability to acquire patient capital and make long-term investments in R&D and equipment. Implementing tax policies that promote private sector investment should be a higher priority in the future.***

FEDERAL R&D: The President's FY1994 budget submission included significant increases for the National Science Foundation's (NSF) R&D budget and the National Institute of Standards and Technology's (NIST) Advanced Technology Program (ATP), both of which support civilian R&D and technology development. Congress appropriated NSF's Research and Related Activities at $1.998 billion, which is below the President's request of $2.2 billion, but still an 8% increase over FY1993 levels. ATP was appropriated at the President's budget request of $199 million, a three-fold increase over last year. ***The Administration and Congress significantly increased funding for civilian technology programs in the FY1994 budget. It is critical that this trend continue in future budget cycles. Moreover, as programs such as the ATP grow, it is important that their organization and management evolve accordingly and that metrics be developed to evaluate performance. Discussion is currently underway on how to reorganize ATP to fund and manage groups of projects in specific program areas so as to allow the program to focus its budget strategically and have a more targeted impact on technologies that drive U.S. economic performance.***

COORDINATION AND COOPERATION: The Clinton Administration has introduced several new plans to coordinate federal R&D across agencies and to promote industry-government cooperation. The National Science and Technology Council (NSTC), to be chaired by the President and made up of cabinet-level representatives, was established recently to help coordinate R&D and technology programs across the federal government. The Council's nine R&D coordinating committees, each to be overseen by an interagency standing committee of science and technology representatives, will replace

the Federal Coordinating Council on Science, Engineering and Technology (FCCSET). The President's Council of Advisors on Science and Technology (PCAST) has been revived to serve as the primary private-sector advisory group for the President and the NSTC. The advisory council will be co-chaired by the Director of the Office of Science and Technology Policy (OSTP) and a private-sector appointee. Energy Secretary Hazel O'Leary has also released the Department of Energy's draft strategy for refocusing the Federal labs on industrial competitiveness. The corresponding DOE lab bills (S.473 and H.R.1432) authorizing reallocation of 10-20% of the labs' budgets to joint projects with industry have been delayed in Congress due to debate over committee jurisdiction and agency missions. ***The plans and strategies of the Administration are still in the developmental stages. As a result, it is difficult to determine how rapidly they will be implemented or how effective they will be. We urge the Administration to articulate and justify these programs and to involve the private sector in their detailed development.***

U.S. MANUFACTURING: Passage of the National Cooperative Production Amendments this summer marked a successful end to a five-year campaign to limit antitrust liability for joint production ventures. The Administration and Congress have also begun to deliver on their intention to support a national manufacturing technology deployment program. Largely through the Technology Reinvestment Project (TRP), the national budget for manufacturing technology deployment rose from $17 million in FY1992 to over $200 million in FY1993. However, instead of continuing this upward trend in FY1994, appropriations for manufacturing technology deployment dropped to $30 million. A recent Congressional promise to reinstate manufacturing technology deployment funding in the TRP would demonstrate a real commitment to building a nationwide deployment system. Legislation authorizing NIST to support a national network of manufacturing technology deployment centers, having passed the House, was delayed in the Senate at the closing moments of the first session of the 103rd Congress. ***As the national manufacturing technology agenda develops, it is critical that the Administration and the Congress fully fund advanced manufacturing programs and actively involve industry in the selection, coordination and control of advanced manufacturing technology development, commercialization and deployment activities.***

TECHNOLOGY POLICY IMPLEMENTATION ASSESSMENT 1993

	Major Progress	Moderate Progress	Insufficient Progress
Tax Policy			
Establish a Permanent and Improved R&E Tax Credit			✓
Enact a Permanent Solution to Treasury Regulation 1.861-8			✓
Establish a Capital Gains Tax Credit			✓
Establish an Investment Tax Credit for Small Business			✓
Federal R&D			
Expand the Advanced Technology Program	✓		
Increase R&D Funding at NSF	✓		
Coordination & Cooperation			
Improve Coordination and Managment of FCCSET, especially initiatives in HPCC, biotechnology, materials and manufacturing		✓	
Establish a Permanent Private Sector Advisory Group		✓	
Refocus the National Labs on Industry Needs		✓	
U.S. Manufacturing			
Establish a National Manufacturing Development & Deployment Program		✓	
Limit Antitrust Liability for Joint production ventures	✓		

THE ISSUES: BACKGROUND & STATUS

Research & Experimentation Tax Credit

✓ *INSUFFICIENT PROGRESS*

The Research and Experimentation (R&E) tax credit was created in 1981 to provide an incentive for companies to raise their spending on R&D. Companies are eligible for the credit when they increase R&D above a certain threshold of previous spending. Since its expiration in 1985, the R&E credit has been temporarily extended many times. The full incentive effect of the R&E tax credit can only be realized if it is made permanent. The legacy of six and nine month extensions runs counter to the nature of the research enterprise. R&D projects are long-term in nature, often spanning 8-10 years. Without permanence, research planners are reluctant to rely on the R&E credit because there is no guarantee that the policy in place at the beginning of a project will be in place when it ends. A permanent tax credit will enable the research community to make plans today that will ensure future economic growth. The credit should also be modified to improve its efficiency and effectiveness for a broader range of corporate benefactors.

STATUS: *The President and the House both endorsed a permanent R&E tax credit in this year's tax bill. The Senate included only a one-year extension of the current credit. The issue was decided in the 1993 Budget Reconciliation Conference, resulting in passage of a three-year extension of the current incremental R&E tax credit, consisting of two years future and one year retroactive.*

Treasury Regulation 1.861-8

✓ *INSUFFICIENT PROGRESS*

Under Treasury Regulation (TR) 1.861-8, U.S. companies with foreign operations are required to treat a portion of their domestic R&D expenses "as if" they were conducted abroad. Because no foreign country allows for a deduction of this R&D (since it is conducted in the United States no matter where Treasury has "deemed" that it is conducted), many U.S. companies effectively lose the deduction. This is a significant disincentive to conducting R&D in the United States. Since the TR 1.861-8 regulations were issued in 1977, policy makers in the Administration and Congress have advocated and adopted several temporary moratoria to prevent full implementation of the regulations. In this year's tax package, the Clinton Administration proposed that the TR 1.861-8 allocation rules permit all R&D performed in the United States to be treated as U.S. source R&D and therefore deductible from U.S. taxes. Unfortunately, the Administration also proposed that income from royalties be placed in the passive basket for foreign tax credit purposes. In the past, companies have been allowed to place these foreign fees and royalties in the "general" basket, thereby reducing the tax burden on companies with excess foreign tax credits. The U.S. government should encourage domestic investment by adopting a permanent solution to the problems with Treasury Regulation 1.861-8 and retaining the active basket treatment of income from foreign royalties.

STATUS: The Budget Reconciliation Act enacted a 50% place of performance allocation for R&D for three years, as compared to the President's request for a permanent 100% place of performance allocation. The provision to place income from foreign royalties in the "passive" basket was dropped.

Capital Gains Tax Credit

✓ *INSUFFICIENT PROGRESS*

The early and mid-1980's was a period when investment in high technology flourished, producing such giants as Sun Microsystems, Microsoft, Compaq Computer, and Conner Peripherals. America has benefited from these companies, the thousands of jobs they have created, and the cutting edge technology they have produced. Internationally, these companies have made the U.S. more competitive. Long-term equity investments -- whether from individual investors or professional venture capital funds -- have been the lifeblood of America's entrepreneurs. The U.S. government needs to enact a targeted capital gains tax credit to encourage long-term investment in growing enterprises.

STATUS: *The capital gains tax rate was kept at the current rate of 28% in this year's tax bill, while a special 50% deduction of capital gains was included for stock held in small companies (less than $50 million) for more than 5 years. The view in the business community is that this targeted tax credit will have little impact on investment.*

Investment Tax Credit

✓ *INSUFFICIENT PROGRESS*

The United States lags far behind its global competitors in capital investment. In 1992, U.S. investment in plant and equipment hit a 14-year low, leaving the U.S. with the smallest share of Gross Domestic Product (GDP) investment in plant and equipment among the G-7 countries. The disparities are especially acute among small to medium sized manufacturers, which are increasingly behind larger firms in the adoption of advanced manufacturing technologies. The cumulative effect of this underinvestment in modernization will be devastating for the long-term prospect of the United States as a world-class manufacturer of high value-added products. Other countries provide strong incentives for increased investment in equipment. Japan, for example, offers a 20% investment tax credit for equipment, with an additional 20% for smaller firms. The United States also needs an investment tax credit to promote factory modernization and to help build an infrastructure that supports high value-added manufacturing.

STATUS: The Administration's tax package included a permanent investment tax credit for equipment purchases by small businesses and a temporary investment tax credit for stepped-up equipment purchases by big businesses. These provisions met with opposition in both the House and Senate and were ultimately dropped from the bill. Corporate support for the Clinton investment tax credit package was mixed, especially when it became clear that Congressional tax committees planned to cover the cost of these incentives with a two percent corporate tax increase.

The Advanced Technology Program

✓ *MAJOR PROGRESS*

It is imperative that the United States maintain its competitive position in high technology industries as an essential step to achieving sustained long-term growth, high employment levels, a rising standard of living, and a sufficient national defense. Initiatives such as the Advanced Technology Program (ATP) support and promote private-sector investment in enabling technologies that have significant potential to accelerate economic growth and raise productivity. Managed by NIST, the ATP provides cost-shared grants to U.S. companies and

industry-led joint ventures for the development of pre-competitive technologies. Through industry-led project selection and a competitive review process, the 3-year-old ATP has generated considerable interest from industry and demonstrated that it can leverage research and development funding from companies and joint venture of all sizes and in a variety of industrial sectors. The ATP should be expanded considerably so that it can have a significant impact on U.S. industrial competitiveness.

STATUS: *Congress recently appropriated ATP at the level of the President's request of $199.5 million for FY1994. There also has been discussion of reorganizing ATP to fund and manage groups of projects in specific program areas, which the private sector would help select. The new structure would support parallel development of complementary R&D projects, allowing the ATP to have a more focused impact on technologies that broadly benefit the U.S. economy. The National Competitiveness Acts (S.4 and H.R.820) pending in Congress also authorize significant expansion of ATP over the next four years. The bills did not pass during the last session of Congress due to debate over the Department of Energy's role in supporting high performance computing networks and provisions to set up a venture capital fund for small businesses.*

NSF R&D Funding

✓ *MAJOR PROGRESS*

The National Science Foundation (NSF) is the principal Federal agency charged with supporting basic research, graduate education, and increasingly, science education beginning with kindergarten. Stimulated by past research successes, opportunities for inquiry are exploding in needed fields such as materials, biotechnology, manufacturing, high performance computing and networking, and global change. There is pressure on NSF to allocate a greater share of its budget to support "strategic" research and collaborative projects between university and industry researchers. Furthermore, the conduct of scientific research continues to require more expensive equipment and facilities for many fields of endeavor. The financial capacity of the Foundation has not kept pace with the demands placed on the agency. The Foundation's research budget for FY1993 actually declined from the previous year. NSF's R&D budget should be increased significantly to keep pace with the growing importance of science and technology to U.S. competitiveness.

STATUS: *Congress appropriated NSF's research and related activities budget at $1.998 billion, an increase of 8% over FY1993 levels versus the 18% increase requested by the President. This was the highest percentage increase appropriated for any agency.*

The FCCSET Initiatives

✓ *MODERATE PROGRESS*

The Federal Coordinating Council on Science, Engineering and Technology (FCCSET) was established to develop interagency initiatives in key technology areas with broad national implications, such as high performance computing, biotechnology, advanced manufacturing, and materials. As structured, FCCSET did not have systemmatic means of obtaining private-sector input and lacked the ability to set priorities across the agencies, direct federal policy and participate fully in the budget process.

STATUS: The Administration has reorganized FCCSET under the National Science and Technology Council (NSTC). The NSTC, which is to be chaired by the President and made up of cabinet-level representatives, is expected to help coordinate Federal R&D and technology programs through nine R&D coordinating committees. Each committee will be overseen by an interagency standing committee of science and technology representatives. Input from industry and the public will be channeled through the recently revived President's Council of Advisors on Science and Technology (PCAST), as well as through study panels convened by the NSTC. Not all the technology initiatives established by FCCSET will be carried over to the new Council. In particular, the initiative in materials will be folded into advanced manufacturing and the biotechnology initiative will focus on basic research needs.

Private Sector Input

✓ *MODERATE PROGRESS*

The process for private sector-government interaction on technology issues has been inadequate. The government has lacked a primary forum for private-sector input into technology policy. Currently, there are over 300 disparate Science and Technology Advisory Committees throughout government. The result has been an ad hoc approach to technology policy development that often focuses on tactical rather than strategic competitiveness issues. Moreover, the Federal Advisory Committee Act (FACA) and conflict of interest rules have served as barriers to getting private-sector advice on key industrial technology issues. Although safeguards are important to ensure open debate and prevent private gain from government decisions, there are circumstances where exemption is necessary to obtain the necessary private-sector expertise on technology issues affecting U.S. competitiveness. The United States should create a permanent private-sector technology advisory committee to provide ongoing information and advice to the President on the development, implementation and management of technology policies necessary to strengthen U.S. competitiveness.

STATUS: The President's Council of Advisors on Science and Technology (PCAST), which expired in June 1992, has been revived to serve as a private-sector advisory group for the President and the newly created National Science and Technology Council. The Council's recommendation to establish a private-sector co-chair was picked up. The Administration is also in the process of establishing private-sector advisory committees in selected areas such as the National Information Infrastructure.

Focus of the Federal Labs

✓ *MODERATE PROGRESS*

The end of the Cold War offers an unprecedented opportunity to refocus the technical capabilities and expertise of the Federal labs on issues of economic competitiveness. In the past, issues related to industrial technology and competitiveness have been a peripheral concern of the labs. There is minimal private-sector input into planning and execution at the labs, and programs to transfer technologies with commercial potential to the private sector have been inadequately funded. In addition, industry-government partnerships are hindered by cultural gaps and government bureaucracy that makes it difficult for lab directors to set up and execute Cooperative Research and Development Agreements. The federal labs must reorganize to focus on industry as a new customer.

STATUS: President Clinton endorsed refocusing the Federal labs in his February 22nd technology plan. Progress is being made under the direction of Energy Secretary Hazel O'Leary, who recently released ***Partnerships for Global Competitiveness,*** *a draft strategy for the DOE labs that proposes to treat industry as a customer of the labs, to streamline the CRADA process, to give lab directors more authority in executing CRADAs, and to develop jointly with industry metrics for evaluating the success of partnering activities. House and Senate legislation aimed at broadening the missions of the DOE labs (H.R. 1432 and S.473) has been held up due to conflicts between S.473 and S.4, the Senate's National Competitiveness Act. An attempt to amend the Defense Authorization Bill to include provisions from S.473 and quickly move the legislation through Congress was unsuccessful. Action on the DOE lab bills is expected to be deferred pending more in depth discussion of the future role of the national labs.*

National Manufacturing Technology Deployment

✓ *MODERATE PROGRESS*

The U.S. needs to build a comprehensive national system for the development and deployment of advanced manufacturing technology. Small and medium sized manufacturers typically lack the time, expertise, and financing to introduce new technologies and best manufacturing practices into their organizations. A number of Federal and state extension programs have been established to assist these firms, including the Manufacturing Technology Centers (MTCs) currently funded by NIST. These programs represent essential first steps, but in order to have a significant impact on U.S. industrial competitiveness, they must be expanded and integrated into a network that provides comprehensive service to all geographic regions.

STATUS: Congress appropriated NIST's Manufacturing Extension Partnership (MEP) at the President's request of $30 million for FY1994, up from $18 million in FY1993. However, manufacturing technology deployment activities funded through the ARPA-led Technology Reinvestment Program (TRP), which amounted to nearly $200 million of the project's $472 million budget in FY1993, were dropped from FY1994 appropriations. The net result is a significant reduction in federal support for advanced manufacturing deployment in FY1994. The National Competitiveness Acts (S.4 and H.R.820) being considered in Congress authorize NIST to set up and manage a national network of manufacturing extension centers. In order to be effective, strong industry involvement and leadership in the design and implementation of the proposed network is imperative.

Joint Production

✓ *MAJOR PROGRESS*

Collaboration in manufacturing is becoming increasingly necessary in many capital intensive industries due to the high cost and long lead times of developing new manufacturing facilities. For the past five years, industry has been campaigning for expansion of the National Cooperative Research Act of 1984, which limits antitrust liability for joint R&D ventures, in order to provide similar antitrust protection for joint production ventures. The action will give industry added incentive and ability to cooperate in capital intensive manufacturing projects that are difficult for any single company to undertake.

STATUS: The Congress passed and President Clinton signed into law the National Cooperative Production Amendments on June 10, 1993.

About the Assessment

The 1993 Technology Policy Implementation Assessment benchmarks progress made by the Administration and Congress in enacting eleven long-standing technology policy recommendations. In developing the assessment, the Council on Competitiveness took into consideration the FY1994 budget, legislation proposed during the 103rd Congress, and new policies and programs introduced by the Clinton Administration during this past year. Each recommendation is ranked in one of three categories: 1) major progress; 2) moderate progress; and 3) insufficient progress. Definitions of each category are as follows:

Major Progress: To be ranked "Major Progress," both the Administration and Congress must have demonstrated commitment and follow through towards a goal by way of new programs, legislation enacted, and/or FY1994 appropriations.

Moderate Progress: "Moderate Progress" means that the Administration and Congress have endorsed the recommendation and are making an effort to develop and implement specific programs and policies.

Insufficient Progress: A ranking of "Insufficient Progress" indicates that there was initial endorsement of the recommendation but not enough progress articulating and/or implementing proposed policies and programs.

ACKNOWLEDGEMENTS

The Council on Competitiveness would like to thank all the individuals and organizations that contributed to the development of this assessment of technology policy implementation. Special thanks go to Leslie Simon, Public Affairs Director of IBM, who serves as Chairman of the Government Affairs Technology Working Group that oversaw this project, and Council Senior Fellow Deborah Wince-Smith, who served as the Project Director. Council Associate Amy E. Petri produced the report.

The Council would also like to thank the members of the Government Affairs Technology Working Group who helped develop the framework for the assessment and contributed their time, energy, and knowledge of technology policy issues. We are particularly indebted to the following core group of participants: Lisa Barry, *The Boeing Company*; Marilyn Cade, *AT&T*; Tyrus Cobb, *Business Executives for National Security*; Mike Cummins, *National Center for Manufacturing Sciences*; Mark DeSantis, *Texas Instruments*; Pete Dillingham, *Cray Computer Corporation*; Michael Farren, *Xerox Corporation*; Ray Garcia, *Rockwell International;* Howard Gobstein, *Association of American Universities*; Ken Kay, *Preston, Gates et. al.*, representing CORETECH; Charles Larson, *Industrial Research Institute*; Lawrence Liles, *International Brotherhood of Electrical Workers*; John Mancini, *American Electronics Association*; Mary McCain, *American Society for Training and Development*; Bill Morin, *National Association of Manufacturers*; Fred Nichols, *National Coalition for Advanced Manufacturing*; Susan Rochford, *Honeywell, Inc.*; Leo Reddy, *National Coalition for Advanced Manufacturing*; Howard Rosen, *Competitiveness Policy Council*; Joe Syslo, *National Center for Advanced Technologies;* and Brian Turner, *Work and Technology Institute.*

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National Affiliates

American Assembly of Collegiate Schools of Business
American Association for the Advancement of Science
American Business Conference
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American Electronics Association
American Enterprise Institute
American Management Association
American Productivity and Quality Center
American Society for Training and Development
Aspen Institute
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COMPETITIVENESS POLICY COUNCIL

Washington, DC

Date Rec'd 11/8
ACTION to
INFO to JHG (WITH REPORT)
LSJ
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November 3, 1993

Mr. John Gibbons
Director
Office of Science and Technology Policy
424 Old Executive Office Building
17th Street & Pennsylvania Avenue, NW
Washington, DC 20500

Dear Mr. Gibbons:

Enclosed is a copy of Enhancing American Competitiveness, an interim report by the Competitiveness Policy Council. The report's primary purpose is to review progress to date on the Council's recommendations which were included in our Second Report to the President and Congress last March, and in particular to assess the results of the Administration to date in pursuing them. The report reiterates the need to maintain the nation's policy focus on the economy's long-term competitiveness and on improving our standards of living.

As you know, the Council brings together a bipartisan group of twelve leading Americans from business, government, labor and the public interest. This report reflects a full consensus of our members and draws on updates from four of our eight initial subcouncils: Critical Technologies, Public Infrastructure, Trade Policy and Training.

We hope that this report will help you in your current activities and we would welcome an opportunity to discuss its conclusions and recommendations with you and your colleagues.

Sincerely,

C. Fred Bergsten
Chairman

11 Dupont Circle, N.W., Suite 650, Washington, DC 20036-1207
(202) 387-9017 FAX (202) 328-6312

COMPETITIVENESS POLICY COUNCIL

11 Dupont Circle, NW • Suite 650 • Washington, DC 20036-1207 • Tel: (202) 387-9017 • FAX: (202) 328-6312

NEWS RELEASE

October 1, 1993

EMBARGO: October 6, 1993, 10:30 a.m., E.S.T.

COMPETITIVENESS POLICY COUNCIL CALLS ON ADMINISTRATION AND CONGRESS TO RESUME FOCUS ON US COMPETITIVENESS

NEWS CONFERENCE: October 6, 1993, 10:30 a.m., 8th Floor, 11 Dupont Circle, NW, Washington, DC

Contact: Howard Rosen (202) 387-9017

Washington, October 1---President Clinton's "competitiveness agenda" should now become the centerpiece of US economic policymaking, according to a new report of the Competitiveness Policy Council to the President and the Congress. The Council urges the adoption of a series of additional measures to increase the quantity and quality of public and private investment, without retreating on their efforts to reduce the budget deficit. The President's new initiatives on health care reform and reinventing government should be seen as integral parts of this strategy. So should the Administration's pending proposals on education, training, technology and trade--all of which need to be pursued vigorously to strengthen the nation's competitiveness prospects.

The Competitiveness Policy Council is a bipartisan national commission created by Congress. Its twelve members include corporate leaders, labor union presidents, senior government officials and representatives of the public (list attached). They were appointed by the President and by the joint leadership of the US Senate and House of Representatives. Laura D'Andrea Tyson, Chair of the Council of Economic Advisers, was recently appointed by the President to serve as the federal government representative on the Council, and she did not participate in the preparation of this report. The Council is chaired by Dr. C. Fred Bergsten, Director of the Institute for International Economics.

In the 1992 campaign, President Clinton argued that boosting private and public investment in people, technology and infrastructure was the key to improving US productivity growth, international competitiveness and standards of living. Regrettably, the debate earlier this year over a short term fiscal stimulus distracted the Administration and the country from this imperative. In its new report, the Council calls on the President and Congress to resume their focus on long term investment measures to improve competitiveness. The report highlights the many pro-competitive initiatives that are underway and points to the areas where the Administration and Congress should do more to achieve a pro-growth investment strategy in the months and years ahead.

Deficit Reduction

The budget package passed by the Congress in August takes an important first step in stemming the growth of the Federal budget deficit, thereby freeing up more of the nation's savings to be invested and raising America's standard of living. The Council is aware that many question the wisdom of further deficit reduction at a time when economic growth seems to be modest, but reiterates that the Administration and the Congress must persevere on this critical course, and seeks to articulate the crucial linkages between deficit reduction and the health of the nation's economy.

President Clinton and Vice President Gore's "Reinventing Government" initiative is an appropriate next step in restoring fiscal discipline. Increased productivity is at the center of any competitiveness strategy and the public sector must contribute to this outcome by sharply improving its own performance. Moreover, improving governmental accountability will enhance public confidence that the government can achieve the broader competitiveness goals which the Council advocates.

Health Care Reform

In its initial report to the President and the Congress in March 1992, the Council stressed that the soaring cost of health care was a major drain on the competitiveness of the American economy. We applaud the President's initiative to limit the rise in these costs (as well as to expand insurance coverage to all Americans). The Council, in its role as "competitiveness ombudsman," is currently studying the competitiveness impact of the various health care reform options and will reporting its findings in the near future.

Private Investment

As the Council explained in its first two reports to the President and the Congress[1], higher levels and more productive forms of private investment in plant and equipment, research and development, and worker training are essential for improving American competitiveness and economic performance. This interim report reiterates the importance of lowering the hurdle rate for new investment by American industry. This should include consideration of a reconstituted investment tax credit and changes in depreciation allowances to make the tax life of new equipment more consistent with its competitive life.

Trade Policy

Expanding overseas markets for US goods is critical for creating high-wage jobs in the United States and enabling American firms to achieve their full competitive potential. Toward that end, the Council applauds the Administration's pursuit of a "global growth strategy" and its crucially important efforts to bring the Uruguay

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[1] Building a Competitive America, the Council's 1992 report and A Competitiveness Strategy for America, the Council's 1993 report are both available from the Government Printing Office.

Round to a successful conclusion. In addition, the new report of the Trade Promotion Coordinating Committee (TPCC) mirrors many of the Council's earlier recommendations for expanding export financing and promotion, and for removing many of the present policy impediments to US exports. These initiatives deserve early Congressional action. The Council also urges the Administration to reach agreement with Japan (and perhaps the entire G-7) to lock in the stronger exchange rate for the yen that enables American companies to now compete with Japanese firms on an equitable basis.

The Public Investment Agenda

The Council urges that the public debate refocus on the critical importance of enhancing national investment in physical and human capital. One procedural reform would be the adoption of an "investment budget," whereby the Administration identifies and quantifies the investment elements in its annual economic program so that the Congress and the public can judge the split between investment and consumption. The Congress should then vote on the adequacy of the investment component as part of its annual budget resolution. Such a process could help mitigate the bias in the budget process against programs that have a delayed payoff but are critical for increasing national productivity, and thus standards of living, over the longer run. Such investments must of course be fully paid for under budget rules.

The Council makes the following specific public investment recommendations:

1. Human Resources

Institutional improvements in the US public education system may be the single most important pro-competitiveness step that can be taken at this time. The Administration's bill -- the "Goals 2000" legislation -- builds on the Council's recommendations for setting educational goals, establishing mechanisms to develop standards, and improving student assessments. There are some differences between the House and Senate bills which we hope will be resolved in a manner consistent with the Administration's approach. The Council believes that clear and challenging content and performance standards, student assessments based on those standards, training for teachers to teach to higher standards and greater accountability for schools and students are essential for improving the performance and equity of the education system.

The Council's recommendations for investing in people are based on the need for a system of life-long learning, beginning with the transition from school-to-work, continuous worker training and dislocated worker assistance. The Council is encouraged by the Administration's school-to-work proposal, which is consistent with the Council's recommendations, and we hope for speedy implementation of its provisions. Continuous worker training seems to have less priority on the current agenda and the Council calls on the Administration to facilitate training opportunities for all workers.

The United States also needs a comprehensive program to help workers who are adversely affected by policies that benefit the economy as a whole. Defense conversion, trade liberalization (as with NAFTA) and technological change are placing severe pressures on the US labor market. The Council calls on the President and the Congress to develop policies which encourage labor market flexibility, moving workers from low-skilled, low-wage jobs to high-skilled, high-wage jobs in frontier industries while also offsetting adjustment burdens concentrated in certain regions and sectors. Such a program must have secure funding and adequate benefits to insure a meaningful efforts to assist workers adjust to changing economic conditions. President Clinton has announced his broad intentions in this area but a specific program has not yet been offered.

2. Technology

The Council is encouraged by the President's technology initiatives, which would substantially implement the Council's recommendations. The Administration's initial requests for increased technology funding were not approved by the Congress, however, and the Council reaffirms its earlier recommendation that civilian technology programs be increased by at least $4 billion per year by FY97 without further aggravating the deficit.

In addition, Congress should make permanent the research and experimentation tax credit which was included for only a temporary period in the recent budget package. Industry cannot take full advantage of a temporary credit and the Council urges the Congress to make a long-term commitment to boosting research, which is essential to the country's competitiveness position.

3. Public Infrastructure

The gasoline tax should be increased further to fund additional infrastructure programs of at least $2 billion. The gasoline tax has long been a vehicle for funding these programs and should not be treated as general revenue. The Council believes that the American people are prepared to pay higher taxes when they can see the benefits in increased investment.

In addition, ill-considered transportation "demonstration" projects undermine the credibility of federal infrastructure investments. The Council urges a moratorium on future site-specific demonstration projects pending the establishment of a process to evaluate the merit of these "demonstrations."

Competitiveness Policy Council

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Albert Shanker *(Labor)*
President
American Federation of Teachers

Alexander Trowbridge *(Business)*
President
Trowbridge Partners

Laura D'Andrea Tyson *(Government)**
Chair
Council of Economic Advisers

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State of Kansas

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Harvard Business School

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State of New York

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COMPETITIVENESS POLICY COUNCIL

Washington, DC

December 20, 1993

Memorandum to Critical Technologies Subcouncil Members

From: Erich Bloch and David Cheney

Re: Summary of December 7th meeting

The following is a brief summary of our meeting on December 7th. The meeting was very helpful in focusing the Subcouncil on the issues to address and the work needed for our next report, which we will plan to release in March. At the meeting, we decided to:

- Meet in February after the release of the FY 1995 budget. We have scheduled this meeting for **February 15, 1994 from 9:00 a.m. to 4:00 p.m. Please mark your calendars.**
- Prepare a paper on issues surrounding what US and foreign companies should be eligible to participate in government-funded technology activities.
- Have a working group of the Subcouncil review the financing provisions in HR 820 and S4.

Prior to the meeting, the Subcouncil staff will also prepare an analysis of the FY 1995 budget and a draft report that comments on the progress of implementation of the technology agenda so far.

Please feel free to contact us with your views on these issue; we may contact you prior to the meeting for your input.

Happy Holidays. We look forward to seeing you next year.

11 Dupont Circle, N.W., Suite 650, Washington, DC 20036-1207
(202) 387-9017 FAX (202) 328-6312

Critical Technologies Subcouncil
Summary of December 7 Meeting

Implementation of Previous Recommendations

The Subcouncil reviewed the progress in implementing its previous recommendations. Significant progress has been made towards implementing most of the recommendations, including increased funding for civilian and dual use industrial technology programs, antitrust exemptions for joint production ventures, increased funding for technology extension programs, and new organizational structures for science and technology policy. In the areas where there has been less progress, such changes in the tax environment for technology and manufacturing, the main barrier has been the tightness of the overall budget.

FY 1995 Budget

The FY 1995 budget is expected to be tighter than the FY 1994 budget, due to caps on discretionary spending in the budget agreement. Although technology is a high priority of the Administration, it will have to compete with other high priorities. Recommendations have a better chance of being implemented if they cost little or no money, or if there are offsets identified from other R&D programs.

The Subcouncil discussed how different agencies move money from low priority to new high priority areas and discussed alternative ways of redirecting R&D programs, such as reviewing programs based on established metrics and designing programs with sunset provisions or "exit strategies".

The Subcouncil agreed to review and comment on the FY 1995 budget in more detail after it is released in early February.

National Science and Technology Council/PCAST

The Subcouncil discussed the new executive orders creating the National Science and Technology Council and reestablishing the President's Council of Advisor for Science and Technology. It also discussed the plan to put all parts of the Federal R&D budget into nine categories so the R&D activities can be compared to similar programs. Each of the nine areas would have some sort of private sector advice, through either new or existing advisory committees.

There was support for these changes, which were seen as potentially significant, although people were anxious to see how they would be implemented, especially with regard to private sector input.

There was discussion of the need for better advisory committees at levels of government other than the White House, such as for individual laboratories and programs. Many federal labs already have advisory committees but they vary in effectiveness and often need more teeth.

The Subcouncil discussed the legislation introduced by Representative Boucher that codifies some of these changes and also gives OSTP an opportunity to participate in the budget passback process. The legislation puts into statue many of the current Administration's practices. Nevertheless, Administrations generally oppose Congressional attempts to tell them how to organize.

It was noted that it is important to give PCAST and some other technology advisory committees exemptions from the Federal Advisory Committee Act for at least the narrow purposes of discussing budgets before they are made public. Without this, Administration officials will not be able to share plans with the Advisory committee, sharply limiting the effectiveness of the committee.

Procurement

There was general support for procurement reforms within DOD, and more generally for using procurement to provide a demand for advanced technology. People emphasized the importance of improving government's use of information technology, a theme of the Reinventing Government effort.

Participation in Federally funded R&D by (1) US owned firms that manufacture overseas; and (2) Foreign-owned firms that operate in the United States.

There was much discussion and differing views about the exact issues and the underlying facts. For example, there was:

- Disagreement about interpretation options in current laws that determine a company's participation in certain Federally funded R&D. In particular there were differing views about what the requirement to "substantially manufacture" in the United States means.

- Little data on how much of the value of technology companies is in the manufacturing versus in the R&D, marketing, financing, and other operations.

- Disagreement about how much value foreign companies add to the US economy through their manufacturing and R&D.

The view was expressed that US Federal labs have more to offer than national laboratories in other countries, so a policy of reciprocal openness of national labs will provide greater advantage to foreign companies. The Subcouncil agreed to conduct and commission some work to provide a better factual basis for a discussion at the next meeting. This was seen as an area where input from the Subcouncil could have a significant impact on legislation.

Financing Technology

The Subcouncil discussed the financing provisions in several pieces of legislation of competitiveness legislation. The Subcouncil agreed to form a study group to look at the pending legislation in more detail. Because action on some of the legislation is expected early next year and because the financing provision are controversial, input from the Subcouncil could be very timely.

GATT

There was debate about importance of R&D provisions in GATT subsidies code, but the Subcouncil agreed that this issue would likely be resolved before the Subcouncil could influence this issue, and that many other groups, both in and out of government are involved with it.

COMPETITIVENESS POLICY COUNCIL

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NEWS RELEASE

October 1, 1993

EMBARGO: October 6, 1993, 10:30 a.m., E.S.T.

COMPETITIVENESS POLICY COUNCIL CALLS ON ADMINISTRATION AND CONGRESS TO RESUME FOCUS ON US COMPETITIVENESS

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Contact: Howard Rosen (202) 387-9017

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State of Kansas

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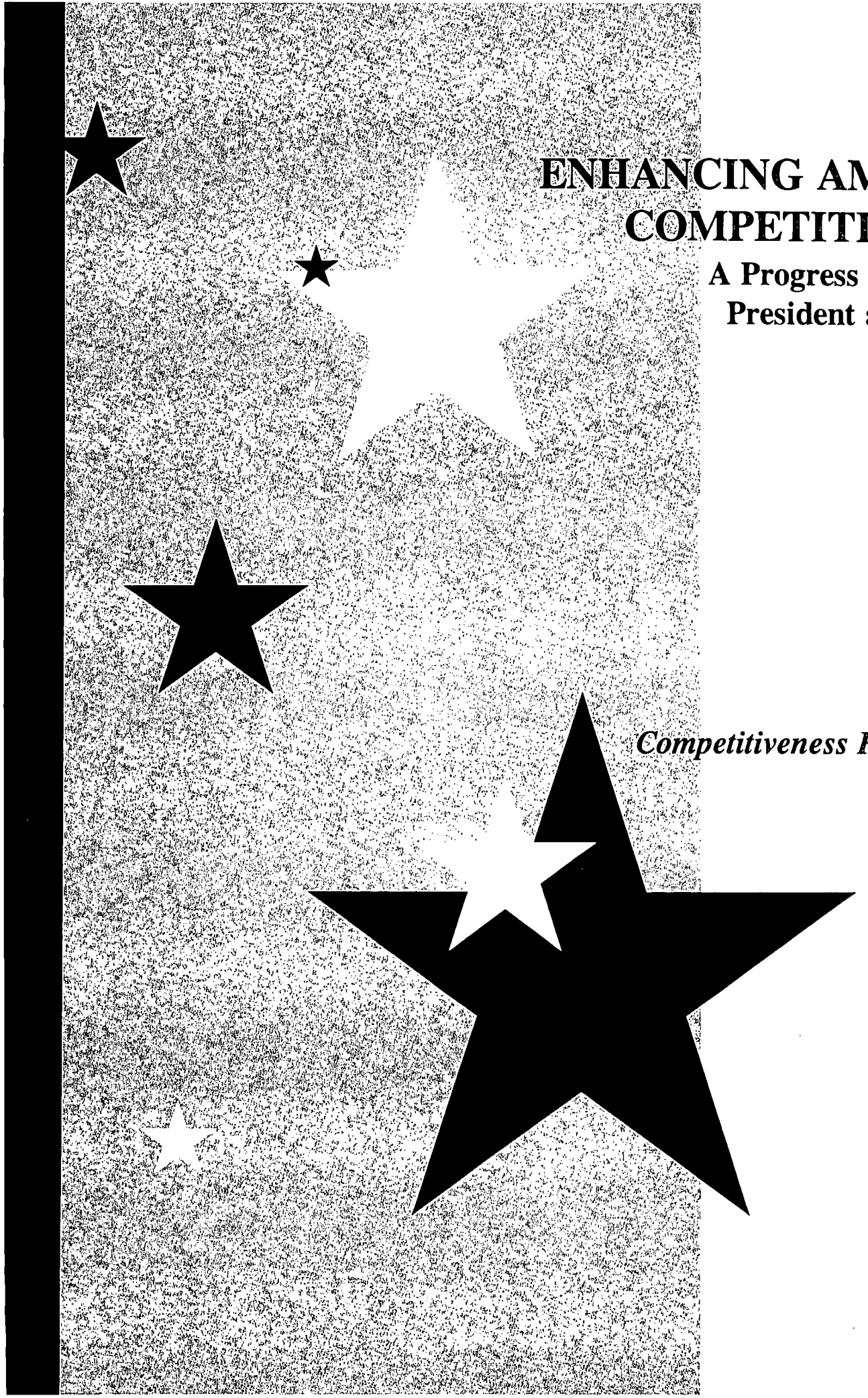

ENHANCING AMERICAN COMPETITIVENESS:

A Progress Report to the President and Congress

Competitiveness Policy Council

October 1993

CRITICAL TECHNOLOGIES SUBCOUNCIL

OF THE

COMPETITIVENESS POLICY COUNCIL

BACKGROUND MATERIAL

DECEMBER 7, 1993

Eighth Floor - Conference Center
11 Dupont Circle, NW
Washington, DC
10:00 a.m. - 2:30 p.m.

COMPETITIVENESS POLICY COUNCIL

Washington, DC

MEMORANDUM

To: Critical Technologies Subcouncil Members

From: Erich Bloch and David Cheney

Subject: Background Materials for December 7, 1993 Subcouncil Meeting

Date: November 23, 1993

Please find enclosed the following background materials for the meeting on December 7th.

- The agenda for the meeting
- A list of additional issues for the subcouncil to consider.
- A summary of our previous recommendations and the actions taken to date. (Some information is incomplete.)
- The executive summary of *Technology for Economic Growth: President's Progress Report*
- A memo from John Gibbons (OSTP) and Leon Panetta (OMB) describing the Administration's R&D priorities and their planned method of organizing and reviewing Federal R&D activities.

The meeting will be held at the eighth floor conference center at 11 Dupont Circle, Washington, D.C. We look forward to seeing you there on December 7th. Happy Thanksgiving.

11 Dupont Circle, N.W., Suite 650, Washington, DC 20036-1207
(202) 387-9017 FAX (202) 328-6312

Competitiveness Policy Council
Critical Technologies Subcouncil

11 Dupont Circle, 8th floor

December 7, 1993

Agenda

10:00 a.m. - 2:30 p.m.

10:00 a.m. Introduction and overview of role of CPC Critical Technologies Subcouncil

- C. Fred Bergsten
- Erich Bloch

Review of Status of CPC Recommendations

- David Cheney

Discussion/Analysis of Key Issues

Formulation of New Subcouncil Recommendations

- Erich Bloch

2:30 p.m. Adjourn

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Key Issues

The following are issues that the Critical Technologies Subcouncil may wish to address.

FY 95 Budget. Implementation of many of the subcouncil's recommendations are on track but the next year will be critical in determining the extent to which progress continues on all of the recommendations. Influencing the FY95 budget before it goes to the Congress in February and during the legislative process will be critical. In addition, in the next few months work will begin on the FY 96 budget (See Gibbons/Panetta memo). *Where should the subcouncil focus its efforts in this process?*

Environment for domestic technology development and manufacturing. So far, more progress has been made in implementing the subcouncil's recommendations regarding direct Federal funding of R&D than the recommendations that affect the environment (economic, regulatory, infrastructural) for firms to develop and manufacture technology in the United States. *How can the subcouncil encourage progress in these areas?*

In some leading edge civilian technologies (e.g. flat panel displays, consumer electronics) the United States has little manufacturing capability. This appears to be due in part to a less favorable environment for manufacturing in the United States relative to other countries. *What policies are appropriate to build a domestic manufacturing capability in a critical high growth industry?*

Legislation often requires that for companies to participate in Federal R&D projects, they agree to "substantially manufacturing in the United States". *Are such requirements effective or counterproductive?*

Financing Technology House and Senate legislation (H.R. 820 and S. 4.) have included provisions to help provide financing to small companies to help them bring technology to the market. These provisions, which are similar in intent but are differ in specifics from the subcouncil's recommendations, are among the most controversial parts of these bills. For example, some provisions in the House legislation would license professionally managed technology development companies to borrow money from the Federal government to invest in technology ventures. *What is the subcouncil's position on these provisions?*

Reorganization of Administration's science and technology policy apparatus. The Administration has announced its creation of a National Science and Technology Council, to be chaired by the President, which would replace the Federal Coordinating Council on Science, Engineering, and Technology (FCCSET). *Does this mechanism seem likely to be effective? Will it provide for adequate private sector input?*

Civilian versus defense management of technology. Much of the money that will be available in the Federal R&D budget for civilian industrial technology will come from defense budget accounts. *To what extent should these funds continue to managed by defense agencies (DOD and DOE) for dual-use purposes versus being transferred to civilian agencies (which is likely to be more difficult to accomplish)?*

GATT draft provisions on Federal subsidies of industrial R&D. Draft rules would limit allowed government funding of industrial R&D to 50% of the cost of basic research projects and only 25% of the cost of applied research projects. If approved, these limits could seriously hurt many of the programs that the Subcouncil has recommended. *What position should the CPC take on these provisions?*

Future work of the subcouncil. *What should be the focus and extent of subcouncil activities in the next year?*

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STATUS OF CPC TECHNOLOGY SUBCOUNCIL RECOMMENDATIONS (draft, 11/23)

RECOMMENDATION	ACTION TAKEN
INCREASING NATIONAL INVESTMENT IN CIVILIAN AND DUAL USE R&D	
Make Permanent R&E Tax Credit	Temporary credit extended
Extend credit to include R&D on existing products	Not adopted
Establish additional 25% credit for industry-sponsored academic R&D	Not adopted
Establish 10% credit for first 2 years of new consortia	Not adopted
Shift $7.2 billion from defense to civilian/ dual use R&D to balance R&D budget	Adopted as policy goal; significant progress being made
Expand DOC ATP program to $750/yr w/in 5 years	Adopted as policy; increases on target
Increase NSF ERCs to 100; expand other NSF centers	Small increase in number of ERCs
Strengthen NIST Intramural R&D	Adopted as policy; increases made
Increase funding and private sector participation in FCCSET Technology Initiatives	FCCSET in process of reorganization end results unclear.
Reallocate 10% (20% in 3 years) of DOE and NASA labs R&D to support jointly planned and funded industry/government R&D	Adopted as policy; implementation proceeding
Increase support for NIH cooperative programs with industry	?
Increase support for (D)ARPA dual-use technology development (increase by $600 million by Fy 1995)	Adopted as policy; implemented through TRP and legislation

RECOMMENDATION	ACTION TAKEN
PROMOTE THE COMMERCIALIZATION OF STRATEGIC TECHNOLOGY	
Establish government-industry-university pilot development and demonstration projects in technology areas of mutual gov.-ind. benefit -- communications and networking -- environmental technologies -- more efficient transportation systems	Several projects are advancing:. -- National Information Infrastructure -- environmentally benign manufacturing -- clean car initiative
Extend provisions of National Cooperative Research Act to joint production ventures	Legislation signed into law.
Modify procurement regulations to provide market for advanced commercial technologies --Priority to commercial specifications --Select to minimze life cycle costs --Base on performance stds --Allow agencies to experiment to flexibly procure leading edge technologies	Adopted in technology policy report, Reinventing Government"; reforms proceeding in some agencies, such as DOD.
Authorize ARPA, ATP,&NIH to purchase equity or provide loans/loan guarantees to support commercialization of technologies developed through R&D contracts	Different technology financing provisions in S.4, H.R. 820. Outlook unclear.

RECOMMENDATION	ACTION TAKEN
CREATING A WORLD CLASS TECHNOLOGY BASE	
NSF to fund 20-30 engineering/management graduate programs	under consideration
NSF to fund fellowship program for grad. & post-doc engineers to spend time in industry university and government labs.	under consideration
NSF to fund fellowship to encourage movement of industrial scientists and engineers to academia.	under consideration
Improve access to govt.-owned facilities and equipment.	?
Establish information networks for the exchange of technical and manufacturing info.	Work proceeding through NIST MTC program and through NII applications committee
Strengthen and expand federal and state manufacturing extension services (to $300 million/yr)	Adopted as policy; increases appropriated, authorizing legislation pending.
Investment tax credit for manufacturing equipment (manufacturing subcouncil report)	Not adopted

RECOMMENDATION	ACTION TAKEN
ORGANIZING U.S. INSTITUTIONS FOR RESULTS	
Create White House Council on Science, Technology, and Environmental Policy, to be chaired by the Vice President to set policy.	National Science and Technology Council announced.
Strengthen linkages between OSTP and the Council of Economic Advisors	National Economic Council formed.
Strengthen OSTP	OSTP staff reduced, but influence up CTI provides staff support
Enlarge PCAST and give it authority to create subcouncils to get private sector input on detailed technology problems and issues.	National Science and Technology Council to have advisory councils
Give PCAST responsibility for conducting joint industry, academic, government prioritization of R&D budget	"Cross cut of full R&D budget, with aid of NSTC and advisory councils, to help prioritize R&D budget
Strengthen Technology Administration in DOC; make focal point for analyzing industries & tech needs; gathering and disseminating U.S. & international tech. info.; and facilitating domestic and international technological cooperation.	Technology Adminstration assuming broader role, but with limited funds.

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TECHNOLOGY FOR ECONOMIC GROWTH: PRESIDENT'S PROGRESS REPORT

November 1993

THE WHITE HOUSE

WASHINGTON

October 28, 1993

Technology is the engine of economic growth, creating new jobs, building new industries, and improving our standard of living.

Technology is also a powerful tool for making government more efficient and responsive, harmonizing our economic growth and environmental objectives and making more efficient use of our energy resources. Increasingly, leadership in the use and commercialization of technology provides the foundation for America's status as an economic and military superpower.

As President, I have made technology policy a key element of my economic strategy. In the first nine months of my Administration, I have provided tax incentives for investments in R&D and new businesses, liberalized export controls, shifted federal resources toward basic research and civilian technology, invested in worker skills, and aggressively promoted defense conversion.

All of our initiatives, such as the promotion of the National Information Infrastructure, the development of a Clean Car, and investments in manufacturing technology, will require a new partnership between government, industry, labor, and academia. I am committed to building this partnership and tearing down the walls that have prevented meaningful cooperation in the past.

This report summarizes some of the major initiatives we have taken to foster America's technological leadership and describes our plans for the future. Much remains to be done, but this Administration has taken important first steps and initiated real change. I welcome new and creative ideas for building on what we have accomplished to date.

Bill Clinton

Executive Summary

Since unveiling its technology policy on February 22, the Clinton-Gore Administration has followed up with concrete actions designed to create jobs, strengthen America's technological and industrial leadership, and boost our standard of living—today and tomorrow. In the first 9 months, the Administration has:

- **Provided incentives for private-sector research and development and new business formation** by extending the R&D tax credit and reducing the capital gains tax for investments in small businesses;
- **Developed a National Export Strategy,** including the elimination of export controls on computers and telecommunications that will free up $35 billion in high-tech exports;
- **Aggressively pursued bilateral and multilateral trade agreements** (NAFTA, U.S.-Japan, Uruguay Round) that will expand access to foreign markets for America's high-tech companies;
- **Shifted Federal R&D priorities toward civilian technology,** with dramatic expansion of initiatives such as the Advanced Technology Program, manufacturing extension, the Small Business Innovation Research program, and NASA's new Technology Investments Package;
- **Promoted defense conversion** through the highly successful Technology Reinvestment Project and comprehensive procurement reform;
- **Invested in worker skills** required for the high-performance workplace of the 21st century and developed an aggressive program for investing in education and training technologies;
- **Developed an action plan for the National Information Infrastructure** and ordered the transfer of 200 MHz of spectrum from the Federal Government to the private sector to jump-start new wireless technologies;
- **Forged industry partnerships** in sectors such as electronics, autos (Clean Car), energy and environment, and advanced transportation;
- **Expanded Federal investments in basic research** through agencies such as the National Science Foundation; and

- **Made better use of information technology a cornerstone of its efforts to "reinvent government,"** by, for example, moving toward electronic procurement.

Collectively, these initiatives will lead to economic growth, the creation of high-wage jobs, a cleaner environment, and a continuation of America's leadership in basic science—goals established in the Administration's February 22 statement on technology policy. As noted in that document, the Administration believes strongly that:

- **Technology is the engine of economic growth,** accounting for over half of America's long-run productivity.
- **Leadership in the use and deployment of technology is also essential for the achievement of other national goals,** including sustainable development, energy efficiency, an industrial base capable of meeting our national security requirements, and a government that works better and costs less.
- **The United States must establish a world-class environment for private-sector investment,** given the mobility of capital and technology in today's global economy. For that reason, tax, trade, macroeconomic, regulatory, and human resource policies are all key to making the United States second to none in the commercialization of new technologies.
- **The Administration's technology policy will not be successful without the establishment of a genuine partnership with industry, labor, and academia.** Given the rapid pace of technological change, government programs will not be successful unless they are tightly coupled to industry requirements.

This document outlines the Administration's accomplishments and indicates its plans for the future. The President's technology policy is very much a "work in progress"—and the Administration welcomes suggestions for enhancing and accelerating these initiatives.

Technology for Economic Growth: A Checklist of Clinton Administration Key Accomplishments

Establish clear policies for the Federal Government's role in civilian technology, including a shift in the Federal R&D balance for civilian technology toward a 50/50 ratio.

- ✓ Developed within the Administration's first month an explicit, aggressive plan for using technology to support America's economic growth.
- ✓ Submitted and advanced a budget for FY 1994 that included an additional $2.6 billion investment in civilian R&D, moving the government toward greater civilian-military balance in Federal R&D support.

Launch the Technology Reinvestment Project (TRP) to stimulate the transition from defense to civilian industrial capabilities.

- ✓ Conducted a national outreach initiative to ensure maximum TRP participation by U.S. industry, generating 2,850 proposals for this unprecedented, ARPA-led multiagency program.
- ✓ Selected 41 projects, accounting for $140 million in requested Federal matching funds—the first wave of grants to projects designed to create jobs by promoting new, dual-use technologies.
- ✓ Planned to announce remainder of awards in this $472 million merit-based program in November.

Expand dramatically the Advanced Technology Program (ATP) to spur industry's development of high-risk, high-payoff commercial technologies.

- ✓ Strongly endorsed the tenet behind this cost-shared program with industry to support high-risk, high-potential commercial technologies, a major change in policy from previous Administrations.
- ✓ Designed the scale-up of the ATP to ensure that it has major impact on the U.S. economy and won congressional support for dramatic funding expansion for this program—to $200 million in FY 1994, up from $68 million—at the Commerce Department's National Institute of Standards and Technology.
- ✓ Planned to announce 60 new ATP awards to industry in FY 1994, plus three first-time strategic program competitions.

Increase access to commercially useful technology at Federal R&D agencies.

- ✓ Made a clear break with prior Administrations by placing heavy emphasis on dual-use technology development by the Department of Defense to ensure that military and commercial sectors benefit mutually from technology advances and proposed an additional $260 million for this effort.
- ✓ Declared goals and established a specific plan for strengthening and streamlining linkages between Department of Energy laboratories and U.S. industry.
- ✓ Upgraded technology commercialization priorities at the National Aeronautics and Space Administration.

Mobilize Federal resources and policies to support the National Information Infrastructure (NII).

- ✓ Set an ambitious action agenda for a National Information Infrastructure that clarifies private- and public-sector responsibilities and makes clear the fundamental requirements for universal citizen access and commercial-sector benefits.
- ✓ Organized a multiagency task force to coordinate the Federal Government's NII activities and to work closely with industry in carrying out the action agenda and in addressing specific policy issues.
- ✓ President Clinton signed legislation to transfer to the private sector a portion (200 MHz) of the radio frequency spectrum now used by Federal agencies, and to allow competitive bidding in granting new licenses—thereby promoting private investment in the National Information Infrastructure.
- ✓ Initiated a grants program to ensure all Americans have access to the NII and won congressional approval for $26 million to begin the initiative.

Promote technology-based exports by revamping and liberalizing government export control and promotion programs, and by establishing and carrying out supportive trade policies.

- ✓ Completed a major review of government's trade promotion and export policies and operations and developed a strategy to boost U.S. exports by 60 percent and generate 6 million new jobs by the year 2000.

- ✓ Freed up $35 billion in exports by reducing controls on U.S. computer, supercomputer, and telecommunications products, raising the threshold for licensing computer exports, and proposing a dramatic change in the definition of a supercomputer and removal of prior export licensing requirements for most telecommunications exports.
- ✓ Began to streamline and improve the government's export promotion programs, creating a pilot one-stop shop to eliminate the maze of Federal offices that exporters must now contact.
- ✓ Advanced the NAFTA agreement, which is expected to bring substantial benefits for U.S. technology-based industries and workers.

Establish a network of manufacturing extension centers to assist small and medium-sized businesses to modernize.

- ✓ Created a comprehensive plan to scale up from seven government-supported centers to a nationwide network of 100 centers in a Manufacturing Extension Partnership by 1997.
- ✓ Jump-started this national network through the defense Technology Reinvestment Project, and gained congressional support to fund additional centers in FY 1994.

Make worker training and education more accessible and more productive to better prepare the American workers of tomorrow.

- ✓ Established a new Office of the American Workplace in the Department of Labor to speed the adoption of high-performance work practices, including people-oriented technology strategies.
- ✓ Initiated a thorough review of federally funded retraining and assistance programs with the aims of consolidating the patchwork of existing services and of improving program effectiveness.
- ✓ Proposed creation of a national system of standards for occupational skills to improve the match between workers' skills and businesses' workforce needs. (Legislation is pending in Congress.)
- ✓ Advocated an initiative to build an effective school-to-work system that prepares young people for high-skill, high-wage jobs.
- ✓ Developed an aggressive and innovative program for investing in education and training technologies.

Create new Federal partnerships with industry to strengthen U.S. economy and create jobs through the development and commercialization of technology.

- ✓ Established a partnership with the auto industry for a new generation of more energy-efficient vehicles, the Clean Car Initiative, and agreed upon aggressive, far-reaching goals.
- ✓ Entered into a record number of Cooperative Research and Development Agreements between Federal technology agencies and U.S. industry, with an additional 1,600 new joint projects expected this year.
- ✓ Began or strengthened collaborations with industry through consortia covering semiconductors, display technology, textiles, biosensors, aerospace alloys, polymer blends, and microelectromechanical systems.

Create a business environment that fosters innovation and forward-looking private-sector investments.

- ✓ Won congressional approval of tax incentives for private-sector investment in R&D and new business formation, including a 3-year extension of the R&D credit and a targeted capital gains reduction for investments in small businesses.

Harmonize environmental and economic objectives and improve efficiency in the use of energy resources.

- ✓ Developed a strategy for reducing the growth of greenhouse gases linked to global warming, including initiatives relying on increased energy efficiency that will stimulate technology investments and strengthen the U.S. position in the global environmental marketplace.
- ✓ In addition to the Clean Car initiative, launched separate initiatives: to fund a long-term Federal R&D effort for natural gas and to develop environmentally sound technologies—and to boost exports of these technologies.

Organize government technology efforts to perform more efficiently and effectively, and to work more closely with the private sector.

- ✓ Created a strong, new system to better coordinate technology plans and programs across the government and with industry.
- ✓ Championed key legislative proposals to increase coordination across government agencies and to improve the effectiveness of Federal technology programs.

- ✓ Made advanced civilian technology a top priority at the Commerce Department for the first time and developed a department-wide strategy for meeting industry's technology-related development, commercialization, and trade needs.
- ✓ Launched a wide-ranging effort to reinvent government, including the start of a major push to capitalize on new technologies to revamp Federal agency operations and better serve industry and the public.

Maintain U.S. leadership in basic science, mathematics, and engineering.

- ✓ Worked with the Congress to increase the National Science Foundation's FY 1994 budget by 11 percent to a total of $3 billion, providing: strong support for fundamental research critical to manufacturing, advanced materials, environmental technologies, and biotechnology; establishment of a technical education program geared to community colleges; and doubled support for modernizing academic research facilities and instrumentation.

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THE WHITE HOUSE

WASHINGTON

August 17, 1993

MEMORANDUM FOR AGENCY HEADS

FROM: JOHN H. GIBBONS AND LEON PANETTA

SUBJECT: Principles for the FY 1995 R&D Budget

Shortly after the FY 1994 budget was released, the President tasked OSTP to examine how the review process for the $76 billion R&D budget could be improved to ensure that these funds were invested in such a way to support the Administration's research and technology goals and provide the maximum return to society and the economy. OSTP and OMB have joined forces to undertake this analysis.

This memorandum will serve two purposes. First, it is designed to reemphasize the Administration's priorities in research and development (R&D) and to underline the management principles recommended for sponsoring R&D activities that were highlighted in the Administration's recent technology strategy. Second, in response to the President's request, it provides advance notice of a method we plan to introduce for reviewing Federal R&D activities and for creating a consistent basis for evaluating programs with the assistance of non-Federal advisory groups.

While a significant amount of work needs to be done before the new R&D review model can be used effectively, the project is of such importance that we feel obligated to begin work as soon as possible. We hope that some of the work can be of direct practical value in designing the Administration's budget for FY95.

The near-term focus of this process is to organize and prioritize R&D programs within a specific set of R&D categories. It is a longer-term goal to be able to develop priorities and make choices across the categories. The model will not be fully implemented until the results of this year's pilot tests are thoroughly reviewed.

Administration's Technology Strategy

The Administration's technology strategy was outlined in our February 22, 1993 report, "Technology for America's Economic Growth, A New Direction to Build Economic Strength." Three broad goals were identified:

1. Support research and technologies that stimulate the type of long term economic growth that can create jobs and protect the environment.

2. Support research and technology that makes the government more productive and more responsive to the needs of its citizens and businesses.

3. Maintain world leadership in basic science, mathematics, and engineering.

This document outlined a series of management principles that should apply to all R&D activities and identified a number of specific areas for new initiatives that will be summarized below.

R&D Management Principles

All Federal R&D efforts should be constructed to embrace the following management principles:

1. Wherever feasible, priorities for research programs should be developed in coordination with other Federal Coordinating Council for Science, Engineering and Technology (FCCSET) or other sanctioned interagency review processes.

2. Priorities for basic research projects should be established through the merit-review process. Earmarked research funding should be resisted.

3. Priorities for non-defense, applied research should be established in close cooperation with private business. Cost-shared public-private R&D partnerships should be undertaken wherever possible. These partnerships should reflect the real needs of American businesses as demonstrated by their willingness to share the cost of research, put their assets at risk, or participate in the design of the initiative. Cost-sharing is a necessary, although not a sufficient, basis for selecting applied research priorities.

4. Provide for competitive selection of major government/industry cost-shared R&D projects where possible.

5. National laboratories capable of advancing civilian technologies should be directed to shift resources to support increased cost-shared civilian research programs.

6. The private sector, particularly small businesses, should be given better access to Federally sponsored technological innovation through expanded information dissemination, extension activities, and other supportive activities.

7. Federal procurement should be used to stimulate early markets for advanced technology where it is economically feasible. Contracting strategies should give the

private sector the design freedom and financial incentives needed to be innovative and efficient.

8. Where possible, Federal R&D should be integrated with and supportive of Federal regulation for such purposes as environmental protection.

New R&D Initiatives

The Administration considers the following specific activities to have the highest priority for R&D activities.

1. Vigorous support for basic research.

2. Development of technologies needed for a national information infrastructure and, in partnership with the private sector, creation of a national communications policy that will ensure rapid introduction of advanced telecommunication technology.

3. Accelerated investment in advanced manufacturing technologies that promote U.S. industrial competitiveness, build on worker skills, and emphasize methods of pollution prevention and minimization of resource waste.

4. Establishing a collaborative program with the U.S. automobile industry to develop new technologies for cleaner, more fuel-efficient cars that can run on domestically produced fuels.

5. Improving technologies for education and training, tapping the full potential of computers, software, and communications equipment for innovative learning in a variety of settings.

6. Realigning R&D in laboratories managed by the Department of Energy, NASA, the Department of Defense, and other Agencies to increase their contribution to commercial competitiveness, reflecting the Administration's intent to shift R&D emphasis from military to civilian.

7. Investment in energy-efficient Federal buildings to reduce waste and encourage the development and adoption of innovative energy-efficient technologies in all buildings.

8. Using information technologies and other technologies to make the government more efficient and more responsive to the needs of its citizens.

Improving the Review and Data Collection of Federally Sponsored R&D Activities

R&D Data Model. Most of the technologies outlined in this strategy and the new R&D initiatives just mentioned are part of the roughly $76 billion R&D budget.

Currently, R&D data is collected in the categories of basic, applied, development, and facilities through the Circular A-11 Exhibit 44A process. While these categories have some utility, they provide little information about the relevance of these investments to society. It is also often quite difficult and burdensome to assign R&D activities to these somewhat artificial distinctions. And lastly, they are not particularly helpful in policy and budget decision making.

Thus, we are proposing that the collection and review of R&D data be broken into the following mutually exclusive sectors:

1. Manufacturing (FCCSET)
2. Communications and Information (FCCSET)
3. Natural Resources and the Environment (FCCSET)
4. Education and Training (FCCSET)
5. Transportation
6. National Security
7. Energy Supply and Demand
8. Food and Fiber Production
9. Health
10. Other R&D

o Sectors 1-4. For sectors 1-4, the goals, objectives, priorities, performance milestones, and data collection mechanisms are currently being refined through various interagency committees of the FCCSET. Terms of References (TOR) outlining the FY 1995 review process and schedule are being developed by OMB and OSTP for these four sectors. Education and Training will be part of this exercise, although not traditionally considered part of the R&D budget.

o Sectors 5-9. For the most part, large portions of these sectors tend to be concentrated in just a few Agencies and are roughly consistent with traditional budget functions. Unfortunately, existing functional categories do not provide a sufficient basis for assessing research priorities in many cases. New FCCSET groups will be established to evaluate how the collection and review of R&D data in the associated sector can be improved (*i.e.*, developing a framework for describing and prioritizing the sectors' individual Agency programs).

o Sector 10. This sector represents the R&D activities not captured in the first nine sectors. It is likely new sectors will spin-off from this category over the next several years.

Data Collection and Review Process. It is clear that developing the framework and instruction for Agencies to report their R&D activities in these sectors will be a tough job and may take several iterations before the data can be considered useful in the budget decision making process.

As mentioned above, coordinating organizations either have been formed or will be formed in the near future through the FCCSET to review each of these R&D sectors. Each of these groups will be asked to prepare a method for establishing budget priorities, evaluation criteria and methods, and mechanisms for soliciting private-sector advice. The groups would be expected to be ready to prepare guidance for the FY 1996 budget and to coordinate Agency budget preparation consistent with this guidance. Since the FCCSET activities in Sectors 1-4 have been underway for some time, it is expected that these areas will prepare integrated budgets in FY 1995. If appropriate, the outcome of these activities will be summarized in a document(s) and reviewed by external panels (industry groups and others).

OMB and OSTP are currently examining the approaches individual agencies employ in collecting data for their Exhibit 44A R&D data submissions to OMB. The results of this study may significantly accelerate the ability of Sectors 1-10 to participate in the FY 1995 budget process.

Next Steps. The S&T Deputies will meet in the near future to review this proposed process and approve (i) the overall strategy, (ii) the organization of review assignments, and (iii) provide additional guidance to the review organizations for FY96. As is the case in sectors 1-4, a TOR will be developed for each of the other sectors. Circular A-11 Exhibit 44A R&D data will also be collected this year to help calibrate the model.