

elements" and "puts research and innovation back to the heart of development in our country." Noting that every country has a funding agency for research, she said that the ANR "needs to stay flexible and non-bureaucratic, with the financing of projects selected by relevant and independent scientists. My conviction is that if researchers are good, they don't have to worry." The most important thing, she said, is that money is invested in science.

Not surprisingly, France's research ministry denies that the government wants to weaken the CNRS. "The ministry disputes . . . that we want to take away from the CNRS certain of its powers," says a ministry press officer. "But there must be coordination between the scientific policies of different organisms and the choices of ANR." And, the press officer adds, "no one can deny that research today is

given new financial means."

The law does indeed call for more money for research. But on closer inspection, says Trautmann, the increase comes up short: The 4% increase per year in the law includes tax incentives for companies and doesn't account for inflation. At that pace, he says, raising science spending in France to 3% of the gross domestic product by 2010, a goal adopted by European Union countries in 2000, "is out of scope. It's impossible."

Combined, the troubles at CNRS and the law make the outlook for science in France "very worrisome," says Bourguignon. "For many years, financing has been subcritical. The lack of money has perverted scientists—it has diminished their ambitions. The main goal for many was to survive. You need more ambition than that to make the profession attractive to young people again."

Toni Feder

Bush Budget Boosts NSF, DOE, and NIST Science for FY 2007

Within the first 10 minutes of the unveiling of the administration's fiscal year 2007 science and technology budget on 6 February, leading federal science officials were using superlatives like "historic," "spectacular," "extraordinary," and "exciting." For those in the US physical sciences community who have seen five years of flat non-defense federal research funding, the superlatives certainly appear apt.

The science budget proposal, the first step in President Bush's American Competitiveness Initiative, calls for doubling "innovation-enabling research" at NSF, NIST, and the Department of Energy's Office of Science over a 10-year period. That includes a proposed \$910 million boost in FY 2007 and \$50 billion more over the next decade.

The good fortune of at least some aspects of the science budget is tied to efforts by the scientific, academic, and industrial communities over the past few years to impress upon the administration that the nation's economic health is tied to a strong education and research base. Several studies, including the recent "Gathering Storm" report from the US National Academy of Sciences (NAS), have warned that the US is slipping badly in science education and funding (see *PHYSICS TODAY*, December 2005, page 25). "We listened," Office of Science and Technology Policy (OSTP) director John Marburger said when asked if the reports had influenced the administration.

Although nearly all non-defense spending takes a big hit under Bush's proposed FY 2007 budget, basic research and science education get strong support.

Although the numbers and programs in the FY 2007 budget proposal were still being analyzed as *PHYSICS TODAY* went to press, proposed funding for science programs at the three research agencies would rise dramatically under Bush's plan. Indeed, science funding is about the only non-defense or non-security spending that increases in a \$2.77 trillion budget that calls for significant cuts in education, Medicare, and more than 140 other domestic programs.

Given that Congress will be voting on the budget at about the same time as the 2006 midterm elections, few Capitol Hill observers believe that many of the domestic cuts will stand. And as Congress shifts money back to those programs, the large science-related increases may be scaled back.

But as the proposal stands now, the Office of Science would see a 14% jump of \$505 million to \$4.1 billion; the NSF, a 7.9% increase of \$439 million to \$6 billion; and NIST, a 24% increase of \$104 million to \$535 million. The proposed NIST increase is to the "core" intramural research and facilities budget of the institute, and is based on what the president proposed in his FY 2006 budget, not on the final budget enacted by Congress. To get

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the 24% increase in the NIST budget, the administration removed \$137 million in congressional earmarks—money directed by Congress to specific programs that were not in the institute's budget request. A comparison of the congressionally enacted FY 2006 budget with the FY 2007 administration proposal actually shows a 5.8% drop in NIST funding.

While the administration is promoting the big three boosts in science funding, an Office of Management and Budget official noted that overall, the requested increase for non-defense R&D is 1.9%, lower than the rate of inflation. OSTP's Marburger said that funding the war in Iraq and the war on terror and trying to reduce the deficit have a serious impact on the discretionary part of the budget, including science.

Large facilities supported

DOE Office of Science director Raymond Orbach said he would use the 14% proposed increase for his office to "enhance and operate very large [science] facilities," and to fund "the research base supporting an additional 2600 scientists." He pledged strong support for ITER, the international fusion project that he called "the first truly international, self-standing collaboration in the world." The budget proposes \$60 million for ITER.

He said advanced scientific computing would receive \$318.7 million, an \$84 million increase over FY 2006. The Linac Coherent Light Source at Stanford University would continue to be supported, with \$105.9 million for ongoing design and construction. Funding would also be restored for full operations of the Continuous Electron Beam Accelerator Facility at the Thomas Jefferson National Accelerator Facility in Virginia, and the Relativistic Heavy Ion Collider at Brookhaven National Laboratory in New York, he said. Brookhaven would also get research, development, and engineering funds for the National Synchrotron Light Source II project (up \$45 million).

Orbach also said that funding increases will support nanoscale science research (up \$51 million); the administration's hydrogen-fuel initiative (up \$17.5 million); and the first full year of operations of the Spallation Neutron Source at Oak Ridge National Laboratory in Tennessee. "We will build machines and operate them so our science will have a leg up on anyone in the world," Orbach concluded.

NSF director Arden Bement said the foundation is focusing on three roles as its part of the competitive ini-

tiative. Fundamental science and engineering programs, placed under a category called "ideas" in NSF budget documents, would receive a 6.1% increase to \$2.9 billion. The "tools" section of the budget, which includes facilities, instrumentation, and federally funded R&D centers, would increase 31.2% to \$1.7 billion. The "people" category, which includes education, individual grants, and similar programs, would go up by 3.8%, or \$38.7 million. The overall "people" funding is slightly more than \$1 billion.

NIST director William Jeffrey said the institute's core scientific and technical research and services programs, which include the laboratories, would focus on nanotechnology (up \$20 million), the Center for Neutron Research expansion (up \$10 million), hydrogen initiative research (up \$10 million), and a host of other programs. He noted that NIST has zeroed out funding for the Advance Technology Program (ATP), a program that provides federal money to help small companies develop promising but risky technology. The administration and some Republicans on the hill have been trying to kill the program for several years on the ideological grounds that government shouldn't interfere in private enterprise.

NASA would receive an overall increase of just 1%, but R&D funding at the agency would increase 7.5%. All of that increase would go into developing the new crew exploration vehicle, and other R&D would fall. At the Department of Commerce, the National Oceanic and Atmospheric Administration would see its R&D budget drop by 6.3%.

Although it is far from certain

whether the funding boom for science will actually materialize, that it happened at all came as a surprise to many science watchers in Washington, DC. For more than a year, as report after report came out highlighting an overall weakening of the US science enterprise, administration officials dismissed the concerns as overblown. But on Capitol Hill, several senators and representatives began putting pressure on the White House to pay attention to the problem.

In October the NAS "Gathering Storm" report came out and received strong support, including hearings, on Capitol Hill. Senators Lamar Alexander (R-TN), Jeff Bingaman (D-NM), and Pete Domenici (R-NM), all strong supporters of science, then met with Bush and urged him to support a new science initiative. There was hope in the science community that Bush would mention science in the State of the Union speech, but the competitive initiative and the big boosts proposed for science programs for NSF, DOE, and NIST were unexpected.

The American Physical Society's director of public affairs Mike Lubell said that Bush's seemingly sudden support of science "is not so different than what we encountered in the Clinton administration. The first four years, science wasn't in good shape, then that changed."

"Science issues aren't issues that get you a lot of votes," he continued. "But they are serious issues for the country, and in the second term you can look beyond the polls and focus on your legacy. Science is a legacy issue. It's economic and national security, and [Bush] is to be applauded for making a good choice on this." **Jim Dawson**

Billionaire Scientist Rescues RHIC Run

When the final federal science budget for fiscal year 2006 was passed by the US Congress in December, a cut of more than 8% in the nuclear physics budget at the Department of Energy had immediate and severe consequences for Brookhaven National Laboratory (BNL) director Praveen Chaudhari. He had a billion-dollar machine, the Relativistic Heavy Ion Collider, and not nearly enough money to operate it. Chaudhari announced that RHIC's planned polarized-proton run for 2006 would be canceled and about 100 employees laid off (see PHYSICS TODAY, January 2006, page 28).

Then came the phone call from Jim Simons, a PhD mathematician who, after teaching at the University of California, Berkeley, and Harvard

University, founded an investment company in the early 1970s and became a billionaire. Simons, who also chaired the mathematics department at Stony Brook University and is on the BNL board, was concerned about the RHIC shutdown.

"He called me just before Christmas break," Chaudhari said. "He said he'd like to help raise money for RHIC. After a moment of stunned silence on my part, I had a great sense of exhilaration that we could run RHIC."

What Simons offered, and Chaudhari accepted, was \$13 million to do the 20-week polarized-proton run that had been planned before the federal funding was cut. The revived RHIC run was to begin in early February