Clinton's Technology Policy Emerges

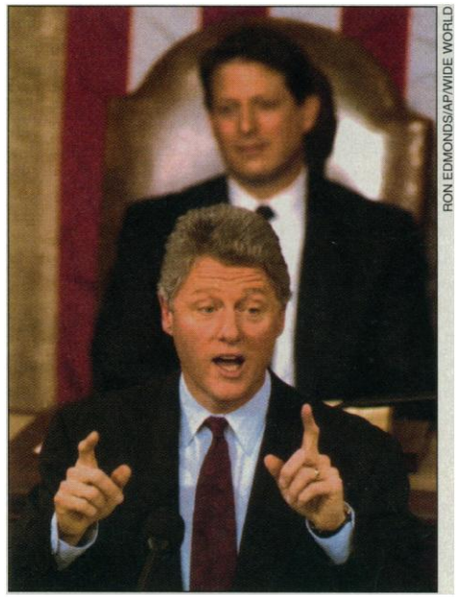
Behind the State of the Union address is a package of proposals for research and development. The emphasis is on technology, but selected science programs share the benefits—and the sacrifices

If you tuned in to President Clinton's State of the Union speech on 17 February hoping to learn something about the Administration's plans for science and technology, you weren't alone. Most government officials were as anxious as anybody else to know just what Clinton would propose. The economic package Clinton unveiled was put together by the president and his core staff, and many agency officials learned the details of their own budgets from scuttlebutt, the TV, documents publicly released by the White House the following day, and a speech Clinton gave on technology policy on 22 February. Luckily for many of those in the science agencies, the news was mostly good.

National Science Foundation (NSF) officials learned from rumors circulating on the afternoon of Clinton's speech, for example, that the president would propose a $200 million addition to NSF's budget for fiscal year 1993—mostly for programs linked to international competitiveness—to make up for cuts Congress imposed in the agency's research budget. The next day, that proposal indeed appeared in a White House document, *A Vision of Change for America*, that spelled out some of the specifics Clinton outlined in his speech. According to the document, science and technology programs make up more than 10% of Clinton's proposed $100 billion in increased spending over the next 4 years. Indeed, Clinton has signaled that he considers science and technology—with a clear emphasis on technology—key to the nation's growth.

That's not to say that research programs have been entirely spared the deficit-cutting axe. The Administration is proposing to stretch the timetable for the Superconducting Super Collider (SSC) by 4 years, some nuclear reactor research would be phased out, and much of the funding for defense research programs at the Department of Energy's (DOE) national laboratories would be cut or shifted to nondefense labs. And, in a proposal that took university lobbyists completely by surprise, the Administration said it intends to impose a new cap on the overhead costs of research grants.

The broad-brush picture for science and technology to emerge from Clinton's economic package is that technology transfer and joint industry-government research is in. Big science is down, but by no means out. Computer networks—"data superhighways" in the parlance of their chief supporter, Vice President Al Gore—are the toast of the White House. "Strategic research"—aimed at critical technologies and national needs such as advanced materials and manufacturing—is the buzzword of the day. And defense research will shrink as civilian technology programs expand. Overall, the House Science, Space, and Technology Committee calculates that "if all these investments were in fact funded [by Congress], they would probably come close to restoring a 50:50 civil/military R&D ratio by FY 1997." The ratio currently stands at about 58:42 in favor of the military.



RON EDMONDS/AP/WIDE WORLD

Technophiles. Clinton addressing Congress; Gore's favorite programs fare well.

All these proposals will be followed by a detailed budget request for fiscal year 1994, which is currently due to be sent to Capitol Hill on 23 March. Congressional budget-cutters are drawing a bead on some of the large physics projects, including the SSC, and many other numbers are bound to change in the political give and take. "We're not counting on anything beyond the 1993 figures," says Ray Bye, NSF's director of legislative affairs. But in the relatively uncontroversial areas of science and technology, the economic plan is probably a good indicator of things to come.

There is, however, a down side to putting out a detailed economic plan less than a month into a new administration: mass confusion. Not only was the plan changing constantly right up to the last moment, as Clinton's economic team sought to juggle tax increases, budget cuts, and new initiatives, but few officials could explain just what the final plan entailed. At a DOE background briefing just hours before Clinton's speech, for example, officials were still calculating numbers at the podium. And in an unusual role reversal, reporters found themselves in the days following the speech faxing White House press releases to information-starved officials. Even the Office of Science and Technology Policy, which is part of the White House staff, was in the dark on some aspects of the plan. "It's been tough for us to get the numbers," says spokeswoman Barbara Zadina. "It's all pretty fluid right now." As a result, some of the broad spending figures, such as the $1.3 billion for AIDS, women's health, and "other priority research and disease prevention/health promotion efforts" are impossible to dissect.

SSC stretch-out

Among the projects whose fortunes hung in the balance at the 11th hour was the SSC. Although Office of Management and Budget (OMB) director Leon Panetta is reported to have recommended killing it, the Administration ended up proposing a total of $640 million for next year—$70 million short of the SSC's 1994 target funding, but still $108 million more than this year's funding. After that, Clinton would give the SSC just a 3% yearly increase. That, DOE calculates, will stretch the project out 4 years, to a completion in 2003, and raise its total price tag from $8.3 billion to $10 billion. According to *A Vision of Change*, "The Administration is committed to the development of the Superconducting Super Collider as a major contribution to scientific information for the future. The Administration believes, however, that in order to ensure that all the components of this project are technologically effective, the project schedule should be extended."

At the American Association for the Advancement of Science Annual Meeting in Boston last week, White House science adviser Jack Gibbons said that a stretch-out could resolve cost uncertainties about the project's dipole magnets and give international partners more time to come on board. SSC director Roy Schwitters bristles at the suggestion that the price of the magnets isn't known—it's $2.22 billion and, he asserts,

unlikely to change much. "I don't understand the remark about uncertainties," he says. As for the cost implications of the 4-year delay, Schwitters says, "we simply haven't done the calculations" to match the DOE estimates. Stretching it out "will inevitably mean more money," he says, but a more serious concern is that "if it gets too long, we'll lose sight of the ends."

Elsewhere in the science budget, however, it's more gain than pain:

■ **National Science Foundation:** The $207 million addition Clinton proposed for NSF in 1993 would be the first installment of a $2.3 billion increase for the agency over the next 4 years. NSF officials say about $112 million of the 1993 supplement would be channeled into four "strategic areas"—manufacturing, advanced materials, biotechnology, and high-performance computing—to bring them up to the NSF budget request for this year. Some $5 million would go to salaries, and another $5 million would fund a facilities program. The rest will go to NSF's core research programs, which were hit hard when NSF was forced to satisfy a congressional demand for more strategic research even as its total research budget fell below last year's (*Science*, 1 January 1993, p. 21). Rather than fund many more grants with the money, NSF intends to concentrate on augmenting existing grants, enabling researchers to complete all the research they planned. Spending priorities for 1994 and beyond have yet to be spelled out.

■ **National Institutes of Standards and Technology (NIST):** The Clinton Administration apparently intends NIST's Advanced Technology Program (ATP) to be the centerpiece of its civilian technology efforts over the next 4 years. The ATP, which issues grants for research and development of "high-risk, precompetitive, generic technologies," such as thick film superconductors and blood purification methods, is now funded at just $68 million—one-sixth of NIST's $381 million budget in 1993. By the 1997 budget, according to *A Vision of Change*, the ATP would grow to about $750 million and NIST's total budget would be $1.2 billion. (NIST officials say, however, that the projections they have been given by OMB for NIST are $889 million.)

■ **Space Station:** The National Aeronautics and Space Administration will have to cut $2.1 billion from the $30 billion project over the next 4 years. That means yet another redesign, the fourth in as many years. One possibility under consideration is to move to a less ambitious station: Instead of being permanently manned by a crew of four, astronauts would tend experiments in periodic visits.

■ **Breast Cancer:** Congress last year placed a special 2-year appropriation of $210 million for breast cancer research in the Army budget, primarily to get around spending caps in the domestic discretionary budget, from which NIH—the logical place for such research—gets its funding. Nevertheless, what started as an accounting loophole has turned into a bitter turf battle as the Army has fought to keep control of the money (*Science*, 29 January, p. 616). Last week Donna Shalala, secretary of the Department of Health and Human Services (HHS), NIH's parent agency, announced that the economic plan includes a "technical adjustment" to shift the money back to HHS next year, including "out year" funding for the 1993 appropriation.

That came as a surprise to General Richard Travis, who directs the Army program. He hadn't even heard of the adjustment until called by a reporter last week. And others closely involved with the program were equally mystified. Joe Cassells, who is directing an Institute of Medicine report to guide the Army on spending the money, suggests that Congress will simply be able to appropriate another $200 million directly to HHS next year without worrying about spending caps, but the Army will be able to spend what it has already. Joann Howes, a breast cancer lobbyist, suggests that the "out year" clause means that any part of the $210 million not spent by October would go to HHS. An HHS spokesman, asked to track down the correct interpretation, could only come up with the guess that Howes' interpretation was the correct one.

Indirect cost cut

Confusion also reigns over a provision in the economic plan that is intended to save $1.2 billion over the next 4 years by capping the overhead costs of university research grants. Federal rules that were proposed by the Bush Administration but frozen by Clinton before enactment would place a 26% cap on the administrative portion of indirect costs. Clinton's plan would apparently go even further, dropping the administrative cap to 22% at all federal grant-making agencies, according to NSF's Bye. But even Bye had to derive that number by back-calculating some savings projected by the White House, rather than getting any clear word from above. "There are still a lot of inconsistencies and a lot of unknowns" in the indirect cost numbers, says David Moore of the Association of American Medical Colleges.

Unfortunately, that is more the rule than the exception. Although science and technology figure prominently in Clinton's first economic plan, details on most of the programs—and most of their implications—may have to wait for the 23 March budget request. Clinton's a technophile, no doubt, but there's a lot of the full research picture still waiting to be filled in.

–Christopher Anderson

CLINTON'S ECONOMIC PLAN

WINNERS:	1993 supplemental (in millions)	Increase over current projected budgets, 1994-1997 (in millions)
NSF	$207	$2,297
Advanced Neutron Source		$420 for construction, Oak Ridge, TN
Tokamak Physics Experiment		$210 for construction, Princeton, NJ
High-performance computing and networks	$42	$784 at NSF, NIH, NIST, and NASA
"Information highways"	$64	$275 at Commerce
Industry/government research at DOE nondefense national labs	$47	$180
Other research at DOE nondefense labs		$146
NIST	$117	$1,306
FCCSET crosscuts*		$1,206
AIDS, Women's Health, other NIH research, and disease prevention		$1,300 (1994 alone)

LOSERS:	Estimated change, 1994-1997 (in millions)
Space station	$2,126: Savings from restructuring the project
Superconducting Super Collider	$1,770: Increase to total cost by delaying completion 4 years
Indirect costs	$1,200: Savings from a 22% cap
Nuclear reactor research	$820: Savings from phasing out "unnecessary" advanced reactor program
DOE defense labs	An unspecified share of a $4.5 billion cut (through 1998) in DOE defense programs

*Existing interagency research initiatives in the areas of climate change, advanced computing and networks, math and science education, materials processing, biotechnology, and advanced manufacturing.