Clinton Administration Offers Basic Science a Bigger Piece of Research Budget Pie

The Clinton Administration's proposed budget for Fiscal Year 2001 contains "considerable movement" toward bringing basic science research funding into better balance with biomedical research. That shift is the combined result of an improved federal revenue picture and a deliberate, broad-based policy decision, according to administration officials involved in the budgetary process.

For three out of the four federal agencies managing basic science and materials-related research—Department of Energy (DOE), National Institute of Standards and Technology (NIST), and National Science Foundation (NSF)—the administration has proposed bigger FY 2001 research budget increases—on a percentage basis—than for the National Institutes of Health (NIH), the agency whose research funding increased most during the 1990s. The only exception is the Department of Defense (DoD), where research expenditures have become casualties of overall cuts in defense spending.

Within DOE, NIST, and NSF, however, some of the requested increases are enormous for materials-related programs. For example, the Clinton Administration has asked for an 84% increase next year for the National Nanotechnology Initiative (for more details, see *MRS Bulletin*, March 2000, page 8 and the MRS Web site). And DOE's Spallation Neutron Source, now under construction and seemingly beyond the political difficulties that plagued the project last year, is slated for a 138% funding increase.

Administration officials cite two major reasons for this shifting in priorities. First, for the past several years, funding requests have been constrained by spending caps that were enacted by Congress, signed into law by President Bush in 1990, and extended further in 1997 by President Clinton. "The FY 2000 budget was not a good budget for science and technology," according to Robert S. Marianelli, Assistant Director for Physical Sciences and Engineering at the White House Office of Science and Technology Policy (OSTP). "We were constrained to stay within the mandatory caps for discretionary (non-entitlement) spending."

But the FY 2001 budget "is quite a bit different," Marianelli said. It proposes higher discretionary spending caps that could be extended to FY 2010. With the extra money, he said, "there has been a definite attempt at [balancing biomedical and basic science research] and at redefining a sensible R&D [research and development] investment strategy."

"While there was a conscious decision to stay on track with [giving] NIH [top research priority]," Marianelli said, "we've also had to recognize what underpins medical science. Its roots are in physics and chemistry. If you neglect research in those areas, sooner or later the pace of necessary advances will suffer. The same goes for information technology."

Despite the easing budget pressures, Marianelli credits President Clinton for approving the new increases in research funding, "None of these new initiatives would have been possible without his commitment."

The second reason for the budgetary realignment is a recognition that starving basic research for the physical sciences would eventually harm both medical research and the economy in general. Leslie Smith, director of the Materials Science and Energy Laboratory at NIST, said, "In the past, there have been times when we have had research priorities as expressions of national will. During the Cold War, it was defense. For a time, the space program dominated. And lately, health care has been at the top of the research budget."

Smith, who also chairs "MatTec," the Materials Technology subcommittee of National Science and Technology Council's Committee on Technology, said that "while health care has focused on attacking diseases, that sector also has complex needs that require new technologies not directly related to biology, such as computer modeling and physical sciences."

NIH seems to share that point of view. Wendy Baldwin, Deputy Director of Extramural Research at NIH and chair of NIH's Bioengineering Conference (BECON), said that modern biomedical research requires expertise in computer science, mathematics, physics, engineering, and chemistry as well as materials science. "In order to do so, we need to build bridges to the other communities. That's what we are attempting to do with BECON and with BISTI [NIH's Biomedical Information Science and Technology Initiative]."

A "spread the wealth" approach to research also applies at NSF, possibly the biggest potential benefactor of the administration's FY 2001 research budget. Overall, the request for NSF is up 17% next year—to $4.572 billion. While the Division of Materials Research (DMR) will be "one of the big players," according to its director, Tom Weber, DMR itself is set to receive about $30 million more than in FY 2000—increasing its funding to about $120 million.

But DMR's direct funding level tells only part of the story because its influence extends to several other NSF divisions. For example, Weber said, materials research plays an important role in NSF's Information Technology Research program as part of its "Materials by Design" initiative. The two efforts have become linked, according to Weber, because computational power has increased to the point where simulations can perform at molecular—if not atomic—scales.

Additional materials-related research activities will continue in the chemistry, mathematics, physics, and engineering divisions of NSF, as well as the Nanoscale Science and Engineering Initiative, for which the Administration is requesting $217 million in FY 2001—more than double the current year's level of $97 million.

PHIL BERADELLI

NASA Seeks Ideas for Future Space Transportation Plan

The National Aeronautics and Space Administration (NASA) issues a call for industry proposals to enable a second-generation Reusable Launch Vehicle (RLV) competition in 2005, leading to an operational system around 2010. The studies will serve as a springboard for the five-year, $4.5-billion effort to reduce the risk associated with building and operating next-generation launch systems before entering the full-scale development phase in 2005.

NASA's strategy has three main goals:

- achieve a hundredfold increase in safety over existing systems and a tenfold reduction in the cost to launch payloads;
- minimize technical and business risk for the full-scale development program, ensure NASA's requirements are met and coordinate with requirements of the commercial space industry, support private ownership and operation of reusable launch vehicles and other potential systems; and
- enable more than one commercial option for getting to the International Space Station, and affordably meeting NASA's near-term space transportation requirements while providing growth paths to meet future requirements.

The studies will address an architecture that covers not only possible Earth-to-orbit launch vehicles, but also in-space orbit transfer vehicles, ground and flight operations, and the technology and organization required to support both.

Industry proposals in various technical areas are due by **June 1, 2000**. For a program description of the Space Launch Initiative, access Web site http://std.msfc.nasa.gov/spacelaunch.html. □