

111TH CONGRESS
1ST SESSION

H. R. 3177

To promote the development of practical fusion energy, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JULY 10, 2009

Ms. ZOE LOFGREN of California (for herself, Mr. INGLIS, Ms. BALDWIN, Mr. BILBRAY, Mr. CALVERT, Mr. CAPUANO, Mr. CARSON of Indiana, Mr. FOSTER, Mr. GRAYSON, Mr. HOLT, Mr. HONDA, Mr. INSLEE, Mr. DANIEL E. LUNGREN of California, Mr. MCNERNEY, and Mr. OLVER) introduced the following bill; which was referred to the Committee on Science and Technology

A BILL

To promote the development of practical fusion energy, 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 Engineering
5 Science and Fusion Energy Planning Act of 2009”.

6 **SEC. 2. FINDINGS.**

7 Congress makes the following findings:

1 (1) Ample, affordable, and reliable energy sup-
2 plies are essential to a healthy and growing econ-
3 omy.

4 (2) Energy production and use have been major
5 contributors to environmental degradation, including
6 global warming.

7 (3) Practical fusion energy remains one of the
8 very few true alternatives to fossil fuels that might
9 provide a substantial percentage of United States
10 and world energy requirements while at the same
11 time having a minimal impact on the environment.

12 (4) The United States and six other inter-
13 national partners that together represent over half
14 of the Earth's population are making a major com-
15 mitment to fusion energy research through their
16 joint participation in the ITER project and other fu-
17 sion research activities.

18 (5) Although the ITER project is an essential
19 step on the path to practical fusion energy, it will
20 not address key questions of fusion engineering
21 science required to design and build a successful
22 magnetic fusion energy demonstration facility.

23 (6) In addition, although the National Ignition
24 Facility will demonstrate ignition, and other inertial
25 confinement fusion facilities in the United States

1 and elsewhere are demonstrating fundamental sci-
2 entific principles underlying inertial fusion energy,
3 experiments at those facilities have not addressed
4 key questions of fusion engineering science required
5 to design and build successful inertial fusion energy
6 demonstration facilities.

7 (7) Numerous assessments of fusion energy
8 science research needs, including a recent assess-
9 ment by the Fusion Energy Sciences Advisory Com-
10 mittee, have emphasized that substantial progress in
11 fusion engineering science is essential to advancing
12 the understanding of plasma behaviors and for the
13 ultimate attainment of practical fusion energy.

14 (8) Research in fusion engineering science
15 brings with it understanding useful to many other
16 areas of basic science, engineering, and technology.

17 (9) Progress in both physics and fusion engi-
18 neering science are essential for the realization of
19 practical fusion energy.

20 (10) The United States' fusion engineering
21 science capabilities have fallen well behind those of
22 certain other nations.

23 (11) An up-to-date plan integrating physics and
24 fusion engineering science research and development
25 is necessary to achieve practical fusion energy and to

1 maintain United States competitiveness in fusion en-
2 ergy development.

3 **SEC. 3. DEFINITION.**

4 For the purposes of this Act, the term “fusion engi-
5 neering science” means areas of materials science and en-
6 abling technology that focus on—

7 (1) creating, confining, and controlling fusion
8 energy plasmas; and

9 (2) understanding, controlling, enabling, and
10 exploiting the nuclear and physical phenomena asso-
11 ciated with the interaction of the fusion plasma and
12 its own reaction products with the surrounding ma-
13 terial and with the physical and energy production
14 systems of a fusion energy device.

15 **SEC. 4. PROGRAM.**

16 Consistent with strengthening fusion engineering
17 science research activities, including the United States
18 commitment to ITER pursuant to the Energy Policy Act
19 of 2005, the Secretary of Energy shall enhance the United
20 States capability in fusion engineering science in order to
21 ensure full United States benefit from the ITER project
22 and to ensure that the United States is a leader in fusion
23 engineering science and in the next steps toward develop-
24 ment of a fusion energy facility.

1 **SEC. 5. COMPREHENSIVE PLAN.**

2 Within one year after the date of enactment of this
3 Act, the Secretary of Energy, in response to recent study
4 and planning activities undertaken by the Fusion Energy
5 Sciences Advisory Committee and the Office of Fusion En-
6 ergy Sciences, shall develop and provide to Congress a
7 comprehensive plan identifying the full range of research
8 and development, including in fusion engineering science,
9 and the facilities needed to achieve practical fusion energy.

10 **SEC. 6. AUTHORIZATION OF APPROPRIATIONS.**

11 For the purpose of carrying out section 4 of this Act,
12 there are authorized to be appropriated the following
13 sums:

- 14 (1) \$50,000,000 for fiscal year 2010.
15 (2) \$55,000,000 for fiscal year 2011.
16 (3) \$60,000,000 for fiscal year 2012.

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