

115TH CONGRESS
1ST SESSION

H. R. 590

IN THE SENATE OF THE UNITED STATES

JANUARY 24, 2017

Received; read twice and referred to the Committee on Commerce, Science,
and Transportation

AN ACT

To foster civilian research and development of advanced nuclear energy technologies and enhance the licensing and commercial deployment of such technologies.

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

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Advanced Nuclear
3 Technology Development Act of 2017”.

4 **SEC. 2. FINDINGS.**

5 Congress finds the following:

6 (1) Nuclear energy generates approximately 20
7 percent of the total electricity and approximately 60
8 percent of the carbon-free electricity of the United
9 States.

10 (2) Nuclear power plants operate consistently at
11 a 90 percent capacity factor, and provide consumers
12 and businesses with reliable and affordable elec-
13 tricity.

14 (3) Nuclear power plants generate billions of
15 dollars in national economic activity through nation-
16 wide procurements and provide thousands of Ameri-
17 cans with high paying jobs contributing substantially
18 to the local economies in communities where they
19 operate.

20 (4) The United States commercial nuclear in-
21 dustry must continue to lead the international civil-
22 ian nuclear marketplace, because it is one of our
23 most powerful national security tools, guaranteeing
24 the safe, secure, and exclusively peaceful use of nu-
25 clear energy.

1 (5) Maintaining the Nation’s nuclear fleet of
2 commercial light water reactors and expanding the
3 use of new advanced reactor designs would support
4 continued production of reliable baseload electricity
5 and maintain United States global leadership in nu-
6 clear power.

7 (6) Nuclear fusion technology also has the po-
8 tential to generate electricity with significantly in-
9 creased safety performance and no radioactive waste.

10 (7) The development of advanced reactor de-
11 signs would benefit from a performance-based, risk-
12 informed, efficient, and cost-effective regulatory
13 framework with defined milestones and the oppor-
14 tunity for applicants to demonstrate progress
15 through Nuclear Regulatory Commission approval.

16 **SEC. 3. DEFINITIONS.**

17 In this Act:

18 (1) **ADVANCED NUCLEAR REACTOR.**—The term
19 “advanced nuclear reactor” means—

20 (A) a nuclear fission reactor with signifi-
21 cant improvements over the most recent genera-
22 tion of nuclear fission reactors, which may in-
23 clude inherent safety features, lower waste
24 yields, greater fuel utilization, superior reli-

1 ability, resistance to proliferation, and increased
2 thermal efficiency; or

3 (B) a nuclear fusion reactor.

4 (2) DEPARTMENT.—The term “Department”
5 means the Department of Energy.

6 (3) LICENSING.—The term “licensing” means
7 NRC activities related to reviewing applications for
8 licenses, permits, and design certifications, and re-
9 quests for any other regulatory approval for nuclear
10 reactors within the responsibilities of the NRC under
11 the Atomic Energy Act of 1954.

12 (4) NATIONAL LABORATORY.—The term “Na-
13 tional Laboratory” has the meaning given that term
14 in section 2 of the Energy Policy Act of 2005 (42
15 U.S.C. 15801).

16 (5) NRC.—The term “NRC” means the Nu-
17 clear Regulatory Commission.

18 (6) SECRETARY.—The term “Secretary” means
19 the Secretary of Energy.

20 **SEC. 4. AGENCY COORDINATION.**

21 The NRC and the Department shall enter into the
22 a memorandum of understanding regarding the following
23 topics:

24 (1) TECHNICAL EXPERTISE.—Ensuring that
25 the Department has sufficient technical expertise to

1 support the civilian nuclear industry’s timely re-
2 search, development, demonstration, and commercial
3 application of safe, innovative advanced reactor tech-
4 nology and the NRC has sufficient technical exper-
5 tise to support the evaluation of applications for li-
6 censes, permits, and design certifications, and other
7 requests for regulatory approval for advanced reac-
8 tors.

9 (2) MODELING AND SIMULATION.—The use of
10 computers and software codes to calculate the behav-
11 ior and performance of advanced reactors based on
12 mathematical models of their physical behavior.

13 (3) FACILITIES.—Ensuring that the Depart-
14 ment maintains and develops the facilities to enable
15 the civilian nuclear industry’s timely research, devel-
16 opment, demonstration, and commercial application
17 of safe, innovative reactor technology and ensuring
18 that the NRC has access to such facilities, as need-
19 ed.

20 **SEC. 5. ADVANCED REACTOR REGULATORY FRAMEWORK.**

21 (a) PLAN REQUIRED.—Not later than 1 year after
22 the date of enactment of this Act, the NRC shall transmit
23 to Congress a plan for developing an efficient, risk-in-
24 formed, technology-neutral framework for advanced reac-
25 tor licensing. The plan shall evaluate the following sub-

1 jects, consistent with the NRC's role in protecting public
2 health and safety and common defense and security:

3 (1) The unique aspects of advanced reactor li-
4 censing and any associated legal, regulatory, and
5 policy issues the NRC will need to address to de-
6 velop a framework for licensing advanced reactors.

7 (2) Options for licensing advanced reactors
8 under existing NRC regulations in title 10 of the
9 Code of Federal Regulations, a proposed new regu-
10 latory framework, or a combination of these ap-
11 proaches.

12 (3) Options to expedite and streamline the li-
13 censing of advanced reactors, including opportunities
14 to minimize the time from application submittal to
15 final NRC licensing decision and minimize the
16 delays that may result from any necessary amend-
17 ments or supplements to applications.

18 (4) Options to expand the incorporation of con-
19 sensus-based codes and standards into the advanced
20 reactor regulatory framework to minimize time to
21 completion and provide flexibility in implementation.

22 (5) Options to make the advanced reactor li-
23 censing framework more predictable. This evaluation
24 should consider opportunities to improve the process

1 by which application review milestones are estab-
2 lished and maintained.

3 (6) Options to allow applicants to use phased
4 review processes under which the NRC issues ap-
5 provals that do not require the NRC to re-review
6 previously approved information. This evaluation
7 shall consider the NRC's ability to review and condi-
8 tionally approve partial applications, early design in-
9 formation, and submittals that contain design cri-
10 teria and processes to be used to develop information
11 to support a later phase of the design review.

12 (7) The extent to which NRC action or modi-
13 fication of policy is needed to implement any part of
14 the plan required by this subsection.

15 (8) The role of licensing advanced reactors
16 within NRC long-term strategic resource planning,
17 staffing, and funding levels.

18 (9) Options to provide cost-sharing financial
19 structures for license applicants in a phased licens-
20 ing process.

21 (b) COORDINATION AND STAKEHOLDER INPUT RE-
22 QUIRED.—In developing the plan required by subsection
23 (a), the NRC shall seek input from the Department, the
24 nuclear industry, and other public stakeholders.

1 (c) COST AND SCHEDULE ESTIMATE.—The plan re-
2 quired by subsection (a) shall include proposed cost esti-
3 mates, budgets, and specific milestones for implementing
4 the advanced reactor regulatory framework by September
5 30, 2019.

6 (d) DESIGN CERTIFICATION STATUS.—In the NRC’s
7 first budget request after the acceptance of any design cer-
8 tification application for an advanced nuclear reactor, and
9 annually thereafter, the NRC shall provide the status of
10 performance metrics and milestone schedules. The budget
11 request shall include a plan to correct or recover from any
12 milestone schedule delays, including delays because of
13 NRC’s inability to commit resources for its review of the
14 design certification applications.

15 **SEC. 6. USER FEES AND ANNUAL CHARGES.**

16 Section 6101(c)(2)(A) of the Omnibus Budget Rec-
17 onciliation Act of 1990 (42 U.S.C. 2214(c)(2)(A)) is
18 amended—

19 (1) by striking “and” at the end of clause (iii);

20 (2) by striking the period at the end of clause

21 (iv) and inserting “; and”; and

22 (3) by adding at the end the following:

23 “(v) for fiscal years ending before Oc-
24 tober 1, 2020, amounts appropriated to
25 the Commission for activities related to the

