

Paying for power, warheads

The beginning of an advanced power reactor and the end of a major accelerator are the main features of the Atomic Energy Commission's 1971 budget. But there are many ups and downs for various projects.

The overall AEC budget request for fiscal 1971 is \$139 million higher than the previous year, increasing to \$2.36 billion.

The increases, however, are not entirely evenly distributed, and will not all be felt during the next money year, inasmuch as the AEC plans actual expenditures during fiscal 1971 of only \$2.41 billion, off some \$50 million from this year's outlays.

Within that reduced sum there is some shuffling of funds. Such projects as the 200-billion-electron-volt accelerator at Batavia, Ill., and the fast breeder development program will get some increases, while most other civilian programs are being trimmed to find money for higher priority weapons-development programs.

The key to AEC directions, however, is in the authority it is requesting to spend money in areas in which the big bills will come farther in the future. Here lies a key escalation.

Part of the increase goes to the development of civilian nuclear power. A major item is directed toward the agency's favorite power prospect for the next generation of nuclear reactors, the liquid metal (sodium-cooled) fast breeder. The budget contains \$32 million in long-term authority to build a demonstration breeder, in cooperation with a private contractor not yet chosen (SN: 12/13, p. 551). Only \$4 million is to be spent in fiscal 1971, however. In addition, the budget provides \$85 million for the entire liquid metal breeder project, including R&D funds, an increase of \$2.3 million over 1970.

As attention continues to concentrate on the sodium breeder concept, other projects fall out. Two casualties this year are the Ultra High Temperature Reactor experiment at Los Alamos, which was funded at \$1.8 million last year, and the gas-cooled fast breeder concept, which received \$1.5 million in fiscal 1970. Both projects have been eliminated from the present budget request. On the other hand, the Light Water Breeder Reactor, Adm. Hyman Rickover's project at Shippingport, Pa., receives a healthy \$8.4 million boost to \$24 million. The molten salt breeder concept, which uses thorium and a unique form of fuel utilization that allows for easy refueling of the reactor, continues at a sustaining \$5 million level, the same as last year's.

Physical research projects are receiving the same selective gains or losses accorded the nuclear power program for 1971. Most significant is a reduction of \$2 million in funding for the Princeton-Pennsylvania accelerator, the first step in a planned closedown of that facility. The Cambridge Electron Accelerator is also due for reduced funding from \$3.5 million in 1970 to \$2.4 million in 1971.

On the other hand, the 200 GeV accelerator now building at Batavia, Ill., received an increase of \$2.8 million in operating funds, as well as \$65 million in construction money already authorized. Another authorized project, the meson physics facility at Los Alamos, received \$10.5 million in construction money and a slight increase in operating money. And the controlled fusion project, which was showing promise during 1969, received a boost of about \$2 million to \$29.6 million, with concentration on the approach developed by Russian scientists at their facility called Tokamak (SN: 1/8/69, p. 424). The total physical research budget, however, shows a cut of almost \$4 million.

The biology and medicine budget also received a small cut, although AEC officials point out that research on radiation effects on the environment, in line with the Administration's concern with the quality of life, was increased slightly to \$71.1 million, and research on thermal effects of nuclear power plants has been raised from \$1.7 million last year to \$3.2 million in fiscal 1971.

The budget and environmental concern have combined to deal a heavy blow to the Plowshare Program for developing peaceful uses of nuclear explosions. Although the problem of contamination from nuclear excavation projects is controversial, the issue is apparently touchy enough in the present environment-conscious atmosphere to call a halt to such experiments. The decision, based on a combination of environmental concern and budget stringency, according to AEC officials, comes at an inconvenient time for the commission studying a nuclear-blasted, sea-level Central American canal, which must make its report this December on the project's feasibility and on a recommended route (SN: 1/24, p. 89). The commission has said that it needs one or two more excavation tests, in addition to one 200-kiloton point charge scheduled for some time in the next few months, to come to a firm conclusion on the project, but it won't get them in time for the report: No excavation experiments are included in the 1971 budget.

Underground experiments fare somewhat better in the 1971 budget, with

\$2.7 million compared with \$1.5 million last year. But the total Plowshare request is down from \$14.5 million in 1970 to \$8 million in 1971.

The NERVA nuclear rocket and its associated program also took a small \$3 million cut to \$43 million, which, combined with similar cuts in the National Aeronautics and Space Administration's share of the project, will cause the flight date of the rocket to slip about six months into 1978.

Military appropriations have met few of the difficulties encountered by civilian projects. The procurement of nuclear raw material—uranium ore—is scheduled to end in December, 1970, which shows as a substantial cut in that program from \$50.8 million to \$18.0 million; future needs for uranium for weapons will be supplied by recycling material from obsolete warheads, and uranium for power reactors will be bought by electric utilities and merely enriched, for a charge, by the AEC. However, the 1971 budget includes an increase of \$36 million for nuclear weapons, to \$842 million, while naval propulsion reactor development is funded at a level \$132 million, \$11 million higher than fiscal 1970.

DEFENSE

Holding the development line

Picking up where Congress left off, President Nixon has taken another slice out of the Defense Department budget. At the end of last year, the House lopped off \$5.3 billion (SN: 12/13, p. 550). The latest fiscal surgery has cut it to \$71.8 billion, giving Defense the smallest percentage of any Federal budget proposal since 1950.

Relatively, the effect on the Pentagon's research development, test and evaluation program is negligible. For example, DOD's RDT&E budget is about \$7.3 billion, or approximately the same as it has been for the last two years. Taking just R&D, the amount is \$5.4 billion, an increase of \$600 million over 1970.

There appears to have been an effort to protect some development programs, and the Defense Department's RDT&E program will hold the line in 1971, provided Congress does not do some scissor work of its own. However, it should be noted that at this time last year, Defense was asking for \$8.2 billion, and some officials regard the \$7.3 billion figure as a 12.5 percent cutback. The end of the Manned Orbiting Laboratory program (SN: 6/21, p. 595), for example, represents a cutback, but does not hurt any other programs.

As one Defense official put it, "It's a little leaner than last year, but it's not disastrously thin."