EXCLUSIVE

Dramatic Fusion Breakthroughs Clear Way For Fusion Energy In 1980's

The following reports on experimental breakthroughs in laser and electron beam fusion, together with excerpts from testimony before the House Science and Technology Subcommittee on Energy March 4, 1977 on laser fusion, clearly demonstrate that the potentially rapid development of unlimited, clean, safe, cheap energy from nuclear fusion reactions is being consciously sabotaged by the Carter Administration. The recent Alcator Tokamak experimental breakthrough at MIT, together with a broad front of similar magnetic confinement fusion research successes, has shown that there are virtually no scientific obstacles to the realization of this form of fusion power in the 1980's. These advances in inertial confinement fusion reported below represent a similar benchmark. Dr. Edwin Kintner, the ERDA director of the Magnetic Fusion Energy Division, made this clear when he pointed out before the same committee that the only obstacles to harnessing fusion energy were *political* obstacles.

The simple fact that the Carter Administration is planning to delay the development of both electron beam and carbon dioxide lasers just as these systems are demonstrating that they are capable of being rapidly developed to full-scale power reactor and other applications for civilian energy is sufficient evidence of the sabotage. But the testimony by Dr. Robert Hofstadter and Dr. Henry J. Gomberg of KMS Fusion, especially when contrasted with that of the ERDA Laser Fusion Director C. Martin Stickley, makes this indisputable.

Testimony On Inertial Confinement Fusion Program

Statement by Dr. C. Martin Stickley, Director, Division of Laser Fusion on the Inertial Confinement Fusion Program before the House and Technology Committee Subcommittee on Fossil and Nuclear Energy Research, Development and Demonstration, March 4.

ERDA is requesting funding for inertial confinement fusion research — the application of laser, electron and ion beams to pellet fusion — of $94 million in operating outlays and $21 million for plant and capital equipment authority for Fiscal Year 1978. These funds would enable us to continue research directed toward impacting nuclear weapons technology development and toward determining the scientific feasibility of inertial confinement fusion as a virtually inexhaustible energy source for civilian power production.

Among other reasons, magnetic and inertial confinement differ fundamentally in that inertial confinement has near-term military applications. An inertial confinement fusion device would reproduce on a laboratory scale much of the fundamental physics and, if sufficiently large, many of the radiation effects of nuclear weapons. Laser and particle beam target experiments can provide data for weapons technology development; for example, late-time effects that cannot be measured in an underground test because of its destructive effects on diagnostic equipment can be analyzed on the basis of laboratory data.

Experience with nuclear weapons development provided much of the impetus to inertial confinement fusion research and has contributed to the advanced pellet designs that appear at this time to have the best chance of attaining high energy gain implosions. In return, actual experimental results have begun to contribute to weapons technology development. This contribution is expected to grow to be a very significant one as we attain higher and higher thermonuclear yields from pellet implosion experiments.

It is our best judgement at this time that the advanced pellet designs will permit us to reach the fusion regime, in which pellet energy gains substantially exceed breakeven, by the early to mid-1980's. A relatively low-cost program to continue experimentation with unclassified pellet concepts appears to be warranted because of the eventual need to develop very low cost pellets for use in civilian inertial confinement fusion reactors.

High pellet energy gains, that is many times more energy from each pellet implosion than is deposited in the form of beam energy for driving the implosion, must be achieved before we think we would be justified in embarking on a major program to develop the reactor technology required for civilian energy applications. Furthermore, the weapons applications do not require high repetition rate operation. A few shots per week, which is well within present capability, are all that will be required for the weapons applications that we now foresee. Many weapons technology applications are