# 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 Energy5 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-

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

(7) each of these reviews stressed the need for
the Fusion Energy Sciences Program to move forward to a magnetic fusion burning plasma experiment, capable of producing substantial fusion power
output and providing key information for the advancement 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

(9) the Fusion Energy Sciences Program budget is inadequate to support the necessary science and
innovation for the present generation of experiments,
and cannot accommodate the cost of a burning plasma experiment constructed by the United States, or
even the cost of key participation by the United
States in an international effort.

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

(a) PLAN FOR UNITED STATES FUSION EXPERIMENT.—The Secretary of Energy (in this Act referred to
as "the Secretary"), on the basis of full consultation with,
and the recommendation of, the Fusion Energy Sciences

Advisory Committee this Act referred 1 (in 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 the plan by the National Academy of Sciences, and shall 6 7 transmit the plan and the review to the Congress by July 8 1, 2004.

9 (b) REQUIREMENTS OF PLAN.—The plan described10 in subsection (a) shall—

(1) address key burning plasma physics issues;and

(2) include specific information on the scientific
capabilities of the proposed experiment, the relevance of these capabilities to the goal of practical
fusion energy, and the overall design of the experiment including its estimated cost and potential construction sites.

(c) UNITED STATES PARTICIPATION IN AN INTERNATIONAL EXPERIMENT.—In addition to the plan described in subsection (a), the Secretary, on the basis of
full consultation with, and the recommendation of,
FESAC, may also develop a plan for United States participation in an international burning plasma experiment
for the same purpose, whose construction is found by the

Secretary to be highly likely and where United States par-1 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 subsection (b), and an estimate of the cost of United 6 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 Congress by July 1, 2004. 11

(d) AUTHORIZATION OF RESEARCH AND DEVELOPMENT.—The Secretary, through the Fusion Energy
Sciences Program, may conduct any research and development necessary to fully develop the plans described in this
section.

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

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

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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.