

At a crowded press conference in the committee's large hearing room on 7 May, Smith said that although he has "a philosophy of limited government," he wants to double the NSF budget because "continuing our support of basic research forms the building blocks for the applied research that keeps our security, health, and economy strong." Boehlert, who has been a strong supporter of increasing basic research funding throughout the federal government, said that "the thinking behind this bill is simple, but not simple-minded." NSF supports research that is of critical importance to the future of the nation's economy, security, health, and educational excellence, he said. "Those are all pretty solid arguments for rewarding NSF with more than praise," he continued. "Recognition is nice, but success requires real money. This bill will help NSF get the real money it needs."

The bill proposes to bump NSF's FY 2003 budget from the \$5.03 billion requested by the administration to slightly more than \$5.51 billion. The \$5.51 billion would be a 15% increase over NSF's current budget of \$4.79 billion. There would be another 15% increase in the FY 2004 budget, followed by yet another in FY 2005. The

final goal, the committee members said, is to double the NSF budget by 2007.

In FY 2003, the bill would
▷ increase research and related activities by \$540 million, or 15%; the bill designates specific increases for networking and information technology research, nanoscale science and engineering, mathematical sciences, and major research instrumentation
▷ increase science, math, and technology education by \$131 million, or 15%, to fund existing programs as well as new ones the legislators hope to create

▷ authorize an increase of 9.8%, or \$14 million, for major research equipment and facilities construction; the increases in this category would be much larger, 48% and 27% respectively in 2004 and 2005, and are intended to enable NSF to reduce its backlog of large facilities projects.

The bill also would require the National Science Board and Colwell to submit to Congress each year a priority list for proposed projects, along with explanations of how the rankings were determined. Congress has been trying unsuccessfully for several years to get such a list from NSF. David Stonner, head of NSF's Office of Legislative and Public

Affairs, said the foundation was "thrilled with the confidence Congress has placed in us," but noted that adding more money to the NSF budget would mean taking it away from another agency to keep it within the limits of the administration's budget proposal.

Rep. Vern Ehlers (R-Mich.), a physicist-turned-legislator, said the bill has a good chance of passing the House, but getting it through the entire legislative process and getting the money appropriated remains "a big question."

JIM DAWSON

Watson Dumped from Climate Panel

The Bush administration, on the advice of the fossil fuel industry, surprised the international scientific community by refusing to renominate incumbent Robert Watson to chair the Geneva-based Intergovernmental Panel on Climate Change (IPCC), effectively killing his chances of retaining his position. Instead, at a 19 April meeting, the US delegate to the IPCC voted for Rajendra Pachauri, an Indian energy economist. Watson,

who had chaired the IPCC for five years, lost his position by a vote of 76 to 49.



PACHAURI

The US shift away from Watson came as a surprise to both candidates. "I only learnt of US support through the media," says Pachauri. "I was not informed by them officially," he adds. Watson, chief scientist at the World Bank

and a former member of the Clinton administration, also found out about the switch through interview queries from the media. John Houghton, who recently stepped down as cochair of one of the IPCC's four working groups, was

taken aback: "I thought they would support Watson because of his great ability, energy, and high integrity, under which the IPCC has been very successful." But the news didn't come as a shock to Elliot Diring of the Pew Center for

Climate Change in Arlington, Virginia. "Dr. Watson is a very credible voice for stronger action on climate change, so it's not all that surprising that the Bush administration didn't want to renominate him," Diring says.

The US change of alliance created a split between one side—Europe and nearly all other industrialized countries—who thought Watson successfully ran the IPCC and eventually renominated him for the job after the US failed to back him, and the other side—the US, Japan, and developing countries—who wanted new leadership and rejected the UK delegation's last-minute attempt to organize a compromise in which Pachauri would share the chairmanship with Watson. "[The compromise] was understandably not attractive to India, other developing countries, or to Pachauri himself," says Houghton.

Pachauri, who gave scientific advice to Al Gore for the former vice president's book, *Earth in the Balance: Ecology and the Human Spirit* (Houghton Mifflin, 1992), was nominated for the job by the Indian government last September. According to IPCC delegates who attended the

April meeting, Pachauri got the US vote for three reasons: The move helped Indo-US relations; the US could claim it was supporting developing countries by supporting Pachauri's candidacy; and, most important, by not having an American chairperson, the IPCC would have less influence in US political circles.

Not everyone believes IPCC influence in the US will drop during Pachauri's watch, however. Many climate scientists say that Pachauri is well-qualified for the position. "He is an able person of high integrity who is widely respected, who has a very different leadership style from Bob Watson," says Houghton. Watson was well known for a hands-on operating style. "My style of functioning is based on extensive delegation," says Pachauri.

Some policy changes will occur at the IPCC, with a shift toward looking at different regions and the social impact of climate change. "My strengths lie in technology, economics, and social sciences," says Pachauri. "I believe that there is not enough research or awareness of how climate change will affect developing countries. This is a gap which needs to be filled, and I intend doing my bit in this regard."

Pachauri says he is determined to increase everyone's understanding of the full threat of climate change so that not just governments, but also industry and the broader society, will take action to combat it. "We really need to go far beyond the reduction of emissions laid down in the Kyoto Protocol," he says. Diring agrees: "The IPCC has had a substantial impact in calling attention to climate change and shaping a response. The important thing now is to preserve the integrity of the IPCC process. Bob Watson did a tremendous job and there's every reason to believe Dr. Pachauri will as well."

PAUL GUINNESSY

Charpak, Garwin Propose Unit for Radiation Dose

Becquerels, curies, grays, rads, rems, roentgens, sieverts—even for specialists the units of radiation can get confusing. That's why two eminent physicists, Georges Charpak of France, winner of the 1992 Nobel Prize in Physics, and Richard Garwin, an architect of the US hydrogen bomb and an outspoken advocate of arms control, are proposing the DARI as a unit of radiation dose they hope will

help the public evaluate the risks associated with low-level radiation exposures.

The DARI, or Dose Annuelle due aux Radiations Internes, is the radiation humans can't escape: It's the annual dose due to radioactivity in the body, mainly primordial potassium-40, from the stardust that formed our Solar System, and carbon-14, created by interactions of cosmic rays with nitrogen in the atmosphere. The dose from this internal radioactivity, accounting for the biological effects of different decay particles, is about 0.17 mSv/y; the proposed unit is rounded up, so that 1 DARI = 0.2 mSv.

In their book *Megawatts and Megatons: A Turning Point in the Nuclear Age?* (Knopf, 2001; for a review, see PHYSICS TODAY, April 2002, page 80), Garwin and Charpak assume that the effects of radioactivity are linear at low doses, that 1 DARI causes lethal cancer in 7 out of 1 million people, and that a lethal cancer shortens life by 16 years. They deduce that a year's worth of internal radiation shortens life by one hour. For comparison, says Garwin, "nuclear power shortens life by six minutes a year. A single CAT scan is worth 40 years of internal radiation and its life shortening is 40 hours. The DARI gives people a standard to judge exposures and hazards."

"We are living in a time when people want to terrorize people with radioactivity," says Charpak. "They make a fuss because of an incident producing 10% of a DARI, or even 1% of a DARI." With intrinsic internal radiation dose as a standard, he and Garwin hope that fears about nuclear energy will fade.

John Cameron, an emeritus medical physicist from the University of Wisconsin-Madison, prefers to compare radiation exposures to external background radiation. "You can tell a patient that the radiation from a mammogram is about equal to two months of just living," he says. Nat-



CHARPAK

CERN/AIP/ESVA



WATSON



GARWIN