

Here comes the gift horse



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BUSH PROMISED MATERIALS SCIENTISTS A BOOST IN THIS YEAR'S BUDGET, BUT ALL IS NOT WHAT IT SEEMS ...

The US president's State of the Union address is no academic lecture. The annual speech usually covers issues of national importance and provides a pulpit for a few new presidential pet projects — in previous years Bush has touted an ambitious revamp of social security and a sweeping reform of the nation's healthcare system.

But this year, George W. Bush's address devoted significant time to a scientific agenda. The 'American Competitiveness Initiative' is a US\$5.9-billion programme that, in his own words, would go towards "funding America's most creative minds as they explore areas such as nanotechnology, supercomputing and alternative energy".

In the days after the speech, Washington's tight-knit community of physical science advocates was ebullient. Physics has received flat or slightly declining funding during the past few years — years during which National Institutes of Health (NIH), the main biomedical funding body of the United States, doubled its budget. Now, the supporters of the hard sciences cheerfully supposed, it could be their turn.

The president's budget for the financial year 2007, which is now being debated in Congress, seems encouraging. The National Science Foundation (NSF) is slated to see an 8% increase to US\$6 billion, whereas the Department of Energy's Office of Science (DOE) could get a 14% boost to \$4.1 billion, and the National Institute of Standards and Technology might see a \$531-million boost to its core

programmes. The competitiveness initiative also calls for doubling the budgets of all three organizations by 2016, a fairly healthy increase of 7% a year over the next decade.

Materials scientists also have a lot to gain from the plan. In the president's request, funding for the energy department's basic energy science will jump by 25%, or \$282 million. At the NSF, funding for materials research will increase by 6% to top \$257 million. Funding for the National Nanotechnology Initiative will drop slightly as a result of cuts in defence research, but the DOE will see its budget for nanotech-related research swell by 25% to \$258 million. The initiative specifically calls for the support of a diverse set of materials-related fields including quantum computing, hydrogen fuel cells, nanomanufacturing, and theoretical modelling with high-performance computers.

However, in the face of rising deficits, the war in Iraq and costly reconstruction from last year's hurricanes, the budget is a zero-sum game. This means that where materials science wins, other disciplines will lose. In March, Raymond Orbach, head of the energy department's office of science, told nuclear physicists that a coveted, multi-billion dollar Rare Isotope Accelerator would be delayed until at least 2011. Days later, high-energy physicists received a caution from presidential science advisor John Marbruger, who said that their discipline was not "emphasized" in the competitiveness initiative. And beyond the field of physics, the NIH is facing a flat overall budget for the financial year 2007, after its funding declined this year for the first time since 1970.

That state of affairs should have materials scientists considerably worried. When fields are left out, the climate can become ripe for interdisciplinary rivalry to erupt on Capitol Hill, as occurred in the 1990s when some physicists (even materials scientists) lobbied Congress against the massive superconducting supercollider. That project was scrapped by Congress in 1993, leaving high-energy physicists with nothing to show for their ambition, except a 14-mile-long hole in the ground.

Congress is now similarly poised to decide the fate of the president's new competitiveness initiative. The good news is that key congressional Republicans and Democrats have publicly expressed support for the NSF and the DOE, and the House of Representatives is now set to pass a bill that would support the DOE's increase in funding. The bad news is that it is an election year, and that can make the normally volatile US budget process even more unpredictable. Politicians frequently divert money to projects in their home districts in the hope of building public support, and final budget bills are often delayed until after the November elections, creating headaches at granting agencies.

All this is to say simply that materials scientists should by no means consider their pot of money assured. Researchers should make public their backing of the initiative, and let their congressmen and women know the positive impact that the initiative could have on the field and the US economy. Such support might not be enough to ensure the initiative survives intact, but it will improve the chances that key increases are preserved in next year's budget.

SOURCES:

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