Energy Science Takes a Heavy Budget Hit

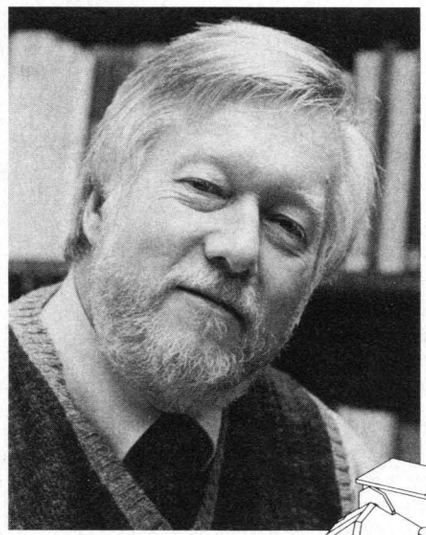
A cost-conscious Congress has made deep cuts in the U.S. fusion energy program, leaving an uncertain future

THE LONG-EXPECTED BUDGET REDUCTION axe finally began to fall last week, and scientific projects funded by the Department of Energy found their necks on the chopping block. As part of a compromise package, a House-Senate conference committee cut $750 million out of the $21-billion energy and water appropriations bill—in part by pulling $175 million out of money requested for the magnetic fusion program, the Superconducting Super Collider, and basic research in high energy and nuclear physics. The biggest casualty is undoubtedly magnetic fusion, which will absorb $62 million in constant-dollar cuts—about 18% of the program's budget. "We aren't very happy around here," says Rush Holt, assistant director of the Princeton Plasma Physics Laboratory. "There's no fat left, and no way to absorb these cuts. If they go through, it's going to be hell for the magnetic fusion program."

Fusion scientists have a well-known penchant for melodrama, but this time the pain is real. Federal funding for magnetic fusion has fallen by 44% in real terms since 1979, and the Bush Administration has taken little action to reverse this trend. For most of the past 11 years, DOE has freed up money for research by reducing funds for new facilities and equipment. But there's not much construction left to squeeze, and the only alternative to cutting everything across the board is to close one or more fusion laboratories.

To the bewilderment of fusion scientists, these cuts come at a time when they thought they were redirecting the program from loosely coordinated research to active energy development. Their blueprint for change is a recently released report from DOE's Fusion Policy Advisory Committee (*Science*, 12 October, p. 204), which envisions construction of a demonstration fusion power plant by 2025 and a commercial plant by 2040. Now those plans look increasingly fanciful, as do even such down-to-earth goals as construction of the next generation plasma experiment—the Compact Ignition Tokamak—and continued U.S. participation in an international project to design a working reactor. Purdue dean of science Kenneth Kliewer, a member of the advisory committee, says the cuts will kill all work on innovative projects and development programs: "We'll be left with a scaled-down tokamak program and nothing more."

Aggravating the fusion research community's frustration is a widespread perception that DOE was indifferent to the cuts proposed by the conference committee. "The sad truth is, DOE didn't make any effort to stop this from happening," says one FPAC member. An aide to a ranking Republican on the House Appropriations Committee concurs. "Each agency tends to put its weight behind one program, and in DOE's case, its number one priority is the [Superconducting Super Collider]." (DOE officials refused to comment on the appropriations bill, saying they needed more time to study the legislation.)



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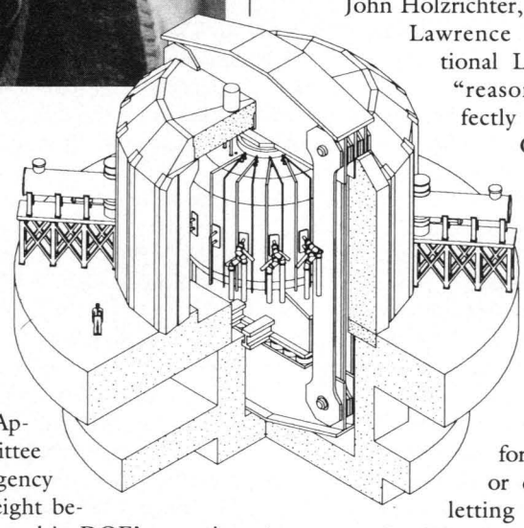

Stuck on the drawing board. *Fusion advisory panel member Kenneth Kliewer says this year's cuts in the DOE's budget could scuttle plans for the proposed Compact Ignition Tokamak.*

But even when DOE did throw its weight around, it still took a beating. The conference cut the SSC's $318-million appropriation by $75 million, although the actual reduction will be more like $50 million, thanks to a release of $25 million in unspent 1990 money Congress had earmarked for tunnel construction last year. As a result, the SSC budget will now grow by only $24 million, or about one-quarter as fast as the Administration originally planned. A spokesperson for the SSC Laboratory says the shortfall won't delay accelerator construction, but admits that the SSC's expected completion date has slipped again, from 1998 to 1999—a delay he insists is unrelated to this year's budget.

DOE-supported physicists not involved with the SSC have more immediate worries. Another $50-million cut fell on DOE's general science budget, which funds accelerators and storage rings for low, medium, and high energy physics. "Fifty million is a serious amount," says MIT physicist Francis Low, former chairman of the DOE High Energy Physics Advisory Panel. "The base program [in high energy physics] is very important for the next few years. If we don't keep the base program intact, it's hard to see what we'll do with the SSC."

In a rare bit of good news for scientists, the conference restored the ability of energy laboratory directors to "tax" sponsored research projects in order to fund discretionary research, a power the House had removed this summer (*Science*, 13 July, p. 118). In the future, DOE will be forced to document and justify such discretionary projects to Congress, a requirement that John Holzrichter, an official at the Lawrence Livermore National Laboratory, finds "reasonable and perfectly consistent with Congress's role." Departing from a tradition of micromanagement, the conference imposed most of its cuts without identifying particular projects for either protection or deletion. "We're letting the department have some flexibility," says a Senate aide. This kind of flexibility, of course, translates into responsibility—a circumstance that seems to please the conference members. "Now we'll see what kind of management skills [Energy Secretary James] Watkins has," the aide says.

■ DAVID P. HAMILTON