

Relief, Disappointment as 2007 Appropriations Bill Passes

After months of uncertainty about the future of jobs, grant money, and the availability of large-scale instruments, many in the science community can breathe a sigh of relief. President Bush signed the long awaited fiscal year 2007 funding bill into action on February 15, 2007. The bill, which froze and cut the budgets of many agencies, made exceptions for the National Science Foundation (NSF), Department of Energy (DOE), and National Institute of Standards and Technology (NIST).

Under the appropriations bill, NSF will receive an increase of \$335 million allocated for research and related activities, the same amount initially requested by the Administration. This is an increase of 6.0% over NSF's fiscal year 2006 budget appropriation. Several departments within NSF will benefit from the increase, including the nanoscale science and engineering programs and cyber infrastructure and research programs in the Mathematical and Physical Sciences Department.

The DOE Office of Science received an increase of 5.6% over its fiscal year 2006 appropriation, which amounts to an additional \$200 million for reducing the U.S. dependence on oil. In addition, the bill frees from restriction \$130 million that was designated by Congress to specific projects in 2006, thereby allowing the Office of Science to allocate this money as they see fit. This increase was only 40 percent of the amount requested by the Office of Science for fiscal year 2007.

Of the four solicitations announced by the Office of Science, Basic Energy Sciences last year, the Hydrogen Fuel Initiative received \$4 million of the requested \$17.5 million, Solar Energy Utilization received \$8 million of the requested \$34 million, and the Advanced Nuclear Energy Systems and Mid-Scale Instrumentation programs received none of the requested funding. As a result, many of the awards will not be available until 2008.

The appropriations bill allocates \$50 million in new funding to NIST for physical science research and laboratory support related to nanotechnology and neutron research. This increases the NIST laboratory research budget by 13.3% and is about half of the total requested increase for fiscal year 2007.

Although less than requested, these increases were encouraging news to the science community after months of uncertainty during which all United States government agencies—with the exception of

Homeland Security and the Department of Defense—were operating under their fiscal year 2006 budgets well into fiscal year 2007. The 109th Congress was unable to agree on budget allocations for these agencies during its term and passed a number of continuing resolutions, ultimately passing the appropriations responsibility on to the 110th Congress who convened on January 4, 2007.

The 110th Congress started its session with a packed agenda and Senator Robert C. Byrd (D-W.Va.) and Representative David Obey (D-Wis.), then incoming chairs of the Senate and House Appropriations Committees, announced in late 2006 that they planned to propose a continuing resolution for the remainder of fiscal year 2007. A joint statement released in December read, "It is important that we clear the decks quickly...we have decided to dispose of the Republican budget leftovers by passing a year-long joint resolution." Under this resolution no new initiatives or grants could have been funded for the remainder of fiscal year 2007.

This would have had detrimental effects on science research. An American Physical Society analysis anticipated that freezing the NSF budget would have resulted in \$439 million in missed opportunities for scientific discoveries, a 10% reduction in new research grants, and a 3% decline in funding rates. In addition, the Society anticipated that freezing the DOE budget would have caused 2000 staff members at nationally funded laboratories to lose their jobs and the number of researchers, students, and new hires in Basic Energy Sciences would decrease by up to 1000 people. Such a resolution would also have caused many large-scale instruments to be delayed, shut down, or only available on a limited basis.

As a result of these looming consequences, science organizations around the country initiated letter-writing campaigns and lobbying efforts asking Congress to make an exception for the science agencies. "Funding for basic research is essential to our global competitiveness and national security," wrote Materials Research Society President Alan J. Hurd, in one such letter to the Congressional leadership. He continued, "We request you not delay in enacting the proposed increases for NSF, NIST, and DOE; otherwise we place at risk America's future position in global research."

Thanks to these and other efforts, not all initiatives for fiscal year 2007 had to be put on hold. But this is a bittersweet victory for the science community, who started off the year with expectations of broad funding after the *Rising Above the*

Gathering Storm report was published and President Bush expressed his commitment to increasing U.S. competitiveness.

KENDRA RAND

NIBIB Funding Policy Supports New Investigators

The National Institute of Biomedical Imaging and Bioengineering (NIBIB) offers researchers who have never received research support from the National Institutes of Health (NIH) a unique funding opportunity through the traditional research grants known as R01. These multiyear grants are the original and most commonly used grant mechanism at the NIH. Through NIBIB's new investigator funding policy, applications from investigators new to the NIH are identified, and those investigators who have scores within 5 percentile points of the NIBIB stated "payline" for any given fiscal year automatically receive funding. Institutes determine paylines by balancing projected grant numbers, grant budgets, and monies in the budget. In FY 2006, nearly one-third of the NIBIB-funded competing traditional research (R01) investigators were new NIH investigators.

The funding guidelines are for unsolicited R01 applications or those submitted in response to a program announcement. In addition to the payline differential, new investigators may also be funded through a select pay mechanism that allows NIBIB staff to reach beyond the payline to fund an application that is particularly relevant and compelling.

NIBIB R01 grants support biomedical research, ensuring a continuous flow of novel approaches that contribute to the understanding of biological systems from submolecular activity to clinical therapeutics. The grant supports research across disciplines, including materials research.

Europeans Support Research into New Energy Technologies

A "Eurobarometer" opinion survey on energy technologies published in January by the European Commission (EC) shows that 60% of European Union (EU) citizens think that energy research should be a priority for the European Union. The report also shows that Europeans are highly positive about renewable energies. In the future, Europeans expect the use of fossil fuels to drop, to be replaced by renewable energy. The Commission has also published a scientific report that looks at energy consumption up to 2050. It examines several future scenarios, including a strong carbon constraint regime and development of hydrogen as an energy

carrier. Both scenarios, which show a rising role for renewable and nuclear energy in Europe's future, rely on advances in technologies such as carbon capture and storage, low energy buildings, low emission cars, and hydrogen production from renewable and nuclear sources.

"Europeans recognize that new technologies could have a significant impact on the energy system of the future and they expect more cooperation at European level to develop such technologies," said European Science and Research Commissioner Janez Potočnik. "At EU level, we will invest over €6 billion on energy-related research over the next seven years, and we will work with Member States and industry to get the most out of these investments."

Based on the Eurobarometer survey, Europeans are aware of many of the major issues in this policy area, such as energy dependency and the energy mix of fossil fuels, renewable sources, and nuclear energy. The survey examines attitudes and behavior regarding energy consumption, with a majority (54%) considering reducing this as a priority. The survey also shows that energy prices are a major concern for Europeans with 33% identifying prices as the first energy-related issue coming to mind and 76% considering that energy prices will double in the next three years.

The Commission has also released in January the WETO-H₂ study. This research study, carried out by scientists in

France, Belgium, the Netherlands, the United Kingdom, and Poland, as well as the Commission's DG Joint Research Center, identifies a reference projection of the world energy system in 2050 and looks at two varying scenarios: a carbon-constraint case and a hydrogen case. In the reference case, world energy consumption doubles by 2050.

The developing world represents two-thirds of world energy consumption and coal is seeing a return as an important source of electricity. Under this reference case, world levels of CO₂ emissions will be above what is considered sustainable in Europe. The carbon constraint scenario looks at the impact of much more ambitious policies to restrict carbon emissions, first in the industrialized world with developing countries taking action later. The hydrogen scenario assumes additional breakthroughs that increase the cost-effectiveness of hydrogen technologies, leading to a tenfold increase in hydrogen production between 2030 and 2050, 90% of which is from non-carbon sources. In this scenario, hydrogen provides about one-third of energy consumption in the transport sector.

For details of the Eurobarometer and the WETO-H₂ study, access Web site <http://ec.europa.eu/research/energy>.

Report Backs Australia's Energy Approach

The report from the Energy Supply Association of Australia released at the

end of January reaffirms the Australian government's energy policy.

The report shows Australia needs a broad range of low-emission energy technologies to ensure reliable future energy supplies, while at the same time cutting greenhouse gas emissions.

Australian Industry and Resources Minister Ian Macfarlane said, "There is no easy, inexpensive solution to cutting our greenhouse gas emissions. It requires a complete plan, much of which has already been laid out in our Government's 2004 Energy White Paper."

"A key part of the policy is to fast-track research and commercialization across a range of low-emission energy sources, including renewables.... Australia must consider nuclear power which is the only currently available zero-emission technology able to provide 24-hours a day, seven days a week, base load power," he said.

Macfarlane said that renewables such as solar, wind, and geothermal energy technologies are also an important part of Australia's energy future and that the Howard government has committed more than \$1.1 billion to low-emission technology development including \$400 million to solar energy.

"Our Government's \$500 million Low Emissions Technology Demonstration Fund is producing practical, affordable outcomes and accelerating the development of a wide suite of other low emission and renewable energy sources," he said. □

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