

official answered. "We have attempted to maintain those critical item efforts on the program that we can."

"But," continued Goldwater, "if you make the cuts, are you not jeopardizing the next step past Clinch River?" "Any delays in these specific programs will delay the total completion of the breeder program," responded an ERDA spokesman, agreeing with Goldwater that "there are programs that really are in jeopardy here."

Rep. Lujan asked: "You say the Germans and French have working plants (the Germans have a gas centrifuge and the French have a breeder-ed); why do we have to reinvent them?" ERDA spokesmen replied: "As far as we know, our technology far exceeds theirs. We all look to the gas centrifuge as the immediate program to enrich our technologies, that is by the late 1980s. If we do not commit ourselves to more enrichment facilities, foreign nations will take the lead." Laughter erupted when

Lujan continued: "Are we doing this, or merely *studying* it?"

Rep. Myers asked: "Is the overview of the light metal fast breeder reactor going to make these available close enough to the time frame when we can move to a fusion-based economy?" "ERDA is doing a study of the comparative time frames for the three methods that have non-depleteable fuels: LMBFR, solar and fusion. But this study will only be done by late summer," ERDA spokesmen answered. "How can we make a good assessment without this study, and we do not want to wait for late summer," responded Myers. "We do not need this full study to make decisions," ERDA agreed.

At the conclusion of the hearings, Flowers privately acknowledged that the purpose of the hearings was to get a broad discussion of Carter's cuts and their effects into the public domain. Informed by NSIPS that a number of journalists are asking who in Congress is fighting for fusion, Flowers said, "Refer them to me."

New Developments On MIT's Tokamak Portend Fusion Breakthrough

The small, high-density Tokamak at the Massachusetts Institute of Technology, the Alcator, has come close to achieving "scientific breakeven" in fusion energy production, scientists at the laboratory announced this past week. The new and striking success reported by the scientists at one of the smaller U.S. government-funded experiments is an embarrassingly strong rebuff to the contention of the Carter administration that fusion research is lagging — the justification for a 20 percent cutback in the fusion program intended by Carter.

Researchers at the MIT laboratory have designed and perfected a small, high magnetic field Tokamak (a doughnut shaped plasma container) which has not only generated plasmas which have come within a factor of three of the required "density-time" product which is conventionally used to measure progress towards energy breakeven conditions, but has done this in terms of the best-understood plasma behavior found in any device. The results from the Alcator machine are most important because they were the predicted results of a long series of experiments, for which an adequate theoretical understanding exists.

The U.S. assistant administrator for advanced energy systems described the Alcator results: "The significance of this world record event is its demonstration that researchers can control a plasma very close to the conditions required for fusion energy breakeven, getting as much energy from plasma fusion as was required to originally create the plasma." Experts at the Fusion Energy Foundation estimate that a \$30 million investment

could build a "throw-away" machine which would reach "breakeven" within a matter of two years, merely by scaling up presently well-understood plasma behavior in the Alcator.

In spite of these successful results, the Carter administration intends to go ahead with its announcement of a "budget revision" for fusion development, which amounts to a 20 percent cut. According to sources inside the administration, this is the beginning phase of a five year plan to cut out the fusion research program entirely. These sources have called fusion "too technological, too speculative."

The impact of such a cut was clarified in recent testimony before the U.S. Congress by administrators of the U.S. Energy Research and Development Administration (ERDA), who noted that fusion research is at a stage where even a five year hiatus would result in complete destruction of the program. Scientists associated with the Fusion Energy Foundation concur with this estimate and stress that the research and development program associated with fusion development is critical for the social and economic health of the country.

Dr. Morris Levitt, Executive Director of the FEF, stated the position of the Foundation: "Carter's program for energy development will be disastrous for the United States. The commitment to progress, new technology and rising living standards, which built this country, is being thrown away by the Carter administration. Industrialists, trade unionists and scientists especially, must rally to stop the budget cuts in energy development which Carter is proposing. Our lives depend on it."