

March 5, 2003

Dr. Ray Orbach
Director, Office of Science
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Dr. Orbach:

The fusion energy sciences budget for FY2004, as described in the President's request, stunned FESAC members. Both its total amount and its devastating cuts to certain program elements are alarming; this note expresses our most serious concerns.

The fusion program is about to address major new challenges. Community consensus strongly supports the President's decision to join the ITER project; we are eager to embark on scientific research urgently focused on burning plasma physics and the energy goal. The aspect of the FY2004 budget that seems most baffling is its apparent disregard for these momentous changes.

1. We applaud the recent decision by the Administration to enter negotiations regarding US participation in the ITER project. As you know, FESAC has recommended participation in ITER, in concert with a strong domestic program. However, design and construction of ITER will be extremely demanding with regard to fusion technology. Thus FESAC is puzzled by the elimination in FY2004 budget of funding for fusion technology. This loss will seriously compromise US participation in ITER as well as other burning plasma research activities.

2. The study of future energy systems is a central component of fusion research. Its evolving conceptualization of an eventual fusion power plant has helped us visualize our target, while allowing us to identify key scientific challenges. As the energy goal becomes closer and more central to fusion research, such systems studies provide even more important insights. Yet the FY2004 budget significantly reduces funding for this type of research.

3. FESAC recommendations regarding the burning plasma initiative have emphasized the importance of maintaining scientific and technological breadth in the program. The Secretary of Energy renewed this emphasis in his recent announcement concerning US participation in ITER. Yet funding for FIRE, a domestic burning plasma experiment that could provide an alternative to ITER, has been eliminated. Similarly inertial fusion energy (IFE) is an important element of a balanced US fusion program: it provides the principal alternative to magnetic fusion and takes advantages of NNSA investments in the National Ignition Facility. The FY2004 budget, however, eliminates chamber technology for both MFE (magnetic fusion energy) and IFE.

4. Effective US participation in ITER will require several activities in the US program, including estimation of the US costs for a range of possible component contributions;

conduct of negotiations; planning for the management of US activity; and preparatory research for long lead-time procurements. The present budget does not allow for these activities.

In summary, FESAC finds the Presidential request for fusion research funding in FY2004 to be not only meager but also harmfully distorted. It terminates components of the program that are truly essential. Fusion research has accepted new challenges and identified new priorities, consistent with the President's stated agenda; fusion scientists want to get on with the job. What is needed is a funding allocation that respects the magnitude and nature of the task at hand.

Yours truly,

Richard Hazeltine
Chair, Fusion Energy Sciences Advisory Committee

cc: N. A. Davies
FESAC