

WASHINGTON REPORTS

As Republicans Try to Pull DOE's Plug, Department Officials Defend Operations

From just about the day President Carter established the Energy Department in 1977 it has been under seige. Critics argued that the department was assembled hastily to enable the Administration to show its determination to deal with the volatile crude oil market dominated by several hostile Middle East countries. DOE emerged from a literal grab-bag of agencies and programs, including the Atomic Energy Commission, which produced and safeguarded the nation's nuclear weapons arsenal, ran more than 20 national labs and sponsored basic research in high-energy and nuclear physics among many scientific fields; the Department of Interior's coal, natural gas and energy R&D operations; the Federal Energy Administration's operations in petroleum allocations and pricing regulations; the National Science Foundation's solar and geothermal energy programs; the Environmental Protection Agency's automobile research; and some other odds and ends such as the Strategic Petroleum Reserve and the Power Marketing Administrations.

Then in 1980 Ronald Reagan pledged during his Presidential campaign to abolish the department. Once in office Reagan had the backing of many of his political appointees on the seventh floor of DOE's sprawling Forrestal Building, across Independence Avenue from the Smithsonian Institution in Washington. But Reagan met fierce resistance from both Democrats and Republicans in Congress. They even passed legislation preventing the Administration from studying whether to sell off parts of the department.

Now DOE is in graver peril. This time it's Congress that wants to pull the plug on Energy. Last December, only days before they were sworn into the 104th Congress, a group of newly elected House Republicans privately agreed on a strategy to demonstrate their conservative derring-do: They vowed to eliminate four Cabinet departments—Commerce, Education, Energy and Housing and Urban Development. On 14 February the freshmen, calling themselves the New Federalists, went public with their bold proposal—though at the time it was little



O'LEARY: Objections to 'trophies.'

more than a bare-bones outline, holding back many of the more controversial ideas, such as the recommendation to put the Defense Department in charge of DOE's military and commercial nuclear waste disposal program. The rookie members boasted that they had more than enough support in the House to eliminate DOE. "It's time to turn out the lights at the

Department of Energy," said Representative Todd Tiahrt of Kansas, a former proposal manager at Boeing.

On 23 May three former Energy Secretaries who served in the Reagan and Bush Administrations appeared before the House subcommittee on government management, information and technology to testify on the proposed dismantling of DOE. First up was Donald Paul Hodel, Secretary from 1982 to 1985, later Secretary of the Interior and now president of Summit Group International. Hodel, who had advised the New Federalists on their proposal to eliminate DOE, argued that "the very existence of a Department of Energy . . . sends the wrong signal to foreign countries and misleads the American public into believing the government can or is willing to do something about energy.

There is no issue or combination of issues that justifies a DOE." The department, he said, "has little beneficial impact on energy in the US. It is a department without an energy mission. The closest it comes is in conducting and funding research.

However, none of those research projects requires a separate, Cabinet-level department." Hodel advocated turning over many of DOE's functions to the Interior Department, shifting nuclear weapons and waste cleanup to Defense, selling or transferring the laboratories to universities or foundations, and handing the research program to the National Sci-

The Budget Action Ahead

In a typical year in Congress, the appropriations process would have gotten under way by now. But the time the House of Representatives spent on the Republican party's "Contract with America" set the process back by more than a month. By tradition, House appropriators make the first move. They begin marking up bills and bringing these to the House floor before the Memorial Day recess, even if both houses have not agreed on a budget resolution. Now that the budget committees have agreed on a compromise resolution, which provides spending totals in the two budgets for each of the so-called budget functions (for example, function 050 deals with defense appropriations, function 250 with science, space and technology, and function 270 with energy), the process advances toward producing the 13 spending bills.

Although each of the 13 appropriations subcommittees in both chambers now has its spending allowance (known as the 602(b) allocations), there is little likelihood that the House will meet its traditional July Fourth deadline for initial passage of appropriations bills. This raises the odds of delays this fall. The process calls for each house to pass its own spending legislation, after which a House-Senate conference committee will agree on a huge, deficit-cutting "reconciliation" bill to send to the President's desk by the start of the new fiscal year on 1 October.

ence Foundation.

John Herrington, who was DOE secretary from 1985 to 1989, recommended, among other matters, that the national labs should get out of the "weapons business" and should be privatized "to make them more efficient and to improve one of their traditional shortcomings, technology transfer."

It was James D. Watkins, a retired Navy admiral, DOE Secretary from 1989 to 1993 and since then president of the Joint Oceanographic Institutions, who made the deepest impression on the members of the House subcommittee. "I am not here to advocate either the department's retention or its demise. That is for you to decide. Whether or not the department is abolished or not is not the most important issue. In fact, it misses the point and masks the much tougher issue of who is going to have responsibility for and be held accountable for the safe and effective management of the nuclear weapons stockpile. . . . Will it be a new version of the old AEC? Will it be a new Energy Research and Development Administration? Or will it be a scaled-down DOE under a Cabinet-level head?" He said he opposes any plan that would transfer responsibility for DOE's weapons and environmental management programs to "some third-level functionary" in the Pentagon, though he believes the weapons program has suffered at the hands of the department's senior officials—who, he claims, harbor an antinuclear bias. He is concerned, Watkins added, about the safety and reliability of the stockpile and would resist any cuts in the defense programs budget.

Watkins said he was "astonished" to learn that Energy Secretary Hazel R. O'Leary had committed DOE in March to trimming \$14 billion from its budget over the next five years. He expressed further surprise that O'Leary had proposed in May to lop off an additional \$1.7 billion in her efforts to restructure the department. "While these proposed changes could lead to savings," said Watkins, "the larger question that needs to be asked is whether the department's 'must-retain' functions can still be met. This committee should demand verification as a first priority to any acceptance of the Secretary's announced cuts."

Last March President Clinton ordered the department to find \$10.6 billion as its contribution to the Administration's deficit reduction plan for the next five years, his way of outmaneuvering the draconian budget strategy of the Republican-dominated Congress. O'Leary herself sliced even-



WATKINS: Questions on defense programs.

more—to \$14 billion by the year 2000. Although the high-energy and nuclear physics programs are not under direct threat of cost-cutting, other research programs are. Two fusion programs—a proposed experimental test facility at Princeton University and participation in the International Thermonuclear Experimental Reactor—are under review by the Administration and the Republican Congress. With cuts like these on the table, a budget-balancing Congress, showing signs of xenophobia, may be unwilling to make even a token payment to collaborate in CERN's Large Hadron Collider.

In the budget resolutions passed by the House and Senate in May, DOE wins some but loses more. The House version proposes that nondefense R&D would decrease from almost \$4 billion in the current year to \$2.6 billion in fiscal 2000, down 46.4% in today's dollars. Applied and



CURTIS: 'No mean accomplishment.'

basic energy R&D, which includes fossil fuels, fusion, materials and biological and environmental research, would suffer hits amounting to \$6.8 billion over five years in the House plan. That figure is more than twice the cut proposed by O'Leary. Funding for general science, which covers high-energy and nuclear physics, would receive between \$900 million and \$1 billion annually through fiscal 2000—somewhat more, ironically, than the Clinton Administration's plan for the "out years." If the House guideline is used by appropriators, funds for particle physics recommended by the so-called Drell report (see PHYSICS TODAY, July 1994, page 51) would not be forthcoming. Still, the Senate version of the budget guidelines is more generous toward most DOE research, in part because the chairman of the Senate appropriations subcommittee with jurisdiction over energy and water programs is Pete Domenici of New Mexico, where the Los Alamos and Sandia labs are located.

Watkins's legacy to O'Leary when he turned over his office in fiscal 1993 was a budget of \$19.3 billion to "help extract DOE from its mess," he declared, "for a laundry list of past poor practices, none of which would have been tolerated within either the private sector or the Navy's nuclear power program." He urged Congress to downsize the three nuclear weapons labs "where it makes sense consistent with agreed nuclear stockpile strategy" and to privatize "at some time in the future all civilian radioactive waste management after the research phase." While he identified several messy situations within DOE's operations, such as the cleanup of radioactive waste at the decrepit Hanford and Savannah River weapons sites, Watkins referred to the 28 DOE labs as "crown jewels that need our best decision making and should, in large part, be retained, even at reduced funding levels. The fundamental science with which they are involved represents some of the best in the world. Whatever the outcome of the DOE restructuring exercise, we should be extremely cautious to retain and utilize the unique intellectual potential and research tools housed therein."

At a hearing of the same subcommittee a week earlier, O'Leary had defended her department and her management and budget decisions. "I doubt any other Cabinet secretary has taken the time not only to understand the missions of his or her agency but to bring business practices to bear," she told the lawmakers. "You don't save money by mindlessly making cuts." She said the House proposals to dismantle

DOE would not save as much money as she has proposed through management changes, staff cuts and asset sales. "I think [abolishing DOE] may be more about trophies and philosophies," declared O'Leary. A day before, after debating the department's future with Congressman Tiahrt on the CNN Morning News, she told a DOE advisory board that the House Republican rookies were a "group of characters" who "have not got a clue" about the department's mission and operations.

Speaking with news reporters after the House hearing with the three former Energy Secretaries, DOE Under Secretary Charles B. Curtis rejected the accusation by Watkins that

the department has neglected its defense mission. If Watkins really believes the department has jeopardized weapons safety and cleanup responsibilities, said Curtis, he is "absolutely flat-out wrong." Curtis, a former securities lawyer who served in the Treasury Department and the Securities and Exchange Commission, argued that no previous Administration has done a better job of managing the environmental restoration of the nuclear weapons complex than the present one. Moreover, Watkins's charge that the DOE under O'Leary has neglected its weapons stewardship responsibilities is incorrect, said Curtis. In the department's defense, he noted

that the Clinton Administration has requested a 9% increase in fiscal 1996 for DOE's defense program in a time of stringent fiscal restraint. "That's no mean accomplishment."

Curtis said he regretted that able scientists are leaving DOE. The departures are inevitable, he observed, given the changing defense mission in the post-cold-war era. "The department has to find ways to maintain and refresh our scientific staff," he said, "and that's a reason for keeping the multipurpose laboratories. But at no time since World War II has the threat to the nation's R&D base been so apparent or serious."

IRWIN GOODWIN

Sure of Basic Science's Payoff in Technology, White House Economists Speak Up for Research

The Clinton Administration's case for investing in basic research was set out last August in a brief, 31-page document, "Science in the National Interest" (PHYSICS TODAY, September 1994, page 79). In it, the Administration proclaimed science "an endless and sustainable resource with extraordinary dividends." While the policy paper offered no evidence for the statement, the Administration pledged to raise its budget allocations for both science and technology. But in November, when Republicans won control of the House and Senate, brandishing their "Contract with America" to reduce the Federal deficit by sharp spending cuts, to decimate a few departments, including two that support science and technology, and to balance the budget by the year 2002, economists in the White House started scrambling for studies and statistics to back up the representations about basic research in last year's report.

In February, accordingly, just after President Clinton sent Congress his fiscal 1996 budget request, containing some carefully chosen increases for R&D, his Council of Economic Advisers issued its annual *Economic Report to the President*. This year's report affirmed the message in the policy paper about basic research, "which increases the store of fundamental knowledge that underlies most technological innovation," and described science and technology as "important determinants of long-run productivity growth."

The White House economists allowed that "as the history of this and other nations demonstrates, public investment has long played a vital role in promoting scientific discovery and

technological change." The report cited several examples of this theme in the American experience: "At the heart of the dramatic improvements in agricultural productivity over the last century have been the research efforts conducted at Federally supported land-grant colleges and the rapid dissemination of their results to millions of American farmers by the [Department of Agriculture's] extension services. . . . Similarly, Federal investments to promote research in public health, primarily through the National Institutes of Health, have produced many commercially successful new drugs, new treatments and new medical equipment, which are the foundations of America's premier position in the global biotechnology and medical equipment industries." In its own way, the Defense Department supported research during World War II and since then has fostered the development of many new technologies for military purposes—such as jet engines, computers and advanced materials. This has enabled the US to attain worldwide leadership in commercial markets.

The economic return on investment in basic research also was the topic of a session of the National Science Board on 23 March. Not surprisingly, the speaker was Joseph E. Stiglitz, on leave from Stanford University and one of the three members of the Council of Economic Advisers. Stiglitz began his talk by noting, ironically, that he had been introduced to the science board by Robert Solow, a Nobel Prize-winning economist at MIT, who devised a methodology in 1957 for estimating the fraction of economic growth that could be attributed

to advances in science. The process examined by Solow, said Stiglitz, is still at work: "The fastest-growing economies and the fastest-growing companies around the world are those that remain at the forefront of scientific discovery and technological innovation."

Another early attempt to measure the rate of return in science and technology was by Zvi Griliches in 1958, while he was at the University of Chicago. Griliches found that the research costs for developing hybrid corn generated a total 40% return to the universities and companies involved. Since that study, Griliches, now at Harvard, Edwin Mansfield of the University of Pennsylvania, Richard Nelson of Columbia University and other economists have figured the "private" rate of return for companies engaged in R&D on various products to average between 20% and 30%. Stiglitz considers such returns to corporations investing in R&D to be "impressive, to say the least," especially when compared against the average rate of return in investments by businesses generally, which is around 10%.

"Economists have found, however, that estimated rates of return from R&D to society as a whole are even greater, thanks to the spillover effects," Stiglitz told the science board. Spillovers from basic research and from applications-related developments are often available to anyone who reads scientific and engineering journals, attends professional meetings or learns about discoveries and innovations from messages and accounts transmitted instantaneously by telecommunications around the world. "The existence of spillovers