

Will U.S. Technology Policy Weather the Congressional Storms?

As the United States endeavors to cut federal spending, the science community hopes that some sense of continuity will prevail over the next few years. For science and technology, that continuity is provided in part by the National Science and Technology Council (NSTC) and in part by its biennial report, "Science and Technology," issued this year to Congress. This report reiterates the stance that President Clinton and advisors have taken with regard to the federal government's role in science and technology.

According to the report continued prosperity requires that the federal government act as a catalyst for progress in science and technology. Materials research figures prominently in several areas targeted for a government push, government officials said. "The technologies of the future are very often determined by developments in that field," said Adriaan DeGraaf of the Division of Materials Research at the National Science Foundation (NSF).

Already through both support and collaborations, the federal government has helped catalyze work in materials. Thanks in part to an NSF grants program that supports research in materials processing and synthesis, "synthesis is a science in its own right," DeGraaf said. He cites high temperature superconductors and rapid progress in buckyball research as two advances in this science.

Materials processing and synthesis became a priority during President George Bush's administration in the late 1980s. Now the NSTC has identified several initiatives that will depend on advances in materials. Calling a renewed, efficient transportation system essential, the report outlines the need for new materials for long-lasting, low-cost bridges, highways, and other structures, all part of a Physical Infrastructure of Transportation initiative. A second priority is construction and building, and a third, high performance computing and communications.

Another initiative, the Partnership for a New Generation of Vehicles (PNGV), aims to create a car in the next 10 years

that is three times as efficient as current automobiles. Seven federal agencies and many companies including Ford, General Motors, and Chrysler, have pooled resources to develop fuel cells, ultracapacitors, and hybrid propulsion vehicles. New alloys and new polymer composites that are both light and strong will make such cars possible, as will advances in manufacturing that bring the cost of making these new materials into a practical range. At the same time, similar advances in materials are sought for trucks, buses, rail systems, and aircraft.

With these initiatives spelled out, the Clinton Administration is optimistic that R&D will weather the current turmoil over setting budgets. But Senator Barbara Mikulski (D-Md) and Representative George Brown (D-Ca) are not as confident. During a Congressional committee hearing, these two strong supporters of scientific research criticized head of the NSTC John H. Gibbons and his office for not being influential enough in protecting NSF and the National Institutes of Health from budget cuts foreseen in the next five years. Some worry the NSTC has been

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trying to do too much, which dilutes its influence.

Gibbons disagrees that his group is spread too thin. He agrees that budgets for research cannot grow rapidly, but asserts that basic research has done fairly well with an overall federal support of \$72 billion for R&D. That amount may not increase, but the share for basic research is expected to go up.

ELIZABETH PENNISI

Yergin Task Force Reports Energy R&D Essential to U.S. Economy

Federal support for energy R&D is "essential to our Nation's future well-being," contributing to economic growth, security, environmental quality, and competitiveness in the international marketplace, according to an independent 30-member Task Force of leading energy experts from industry, academia, and research, chaired by energy expert and Pulitzer Prize-winning author Daniel Yergin. Noting that the U.S. Department of Energy R&D "has had its flaws," the Task Force on Strategic Energy Research and Development reported that recent investments are generating billions of dollars worth of consumer energy savings and new business opportunities, and playing an important role in job creation.

The report further recommends that within six months, DOE should develop a plan to cut total energy R&D costs by 15% over a one-year period without reducing funds going directly to scientists and engineers actually engaged in research. These cuts should be directed at administrative, compliance, and other overhead costs.

Energy R&D: Shaping Our Nation's Future in a Competitive World is the product of a nine-month study by the Task Force, which was appointed by Secretary of Energy Hazel R. O'Leary in October 1994. The group was charged with reviewing and assessing the Department's energy R&D programs.

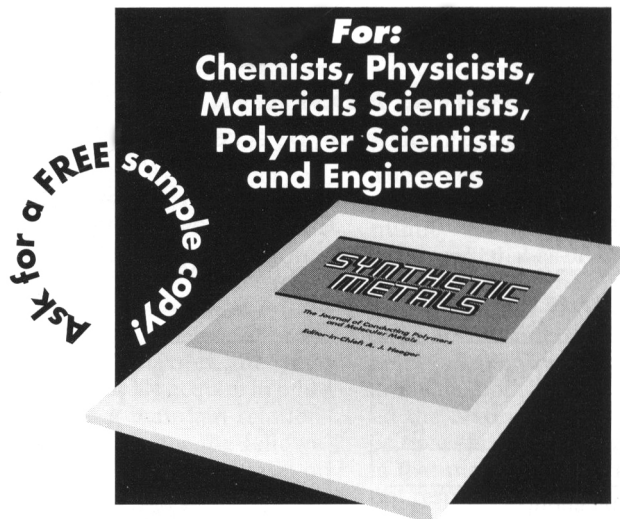
World energy demand is expected to grow by 40% over the next 15 years; and by the year 2010, the United States will be importing a minimum of 60% of its oil, said the Task Force.

"Technological advances emerging out of R&D will be critical to meeting future energy and environmental needs, reducing stress on the supply and consumption systems, diversifying risk, and avoiding or at least minimizing any future crises that might develop in an uncertain world," said the Task Force.

According to the Task Force, energy R&D funding by DOE has already been

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reduced significantly. The Yergin Task Force said that private sector energy R&D amounts to about \$3 billion, but is falling, reflecting the overall trend of private sector R&D in the United States.

"Today it is hard for American companies, energy and non-energy alike, to invest in R&D beyond a three- to five-year time horizon, in significant part because companies are being judged on

quarterly performance by financial markets," said Maxine Savitz, vice chair of the Task Force and General Manager of AlliedSignal Ceramic Components. "But it takes more than five years to develop new energy technologies."

The Task Force reviewed programs in fossil energy, energy efficiency and renewable energy, nuclear energy, fusion, and basic energy research. The Task Force

received testimony from dozens of experts from the private sector, research organizations, universities, the Office of Technology Assessment, and the National Academy of Sciences, as well as DOE.

Yergin, president of Cambridge Energy Research Associates, is the author of *The Prize: The Epic Quest for Oil, Money, and Power* and co-author of *Russia 2010*. □

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