

107TH CONGRESS
1ST SESSION

H. R. 1781

To require the Secretary of Energy to develop a plan for a magnetic fusion burning plasma experiment for the purpose of accelerating the scientific understanding and development of fusion as a long term energy source, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 9, 2001

Ms. LOFGREN (for herself, Mr. NETHERCUTT, Mr. HALL of Texas, Mr. CUNNINGHAM, Mr. HOLT, Mr. CALVERT, Mr. GORDON, Mr. TOM DAVIS of Virginia, Mr. HONDA, Mr. ISSA, Mrs. THURMAN, Mr. DOOLITTLE, Mr. FILNER, Mr. WAMP, Ms. HARMAN, Ms. LEE, Mrs. DAVIS of California, Mr. BACA, and Mrs. TAUSCHER) introduced the following bill; which was referred to the Committee on Science

A BILL

To require the Secretary of Energy to develop a plan for a magnetic fusion burning plasma experiment for the purpose of accelerating the scientific understanding and development of fusion as a long term energy source, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Fusion Energy
5 Sciences Act of 2001”.

1 **SEC. 2. FINDINGS.**

2 The Congress finds that—

3 (1) economic prosperity is closely linked to an
4 affordable and ample energy supply;

5 (2) environmental quality is closely linked to en-
6 ergy production and use;

7 (3) population, worldwide economic develop-
8 ment, energy consumption, and stress on the envi-
9 ronment are all expected to increase substantially in
10 the coming decades;

11 (4) the few energy options with the potential to
12 meet economic and environmental needs for the
13 long-term future must be pursued aggressively now,
14 as part of a balanced national energy plan;

15 (5) fusion energy is a long-term energy solution
16 that is expected to be environmentally benign, safe,
17 and economical, and to use a fuel source that is
18 practically unlimited;

19 (6) the National Academy of Sciences, the
20 President's Committee of Advisers on Science and
21 Technology, and the Secretary of Energy Advisory
22 Board have each recently reviewed the Fusion En-
23 ergy Sciences Program and each strongly supports
24 the fundamental science and creative innovation of
25 the program, and has confirmed that progress to-

1 ward the goal of producing practical fusion energy
2 has been excellent;

3 (7) each of these reviews stressed the need for
4 the Fusion Energy Sciences Program to move for-
5 ward to a magnetic fusion burning plasma experi-
6 ment, capable of producing substantial fusion power
7 output and providing key information for the ad-
8 vancement of fusion science;

9 (8) the National Academy of Sciences has also
10 called for a broadening of the Fusion Energy
11 Sciences Program research base as a means to more
12 fully integrate the fusion science community into the
13 broader scientific community; and

14 (9) the Fusion Energy Sciences Program budg-
15 et is inadequate to support the necessary science and
16 innovation for the present generation of experiments,
17 and cannot accommodate the cost of a burning plas-
18 ma experiment constructed by the United States, or
19 even the cost of key participation by the United
20 States in an international effort.

21 **SEC. 3. PLAN FOR FUSION EXPERIMENT.**

22 (a) PLAN FOR UNITED STATES FUSION EXPERI-
23 MENT.—The Secretary of Energy (in this Act referred to
24 as “the Secretary”), on the basis of full consultation with,
25 and the recommendation of, the Fusion Energy Sciences

1 Advisory Committee (in this Act referred to as
2 “FESAC”), shall develop a plan for United States con-
3 struction of a magnetic fusion burning plasma experiment
4 for the purpose of accelerating scientific understanding of
5 fusion plasmas. The Secretary shall request a review of
6 the plan by the National Academy of Sciences, and shall
7 transmit the plan and the review to the Congress by July
8 1, 2004.

9 (b) REQUIREMENTS OF PLAN.—The plan described
10 in subsection (a) shall—

11 (1) address key burning plasma physics issues;
12 and

13 (2) include specific information on the scientific
14 capabilities of the proposed experiment, the rel-
15 evance of these capabilities to the goal of practical
16 fusion energy, and the overall design of the experi-
17 ment including its estimated cost and potential con-
18 struction sites.

19 (c) UNITED STATES PARTICIPATION IN AN INTER-
20 NATIONAL EXPERIMENT.—In addition to the plan de-
21 scribed in subsection (a), the Secretary, on the basis of
22 full consultation with, and the recommendation of,
23 FESAC, may also develop a plan for United States par-
24 ticipation in an international burning plasma experiment
25 for the same purpose, whose construction is found by the

1 Secretary to be highly likely and where United States par-
2 ticipation is cost effective relative to the cost and scientific
3 benefits of a domestic experiment described in subsection
4 (a). If the Secretary elects to develop a plan under this
5 subsection, he shall include the information described in
6 subsection (b), and an estimate of the cost of United
7 States participation in such an international experiment.
8 The Secretary shall request a review by the National
9 Academy of Sciences of a plan developed under this sub-
10 section, and shall transmit the plan and the review to the
11 Congress by July 1, 2004.

12 (d) AUTHORIZATION OF RESEARCH AND DEVELOP-
13 MENT.—The Secretary, through the Fusion Energy
14 Sciences Program, may conduct any research and develop-
15 ment necessary to fully develop the plans described in this
16 section.

17 **SEC. 4. PLAN FOR FUSION ENERGY SCIENCES PROGRAM.**

18 Not later than 6 months after the date of enactment
19 of this Act, the Secretary, in full consultation with
20 FESAC, shall develop and transmit to the Congress a plan
21 for the purpose of ensuring a strong scientific base for
22 the Fusion Energy Sciences Program and to enable the
23 experiment described in section 3. Such plan shall include
24 as its objectives—

1 (1) to ensure that existing fusion research fa-
2 cilities and equipment are more fully utilized with
3 appropriate measurements and control tools;

4 (2) to ensure a strengthened fusion science the-
5 ory and computational base;

6 (3) to ensure that the selection of and funding
7 for new magnetic and inertial fusion research facili-
8 ties is based on scientific innovation and cost effec-
9 tiveness;

10 (4) to improve the communication of scientific
11 results and methods between the fusion science com-
12 munity and the wider scientific community;

13 (5) to ensure that adequate support is provided
14 to optimize the design of the magnetic fusion burn-
15 ing plasma experiments referred to in section 3; and

16 (6) to ensure that inertial confinement fusion
17 facilities are utilized to the extent practicable for the
18 purpose of inertial fusion energy research and devel-
19 opment.

20 **SEC. 5. AUTHORIZATION OF APPROPRIATIONS.**

21 There are authorized to be appropriated to the Sec-
22 retary for the development and review of the plans de-
23 scribed in this Act and for activities of the Fusion Energy

- 1 Sciences Program \$320,000,000 for fiscal year 2002 and
- 2 \$335,000,000 for fiscal year 2003.

