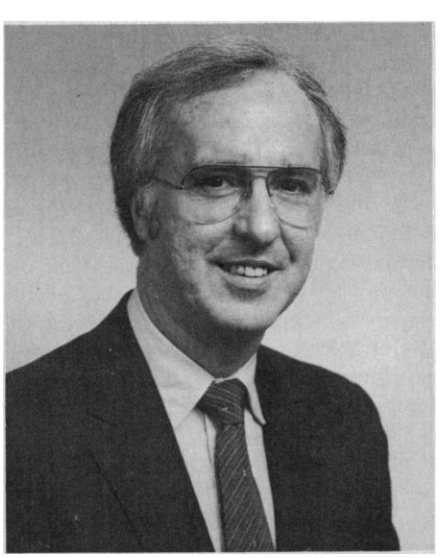
Fusion Chief Reassigned as Program Is Refocused

John F. Clarke, long-time head of the Department of Energy's magnetic confinement fusion program has been shifted to the climate program; fusion researchers react nervously

THE FUSION RESEARCH COMMUNITY, which has been jolted by unexpected changes in the Department of Energy's research agenda in recent weeks, has received another shock. John F. Clarke, head of the Department of Energy's (DOE) magnetic confinement fusion program since 1982, has been removed from his post. The action, which came in early January, is seen as part of an effort by Robert O. Hunter, the director of the Office of Energy Research, to refocus the the $350-million fusion research program.

Hunter's decision to shift Clarke out of the fusion program is perceived by many congressional committee aides and fusion researchers as a blow to the program, which in recent years has had to struggle with static budgets. Clarke was able to manage the competing demands of fusion laboratories and the interests of key legislators on the House and Senate appropriations committees and the House Science, Space, and Technology Committee.

With the departure of former energy research director Alvin W. Trivelpiece 2 years ago, Clarke became the last high-profile champion of fusion research within DOE. "Now we have lost the general and the colonel," says Stephen O. Dean, the president of Fusion Power Associates, a fusion research and industry association. Clarke's departure "is a real setback," says Dean.



John F. Clarke. *Leaving fusion program.*

But Clarke's move is being received with few protests in some quarters of the fusion community. He has been criticized at times for his consensus approach to shaping the fusion program. James Maniscalco, manager for technology programs at TRW's defense programs division, faults Clarke for not making hard decisions in the mid-1980s to kill research efforts on some alternative fusion concepts.

"It was clear that the funds were not available to do everything," comments Maniscalco. Although Clarke did shut down the magnetic mirror research program at Lawrence Livermore National Laboratory, "he did not go far enough," adds Maniscalco. Consequently, he says, "there was not enough money to make the right kind of progress anywhere."

Congressional support for the fusion energy program, in fact, has been waning in recent years, partly because of slow progress in the research coupled with pressure to reduce the federal budget deficit. With the Bush Administration expected to push forward with mega projects such as the Superconducting Super Collider and the Space Station, the fusion program faces tough going. "We are in a very vulnerable situation," concedes Dean.

Indeed, some congressional aides say the fusion program could become a target of budget cutters in search of funds. Already there are doubts about the likelihood of the House and Senate appropriations committees approving the Reagan Administration's proposal to spend $5.5 million for preliminary construction-related work on the proposed $450-million Compact Ignition Tokamak (CIT), which would be located at the Princeton Plasma Physics Laboratory. They cite Hunter's recent proposals to strengthen studies on plasma confinement in Tokamak reactors as being a potential justification for delaying the CIT.

In mid-November Hunter proposed to shift up to $23 million from ongoing fusion experiments (*Science*, 16 December, p. 1501), largely to intensify studies to understand confinement laws affecting the heating and behavior of plasmas bound within the magnetic fields of the doughnut-shaped tokamaks. In a letter sent to Robert Roe (D–NJ), chairman of the House Science Committee, he noted that these studies could reduce the cost of building future experimental devices.

While Roe and other legislators were initially angered by the scale of Hunter's program revisions and the lack of warning, they appear to support the thrust of what he wants to do. On 5 January, Hunter sent Roe and members of the House and Senate Appropriations Committees a revised plan for reallocating $17.8 million in program funds. The package, which appears to avoid layoffs of laboratory staff at Princeton and Oak Ridge National Laboratory, is expected to be approved.

Why Hunter chose not to have Clarke carry out these changes is not clear. Hunter declined to be interviewed and failed to respond to written questions by *Science*'s deadline. Congressional aides and industry officials, who asked not to be quoted, speculate that Hunter and Clarke have fundamental differences in how they think the fusion program should be managed. Hunter, who became head of DOE's energy research division on 18 August, has a right to fill top program positions with his own people, notes an aide on the House Science, Space, and Technology Committee.

There is, in fact, a possibility that Clarke could wind up getting his job back. At the moment, Clarke has been "detailed" to serve as executive director of the task force on global climate change issues. While he is on detail, his job cannot be filled. Furthermore, Clarke is being allowed to retain his position as chairman of the International Thermonuclear Experimental Reactor project, the effort to design a new multibillion dollar fusion test reactor. It includes the Soviet Union, Japan, the European Community, and the United States.

For now, Anne Davies, deputy associate director, is expected to run the Office of Fusion Energy. Whether Davies or another person will be tapped to fill the position permanently, remains to be seen. A number of knowledgeable officials in the executive branch, industry, and in Congress believe that Hunter wants to have a strong hand in directing the fusion program for a while.

It is uncertain, however, just how long Hunter will be around. Although he is described by congressional aides and Administration officials as acting as though he plans to stay at DOE for some time, there is no guarantee that the Bush Administration will retain him. ■ MARK CRAWFORD