Senate Appropriations Committee Report

FY04 Energy and Water Development Act

Fusion Relevant Sections

FUSION ENERGY SCIENCES

Appropriations, 2003 .....$248,375,000
Budget Estimate, 2004 .....$257,310,000
Committee recommendation.....$257,310,000

The Committee recommendation for fusion energy sciences is $257,310,000, an amount that is equal to the budget request.

The fusion energy sciences program supports research emphasizing the underlying basic research in plasma and fusion sciences, with the long-term goal of harnessing fusion as a viable energy source.

International Thermonuclear Experimental Reactor - The Committee recommendation includes the budget request of $1,990,000 to allow the Department to enter multilateral international negotiations aimed at building the International Thermonuclear Experimental Reactor (ITER), a burning plasma physics experiment many view as an essential next step toward eventually developing fusion as a commercially viable energy source. Reasonably conservative estimates suggest that the United States' participation in ITER will require approximately $1,500,000,000 over the next 10 years in direct contributions to the construction of ITEr and in supporting science. The Department's request of less than $2,000,000 in direct support of the ITER project for fiscal year 2004 certainly leads the Committee to question the Department's commitment to supporting ITER without prejudice or damage to alternative fusion technologies, much less other Departmental science programs.

The Department's proposed fiscal year 2004 budget proposes to cut severely long-term activities in fusion technology and advanced design that will have significant impact on the ultimate attractiveness of fusion power. The Committee recommends that, within available funds, the Department should make adjustments to redress the imbalance resulting from these cuts.

INERTIAL CONFINEMENT FUSION AND HIGH YIELD

The Committee recommends $432,769, a decrease of $34,000,000 from the budget request. The Committee recommendation includes $150,000,000 for the National Ignition Facility construction, project 96-D-111, and $282,769,000 for the ICF ignition and high yield program.

National Ignition Facility - The Committee recommendation includes $150,000,000 for construction and $96,300,000 for the NIF demonstration program, consistent with the revised NIF project baseline. All construction and support activities related to the NIF should be funded from either the NIF construction line or the NIF demonstration program. The Committee is concerned about the dramatic growth in other NIF-related activities funded everywhere in the inertial confinement fusion campaign and specifically rejects that portion of the budget request. As such, the budget request for experimental support technologies is reduced by $44,000,000, and the balance of that sub-program is directed towards the support of other high energy density physics laboratories and facilities.

Inertial Fusion Technology - The Committee recommendation includes $5,000,000 to initiate assessments and initial development and testing of Z-Pinch inertial fusion energy.

Petawatt Lasers - The Committee also includes an additional $5,000,000 for university grants and other support. Within this amount, $2,500,000 is provided for continued development of an ultra-short pulse petawatt laser at the University of Texas; and $2,500,000 is provided to continue short-pulse laser development and research at the University of Nevada, Reno.

The Committee understands that high intensity laser physics enables major new areas of science and enginerring endeavor in the United States and that advances in this field will enable important progress in critical aspects of basic science, fusion energy, and national security. A robust, coordinated program in high intensity lasers will affordably maintain U.S. leadership in this critically important area. Accordingly, the Committee directs the Department to pursue a joint high intensity laser program with the National Science Foundation. The Committee further directs the NNSA and the Department's Office of Science to develop, in collaboration with the NSF, a report that identifies the benefits and disadvantages of multi-agency coordinated research in high intensity laser science and delineates how a joint program in this area will be structured. This report should be delivered to the Committee no later than April 15, 2004.

M. Haynes