

114TH CONGRESS
1ST SESSION

H. R. 3440

To direct the Department of Energy to support fusion energy innovation,
and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

AUGUST 4, 2015

Mr. GRAYSON introduced the following bill; which was referred to the
Committee on Science, Space, and Technology

A BILL

To direct the Department of Energy to support fusion energy
innovation, 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 Innovation Act
5 of 2015”.

6 **SEC. 2. FUSION INNOVATION INITIATIVE.**

7 (a) IN GENERAL.—Not later than 6 months after the
8 date of enactment of this Act, the Director of the Office
9 of Science of the Department of Energy shall establish a
10 Fusion Innovation Initiative. Under the Initiative, the Di-

1 rector shall issue a competitive, merit-reviewed funding
2 opportunity announcement to solicit proposals for engi-
3 neering designs for innovative fusion energy systems, in-
4 cluding upgrades to existing facilities, which have the po-
5 tential to demonstrate net energy production not later
6 than 7 years after the start of construction.

7 (b) APPLICATION REQUIREMENTS.—In order to be
8 eligible to receive an award under this section, an appli-
9 cant shall submit an application to the Director that in-
10 cludes—

11 (1) a detailed cost estimate and schedule for
12 construction of the design, including a summary of
13 any design modifications that would accelerate the
14 achievement of net energy production; and

15 (2) an assessment of the scalability of the de-
16 sign.

17 (c) AWARD AND DESIGN SUBMISSION.—

18 (1) AWARD.—The Director shall review each
19 application submitted under subsection (b) and shall
20 provide awards to applicants with design concepts
21 that the Director considers to have potential based
22 on the criteria described in subsection (a).

23 (2) DESIGN SUBMISSION.—As a condition of re-
24 ceiving such award, the Director shall require any
25 such applicant to submit the design upon which the

1 application is based to the Director not later than
2 18 months after receipt of the award.

3 (d) ASSESSMENT.—The Director shall carry out an
4 assessment of each design submitted under subsection
5 (c)(2) to determine which designs, if any, merit support
6 from the Department due to their potential to dem-
7 onstrate net energy production not later than 7 years after
8 the start of construction, and shall—

9 (1) submit the assessment to Congress not later
10 than 30 months after the date of enactment of this
11 Act; and

12 (2) assign top priority to, and provide expedited
13 financial support (to the extent provided in advance
14 in appropriations Acts) for, relevant construction ac-
15 tivities for any design that the Director determines
16 merits such support, based on the project manage-
17 ment practices of the Office of Science.

18 **SEC. 3. RESOURCE AND INFORMATION SHARING.**

19 (a) IN GENERAL.—To the extent practicable, the Sec-
20 retary of Energy shall establish open, transparent proc-
21 esses to share unclassified resources and information that
22 will accelerate the advancement of fusion energy tech-
23 nologies among researchers from the National Labora-
24 tories, institutions of higher education, and the private
25 sector. Such resources and information shall include—

1 (1) advanced computing platforms and simula-
2 tion codes;

3 (2) diagnostic equipment information; and

4 (3) pulsed power system information.

5 (b) COMPUTING.—

6 (1) IN GENERAL.—The Secretary shall establish
7 processes to make unclassified, proprietary simula-
8 tion codes relevant to the development of a fusion
9 energy system, that are controlled by a National
10 Laboratory, available to researchers from other Na-
11 tional Laboratories, institutions of higher education,
12 and the private sector.

13 (2) SHARED PLATFORMS.—The Secretary shall
14 support shared platforms for the codevelopment of
15 simulation codes for fusion energy systems among
16 researchers from the National Laboratories, institu-
17 tions of higher education, and the private sector.

18 (c) PERSONNEL EXCHANGES.—The Secretary shall
19 establish a process for fusion researchers from the Na-
20 tional Laboratories to serve limited-term residencies at
21 private sector companies working to advance fusion tech-
22 nologies. Such residencies shall be entirely supported by
23 the host companies.

1 **SEC. 4. FUSION DEMONSTRATION SITES.**

2 (a) REPORT REQUIRED.—Not later than 180 days
3 after the date of enactment of this Act, the Secretary of
4 Energy, in consultation with the National Laboratories,
5 relevant Federal agencies, and stakeholders, shall transmit
6 to the Committee on Science, Space, and Technology of
7 the House of Representatives and the Committee on En-
8 ergy and Natural Resources of the Senate a report assess-
9 ing the Department of Energy’s capabilities to authorize,
10 host, and oversee privately funded fusion prototypes with
11 up to 20 megawatts thermal output and related dem-
12 onstration facilities at sites owned by the Department.

13 (b) REPORT ELEMENTS.—The report described in
14 subsection (a) shall address the following:

15 (1) The Department’s safety review and over-
16 sight capabilities.

17 (2) Potential sites capable of hosting research,
18 development, and demonstration of prototype reac-
19 tors and related facilities, for the purpose of reduc-
20 ing technical risk.

21 (3) The Department’s and the National Lab-
22 oratories’ existing physical and technical capabilities
23 relevant to research, development, and oversight.

24 (4) The efficacy of the Department’s available
25 contractual mechanisms, including cooperative re-
26 search and development agreements, work-for-others

1 agreements, and agreements for commercializing
2 technology.

3 (5) Potential cost structures related to physical
4 security, decommissioning, liability, and other long-
5 term project costs.

6 (6) Other challenges or considerations identified
7 by the Secretary, including issues related to poten-
8 tial cases of demonstration reactors with up to 2
9 gigawatts of thermal output.

10 **SEC. 5. NATIONAL LABORATORIES.**

11 In this Act, the term “National Laboratories” has the
12 meaning given the term in section 2 of the Energy Policy
13 Act of 2005 (42 U.S.C. 15801).

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