ENERGY RESEARCH

Panel Turns Up Heat on Fusion With Flat Funding Plan

A presidential panel of scientists is urging the U.S. government to scale back its fusion program drastically, abandoning plans for major budget increases and revamping both national and international efforts to create sustained thermonuclear reactions. The group hopes that the blueprint, laid out in a summary of a draft report that was obtained by *Science*, will satisfy budget-cutters while allowing some progress toward the goal of harnessing the sun's energy source. But even that looks wildly optimistic given the spending proposals now before Congress.

The report was written by a nine-member panel chaired by John Holdren, an energy professor at the University of California, Berkeley, and is scheduled to be presented next month to the President's Committee of Advisors on Science and Technology. Convened in February, the Holdren panel has cobbled together a plan that would limit annual funding indefinitely to about $45 million below the current $366 million. That level of spending would mean delaying or canceling the proposed $742 million Tokamak Physics Experiment (TPX) at Princeton Plasma Physics Laboratory, designed to demonstrate continuous use of a tokamak. It would also require scaling back the $10 billion International Thermonuclear Experimental Reactor (ITER), a joint project of the United States, Europe, Japan, and Russia designed to show the feasibility of fusion as a commercial power source.

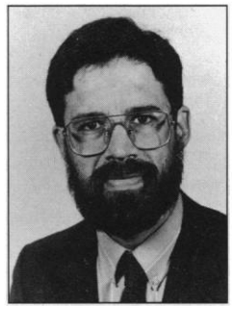
The steady-state funding the panel envisions is a far cry from the Department of Energy's (DOE's) current plan to more than double the fusion budget by 2001, forge ahead on both TPX and ITER, and maintain research aimed at building a demonstration fusion power reactor by 2025. DOE's plan is "reasonable and desirable" but unrealistic, the panel concluded. While the panel's less expensive alternative "entails considerable pain," it "maintains a modicum of momentum toward the goal of practical fusion energy."

Despite that pain, DOE officials appear ready to listen. Martha Krebs, DOE assistant secretary for energy research, said this week that the Holdren recommendations "are really very interesting and imaginative."

Under the plan, almost half of the $320 million a year would support the core technology program and operate existing tokamaks. Inertial-confinement fusion, led by Lawrence Livermore National Laboratory, would receive "modest funding." The rest of DOE's fusion budget would pay for engineering work on ITER and three more years of operating the Tokamak Fusion Test Reactor (TFTR) at Princeton, now slated to be shut down on 1 October.

Although this reprieve would allow TFTR scientists to continue gathering data, the blueprint leaves little room for TPX, which was supposed to be TFTR's successor. Princeton lab director Ron Davidson says the report is "very positive and sensible," but that his lab would fight to keep a design team intact that could build TPX when the time is right.

The news is not much better for ITER managers. The Holdren panel says the U.S. contribution to ITER should be limited to $1.2 billion and that other partners could be brought in eventually to defray costs. And it argues that the multinational project as a whole should be scaled back by more than half, to a $4 billion physics project that focuses on igniting and burning plasmas for shorter periods than now planned. The schedule to start operations by late in the next decade also would slip 3 years.



A kind cut. Holdren report trims fusion budget to save it.

However grim this picture may seem to fusion advocates, Congress is considering an even darker scenario. Last week a House appropriations panel slashed the president's $366 million request for fusion to $229 million—roughly the same level approved by the House Science Committee's energy and environment subcommittee, which authorizes DOE's research programs.

Krebs is betting that the Senate will fight to reverse that cut. If not, warns the Holdren panel, a budget of that level "would leave room for nothing beyond the core program of theory and medium-scale experiments ... [with] little sense of progress toward a fusion energy goal." Although Holdren's team concludes such cuts would be "too high a price to pay for the budgetary savings involved," it may turn out to be what Congress is selling.

–Andrew Lawler

R&D BUDGET

New Database Tracks Federal Projects

Two years ago, a chance conversation between research managers at the U.S. Geological Survey and the Department of Agriculture led to an agreement for cooperative research on the prediction of regional water flow and quality. Both agencies had been working independently on the topic, but the agreement has allowed them to achieve the same objectives, for less money, by teaming up. This month the White House is taking the wraps off a database that could lead to more such agreements by letting federal research administrators find out about one another's projects at the touch of a finger.

"It's the ease of access that's nifty," says one federal administrator who has used it. "You can get information without bothering people, and you can find out things that will encourage cooperation and avoid redundant research."

The database, called RADIUS (Research and Development in the United States), contains detailed information on the government's entire R&D budget since 1993, spanning 21 agencies and including descriptions of 185,000 individual awards. "It's the most comprehensive R&D database in the world," says Lionel (Skip) Johns, associate director for technology at the White House Office of Science and Technology Policy (OSTP). "And at $70 billion [in annual spending], it's also the largest."

RADIUS was created to help coordinate R&D spending—one of the goals of the new National Science and Technology Council. The system was developed by the Critical Technologies Institute, a federally funded think tank operated by the Rand Corp. for OSTP. Access is currently restricted to government officials working on interagency projects, but there are plans to make the database accessible on the Internet once questions involving proprietary information are resolved.

Those who have seen RADIUS in action report it's a powerful tool to learn what the rest of the government—including their own agency—is doing on any conceivable topic. "Right now it's hit-or-miss," says Bob Batcher of the Arms Control and Disarmament Agency, who monitors a range of activities relating to nonproliferation. "With RADIUS I can query everything the government is doing. The only trouble is that it's like drinking from a fire hose."

The private sector would also like to take a sip. "For a company that's thinking of pursuing a particular technology, knowing whether it already exists and who's working on it is very valuable," says Jim Babcock, an independent consultant on software technology from Austin, Texas. "Nothing like this has ever existed before."

–Jeffrey Mervis