

AMENDMENT TO H.R. THE RULES COMMITTEE

PRINT FOR H.R. 8

OFFERED BY MR. GRAYSON OF FLORIDA

At the end of the bill, add the following new title:

1 **TITLE VII—OTHER MATTERS**

2 **SEC. 7001. FUSION ENERGY.**

3 (a) PROGRAM.—The Director shall carry out a fusion
4 energy sciences research program to expand the funda-
5 mental understanding of plasmas and matter at very high
6 temperatures and densities and to build the scientific
7 foundation necessary to enable fusion power.

8 (b) FUSION MATERIALS RESEARCH AND DEVELOP-
9 MENT.—As part of the activities authorized in section 978
10 of the Energy Policy Act of 2005 (42 U.S.C. 16318)—

11 (1) the Director, in coordination with the As-
12 sistant Secretary for Nuclear Energy of the Depart-
13 ment, shall carry out research and development ac-
14 tivities to identify, characterize, and demonstrate
15 materials that can endure the neutron, plasma, and
16 heat fluxes expected in a fusion power system; and

17 (2) the Secretary shall—

18 (A) provide an assessment of the need for
19 a facility or facilities that can examine and test

1 potential fusion and next generation fission ma-
2 terials and other enabling technologies relevant
3 to the development of fusion power; and

4 (B) provide an assessment of whether a
5 single new facility that substantially addresses
6 magnetic fusion and next generation fission ma-
7 terials research needs is feasible, in conjunction
8 with the expected capabilities of facilities oper-
9 ational as of the date of enactment of this Act.

10 (c) TOKAMAK RESEARCH AND DEVELOPMENT.—

11 (1) IN GENERAL.—As part of the program de-
12 scribed in subsection (a), the Director shall support
13 research and development activities and facility oper-
14 ations to optimize the tokamak approach to fusion
15 energy.

16 (2) ITER.—

17 (A) REPORT.—Not later than 1 year after
18 the date of enactment of this Act, the Secretary
19 shall submit to Congress a report providing an
20 assessment of—

21 (i) the most recent schedule for ITER
22 that has been approved by the ITER
23 Council; and

24 (ii) progress of the ITER Council and
25 the ITER Director General toward imple-

1 mentation of the recommendations of the
2 Third Biennial International Organization
3 Management Assessment Report.

4 (B) FAIRNESS IN COMPETITION FOR SO-
5 LICITATIONS FOR INTERNATIONAL PROJECT AC-
6 TIVITIES.—Section 33 of the Atomic Energy
7 Act of 1954 (42 U.S.C. 2053) is amended by
8 adding at the end the following: “For purposes
9 of this section, with respect to international re-
10 search projects, the term ‘private facilities or
11 laboratories’ shall refer to facilities or labora-
12 tories located in the United States.”.

13 (C) SENSE OF CONGRESS.—It is the sense
14 of Congress that the United States should sup-
15 port a robust, diverse fusion program. It is fur-
16 ther the sense of Congress that developing the
17 scientific basis for fusion, providing research re-
18 sults key to the success of ITER, and training
19 the next generation of fusion scientists are of
20 critical importance to the United States and
21 should in no way be diminished by participation
22 of the United States in the ITER project.

23 (d) INERTIAL FUSION ENERGY RESEARCH AND DE-
24 VELOPMENT PROGRAM.—The Secretary shall carry out a
25 program of research and technology development in iner-

1 tial fusion for energy applications, including ion beam,
2 laser, and pulsed power fusion systems.

3 (e) ALTERNATIVE AND ENABLING CONCEPTS.—

4 (1) IN GENERAL.—As part of the program de-
5 scribed in subsection (a), the Director shall support
6 research and development activities and facility oper-
7 ations at United States universities, national labora-
8 tories, and private facilities for a portfolio of alter-
9 native and enabling fusion energy concepts that may
10 provide solutions to significant challenges to the es-
11 tablishment of a commercial magnetic fusion power
12 plant, prioritized based on the ability of the United
13 States to play a leadership role in the international
14 fusion research community. Fusion energy concepts
15 and activities explored under this paragraph may in-
16 clude—

17 (A) high magnetic field approaches facili-
18 tated by high temperature superconductors;

19 (B) advanced stellarator concepts;

20 (C) non-tokamak confinement configura-
21 tions operating at low magnetic fields;

22 (D) magnetized target fusion energy con-
23 cepts;

1 (E) liquid metals to address issues associ-
2 ated with fusion plasma interactions with the
3 inner wall of the encasing device;

4 (F) immersion blankets for heat manage-
5 ment and fuel breeding;

6 (G) advanced scientific computing activi-
7 ties; and

8 (H) other promising fusion energy con-
9 cepts identified by the Director.

10 (2) COORDINATION WITH ARPA.FF09E.—The
11 Under Secretary and the Director shall coordinate
12 with the Director of the Advanced Research Projects
13 AgencyFF09Energy (in this paragraph referred to
14 as “ARPAFF09E”) to—

15 (A) assess the potential for any fusion en-
16 ergy project supported by ARPA.FF09E to rep-
17 resent a promising approach to a commercially
18 viable fusion power plant;

19 (B) determine whether the results of any
20 fusion energy project supported by
21 ARPA.FF09E merit the support of follow-on
22 research activities carried out by the Office of
23 Science; and

24 (C) avoid unintentional duplication of ac-
25 tivities.

1 (f) GENERAL PLASMA SCIENCE AND APPLICA-
2 TIONS.—Not later than 2 years after the date of enact-
3 ment of this Act, the Secretary shall provide to Congress
4 an assessment of opportunities in which the United States
5 can provide world-leading contributions to advancing plas-
6 ma science and non-fusion energy applications, and iden-
7 tify opportunities for partnering with other Federal agen-
8 cies both within and outside of the Department of Energy.

9 (g) IDENTIFICATION OF PRIORITIES.—

10 (1) REPORT.—Not later than 2 years after the
11 date of enactment of this Act, the Secretary shall
12 transmit to Congress a report on the Department's
13 proposed fusion energy research and development
14 activities over the following 10 years under at least
15 3 realistic budget scenarios, including a scenario
16 based on 3 percent annual growth in the non-ITER
17 portion of the budget for fusion energy research and
18 development activities. The report shall—

19 (A) identify specific areas of fusion energy
20 research and enabling technology development
21 in which the United States can and should es-
22 tablish or solidify a lead in the global fusion en-
23 ergy development effort;

1 (B) identify priorities for initiation of facil-
2 ity construction and facility decommissioning
3 under each of those scenarios; and

4 (C) assess the ability of the United States
5 fusion workforce to carry out the activities iden-
6 tified in subparagraphs (A) and (B), including
7 the adequacy of college and university programs
8 to train the leaders and workers of the next
9 generation of fusion energy researchers.

10 (2) PROCESS.—In order to develop the report
11 required under paragraph (1), the Secretary shall le-
12 verage best practices and lessons learned from the
13 process used to develop the most recent report of the
14 Particle Physics Project Prioritization Panel of the
15 High Energy Physics Advisory Panel. No member of
16 the Fusion Energy Sciences Advisory Committee
17 shall be excluded from participating in developing or
18 voting on final approval of the report required under
19 paragraph (1).

