

# Calendar No. 108

115TH CONGRESS  
1ST SESSION

# S. 512

[Report No. 115–86]

To modernize the regulation of nuclear energy.

IN THE SENATE OF THE UNITED STATES

MARCH 2, 2017

Mr. BARRASSO (for himself, Mr. WHITEHOUSE, Mr. INHOFE, Mr. BOOKER, Mr. CRAPO, Mrs. FISCHER, Mrs. CAPITO, Mr. MANCHIN, Mr. CASEY, Ms. DUCKWORTH, Mr. FLAKE, Mr. CARPER, Mr. ROUNDS, Mr. COONS, Mr. CORNYN, Mr. HATCH, and Mr. PETERS) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

MAY 25, 2017

Reported by Mr. BARRASSO, with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]

## A BILL

To modernize the regulation of nuclear energy.

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; TABLE OF CONTENTS.**

4 (a) ~~SHORT TITLE.—~~This Act may be cited as the  
5 ~~“Nuclear Energy Innovation and Modernization Act”.~~

1 (b) TABLE OF CONTENTS.—The table of contents for  
 2 this Act is as follows:

- See. 1. Short title; table of contents.
- See. 2. Findings.
- See. 3. Purpose.
- See. 4. Definitions.

#### TITLE I—ADVANCED NUCLEAR REACTORS AND USER FEES

- See. 101. Nuclear Regulatory Commission user fees and annual charges through fiscal year 2019.
- See. 102. Nuclear Regulatory Commission user fees and annual charges for fiscal year 2020 and each fiscal year thereafter.
- See. 103. Advanced nuclear reactor program.
- See. 104. Advanced nuclear energy licensing cost-share grant program.
- See. 105. Baffle-former bolt guidance.
- See. 106. Evacuation report.

#### TITLE II—URANIUM

- See. 201. Uranium recovery report.
- See. 202. Pilot program for uranium recovery fees.
- See. 203. Uranium transfers and sales.

### 3 **SEC. 2. FINDINGS.**

4 Congress finds that—

- 5 (1) the safe and secure operation of nuclear re-
- 6 actors in the United States must remain the para-
- 7 mount focus of the Nuclear Regulatory Commission;
- 8 (2) the existing fleet of nuclear reactors in the
- 9 United States is operating safely and securely;
- 10 (3) nuclear energy is the largest source of af-
- 11 fordable, reliable, emissions-free energy in the
- 12 United States, providing approximately 20 percent
- 13 of the electricity consumed in the United States and
- 14 60 percent of emissions-free electricity generation in
- 15 the United States;
- 16 (4) a 1,000-megawatt nuclear plant—

1 (A) provides approximately 500 permanent  
2 jobs;

3 (B) pays approximately \$40,000,000 annu-  
4 ally in wages;

5 (C) generates approximately \$470,000,000  
6 annually in goods and services in the local com-  
7 munity; and

8 (D) pays approximately \$83,000,000 annu-  
9 ally in Federal, State, and local taxes;

10 (5) nuclear energy is of critical importance to  
11 United States energy security and worldwide influ-  
12 ence on nonproliferation;

13 (6) nuclear energy uses widely available fuel re-  
14 sources to enable scientific progress, emissions-free  
15 and reliable electricity generation, heat generation  
16 for industrial applications, and power for deep space  
17 exploration;

18 (7) the private sector, the National Labora-  
19 tories (as defined in section 2 of the Energy Policy  
20 Act of 2005 (42 U.S.C. 15801)), and institutions of  
21 higher education are pursuing innovations in nuclear  
22 energy technology that will play a crucial role in—

23 (A) the future global and United States  
24 energy supply; and

1           ~~(B)~~ the exports, manufacturing, and econ-  
2           omy of the United States;

3           ~~(8)~~ eventual deployment of commercial ad-  
4           vanced nuclear reactors will require—

5           ~~(A)~~ modernizing the regulatory framework;  
6           and

7           ~~(B)~~ making other necessary changes to fa-  
8           cilitate the efficient, predictable, and affordable  
9           deployment of advanced nuclear reactor tech-  
10          nologies;

11          ~~(9)~~ <sup>2</sup> impediments to the commercialization of  
12          advanced nuclear reactors are the high costs and  
13          long durations associated with applying the existing  
14          nuclear regulatory framework to advanced nuclear  
15          reactors;

16          ~~(10)~~ license application reviews should be as  
17          predictable and efficient as practicable without com-  
18          promising safety or security;

19          ~~(11)~~ the development of advanced nuclear reac-  
20          tors would benefit from the early identification of  
21          policy issues for timely consideration and resolution  
22          by the Commission to improve the efficient develop-  
23          ment of designs as well as preparing for design re-  
24          view and licensing;

1           (12) the existing nuclear regulatory framework  
2           and the requirements of that framework have not  
3           adapted to advances in scientific understanding or  
4           the features and performance characteristics of ad-  
5           vanced nuclear reactor designs;

6           (13) the existing nuclear reactor licensing proce-  
7           ss does not provide iterative feedback to manage  
8           risk as needed for typical technology development  
9           and investment cycles;

10          (14) a staged licensing structure that provides  
11          clear and periodic feedback to applicants on an  
12          agreed schedule will help to enable the commer-  
13          cialization of safer and innovative technologies that  
14          will benefit the economy, national security, and envi-  
15          ronment of the United States;

16          (15) a technology-inclusive Commission regu-  
17          latory framework will—

18                 (A) allow greater technological innovation;

19                 and

20                 (B) enable inventors, scientists, engineers,  
21                 and students to pursue licensing advanced reac-  
22                 tor concepts;

23          (16) further preparation by the Commission of  
24          the research and test reactor licensing process will  
25          enable the Commission to more efficiently process

1 applications for research and test reactors when the  
2 applications are received;

3 ~~(17) it is incumbent on the Commission—~~

4 ~~(A) to budget appropriate resources to un-~~  
5 ~~dertake an active role in design familiarization~~  
6 ~~activities with potential applicants with ad-~~  
7 ~~vanced reactor designs;~~

8 ~~(B) to budget for adequate resources to~~  
9 ~~conduct licensing reviews and other work re-~~  
10 ~~quested by licensees and applicants; and~~

11 ~~(C) to preserve those budgeted funds to~~  
12 ~~ensure responsiveness to licensees and appli-~~  
13 ~~cants in recognition of the dependence of the li-~~  
14 ~~icensees and applicants on Commission approval~~  
15 ~~before the benefits of the technology of the li-~~  
16 ~~icensees and applicants can be realized; and~~

17 ~~(18) both prospective advanced nuclear reactor~~  
18 ~~applicants and the existing fleet of nuclear reactors~~  
19 ~~in the United States would benefit from modernizing~~  
20 ~~the outdated fee recovery structure of the Commis-~~  
21 ~~sion to better manage fluctuations in workload and~~  
22 ~~the number of licensees in a fair and equitable man-~~  
23 ~~ner.~~

24 **SEC. 3. PURPOSE.**

25 The purpose of this Act is to provide—

1           (1) a program to develop the expertise and reg-  
2           ulatory processes necessary to allow innovation and  
3           the commercialization of advanced nuclear reactors;

4           (2) a revised fee recovery structure to ensure  
5           the availability of resources to meet industry needs  
6           without burdening existing licensees unfairly for in-  
7           accurate workload projections or premature existing  
8           reactor closures; and

9           (3) more efficient regulation of uranium recov-  
10          ery.

11 **SEC. 4. DEFINITIONS.**

12          In this Act:

13           (1) **ADVANCED NUCLEAR REACTOR.**—The term  
14           “advanced nuclear reactor” means a nuclear fission  
15           or fusion reactor, including a prototype plant (as de-  
16           fined in sections 50.2 and 52.1 of title 10, Code of  
17           Federal Regulations (as in effect on the date of en-  
18           actment of this Act)); with significant improvements  
19           compared to commercial nuclear reactors under con-  
20           struction as of the date of enactment of this Act, in-  
21           cluding improvements such as—

22                   (A) additional inherent safety features;

23                   (B) significantly lower levelized cost of  
24           electricity;

25                   (C) lower waste yields;

- 1           (D) greater fuel utilization;
- 2           (E) enhanced reliability;
- 3           (F) increased proliferation resistance;
- 4           (G) increased thermal efficiency; or
- 5           (H) ability to integrate into electric and
- 6           nonelectric applications.

7           (2) ~~ADVANCED NUCLEAR REACTOR FUEL.~~—The

8           term “advanced nuclear reactor fuel” means fuel for

9           use in an advanced nuclear reactor or a research

10          and test reactor, including fuel with a low uranium

11          enrichment level of not greater than 20 percent.

12          (3) ~~AGREEMENT STATE.~~—The term “Agree-

13          ment State” means any State with which the Com-

14          mission has entered into an effective agreement

15          under section 274 b. of the Atomic Energy Act of

16          1954 (42 U.S.C. 2021(b)).

17          (4) ~~APPLICANT.~~—The term “applicant” means

18          an applicant for a license, certification, permit, or

19          other form of approval from the Commission for a

20          commercial advanced nuclear reactor or a research

21          and test reactor.

22          (5) ~~APPROPRIATE CONGRESSIONAL COMMIT-~~

23          ~~TEES.~~—The term “appropriate congressional com-

24          mittees” means the Committee on Environment and

25          Public Works of the Senate and the Committee on



1 Energy and Commerce of the House of Representa-  
2 tives.

3 (6) COMMISSION.—The term “Commission”  
4 means the Nuclear Regulatory Commission.

5 (7) CONCEPTUAL DESIGN ASSESSMENT.—The  
6 term “conceptual design assessment” means an  
7 early-stage review by the Commission that—

8 (A) assesses preliminary design informa-  
9 tion for consistency with applicable regulatory  
10 requirements of the Commission;

11 (B) is performed on a set of topic areas  
12 agreed to in the licensing project plan; and

13 (C) is performed at a cost and schedule  
14 agreed to in the licensing project plan.

15 (8) CORPORATE SUPPORT COSTS.—The term  
16 “corporate support costs” means expenditures for  
17 acquisitions, administrative services, financial man-  
18 agement, human resource management, information  
19 management, information technology, policy support,  
20 outreach, and training, as those categories are de-  
21 scribed and calculated in Appendix A of the Con-  
22 gressional Budget Justification for Fiscal Year 2017  
23 of the Commission.

24 (9) LICENSING PROJECT PLAN.—The term “li-  
25 censing project plan” means a plan that describes—

1           (A) the interactions between an applicant  
2           and the Commission; and

3           (B) project schedules and deliverables in  
4           specific detail to support long-range resource  
5           planning undertaken by the Commission and an  
6           applicant.

7           (10) REGULATORY FRAMEWORK.—The term  
8           “regulatory framework” means the framework for  
9           reviewing requests for certifications, permits, ap-  
10          provals, and licenses for nuclear power plants.

11          (11) REQUESTED ACTIVITY OF THE COMMISS-  
12          SION.—The term “requested activity of the Commis-  
13          sion” means—

14               (A) the processing of applications for—

15                       (i) design certifications or approvals;

16                       (ii) licenses;

17                       (iii) permits;

18                       (iv) license amendments;

19                       (v) license renewals;

20                       (vi) certificates of compliance; and

21                       (vii) power uprates; and

22               (B) any other activity requested by a li-  
23               censee or applicant.

24          (12) RESEARCH AND TEST REACTOR.—

1 (A) IN GENERAL.—The term “research  
2 and test reactor” means a reactor that—

3 (i) falls within the licensing and re-  
4 lated regulatory authority of the Commis-  
5 sion under section 202 of the Energy Reor-  
6 ganization Act of 1974 (42 U.S.C. 5842);  
7 and

8 (ii) is useful in the conduct of re-  
9 search and development activities as li-  
10 censed under section 104 e. of the Atomic  
11 Energy Act (42 U.S.C. 2134(e)).

12 (B) EXCLUSION.—The term “research and  
13 test reactor” does not include a commercial ad-  
14 vanced nuclear reactor.

15 (13) SECRETARY.—The term “Secretary”  
16 means the Secretary of Energy.

17 (14) STANDARD DESIGN APPROVAL.—The term  
18 “standard design approval” means the approval of a  
19 final standard design or a major portion of a final  
20 design standard as described in subpart E of part  
21 52 of title 10, Code of Federal Regulations (as in ef-  
22 fect on the date of enactment of this Act).

23 (15) TECHNOLOGY-INCLUSIVE REGULATORY  
24 FRAMEWORK.—The term “technology-inclusive regu-  
25 latory framework” means a regulatory framework

1 developed using methods of evaluation that are flexi-  
 2 ble and practicable for application to a variety of re-  
 3 actor technologies, including, where appropriate, the  
 4 use of risk-informed and performance-based tech-  
 5 niques and other tools and methods.

6 (16) ~~TOPICAL REPORT.~~—The term “topical re-  
 7 port” means a document submitted to the Commis-  
 8 sion that addresses a technical topic related to nu-  
 9 clear power plant safety or design.

## 10 **TITLE I—ADVANCED NUCLEAR** 11 **REACTORS AND USER FEES**

### 12 **SEC. 101. NUCLEAR REGULATORY COMMISSION USER FEES** 13 **AND ANNUAL CHARGES THROUGH FISCAL** 14 **YEAR 2019.**

15 (a) ~~IN GENERAL.~~—Section 6101(c)(2)(A) of the Om-  
 16 nibus Budget Reconciliation Act of 1990 (42 U.S.C.  
 17 2214(c)(2)(A)) is amended—

18 (1) in clause (iii), by striking “and” at the end;

19 (2) in clause (iv), by striking the period at the  
 20 end and inserting “; and”; and

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

22 “(v) amounts appropriated to the  
 23 Commission for the fiscal year for activi-  
 24 ties related to the development of a regu-  
 25 latory framework for advanced nuclear re-

1           actor technologies, including activities re-  
 2           quired under section 103 of the Nuclear  
 3           Energy Innovation and Modernization  
 4           Act.”.

5           (b) REPEAL.—Effective October 1, 2019, section  
 6 6101 of the Omnibus Budget Reconciliation Act of 1990  
 7 (42 U.S.C. 2214) is repealed.

8 **SEC. 102. NUCLEAR REGULATORY COMMISSION USER FEES**  
 9           **AND ANNUAL CHARGES FOR FISCAL YEAR**  
 10           **2020 AND EACH FISCAL YEAR THEREAFTER.**

11           (a) ANNUAL BUDGET JUSTIFICATION.—

12           (1) IN GENERAL.—In the annual budget jus-  
 13           tification submitted by the Commission to Congress,  
 14           the Commission shall expressly identify anticipated  
 15           expenditures necessary for completion of the re-  
 16           quested activities of the Commission anticipated to  
 17           occur during the applicable fiscal year.

18           (2) RESTRICTION.—Budget authority granted  
 19           to the Commission for purposes of the requested ac-  
 20           tivities of the Commission shall be used, to the max-  
 21           imum extent practicable, solely for conducting re-  
 22           quested activities of the Commission.

23           (3) LIMITATION ON CORPORATE SUPPORT  
 24           COSTS.—With respect to the annual budget justifica-  
 25           tion submitted to Congress, corporate support costs,

1 to the maximum extent practicable, shall not exceed  
 2 the following percentages of the total budget author-  
 3 ity of the Commission requested in the annual budg-  
 4 et justification:

5 (A) 30 percent for each of fiscal years  
 6 2020 and 2021.

7 (B) 29 percent for each of fiscal years  
 8 2022 and 2023.

9 (C) 28 percent for fiscal year 2024 and  
 10 each fiscal year thereafter.

11 (b) FEES AND CHARGES.—

12 (1) ANNUAL ASSESSMENT.—

13 (A) IN GENERAL.—Each fiscal year, the  
 14 Commission shall assess and collect fees and  
 15 charges in accordance with paragraphs (2) and  
 16 (3) in a manner that ensures that, to the max-  
 17 imum extent practicable, the amount collected  
 18 is equal to an amount that approximates—

19 (i) the total budget authority of the  
 20 Commission for that fiscal year, less

21 (ii) the budget authority of the Com-  
 22 mission for the activities described in sub-  
 23 paragraph (B).

1           ~~(B)~~ EXCLUDED ACTIVITIES DESCRIBED.—

2           The activities referred to in subparagraph  
3           ~~(A)~~(ii) are the following:

4                   (i) An activity not attributable to an  
5                   existing NRC licensee or class of licensee  
6                   as identified by the Commission in Table  
7                   III of the final rule of the Commission en-  
8                   titled “Revision of Fee Schedules; Fee Re-  
9                   covery for Fiscal Year 2015” (80 Fed.  
10                  Reg. 37432 (June 30, 2015)).

11                  (ii) Amounts appropriated for a fiscal  
12                  year to the Commission—

13                           (I) from the Nuclear Waste Fund  
14                           established under section 302(e) of  
15                           the Nuclear Waste Policy Act of 1982  
16                           (42 U.S.C. 10222(e));

17                           (II) for implementation of section  
18                           3116 of the Ronald W. Reagan Na-  
19                           tional Defense Authorization Act for  
20                           Fiscal Year 2005 (50 U.S.C. 2601  
21                           note; Public Law 108–375);

22                           (III) for the homeland security  
23                           activities of the Commission (other  
24                           than for the costs of fingerprinting  
25                           and background checks required

1 under section 149 of the Atomic En-  
2 ergy Act of 1954 (42 U.S.C. 2169)  
3 and the costs of conducting security  
4 inspections);

5 (IV) for the Inspector General  
6 services of the Commission provided  
7 to the Defense Nuclear Facilities  
8 Safety Board;

9 (V) for research and development  
10 at universities in areas relevant to the  
11 mission of the applicable university;

12 (VI) for a nuclear science and en-  
13 gineering grant program that will sup-  
14 port multiyear projects that do not  
15 align with programmatic missions but  
16 are critical to maintaining the dis-  
17 cipline of nuclear science and engi-  
18 neering; and

19 (VII) for any other fee-relief ac-  
20 tivity described in the final rule of the  
21 Commission entitled "Revision of Fee  
22 Schedules; Fee Recovery for Fiscal  
23 Year 2015" (80 Fed. Reg. 37432  
24 (June 30, 2015)).



1           (iii) Costs for activities related to the  
2           development of regulatory infrastructure  
3           for advanced nuclear reactor technologies,  
4           including activities required under section  
5           103.

6           (C) ~~EXCEPTION.~~—The exclusion described  
7           in subparagraph (B)(iii) shall cease to be effec-  
8           tive on January 1, 2031.

9           (D) ~~REPORT.~~—Not later than December  
10          31, 2029, the Commission shall submit to the  
11          Committee on Appropriations and the Com-  
12          mittee on Environment and Public Works of the  
13          Senate and the Committee on Appropriations  
14          and the Committee on Energy and Commerce  
15          of the House of Representatives a report de-  
16          scribing the views of the Commission on the  
17          continued appropriateness and necessity of the  
18          funding described in subparagraph (B)(iii).

19          (2) ~~FEEES FOR SERVICE OR THING OF VALUE.~~—  
20          In accordance with section 9701 of title 31, United  
21          States Code, the Commission shall charge fees to  
22          any person who receives a service or thing of value  
23          from the Commission to cover the costs to the Com-  
24          mission of providing the service or thing of value.

25          (3) ~~ANNUAL FEES.~~—

1           (A) IN GENERAL.—Subject to subpara-  
2 graph (B) and except as provided in subpara-  
3 graph (D), the Commission may charge to any  
4 licensee or certificate holder of the Commission  
5 an annual fee.

6           (B) CAP ON ANNUAL FEES OF CERTAIN LI-  
7 CENSEES.—

8           (i) IN GENERAL.—The annual fee  
9 under subparagraph (A) charged to an op-  
10 erating reactor licensee, to the maximum  
11 extent practicable, shall not exceed the an-  
12 nual fee amount per operating reactor li-  
13 censee established in the final rule of the  
14 Commission entitled “Revision of Fee  
15 Schedules; Fee Recovery for Fiscal Year  
16 2015” (80 Fed. Reg. 37432 (June 30,  
17 2015)), as may be adjusted annually by  
18 the Commission to reflect changes in the  
19 Consumer Price Index published by the  
20 Bureau of Labor Statistics of the Depart-  
21 ment of Labor.

22           (ii) WAIVER.—The Commission may  
23 waive, for a period of 1 year, the cap on  
24 annual fees described in clause (i) if the  
25 Commission submits to the Committee on

1 Appropriations and the Committee on En-  
 2 vironment and Public Works of the Senate  
 3 and the Committee on Appropriations and  
 4 the Committee on Energy and Commerce  
 5 of the House of Representatives a written  
 6 determination that the cap on annual fees  
 7 may compromise the safety and security  
 8 mission of the Commission.

9 ~~(C) AMOUNT PER LICENSEE.—~~

10 ~~(i) IN GENERAL.—~~The Commission  
 11 shall establish by rule a schedule of fees  
 12 fairly and equitably allocating the aggre-  
 13 gate amount of charges described in sub-  
 14 paragraph (A) among licensees and certifi-  
 15 cate holders.

16 ~~(ii) REQUIREMENT.—~~The schedule of  
 17 fees under clause (i)—

18 ~~(I) to the maximum extent prac-~~  
 19 ~~ticable, shall be based on the cost of~~  
 20 ~~providing regulatory services; and~~

21 ~~(II) may be based on the alloca-~~  
 22 ~~tion of the resources of the Commis-~~  
 23 ~~sion among licensees or certificate~~  
 24 ~~holders or classes of licensees or cer-~~  
 25 ~~tificate holders.~~

1                   (D) EXEMPTION.—

2                   (i) DEFINITION OF RESEARCH REAC-  
3 TOR.—In this subparagraph, the term “re-  
4 search reactor” means a nuclear reactor  
5 that—

6                   (I) is licensed by the Commission  
7 under section 104 e. of the Atomic  
8 Energy Act of 1954 (42 U.S.C.  
9 2134(e)) for operation at a thermal  
10 power level of not more than 10  
11 megawatts; and

12                   (II) if licensed under subclause  
13 (I) for operation at a thermal power  
14 level of more than 1 megawatt, does  
15 not contain—

16                   (aa) a circulating loop  
17 through the core in which the li-  
18 censee conducts fuel experiments;

19                   (bb) a liquid fuel loading; or

20                   (cc) an experimental facility  
21 in the core in excess of 16 square  
22 inches in cross-section.

23                   (ii) EXEMPTION.—Subparagraph (A)  
24 shall not apply to the holder of any license  
25 for a federally owned research reactor used

1 primarily for educational training and aca-  
2 demic research purposes.

3 ~~(c) PERFORMANCE AND REPORTING.—~~

4 ~~(1) IN GENERAL.—~~Not later than 180 days  
5 after the date of enactment of this Act, the Commis-  
6 sion shall develop for the requested activities of the  
7 Commission—

8 ~~(A) performance metrics; and~~

9 ~~(B) on each request, milestone schedules.~~

10 ~~(2) DELAYS IN ISSUANCE OF FINAL SAFETY~~  
11 ~~EVALUATION.—~~The Executive Director for Oper-  
12 ations of the Commission shall inform the Commis-  
13 sion of a delay in issuance of the final safety evalua-  
14 tion for a requested activity of the Commission by  
15 the completion date required by the performance  
16 metrics or milestone schedule under paragraph (1)  
17 by not later than 30 days after the completion date.

18 ~~(3) DELAYS IN ISSUANCE OF FINAL SAFETY~~  
19 ~~EVALUATION EXCEEDING 180 DAYS.—~~If the final  
20 safety evaluation for the requested activity of the  
21 Commission described in paragraph (2) is not com-  
22 pleted by the date that is 180 days after the comple-  
23 tion date required by the performance metrics or  
24 milestone schedule under paragraph (1), the Com-  
25 mission shall submit to the appropriate congress-

1 sional committees a timely report describing the  
2 delay, including a detailed explanation accounting  
3 for the delay and a plan for timely completion of the  
4 final safety evaluation.

5 (d) ACCURATE INVOICING.—With respect to invoices  
6 for fees and charges described in subsection (b)(2), the  
7 Commission shall—

8 (1) ensure appropriate management review and  
9 concurrence prior to the issuance of invoices;

10 (2) develop and implement processes to audit  
11 invoices to ensure accuracy, transparency, and fair-  
12 ness; and

13 (3) modify regulations to ensure fair and appro-  
14 priate processes to provide licensees and applicants  
15 an opportunity to efficiently dispute or otherwise  
16 seek review and correction of errors in invoices for  
17 fees and charges.

18 (e) REPORT.—Not later than September 30, 2021,  
19 the Commission shall submit to the Committee on Appro-  
20 priations and the Committee on Environment and Public  
21 Works of the Senate and the Committee on Appropria-  
22 tions and the Committee on Energy and Commerce of the  
23 House of Representatives a report describing the imple-  
24 mentation of this section, including any impacts and rec-  
25 ommendations for improvement.

1       (f) **EFFECTIVE DATE.**—Except as provided in sub-  
2 section (e), this section takes effect on October 1, 2019.

3 **SEC. 103. ADVANCED NUCLEAR REACTOR PROGRAM.**

4       (a) **LICENSING OF COMMERCIAL ADVANCED NU-**  
5 **CLEAR REACTORS.**—

6           (1) **STAGED LICENSING.**—For the purpose of  
7 predictable, efficient, and timely reviews, not later  
8 than 270 days after the date of enactment of this  
9 Act, the Commission shall develop and implement,  
10 within the existing regulatory framework, strategies  
11 for—

12                   (A) establishing stages in the licensing  
13 process for commercial advanced nuclear reac-  
14 tors; and

15                   (B) developing procedures and processes  
16 for—

17                           (i) using a licensing project plan; and

18                           (ii) optional use of a conceptual de-  
19 sign assessment.

20           (2) **RISK-INFORMED LICENSING.**—Not later  
21 than 2 years after the date of enactment of this Act,  
22 the Commission shall develop and implement, where  
23 appropriate, strategies for the increased use of risk-  
24 informed, performance-based licensing evaluation  
25 techniques and guidance for commercial advanced

1 nuclear reactors within existing regulatory frame-  
2 works, including evaluation techniques and guidance  
3 for the resolution of the following:

4 (A) Applicable policy issues identified dur-  
5 ing the course of review by the Commission of  
6 a commercial advanced nuclear reactor licensing  
7 application.

8 (B) The issues described in ~~SECY-93-092~~  
9 and ~~SECY-15-077~~, including—

10 (i) licensing basis event selection and  
11 evaluation;

12 (ii) source terms;

13 (iii) containment performance; and

14 (iv) emergency preparedness.

15 ~~(3) RESEARCH AND TEST REACTOR LICENS-~~  
16 ~~ING.—~~For the purpose of predictable, efficient, and  
17 timely reviews, not later than 2 years after the date  
18 of enactment of this Act, the Commission shall de-  
19 velop and implement strategies within the existing  
20 regulatory framework for licensing research and test  
21 reactors, including the issuance of guidance.

22 ~~(4) TECHNOLOGY-INCLUSIVE REGULATORY~~  
23 ~~FRAMEWORK.—~~Not later than December 31, 2024,  
24 the Commission shall complete a rulemaking to es-  
25 tablish a technology-inclusive, regulatory framework



1 for optional use by commercial advanced nuclear re-  
 2 actor applicants for new reactor license applications.

3 ~~(5) TRAINING AND EXPERTISE.—~~As soon as  
 4 practicable after the date of enactment of this Act,  
 5 the Commission shall provide for staff training or  
 6 the hiring of experts, as necessary—

7 ~~(A)~~ to support the activities described in  
 8 paragraphs ~~(1)~~ through ~~(4)~~; and

9 ~~(B)~~ to support preparations—

10 ~~(i)~~ to conduct pre-application inter-  
 11 actions; and

12 ~~(ii)~~ to review commercial advanced nu-  
 13 clear reactor license applications.

14 ~~(6) AUTHORIZATION OF APPROPRIATIONS.—~~  
 15 There are authorized to be appropriated to the Com-  
 16 mission to carry out this subsection such sums as  
 17 are necessary.

18 ~~(b) REPORT TO ESTABLISH STAGES IN THE COM-~~  
 19 ~~MERCIAL ADVANCED NUCLEAR REACTOR LICENSING~~  
 20 ~~PROCESS.—~~

21 ~~(1) REPORT REQUIRED.—~~Not later than 180  
 22 days after the date of enactment of this Act, the  
 23 Commission shall submit to the appropriate congres-  
 24 sional committees a report for expediting and estab-  
 25 lishing stages in the licensing process for commercial

1 advanced nuclear reactors that will allow implemen-  
2 tation of the licensing process by not later than 2  
3 years after the date of enactment of this Act (re-  
4 ferred to in this subsection as the “report”).

5 (2) COORDINATION AND STAKEHOLDER  
6 INPUT.—In developing the report, the Commission  
7 shall seek input from the Secretary, the nuclear en-  
8 ergy industry, a diverse set of technology developers,  
9 and other public stakeholders.

10 (3) COST AND SCHEDULE ESTIMATES.—The re-  
11 port shall include proposed cost estimates, budgets,  
12 and timeframes for implementing strategies to estab-  
13 lish stages in the licensing process for commercial  
14 advanced nuclear reactor technologies.

15 (4) REQUIRED EVALUATIONS.—Consistent with  
16 the role of the Commission in protecting public  
17 health and safety and common defense and security,  
18 the report shall evaluate—

19 (A)(i) the unique aspects of commercial  
20 advanced nuclear reactor licensing, including  
21 the use of alternative coolants, operation at or  
22 near atmospheric pressure, and the use of pas-  
23 sive safety strategies;

24 (ii) strategies for the qualification of ad-  
25 vanced nuclear reactor fuel, including the use of

1 computer modeling and simulation and experi-  
2 mental validation; and

3 (iii) for the purposes of predictable, effi-  
4 cient, and timely reviews, any associated legal,  
5 regulatory, and policy issues the Commission  
6 should address with regard to the licensing of  
7 commercial advanced nuclear reactor tech-  
8 nologies;

9 (B) options for licensing commercial ad-  
10 vanced nuclear reactors under the regulations  
11 of the Commission contained in title 10, Code  
12 of Federal Regulations (as in effect on the date  
13 of enactment of this Act), including—

14 (i) the development and use under the  
15 regulatory framework of the Commission  
16 in effect on the date of enactment of this  
17 Act of a licensing project plan that could  
18 establish—

19 (I) milestones that—

20 (aa) correspond to stages of  
21 a licensing process for the spe-  
22 cific situation of a commercial  
23 advanced nuclear reactor project;  
24 and

- 1                   (bb) use knowledge of the  
2                   ability of the Commission to re-  
3                   view certain design aspects; and
- 4                   (II) guidelines defining the roles  
5                   and responsibilities between the Com-  
6                   mission and the applicant at the onset  
7                   of the interaction—
- 8                   (aa) to provide the founda-  
9                   tion for effective communication  
10                  and effective project manage-  
11                  ment; and
- 12                  (bb) to ensure efficient  
13                  progress;
- 14                  (ii) the use of topical reports, stand-  
15                  ard design approval, and other appropriate  
16                  mechanisms as tools to introduce stages  
17                  into the commercial advanced nuclear reac-  
18                  tor licensing process, including how the li-  
19                  censing project plan might structure the  
20                  use of those mechanisms;
- 21                  (iii) collaboration with standards-set-  
22                  ting organizations to identify specific tech-  
23                  nical areas for which new or updated  
24                  standards are needed and providing assist-  
25                  ance if appropriate to ensure the new or

1 updated standards are developed and final-  
2 ized in a timely fashion;

3 (iv) the incorporation of consensus-  
4 based codes and standards developed under  
5 clause (iii) into the regulatory frame-  
6 work—

7 (I) to provide predictability for  
8 the regulatory processes of the Com-  
9 mission; and

10 (II) to ensure timely completion  
11 of specific licensing actions;

12 (v) the development of a process for,  
13 and the use of, conceptual design assess-  
14 ments; and

15 (vi) identification of any policies and  
16 guidance for staff that will be needed to  
17 implement clauses (i) and (ii);

18 (C) options for improving the efficiency,  
19 timeliness, and cost-effectiveness of licensing re-  
20 views of commercial advanced nuclear reactors,  
21 including opportunities to minimize the delays  
22 that may result from any necessary amendment  
23 or supplement to an application;

24 (D) options for improving the predictability  
25 of the commercial advanced nuclear reactor li-

1           censing process, including the evaluation of op-  
2           portunities to improve the process by which ap-  
3           plication review milestones are established and  
4           met; and

5           (E) the extent to which Commission action  
6           or modification of policy is needed to implement  
7           any part of the report.

8           (c) ~~REPORT TO INCREASE THE USE OF RISK-IN-~~  
9           ~~FORMED AND PERFORMANCE-BASED EVALUATION TECH-~~  
10          ~~NIQUES AND REGULATORY GUIDANCE.—~~

11          (1) ~~REPORT REQUIRED.—~~Not later than 180  
12          days after the date of enactment of this Act, the  
13          Commission shall submit to the appropriate congress-  
14          sional committees a report for increasing, where ap-  
15          propriate, the use of risk-informed and performance-  
16          based evaluation techniques and regulatory guidance  
17          in licensing commercial advanced nuclear reactors  
18          within the existing regulatory framework (referred to  
19          in this subsection as the “report”).

20          (2) ~~COORDINATION AND STAKEHOLDER~~  
21          ~~INPUT.—~~In developing the report, the Commission  
22          shall seek input from the Secretary, the nuclear en-  
23          ergy industry, technology developers, and other pub-  
24          lic stakeholders.

1           ~~(3) COST AND SCHEDULE ESTIMATE.~~—The re-  
 2           port shall include proposed cost estimates, budgets,  
 3           and timeframes for implementing a strategy to in-  
 4           crease the use of risk-informed and performance-  
 5           based evaluation techniques and regulatory guidance  
 6           in licensing commercial advanced nuclear reactors.

7           ~~(4) REQUIRED EVALUATIONS.~~—Consistent with  
 8           the role of the Commission in protecting public  
 9           health and safety and common defense and security,  
 10          the report shall evaluate—

11                 ~~(A)~~ the ability of the Commission to de-  
 12                 velop and implement, where appropriate, risk-  
 13                 informed and performance-based licensing eval-  
 14                 uation techniques and guidance for commercial  
 15                 advanced nuclear reactors within existing regu-  
 16                 latory frameworks not later than 2 years after  
 17                 the date of enactment of this Act, including  
 18                 policies and guidance for the resolution of—

19                         ~~(i)~~ issues relating to—

20                                 ~~(I)~~ licensing basis event selection  
 21                                 and evaluation;

22                                 ~~(II)~~ use of mechanistic source  
 23                                 terms;

24                                 ~~(III)~~ containment performance;

1 (IV) emergency preparedness;  
2 and

3 (V) the qualification of advanced  
4 nuclear reactor fuel; and

5 (ii) other policy issues previously iden-  
6 tified; and

7 (B) the extent to which Commission action  
8 is needed to implement any part of the report.

9 (d) ~~REPORT TO PREPARE THE RESEARCH AND TEST~~  
10 ~~REACTOR LICENSING PROCESS.—~~

11 (1) ~~REPORT REQUIRED.—~~Not later than 1 year  
12 after the date of enactment of this Act, the Commis-  
13 sion shall submit to the appropriate congressional  
14 committees a report for preparing the licensing proc-  
15 ess for research and test reactors within the existing  
16 regulatory framework (referred to in this subsection  
17 as the “report”).

18 (2) ~~COORDINATION AND STAKEHOLDER~~  
19 ~~INPUT.—~~In developing the report, the Commission  
20 shall seek input from the Secretary, the nuclear en-  
21 ergy industry, a diverse set of technology developers,  
22 and other public stakeholders.

23 (3) ~~COST AND SCHEDULE ESTIMATES.—~~The re-  
24 port shall include proposed cost estimates, budgets,



1 and timeframes for preparing the licensing process  
2 for research and test reactors.

3 (4) ~~REQUIRED EVALUATIONS.~~—Consistent with  
4 the role of the Commission in protecting public  
5 health and safety and common defense and security,  
6 the report shall evaluate—

7 (A) the unique aspects of research and test  
8 reactor licensing and any associated legal, regu-  
9 latory, and policy issues the Commission should  
10 address to prepare the licensing process for re-  
11 search and test reactors;

12 (B) the feasibility of developing guidelines  
13 for advanced reactor demonstrations to support  
14 the review process for advanced reactors de-  
15 signs, including designs that use alternative  
16 coolants or alternative fuels, operate at or near  
17 atmospheric pressure, and use passive safety  
18 strategies; and

19 (C) the extent to which Commission action  
20 or modification of policy is needed to implement  
21 any part of the report.

22 (e) ~~REPORT TO COMPLETE A RULEMAKING TO ES-~~  
23 ~~TABLISH A TECHNOLOGY-INCLUSIVE REGULATORY~~  
24 ~~FRAMEWORK FOR OPTIONAL USE BY COMMERCIAL AD-~~  
25 ~~VANCED NUCLEAR REACTOR TECHNOLOGIES IN NEW RE-~~

1 ACTOR LICENSE APPLICATIONS AND TO ENHANCE COM-  
2 MISSION EXPERTISE RELATING TO ADVANCED NUCLEAR  
3 REACTOR TECHNOLOGIES.—

4 (1) REPORT REQUIRED.—Not later than 30  
5 months after the date of enactment of this Act, the  
6 Commission shall submit to the appropriate congress-  
7 sional committees a report (referred to in this sub-  
8 section as the “report”) for—

9 (A) completing a rulemaking to establish a  
10 technology-inclusive regulatory framework for  
11 optional use by applicants in licensing commer-  
12 cial advanced nuclear reactor technologies in  
13 new reactor license applications; and

14 (B) ensuring that the Commission has ade-  
15 quate expertise, modeling, and simulation capa-  
16 bilities, or access to those capabilities, to sup-  
17 port the evaluation of advanced reactor license  
18 applications, including the qualification of ad-  
19 vanced nuclear reactor fuel.

20 (2) COORDINATION AND STAKEHOLDER  
21 INPUT.—In developing the report, the Commission  
22 shall seek input from the Secretary, the nuclear en-  
23 ergy industry, a diverse set of technology developers,  
24 and other public stakeholders.

1           (3) COST AND SCHEDULE ESTIMATE.—The re-  
2       port shall include proposed cost estimates, budgets,  
3       and timeframes for developing and implementing a  
4       technology-inclusive regulatory framework for licens-  
5       ing commercial advanced nuclear reactor tech-  
6       nologies, including completion of a rulemaking.

7           (4) REQUIRED EVALUATIONS.—Consistent with  
8       the role of the Commission in protecting public  
9       health and safety and common defense and security,  
10      the report shall evaluate—

11           (A) the ability of the Commission to com-  
12      plete a rulemaking to establish a technology-in-  
13      clusive regulatory framework for licensing com-  
14      mercial advanced nuclear reactor technologies  
15      by December 31, 2024;

16           (B) the extent to which additional legisla-  
17      tion, or Commission action or modification of  
18      policy, is needed to implement any part of the  
19      new regulatory framework;

20           (C) the need for additional Commission ex-  
21      pertise, modeling, and simulation capabilities,  
22      or access to those capabilities, to support the  
23      evaluation of licensing applications for commer-  
24      cial advanced nuclear reactors and research and  
25      test reactors, including applications that use at-

1           ternative coolants or alternative fuels; operate  
2           at or near atmospheric pressure; and use pas-  
3           sive safety strategies; and

4           (D) the budgets and timeframes for ac-  
5           quiring or accessing the necessary expertise to  
6           support the evaluation of license applications  
7           for commercial advanced nuclear reactors and  
8           research and test reactors.

9   **SEC. 104. ADVANCED NUCLEAR ENERGY LICENSING COST-**  
10           **SHARE GRANT PROGRAM.**

11       (a) **ESTABLISHMENT.**—The Secretary shall establish  
12 a grant program to be known as the “Advanced Nuclear  
13 Energy Cost-Share Grant Program” (referred to in this  
14 section as the “program”), under which the Secretary  
15 shall make cost-share grants to applicants for the purpose  
16 of funding a portion of the Commission fees of the appli-  
17 cant for pre-application and application review activities.

18       (b) **REQUIREMENT.**—The Secretary shall seek out  
19 technology diversity in making grants under the program.

20       (c) **COST-SHARE AMOUNT.**—The Secretary shall de-  
21 termine the cost-share amount for each grant.

22       (d) **USE OF FUNDS.**—Recipients of grants under the  
23 program may use the grant funds to cover Commission  
24 fees, including those fees associated with—

25           (1) developing a licensing project plan;

- 1           (2) obtaining a conceptual design assessment;
- 2           (3) reviewing topical reports; and
- 3           (4) other pre-application and application review
- 4           activities and interactions with the Commission.

5           (e) **AUTHORIZATION OF APPROPRIATIONS.**—There  
6 are authorized to be appropriated to the Secretary to carry  
7 out this section such sums as are necessary.

8 **SEC. 105. BAFFLE-FORMER BOLT GUIDANCE.**

9           (a) **REVISIONS TO GUIDANCE.**—Not later than Sep-  
10 tember 30, 2017, the Commission shall publish any nec-  
11 essary revisions to the guidance on the baseline examina-  
12 tion schedule and subsequent examination frequency for  
13 baffle-former bolts in pressurized water reactors with  
14 down-flow configurations.

15           (b) **REPORT.**—Not later than September 30, 2017,  
16 the Commission shall submit to the appropriate congres-  
17 sional committees—

18                 (1) a report explaining any revisions made to  
19                 the guidance described in subsection (a); or

20                 (2) if no revisions were made, a report explain-  
21                 ing why the guidance, as in effect on the date of  
22                 submission of the report, is sufficient.

23 **SEC. 106. EVACUATION REPORT.**

24           (a) **IN GENERAL.**—Not later than 90 days after the  
25 date of enactment of this Act, the Commission shall sub-

1 mit to the appropriate congressional committees a report  
2 describing the actions the Commission has taken, or plans  
3 to take, to consider lessons learned since September 11,  
4 2001, Superstorm Sandy, Fukushima, and other recent  
5 natural disasters regarding directed or spontaneous evacua-  
6 tions in densely populated urban and suburban areas.

7 (b) INCLUSIONS.—The report under subsection (a)  
8 shall—

9 (1) describe the actions of the Commission—

10 (A) to consider the results from—

11 (i) the State-of-the-Art Reactor Con-  
12 sequence Analyses project; and

13 (ii) the current examination by the  
14 Commission of emergency planning zones  
15 for small modular reactors and advanced  
16 nuclear reactors; and

17 (B) to monitor international reviews, in-  
18 cluding reviews conducted by—

19 (i) the United Nations Scientific Com-  
20 mittee on the Effects of Atomic Radiation;

21 (ii) the World Health Organization;  
22 and

23 (iii) the Fukushima Health Manage-  
24 ment Survey; and

1           (2) with respect to a disaster similar to a dis-  
 2           aster described in subsection (a), include information  
 3           about—

4                   (A) potential shadow evacuations in re-  
 5                   sponse to the disaster; and

6                   (B) what levels of self-evacuation should be  
 7                   expected during the disaster, including outside  
 8                   the 10-mile evacuation zone.

9           (c) **CONSULTATION REQUIRED.**—The report under  
 10          subsection (a) shall be prepared after consultation with—

11                   (1) the Federal Radiological Preparedness Co-  
 12                   ordinating Committee;

13                   (2) State emergency planning officials from  
 14                   States that the Commission determines to be rel-  
 15                   evant to the report; and

16                   (3) experts in analyzing human behavior and  
 17                   probable responses to a radiological emission event.

## 18                                   **TITLE II—URANIUM**

### 19          **SEC. 201. URANIUM RECOVERY REPORT.**

20           Not later than December 31, 2017, the Commission  
 21          shall submit to the appropriate congressional committees  
 22          a report describing—

23                   (1) the safety and feasibility of extending the  
 24                   duration of uranium recovery licenses from 10 to 20

1 years, including any potential benefits of the exten-  
2 sion;

3 ~~(2) the duration of uranium recovery license~~  
4 ~~issuance and amendment reviews; and~~

5 ~~(3) recommendations to improve efficiency and~~  
6 ~~transparency of uranium recovery license issuance~~  
7 ~~and amendment reviews.~~

8 **SEC. 202. PILOT PROGRAM FOR URANIUM RECOVERY FEES.**

9 Not later than July 31, 2018, the Commission  
10 shall—

11 (1) complete a voluntary pilot initiative to de-  
12 termine the feasibility of the establishment of a flat  
13 fee structure for routine licensing matters relating to  
14 uranium recovery; and

15 ~~(2) provide to the appropriate congressional~~  
16 ~~committees a report describing the results of the~~  
17 ~~pilot initiative under paragraph (1).~~

18 **SEC. 203. URANIUM TRANSFERS AND SALES.**

19 Section 3112 of the USEC Privatization Act (42  
20 U.S.C. 2297h–10) is amended—

21 (1) by redesignating subsections (b) through (f)  
22 as subsections (d) through (h), respectively;

23 (2) by striking subsection (a) and inserting the  
24 following:

25 “(a) **DEFINITIONS.**—In this section:



1           “(1) DEPLETED URANIUM.—The term ‘depleted  
2 uranium’ means uranium having an assay less than  
3 the assay for—

4           “(A) natural uranium; or

5           “(B) 0.711 percent of the uranium-235  
6 isotope.

7           “(2) HIGHLY ENRICHED URANIUM.—The term  
8 ‘highly enriched uranium’ means uranium having an  
9 assay of 20 percent or greater of the uranium-235  
10 isotope.

11          “(3) LOW-ENRICHED URANIUM.—The term  
12 ‘low-enriched uranium’ means uranium having an  
13 assay greater than 0.711 percent but less than 20  
14 percent of the uranium-235 isotope.

15          “(4) METRIC TON OF URANIUM.—The term  
16 ‘metric ton of uranium’ means 1,000 kilograms of  
17 uranium.

18          “(5) NATURAL URANIUM.—The term ‘natural  
19 uranium’ means uranium having an assay of 0.711  
20 percent of the uranium-235 isotope.

21          “(6) OFF-SPEC URANIUM.—The term ‘off-spec  
22 uranium’ means uranium in any form, including de-  
23pleted uranium, highly enriched uranium, low-en-  
24riched uranium, natural uranium, UF<sub>6</sub>, and any by-  
25product of uranium processing, that does not meet

1 the specification for commercial material (as defined  
2 by the standards of the American Society for Test-  
3 ing and Materials).

4 “(7) URANIUM.—Other than in subsection (e),  
5 the term ‘uranium’ includes natural uranium, ura-  
6 nium hexafluoride, highly enriched uranium, low-en-  
7 riched uranium, depleted uranium, and any byprod-  
8 uct of uranium processing.

9 “(8) URANIUM HEXAFLUORIDE; UF<sub>6</sub>.—The  
10 terms ‘uranium hexafluoride’ and ‘UF<sub>6</sub>’ mean ura-  
11 nium that has been combined with fluorine, to form  
12 a compound that, dependent on temperature and  
13 pressure, can be a solid, liquid, or gas.

14 “(b) TRANSFERS AND SALES BY THE SECRETARY.—  
15 The Secretary shall not provide enrichment services, or  
16 transfer, sell or otherwise provide any uranium to any per-  
17 son except in accordance with this section.

18 “(c) DEVELOPMENT OF FEDERAL EXCESS URANIUM  
19 MANAGEMENT PLAN.—

20 “(1) IN GENERAL.—Beginning on January 1,  
21 2018, and not less frequently than once every 10  
22 years thereafter, the Secretary shall issue a long-  
23 term Federal excess uranium inventory management  
24 plan (referred to in this section as the ‘plan’) that  
25 details the management of the excess uranium inven-

1       tories of the Department of Energy and covers a pe-  
2       riod of not fewer than 10 years.

3       “(2) CONTENT.—

4               “(A) IN GENERAL.—The plan shall cover  
5       all forms of uranium within the excess uranium  
6       inventory of the Department of Energy, includ-  
7       ing depleted uranium, highly enriched uranium,  
8       low-enriched uranium, natural uranium, off-  
9       spec uranium, and UF<sub>6</sub>.

10              “(B) REDUCING IMPACT ON DOMESTIC IN-  
11       DUSTRY.—The plan shall outline steps the Sec-  
12       retary will take to minimize the impact of  
13       transferring, selling, or otherwise providing ura-  
14       nium on the domestic uranium mining, conver-  
15       sion, and enrichment industries, including any  
16       actions for which the Secretary would require  
17       new authority.

18              “(C) MAXIMIZING BENEFITS TO THE FED-  
19       ERAL GOVERNMENT.—The plan shall outline  
20       steps the Secretary shall take to ensure that the  
21       Federal Government maximizes the potential  
22       value of uranium for the Federal Government.

23              “(3) PROPOSED PLAN.—Before issuing the final  
24       plan, the Secretary shall publish a proposed plan in

1 the Federal Register pursuant to a rulemaking  
2 under section 553 of title 5, United States Code.

3 “(4) DEADLINES FOR SUBMISSION.—The Sec-  
4 retary shall issue—

5 “(A) a proposed plan for public comment  
6 under paragraph (3) not later than 180 days  
7 after the date of enactment of this paragraph;  
8 and

9 “(B) a final plan not later than 1 year  
10 after the date of enactment of this paragraph.”;

11 (3) in subsection (d) (as redesignated by para-  
12 graph (1))—

13 (A) in the sixth sentence of paragraph (3),  
14 by striking “subsections (b)(5), (b)(6) and  
15 (b)(7) of this section” and inserting “para-  
16 graphs (5), (6), and (7)”;

17 (B) in paragraph (8), by striking “(b)”;  
18 (4) in subsection (e)(1) (as redesignated by  
19 paragraph (1)), by striking “subsection (e)(2)” and  
20 inserting “paragraph (2)”;

21 (5) in subsection (f) (as redesignated by para-  
22 graph (1))—

23 (A) by striking paragraph (1) and insert-  
24 ing the following:

1           “(1) IN GENERAL.—Notwithstanding the trans-  
2           fers authorized under subsections (e) and (g), the  
3           Secretary may transfer, sell, or otherwise provide  
4           any uranium from the stockpile of the Department  
5           of Energy, subject to the following limitations:

6                   “(A) Effective for the period of calendar  
7                   years 2017 through 2025, and notwithstanding  
8                   any other provision of law, the Secretary shall  
9                   not transfer, sell, or otherwise provide more  
10                  than 2,100 metric tons of natural uranium  
11                  equivalent annually in any form, including de-  
12                  pleted uranium, highly enriched uranium, low-  
13                  enriched uranium, natural uranium, off-spec  
14                  uranium, and UF<sub>6</sub>.

15                  “(B) Effective beginning on January 1,  
16                  2026, and notwithstanding any other provision  
17                  of law, the Secretary shall not transfer, sell, or  
18                  otherwise provide more than 2,700 metric tons  
19                  of natural uranium equivalent annually in any  
20                  form, including depleted uranium, highly en-  
21                  riched uranium, low-enriched uranium, natural  
22                  uranium, off-spec uranium, and UF<sub>6</sub>.”;

23                  (B) in paragraph (2), in the matter pre-  
24                  ceding subparagraph (A), by striking “(2) Ex-

1           cept as provided in subsections (b), (c), and  
2           (e)” and inserting the following:

3           “~~(2) DETERMINATIONS.—~~Except as provided in  
4           subsections (d), (e), and (g), and subject to para-  
5           graph ~~(3)~~”; and

6           (C) by adding at the end the following:

7           “~~(3) REQUIREMENTS FOR DETERMINATIONS.—~~

8           “~~(A) PROPOSED DETERMINATION.—~~Before  
9           making a determination under paragraph  
10          ~~(2)(B)~~, the Secretary shall publish a proposed  
11          determination in the Federal Register pursuant  
12          to a rulemaking under section 553 of title 5,  
13          United States Code.

14          “~~(B) QUALITY OF MARKET ANALYSIS.—~~  
15          Any market analysis that is prepared by the  
16          Department of Energy, or that the Department  
17          of Energy commissions for the Secretary as  
18          part of the determination process under para-  
19          graph ~~(2)(B)~~, shall be subject to a peer review  
20          process consistent with the guidelines of the Of-  
21          fice of Management and Budget published at  
22          67 Fed. Reg. 8452–8460 (February 22, 2002)  
23          (or successor guidelines), to ensure and maxi-  
24          mize the quality, objectivity, utility, and integ-

1 rity of information disseminated by Federal  
2 agencies:

3 “(C) WAIVER OF SECRETARIAL DETER-  
4 MINATION.—Beginning on January 1, 2023, the  
5 requirement for a determination by the Sec-  
6 retary under paragraph (2)(B) shall be waived  
7 for transferring, selling, or otherwise providing  
8 uranium by the Secretary if the uranium has  
9 been identified in the updated long-term Fed-  
10 eral excess uranium inventory management plan  
11 under subsection (e)(1).”; and

12 (6) in subsection (g) (as redesignated by para-  
13 graph (1)), in the matter preceding paragraph (1),  
14 by striking “(d)(2)” and inserting “(f)(2)”.

15 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

16 (a) *SHORT TITLE.*—This Act may be cited as the “Nu-  
17 clear Energy Innovation and Modernization Act”.

18 (b) *TABLE OF CONTENTS.*—The table of contents for  
19 this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Findings.
- Sec. 3. Purpose.
- Sec. 4. Definitions.

*TITLE I—ADVANCED NUCLEAR REACTORS AND USER FEES*

- Sec. 101. Nuclear Regulatory Commission user fees and annual charges through fiscal year 2019.
- Sec. 102. Nuclear Regulatory Commission user fees and annual charges for fiscal year 2020 and each fiscal year thereafter.
- Sec. 103. Advanced nuclear reactor program.
- Sec. 104. Advanced nuclear energy licensing cost-share grant program.
- Sec. 105. Baffle-former bolt guidance.

Sec. 106. *Evacuation report.*

Sec. 107. *Encouraging private investment in research and test reactors.*

Sec. 108. *Commission report on accident tolerant fuel.*

*TITLE II—URANIUM*

Sec. 201. *Uranium recovery report.*

Sec. 202. *Pilot program for uranium recovery fees.*

Sec. 203. *Uranium transfers and sales.*

1 **SEC. 2. FINDINGS.**

2 *Congress finds that—*

3 *(1) the safe and secure operation of nuclear reac-*  
 4 *tors in the United States must remain the paramount*  
 5 *focus of the Nuclear Regulatory Commission;*

6 *(2) the existing fleet of nuclear reactors in the*  
 7 *United States is operating safely and securely;*

8 *(3) nuclear energy is the largest source of afford-*  
 9 *able, reliable, emissions-free energy in the United*  
 10 *States, providing approximately 20 percent of the*  
 11 *electricity consumed in the United States and 60 per-*  
 12 *cent of emissions-free electricity generation in the*  
 13 *United States;*

14 *(4) a 1,000-megawatt nuclear plant—*

15 *(A) provides approximately 500 permanent*  
 16 *jobs;*

17 *(B) pays approximately \$40,000,000 annu-*  
 18 *ally in wages;*

19 *(C) generates approximately \$470,000,000*  
 20 *annually in goods and services in the local com-*  
 21 *munity; and*



1           (D) pays approximately \$83,000,000 annu-  
2           ally in Federal, State, and local taxes;

3           (5) nuclear energy is of critical importance to  
4           United States energy security and worldwide influ-  
5           ence on nonproliferation;

6           (6) nuclear energy uses widely available fuel re-  
7           sources to enable scientific progress, emissions-free  
8           and reliable electricity generation, heat generation for  
9           industrial applications, and power for deep space ex-  
10          ploration;

11          (7) the private sector, the National Laboratories  
12          (as defined in section 2 of the Energy Policy Act of  
13          2005 (42 U.S.C. 15801)), and institutions of higher  
14          education are pursuing innovations in nuclear energy  
15          technology that will play a crucial role in—

16                (A) the future global and United States en-  
17                ergy supply; and

18                (B) the exports, manufacturing, and econ-  
19                omy of the United States;

20          (8) eventual deployment of commercial advanced  
21          nuclear reactors will require—

22                (A) modernizing the regulatory framework;  
23                and

24                (B) making other necessary changes to fa-  
25                cilitate the efficient, predictable, and affordable

1           *deployment of advanced nuclear reactor tech-*  
2           *nologies;*

3           *(9) 2 impediments to the commercialization of*  
4           *advanced nuclear reactors are the high costs and long*  
5           *durations associated with applying the existing nu-*  
6           *clear regulatory framework to advanced nuclear reac-*  
7           *tors;*

8           *(10) license application reviews should be as pre-*  
9           *dictable, efficient, and timely as practicable without*  
10          *compromising safety or security;*

11          *(11) the development of advanced nuclear reac-*  
12          *tors would benefit from the early identification of pol-*  
13          *icy issues for timely consideration and resolution by*  
14          *the Commission to improve the efficient development*  
15          *of designs as well as preparing for design review and*  
16          *licensing;*

17          *(12) the existing nuclear regulatory framework*  
18          *and the requirements of that framework have not*  
19          *adapted to advances in scientific understanding or*  
20          *the features and performance characteristics of ad-*  
21          *vanced nuclear reactor designs;*

22          *(13) the existing nuclear reactor licensing proc-*  
23          *ess does not provide iterative feedback to manage risk*  
24          *as needed for typical technology development and in-*  
25          *vestment cycles;*

1           (14) a staged licensing structure that provides  
2 clear and periodic feedback to applicants on an  
3 agreed schedule will help to enable the commercializa-  
4 tion of safer and innovative technologies that will  
5 benefit the economy, national security, and environ-  
6 ment of the United States;

7           (15) a technology-inclusive Commission regu-  
8 latory framework will—

9                 (A) allow greater technological innovation;  
10                and

11               (B) enable inventors, scientists, engineers,  
12                and students to pursue licensing advanced reac-  
13                tor concepts;

14           (16) further preparation by the Commission of  
15 the research and test reactor licensing process will en-  
16 able the Commission to more efficiently process appli-  
17 cations for research and test reactors when the appli-  
18 cations are received;

19           (17) it is incumbent on the Commission—

20                (A) to budget appropriate resources to un-  
21                dertake an active role in design familiarization  
22                activities with potential applicants with ad-  
23                vanced reactor designs;

1           (B) to budget for adequate resources to con-  
2           duct licensing reviews and other work requested  
3           by licensees and applicants; and

4           (C) to use those budgeted funds to ensure re-  
5           sponsiveness to licensees and applicants in rec-  
6           ognition of the dependence of the licensees and  
7           applicants on Commission approval before the  
8           benefits of the technology of the licensees and ap-  
9           plicants can be realized; and

10          (18) both prospective advanced nuclear reactor  
11          applicants and the existing fleet of nuclear reactors in  
12          the United States would benefit from modernizing the  
13          outdated fee recovery structure of the Commission to  
14          better manage fluctuations in workload and the num-  
15          ber of licensees in a fair and equitable manner.

16 **SEC. 3. PURPOSE.**

17          *The purpose of this Act is to provide—*

18               (1) a program to develop the expertise and regu-  
19               latory processes necessary to allow innovation and the  
20               commercialization of advanced nuclear reactors;

21               (2) a revised fee recovery structure to ensure the  
22               availability of resources to meet industry needs with-  
23               out burdening existing licensees unfairly for inac-  
24               curate workload projections or premature existing re-  
25               actor closures; and

1           (3) *more efficient regulation of uranium recov-*  
2           *ery.*

3 **SEC. 4. DEFINITIONS.**

4           *In this Act:*

5           (1) *ADVANCED NUCLEAR REACTOR.*—*The term*  
6           *“advanced nuclear reactor” means a nuclear fission*  
7           *or fusion reactor, including a prototype plant (as de-*  
8           *finied in sections 50.2 and 52.1 of title 10, Code of*  
9           *Federal Regulations (as in effect on the date of enact-*  
10           *ment of this Act)), with significant improvements*  
11           *compared to commercial nuclear reactors under con-*  
12           *struction as of the date of enactment of this Act, in-*  
13           *cluding improvements such as—*

14                     (A) *additional inherent safety features;*

15                     (B) *significantly lower levelized cost of elec-*  
16           *tricity;*

17                     (C) *lower waste yields;*

18                     (D) *greater fuel utilization;*

19                     (E) *enhanced reliability;*

20                     (F) *increased proliferation resistance;*

21                     (G) *increased thermal efficiency; or*

22                     (H) *ability to integrate into electric and*  
23           *nonelectric applications.*

24           (2) *ADVANCED NUCLEAR REACTOR FUEL.*—*The*  
25           *term “advanced nuclear reactor fuel” means fuel for*

1        *use in an advanced nuclear reactor or a research and*  
2        *test reactor, including fuel with a low uranium en-*  
3        *richment level of not greater than 20 percent.*

4            (3) *AGREEMENT STATE.*—*The term “Agreement*  
5        *State” means any State with which the Commission*  
6        *has entered into an effective agreement under section*  
7        *274 b. of the Atomic Energy Act of 1954 (42 U.S.C.*  
8        *2021(b)).*

9            (4) *APPROPRIATE CONGRESSIONAL COMMIT-*  
10        *TEES.*—*The term “appropriate congressional commit-*  
11        *tees” means the Committee on Environment and Pub-*  
12        *lic Works of the Senate and the Committee on Energy*  
13        *and Commerce of the House of Representatives.*

14            (5) *COMMISSION.*—*The term “Commission”*  
15        *means the Nuclear Regulatory Commission.*

16            (6) *CONCEPTUAL DESIGN ASSESSMENT.*—*The*  
17        *term “conceptual design assessment” means an early-*  
18        *stage review by the Commission that—*

19                    (A) *assesses preliminary design information*  
20                    *for consistency with applicable regulatory re-*  
21                    *quirements of the Commission;*

22                    (B) *is performed on a set of topic areas*  
23                    *agreed to in the licensing project plan; and*

24                    (C) *is performed at a cost and schedule*  
25                    *agreed to in the licensing project plan.*

1           (7) *CORPORATE SUPPORT COSTS.*—*The term*  
2           “*corporate support costs*” *means expenditures for ac-*  
3           *quisitions, administrative services, financial manage-*  
4           *ment, human resource management, information*  
5           *management, information technology, policy support,*  
6           *outreach, and training, as those categories are de-*  
7           *scribed and calculated in Appendix A of the Congres-*  
8           *sional Budget Justification for Fiscal Year 2017 of*  
9           *the Commission.*

10           (8) *LICENSING PROJECT PLAN.*—*The term “li-*  
11           *censing project plan” means a plan that describes—*

12                   (A) *the interactions between an applicant*  
13                   *and the Commission; and*

14                   (B) *project schedules and deliverables in*  
15                   *specific detail to support long-range resource*  
16                   *planning undertaken by the Commission and an*  
17                   *applicant.*

18           (9) *REGULATORY FRAMEWORK.*—*The term “reg-*  
19           *ulatory framework” means the framework for review-*  
20           *ing requests for certifications, permits, approvals, and*  
21           *licenses for nuclear reactors.*

22           (10) *REQUESTED ACTIVITY OF THE COMMIS-*  
23           *SION.*—*The term “requested activity of the Commis-*  
24           *sion” means—*

25                   (A) *the processing of applications for—*

- 1 (i) design certifications or approvals;
- 2 (ii) licenses;
- 3 (iii) permits;
- 4 (iv) license amendments;
- 5 (v) license renewals;
- 6 (vi) certificates of compliance; and
- 7 (vii) power uprates; and

8 (B) any other activity requested by a li-  
9 censee or applicant.

10 (11) RESEARCH AND TEST REACTOR.—

11 (A) IN GENERAL.—The term “research and  
12 test reactor” means a reactor that—

13 (i) falls within the licensing and re-  
14 lated regulatory authority of the Commis-  
15 sion under section 202 of the Energy Reor-  
16 ganization Act of 1974 (42 U.S.C. 5842);  
17 and

18 (ii) is useful in the conduct of research  
19 and development activities as licensed under  
20 section 104 c. of the Atomic Energy Act (42  
21 U.S.C. 2134(c)).

22 (B) EXCLUSION.—The term “research and  
23 test reactor” does not include a commercial nu-  
24 clear reactor.



1           (12) *SECRETARY*.—The term “Secretary” means  
2           the Secretary of Energy.

3           (13) *STANDARD DESIGN APPROVAL*.—The term  
4           “standard design approval” means the approval of a  
5           final standard design or a major portion of a final  
6           design standard as described in subpart E of part 52  
7           of title 10, Code of Federal Regulations (as in effect  
8           on the date of enactment of this Act).

9           (14) *TECHNOLOGY-INCLUSIVE REGULATORY*  
10          *FRAMEWORK*.—The term “technology-inclusive regu-  
11          latory framework” means a regulatory framework de-  
12          veloped using methods of evaluation that are flexible  
13          and practicable for application to a variety of reactor  
14          technologies, including, where appropriate, the use of  
15          risk-informed and performance-based techniques and  
16          other tools and methods.

17          (15) *TOPICAL REPORT*.—The term “topical re-  
18          port” means a document submitted to the Commission  
19          that addresses a technical topic related to nuclear re-  
20          actor safety or design.

1     **TITLE I—ADVANCED NUCLEAR**  
2             **REACTORS AND USER FEES**

3     **SEC. 101. NUCLEAR REGULATORY COMMISSION USER FEES**  
4                     **AND ANNUAL CHARGES THROUGH FISCAL**  
5                     **YEAR 2019.**

6             *(a) IN GENERAL.—Section 6101(c)(2)(A) of the Omni-*  
7 *bus Budget Reconciliation Act of 1990 (42 U.S.C.*  
8 *2214(c)(2)(A)) is amended—*

9                     *(1) in clause (iii), by striking “and” at the end;*

10                    *(2) in clause (iv), by striking the period at the*  
11 *end and inserting “; and”; and*

12                    *(3) by adding at the end the following:*

13                             *“(v) amounts appropriated to the*  
14 *Commission for the fiscal year for activities*  
15 *related to the development of regulatory in-*  
16 *frastructure for advanced nuclear reactor*  
17 *technologies, including activities required*  
18 *under section 103 of the Nuclear Energy In-*  
19 *novation and Modernization Act.”.*

20             *(b) REPEAL.—Effective October 1, 2019, section 6101*  
21 *of the Omnibus Budget Reconciliation Act of 1990 (42*  
22 *U.S.C. 2214) is repealed.*

1 **SEC. 102. NUCLEAR REGULATORY COMMISSION USER FEES**  
2 **AND ANNUAL CHARGES FOR FISCAL YEAR**  
3 **2020 AND EACH FISCAL YEAR THEREAFTER.**

4 (a) *ANNUAL BUDGET JUSTIFICATION.*—

5 (1) *IN GENERAL.*—*In the annual budget jus-*  
6 *tification submitted by the Commission to Congress,*  
7 *the Commission shall expressly identify anticipated*  
8 *expenditures necessary for completion of the requested*  
9 *activities of the Commission anticipated to occur dur-*  
10 *ing the applicable fiscal year.*

11 (2) *RESTRICTION.*—*Budget authority granted to*  
12 *the Commission for purposes of the requested activi-*  
13 *ties of the Commission shall be used, to the maximum*  
14 *extent practicable, solely for conducting requested ac-*  
15 *tivities of the Commission.*

16 (3) *LIMITATION ON CORPORATE SUPPORT*  
17 *COSTS.*—*With respect to the annual budget justifica-*  
18 *tion submitted to Congress, corporate support costs, to*  
19 *the maximum extent practicable, shall not exceed the*  
20 *following percentages of the total budget authority of*  
21 *the Commission requested in the annual budget jus-*  
22 *tification:*

23 (A) *30 percent for each of fiscal years 2020*  
24 *and 2021.*

25 (B) *29 percent for each of fiscal years 2022*  
26 *and 2023.*

1                   (C) 28 percent for fiscal year 2024 and each  
2                   fiscal year thereafter.

3           (b) FEES AND CHARGES.—

4                   (1) ANNUAL ASSESSMENT.—

5                           (A) IN GENERAL.—Each fiscal year, the  
6                   Commission shall assess and collect fees and  
7                   charges in accordance with paragraphs (2) and  
8                   (3) in a manner that ensures that, to the max-  
9                   imum extent practicable, the amount collected is  
10                   equal to an amount that approximates—

11                                   (i) the total budget authority of the  
12                                   Commission for that fiscal year; less

13                                   (ii) the budget authority of the Com-  
14                                   mission for the activities described in sub-  
15                                   paragraph (B).

16                           (B) EXCLUDED ACTIVITIES DESCRIBED.—

17                   The activities referred to in subparagraph (A)(ii)  
18                   are the following:

19                                   (i) Any fee relief activity identified by  
20                                   the Commission in the final rule of the  
21                                   Commission entitled “Revision of Fee  
22                                   Schedules; Fee Recovery for Fiscal Year  
23                                   2015” (80 Fed. Reg. 37432 (June 30,  
24                                   2015)).

1                   (ii) Amounts appropriated for a fiscal  
2 year to the Commission—

3                   (I) from the Nuclear Waste Fund  
4 established under section 302(c) of the  
5 Nuclear Waste Policy Act of 1982 (42  
6 U.S.C. 10222(c));

7                   (II) for implementation of section  
8 3116 of the Ronald W. Reagan Na-  
9 tional Defense Authorization Act for  
10 Fiscal Year 2005 (50 U.S.C. 2601 note;  
11 Public Law 108–375);

12                   (III) for the homeland security ac-  
13 tivities of the Commission (other than  
14 for the costs of fingerprinting and  
15 background checks required under sec-  
16 tion 149 of the Atomic Energy Act of  
17 1954 (42 U.S.C. 2169) and the costs of  
18 conducting security inspections);

19                   (IV) for the Inspector General  
20 services of the Commission provided to  
21 the Defense Nuclear Facilities Safety  
22 Board;

23                   (V) for research and development  
24 at universities in areas relevant to the  
25 mission of the Commission; and

1                   (VI) for a nuclear science and en-  
2                   gineering grant program that will sup-  
3                   port multiyear projects that do not  
4                   align with programmatic missions but  
5                   are critical to maintaining the dis-  
6                   cipline of nuclear science and engineer-  
7                   ing.

8                   (iii) Costs for activities related to the  
9                   development of regulatory infrastructure for  
10                  advanced nuclear reactor technologies, in-  
11                  cluding activities required under section  
12                  103.

13                  (C) *EXCEPTION.*—The exclusion described  
14                  in subparagraph (B)(iii) shall cease to be effec-  
15                  tive on January 1, 2031.

16                  (D) *REPORT.*—Not later than December 31,  
17                  2029, the Commission shall submit to the Com-  
18                  mittee on Appropriations and the Committee on  
19                  Environment and Public Works of the Senate  
20                  and the Committee on Appropriations and the  
21                  Committee on Energy and Commerce of the  
22                  House of Representatives a report describing the  
23                  views of the Commission on the continued appro-  
24                  priateness and necessity of the funding described  
25                  in subparagraph (B)(iii).

1           (2) *FEES FOR SERVICE OR THING OF VALUE.*—  
2           *In accordance with section 9701 of title 31, United*  
3           *States Code, the Commission shall charge fees to any*  
4           *person who receives a service or thing of value from*  
5           *the Commission to cover the costs to the Commission*  
6           *of providing the service or thing of value.*

7           (3) *ANNUAL FEES.*—

8                   (A) *IN GENERAL.*—*Subject to subparagraph*  
9                   *(B) and except as provided in subparagraph (D),*  
10                  *the Commission may charge to any licensee or*  
11                  *certificate holder of the Commission an annual*  
12                  *fee.*

13                   (B) *CAP ON ANNUAL FEES OF CERTAIN LI-*  
14                  *CENSEES.*—

15                           (i) *IN GENERAL.*—*The annual fee*  
16                           *under subparagraph (A) charged to an op-*  
17                           *erating reactor licensee, to the maximum ex-*  
18                           *tent practicable, shall not exceed the annual*  
19                           *fee amount per operating reactor licensee es-*  
20                           *tablished in the final rule of the Commis-*  
21                           *sion entitled “Revision of Fee Schedules;*  
22                           *Fee Recovery for Fiscal Year 2015” (80*  
23                           *Fed. Reg. 37432 (June 30, 2015)), as may*  
24                           *be adjusted annually by the Commission to*  
25                           *reflect changes in the Consumer Price Index*

1           *published by the Bureau of Labor Statistics*  
2           *of the Department of Labor.*

3           (ii) *WAIVER.*—*The Commission may*  
4           *waive, for a period of 1 year, the cap on*  
5           *annual fees described in clause (i) if the*  
6           *Commission submits to the Committee on*  
7           *Appropriations and the Committee on En-*  
8           *vironment and Public Works of the Senate*  
9           *and the Committee on Appropriations and*  
10           *the Committee on Energy and Commerce of*  
11           *the House of Representatives a written de-*  
12           *termination that the cap on annual fees*  
13           *may compromise the safety and security*  
14           *mission of the Commission.*

15           (C) *AMOUNT PER LICENSEE.*—

16           (i) *IN GENERAL.*—*The Commission*  
17           *shall establish by rule a schedule of fees fair-*  
18           *ly and equitably allocating the aggregate*  
19           *amount of charges described in subpara-*  
20           *graph (A) among licensees and certificate*  
21           *holders.*

22           (ii) *REQUIREMENT.*—*The schedule of*  
23           *fees under clause (i)—*



1           (I) to the maximum extent prac-  
2           ticable, shall be based on the cost of  
3           providing regulatory services; and

4           (II) may be based on the alloca-  
5           tion of the resources of the Commission  
6           among licensees or certificate holders  
7           or classes of licensees or certificate  
8           holders.

9           (D) EXEMPTION.—

10           (i) DEFINITION OF RESEARCH REAC-  
11           TOR.—In this subparagraph, the term “re-  
12           search reactor” means a nuclear reactor  
13           that—

14           (I) is licensed by the Commission  
15           under section 104 c. of the Atomic En-  
16           ergy Act of 1954 (42 U.S.C. 2134(c))  
17           for operation at a thermal power level  
18           of not more than 10 megawatts; and

19           (II) if licensed under subclause (I)  
20           for operation at a thermal power level  
21           of more than 1 megawatt, does not con-  
22           tain—

23           (aa) a circulating loop  
24           through the core in which the li-  
25           censee conducts fuel experiments;

1                                    (bb) a liquid fuel loading; or  
2                                    (cc) an experimental facility  
3                                    in the core in excess of 16 square  
4                                    inches in cross-section.

5                                   (ii) EXEMPTION.—Subparagraph (A)  
6                                   shall not apply to the holder of any license  
7                                   for a federally owned research reactor used  
8                                   primarily for educational training and aca-  
9                                   demic research purposes.

10                               (c) PERFORMANCE AND REPORTING.—

11                               (1) IN GENERAL.—Not later than 180 days after  
12                               the date of enactment of this Act, the Commission  
13                               shall develop for the requested activities of the Com-  
14                               mission—

15                                   (A) performance metrics; and

16                                   (B) on each request, milestone schedules.

17                               (2) DELAYS IN ISSUANCE OF FINAL SAFETY  
18                               EVALUATION.—The Executive Director for Operations  
19                               of the Commission shall inform the Commission of a  
20                               delay in issuance of the final safety evaluation for a  
21                               requested activity of the Commission by the comple-  
22                               tion date required by the performance metrics or  
23                               milestone schedule under paragraph (1) by not later  
24                               than 30 days after the completion date.

1           (3) *DELAYS IN ISSUANCE OF FINAL SAFETY*  
2           *EVALUATION EXCEEDING 180 DAYS.*—*If the final safety*  
3           *evaluation for the requested activity of the Commis-*  
4           *sion described in paragraph (2) is not completed by*  
5           *the date that is 180 days after the completion date re-*  
6           *quired by the performance metrics or milestone sched-*  
7           *ule under paragraph (1), the Commission shall sub-*  
8           *mit to the appropriate congressional committees a*  
9           *timely report describing the delay, including a de-*  
10          *tailed explanation accounting for the delay and a*  
11          *plan for timely completion of the final safety evalua-*  
12          *tion.*

13          (d) *ACCURATE INVOICING.*—*With respect to invoices*  
14          *for fees and charges described in subsection (b)(2), the Com-*  
15          *mission shall—*

16                 (1) *ensure appropriate management review and*  
17                 *concurrence prior to the issuance of invoices;*

18                 (2) *develop and implement processes to audit in-*  
19                 *voices to ensure accuracy, transparency, and fairness;*  
20                 *and*

21                 (3) *modify regulations to ensure fair and appro-*  
22                 *priate processes to provide licensees and applicants*  
23                 *an opportunity to efficiently dispute or otherwise seek*  
24                 *review and correction of errors in invoices for fees*  
25                 *and charges.*

1       (e) *REPORT.*—Not later than September 30, 2021, the  
2 Commission shall submit to the Committee on Appropria-  
3 tions and the Committee on Environment and Public Works  
4 of the Senate and the Committee on Appropriations and  
5 the Committee on Energy and Commerce of the House of  
6 Representatives a report describing the implementation of  
7 this section, including any impacts and recommendations  
8 for improvement.

9       (f) *EFFECTIVE DATE.*—Except as provided in sub-  
10 section (c), this section takes effect on October 1, 2019.

11 **SEC. 103. ADVANCED NUCLEAR REACTOR PROGRAM.**

12       (a) *LICENSING.*—

13               (1) *STAGED LICENSING.*—For the purpose of pre-  
14 dictable, efficient, and timely reviews, not later than  
15 270 days after the date of enactment of this Act, the  
16 Commission shall develop and implement, within the  
17 existing regulatory framework, strategies for—

18                       (A) establishing stages in the licensing proc-  
19 ess for commercial advanced nuclear reactors;  
20 and

21                       (B) developing procedures and processes  
22 for—

23                               (i) using a licensing project plan; and  
24                               (ii) optional use of a conceptual design  
25 assessment.

1           (2) *RISK-INFORMED LICENSING.*—Not later than  
2           2 years after the date of enactment of this Act, the  
3           Commission shall develop and implement, where ap-  
4           propriate, strategies for the increased use of risk-in-  
5           formed, performance-based licensing evaluation tech-  
6           niques and guidance for commercial advanced nuclear  
7           reactors within the existing regulatory framework, in-  
8           cluding evaluation techniques and guidance for the  
9           resolution of the following:

10                   (A) *Applicable policy issues identified dur-*  
11                   *ing the course of review by the Commission of a*  
12                   *commercial advanced nuclear reactor licensing*  
13                   *application.*

14                   (B) *The issues described in SECY–93–092*  
15                   *and SECY–15–077, including—*

16                           (i) *licensing basis event selection and*  
17                           *evaluation;*

18                           (ii) *source terms;*

19                           (iii) *containment performance; and*

20                           (iv) *emergency preparedness.*

21           (3) *RESEARCH AND TEST REACTOR LICENSING.*—  
22           For the purpose of predictable, efficient, and timely  
23           reviews, not later than 2 years after the date of enact-  
24           ment of this Act, the Commission shall develop and  
25           implement strategies within the existing regulatory

1       *framework for licensing research and test reactors, in-*  
2       *cluding the issuance of guidance.*

3               (4)     *TECHNOLOGY-INCLUSIVE     REGULATORY*  
4       *FRAMEWORK.—Not later than December 31, 2024, the*  
5       *Commission shall complete a rulemaking to establish*  
6       *a technology-inclusive, regulatory framework for op-*  
7       *tional use by commercial advanced nuclear reactor*  
8       *applicants for new reactor license applications.*

9               (5)     *TRAINING AND EXPERTISE.—As soon as*  
10       *practicable after the date of enactment of this Act, the*  
11       *Commission shall provide for staff training or the*  
12       *hiring of experts, as necessary—*

13                     (A) *to support the activities described in*  
14                     *paragraphs (1) through (4); and*

15                     (B) *to support preparations—*

16                             (i) *to conduct pre-application inter-*  
17                             *actions; and*

18                             (ii) *to review commercial advanced nu-*  
19                             *clear reactor license applications.*

20               (6)     *AUTHORIZATION OF APPROPRIATIONS.—*  
21       *There are authorized to be appropriated to the Com-*  
22       *mission to carry out this subsection such sums as are*  
23       *necessary.*

1       **(b) REPORT TO ESTABLISH STAGES IN THE COMMERCIAL ADVANCED NUCLEAR REACTOR LICENSING PROCESS.**—

4           **(1) REPORT REQUIRED.**—*Not later than 180 days after the date of enactment of this Act, the Commission shall submit to the appropriate congressional committees a report for expediting and establishing stages in the licensing process for commercial advanced nuclear reactors that will allow implementation of the licensing process by not later than 2 years after the date of enactment of this Act (referred to in this subsection as the “report”).*

13           **(2) COORDINATION AND STAKEHOLDER INPUT.**—*In developing the report, the Commission shall seek input from the Secretary, the nuclear energy industry, a diverse set of technology developers, and other public stakeholders.*

18           **(3) COST AND SCHEDULE ESTIMATES.**—*The report shall include proposed cost estimates, budgets, and timeframes for implementing strategies to establish stages in the licensing process for commercial advanced nuclear reactor technologies.*

23           **(4) REQUIRED EVALUATIONS.**—*Consistent with the role of the Commission in protecting public health*

1        *and safety and common defense and security, the re-*  
2        *port shall evaluate—*

3                *(A)(i) the unique aspects of commercial ad-*  
4                *vanced nuclear reactor licensing, including the*  
5                *use of alternative coolants, operation at or near*  
6                *atmospheric pressure, and the use of passive safe-*  
7                *ty strategies;*

8                *(ii) strategies for the qualification of ad-*  
9                *vanced nuclear reactor fuel, including the use of*  
10               *computer modeling and simulation and experi-*  
11               *mental validation; and*

12               *(iii) for the purposes of predictable, effi-*  
13               *cient, and timely reviews, any associated legal,*  
14               *regulatory, and policy issues the Commission*  
15               *should address with regard to the licensing of*  
16               *commercial advanced nuclear reactor tech-*  
17               *nologies;*

18               *(B) options for licensing commercial ad-*  
19               *vanced nuclear reactors under the regulations of*  
20               *the Commission contained in title 10, Code of*  
21               *Federal Regulations (as in effect on the date of*  
22               *enactment of this Act), including—*

23                        *(i) the development and use under the*  
24                        *regulatory framework of the Commission in*  
25                        *effect on the date of enactment of this Act*



1                    *of a licensing project plan that could estab-*  
2                    *lish—*

3                    *(I) milestones that—*

4                    *(aa) correspond to stages of a*  
5                    *licensing process for the specific*  
6                    *situation of a commercial ad-*  
7                    *vanced nuclear reactor project;*  
8                    *and*

9                    *(bb) use knowledge of the*  
10                    *ability of the Commission to re-*  
11                    *view certain design aspects; and*

12                    *(II) guidelines defining the roles*  
13                    *and responsibilities between the Com-*  
14                    *mission and the applicant at the onset*  
15                    *of the interaction—*

16                    *(aa) to provide the founda-*  
17                    *tion for effective communication*  
18                    *and effective project management;*  
19                    *and*

20                    *(bb) to ensure efficient*  
21                    *progress;*

22                    *(ii) the use of topical reports, standard*  
23                    *design approval, and other appropriate*  
24                    *mechanisms as tools to introduce stages into*  
25                    *the commercial advanced nuclear reactor li-*

1            *ensing process, including how the licensing*  
2            *project plan might structure the use of those*  
3            *mechanisms;*

4            *(iii) collaboration with standards-set-*  
5            *ting organizations to identify specific tech-*  
6            *nical areas for which new or updated stand-*  
7            *ards are needed and providing assistance if*  
8            *appropriate to ensure the new or updated*  
9            *standards are developed and finalized in a*  
10           *timely fashion;*

11           *(iv) the incorporation of consensus-*  
12           *based codes and standards developed under*  
13           *clause (iii) into the regulatory framework—*

14           *(I) to provide predictability for*  
15           *the regulatory processes of the Commis-*  
16           *sion; and*

17           *(II) to ensure timely completion*  
18           *of specific licensing actions;*

19           *(v) the development of a process for,*  
20           *and the use of, conceptual design assess-*  
21           *ments; and*

22           *(vi) identification of any policies and*  
23           *guidance for staff that will be needed to im-*  
24           *plement clauses (i) and (ii);*

1           (C) options for improving the efficiency,  
2           timeliness, and cost-effectiveness of licensing re-  
3           views of commercial advanced nuclear reactors,  
4           including opportunities to minimize the delays  
5           that may result from any necessary amendment  
6           or supplement to an application;

7           (D) options for improving the predictability  
8           of the commercial advanced nuclear reactor li-  
9           censing process, including the evaluation of op-  
10          portunities to improve the process by which ap-  
11          plication review milestones are established and  
12          met; and

13          (E) the extent to which Commission action  
14          or modification of policy is needed to implement  
15          any part of the report.

16          (c) *REPORT TO INCREASE THE USE OF RISK-IN-*  
17          *FORMED AND PERFORMANCE-BASED EVALUATION TECH-*  
18          *NIQUES AND REGULATORY GUIDANCE.*—

19               (1) *REPORT REQUIRED.*—Not later than 180  
20               days after the date of enactment of this Act, the Com-  
21               mission shall submit to the appropriate congressional  
22               committees a report for increasing, where appro-  
23               priate, the use of risk-informed and performance-  
24               based evaluation techniques and regulatory guidance  
25               in licensing commercial advanced nuclear reactors

1        *within the existing regulatory framework (referred to*  
2        *in this subsection as the “report”).*

3            (2) *COORDINATION AND STAKEHOLDER INPUT.—*  
4        *In developing the report, the Commission shall seek*  
5        *input from the Secretary, the nuclear energy indus-*  
6        *try, technology developers, and other public stake-*  
7        *holders.*

8            (3) *COST AND SCHEDULE ESTIMATE.—The re-*  
9        *port shall include proposed cost estimates, budgets,*  
10       *and timeframes for implementing a strategy to in-*  
11       *crease the use of risk-informed and performance-based*  
12       *evaluation techniques and regulatory guidance in li-*  
13       *censing commercial advanced nuclear reactors.*

14           (4) *REQUIRED EVALUATIONS.—Consistent with*  
15       *the role of the Commission in protecting public health*  
16       *and safety and common defense and security, the re-*  
17       *port shall evaluate—*

18                (A) *the ability of the Commission to develop*  
19                *and implement, where appropriate, risk-in-*  
20                *formed and performance-based licensing evalua-*  
21                *tion techniques and guidance for commercial ad-*  
22                *vanced nuclear reactors within existing regu-*  
23                *latory frameworks not later than 2 years after*  
24                *the date of enactment of this Act, including poli-*  
25                *cies and guidance for the resolution of—*

1 (i) issues relating to—

2 (I) licensing basis event selection  
3 and evaluation;

4 (II) use of mechanistic source  
5 terms;

6 (III) containment performance;

7 (IV) emergency preparedness; and

8 (V) the qualification of advanced  
9 nuclear reactor fuel; and

10 (ii) other policy issues previously iden-  
11 tified; and

12 (B) the extent to which Commission action  
13 is needed to implement any part of the report.

14 (d) *REPORT TO PREPARE THE RESEARCH AND TEST*  
15 *REACTOR LICENSING PROCESS.*—

16 (1) *REPORT REQUIRED.*—Not later than 1 year  
17 after the date of enactment of this Act, the Commis-  
18 sion shall submit to the appropriate congressional  
19 committees a report for preparing the licensing proc-  
20 ess for research and test reactors within the existing  
21 regulatory framework (referred to in this subsection  
22 as the “report”).

23 (2) *COORDINATION AND STAKEHOLDER INPUT.*—

24 In developing the report, the Commission shall seek  
25 input from the Secretary, the nuclear energy indus-

1        *try, a diverse set of technology developers, and other*  
2        *public stakeholders.*

3            (3) *COST AND SCHEDULE ESTIMATES.*—*The re-*  
4        *port shall include proposed cost estimates, budgets,*  
5        *and timeframes for preparing the licensing process for*  
6        *research and test reactors.*

7            (4) *REQUIRED EVALUATIONS.*—*Consistent with*  
8        *the role of the Commission in protecting public health*  
9        *and safety and common defense and security, the re-*  
10       *port shall evaluate—*

11            (A) *the unique aspects of research and test*  
12        *reactor licensing and any associated legal, regu-*  
13        *latory, and policy issues the Commission should*  
14        *address to prepare the licensing process for re-*  
15        *search and test reactors;*

16            (B) *the feasibility of developing guidelines*  
17        *for advanced reactor demonstrations and proto-*  
18        *types to support the review process for advanced*  
19        *reactors designs, including designs that use alter-*  
20        *native coolants or alternative fuels, operate at or*  
21        *near atmospheric pressure, and use passive safe-*  
22        *ty strategies; and*

23            (C) *the extent to which Commission action*  
24        *or modification of policy is needed to implement*  
25        *any part of the report.*

1           (e) *REPORT TO COMPLETE A RULEMAKING TO ESTAB-*  
2 *LISH A TECHNOLOGY-INCLUSIVE REGULATORY FRAME-*  
3 *WORK FOR OPTIONAL USE BY COMMERCIAL ADVANCED NU-*  
4 *CLEAR REACTOR TECHNOLOGIES IN NEW REACTOR LI-*  
5 *CENSE APPLICATIONS AND TO ENHANCE COMMISSION EX-*  
6 *PERTISE RELATING TO ADVANCED NUCLEAR REACTOR*  
7 *TECHNOLOGIES.—*

8           (1) *REPORT REQUIRED.—Not later than 30*  
9 *months after the date of enactment of this Act, the*  
10 *Commission shall submit to the appropriate congres-*  
11 *sional committees a report (referred to in this sub-*  
12 *section as the “report”) for—*

13                   (A) *completing a rulemaking to establish a*  
14 *technology-inclusive regulatory framework for*  
15 *optional use by applicants in licensing commer-*  
16 *cial advanced nuclear reactor technologies in*  
17 *new reactor license applications; and*

18                   (B) *ensuring that the Commission has ade-*  
19 *quate expertise, modeling, and simulation capa-*  
20 *bilities, or access to those capabilities, to support*  
21 *the evaluation of commercial advanced reactor*  
22 *license applications, including the qualification*  
23 *of advanced nuclear reactor fuel.*

24           (2) *COORDINATION AND STAKEHOLDER INPUT.—*  
25 *In developing the report, the Commission shall seek*

1        *input from the Secretary, the nuclear energy indus-*  
2        *try, a diverse set of technology developers, and other*  
3        *public stakeholders.*

4            (3) *COST AND SCHEDULE ESTIMATE.*—*The re-*  
5        *port shall include proposed cost estimates, budgets,*  
6        *and timeframes for developing and implementing a*  
7        *technology-inclusive regulatory framework for licens-*  
8        *ing commercial advanced nuclear reactor technologies,*  
9        *including completion of a rulemaking.*

10          (4) *REQUIRED EVALUATIONS.*—*Consistent with*  
11        *the role of the Commission in protecting public health*  
12        *and safety and common defense and security, the re-*  
13        *port shall evaluate—*

14            (A) *the ability of the Commission to com-*  
15        *plete a rulemaking to establish a technology-in-*  
16        *clusive regulatory framework for licensing com-*  
17        *mercial advanced nuclear reactor technologies by*  
18        *December 31, 2024;*

19            (B) *the extent to which additional legisla-*  
20        *tion, or Commission action or modification of*  
21        *policy, is needed to implement any part of the*  
22        *new regulatory framework;*

23            (C) *the need for additional Commission ex-*  
24        *pertise, modeling, and simulation capabilities, or*  
25        *access to those capabilities, to support the eval-*



1            *uation of licensing applications for commercial*  
 2            *advanced nuclear reactors and research and test*  
 3            *reactors, including applications that use alter-*  
 4            *native coolants or alternative fuels, operate at or*  
 5            *near atmospheric pressure, and use passive safe-*  
 6            *ty strategies; and*

7            *(D) the budgets and timeframes for acquir-*  
 8            *ing or accessing the necessary expertise to sup-*  
 9            *port the evaluation of license applications for*  
 10           *commercial advanced nuclear reactors and re-*  
 11           *search and test reactors.*

12 **SEC. 104. ADVANCED NUCLEAR ENERGY LICENSING COST-**  
 13 **SHARE GRANT PROGRAM.**

14 *(a) DEFINITIONS.—In this section:*

15            *(1) ELIGIBLE APPLICANT.—The term “eligible*  
 16            *applicant” means an applicant for a grant under the*  
 17            *program that is seeking a license for an advanced nu-*  
 18            *clear reactor or a research and test reactor.*

19            *(2) PROGRAM.—The term “program” means the*  
 20            *Advanced Nuclear Energy Cost-Share Grant Program*  
 21            *established under subsection (b).*

22            *(b) ESTABLISHMENT.—The Secretary shall establish a*  
 23            *grant program to be known as the “Advanced Nuclear En-*  
 24            *ergy Cost-Share Grant Program”, under which the Sec-*  
 25            *retary shall make cost-share grants to eligible applicants*

1 *for the purpose of funding a portion of the Commission fees*  
 2 *and other costs of the eligible applicant for pre-application*  
 3 *and application review activities.*

4 *(c) REQUIREMENT.—The Secretary shall seek out tech-*  
 5 *nology diversity in making grants under the program.*

6 *(d) COST-SHARE AMOUNT.—The Secretary shall deter-*  
 7 *mine the cost-share amount for each grant.*

8 *(e) USE OF FUNDS.—Recipients of grants under the*  
 9 *program may use the grant funds to cover Commission fees*  
 10 *and other costs, including those fees or other costs associated*  
 11 *with—*

12 *(1) developing a licensing project plan;*

13 *(2) preparing an application for and obtaining*  
 14 *a conceptual design assessment;*

15 *(3) preparing and reviewing topical reports; and*

16 *(4) other pre-application and application review*  
 17 *activities and interactions with the Commission.*

18 *(f) AUTHORIZATION OF APPROPRIATIONS.—There are*  
 19 *authorized to be appropriated to the Secretary to carry out*  
 20 *this section such sums as are necessary.*

21 **SEC. 105. BAFFLE-FORMER BOLT GUIDANCE.**

22 *(a) REVISIONS TO GUIDANCE.—Not later than Sep-*  
 23 *tember 30, 2017, the Commission shall publish any nec-*  
 24 *essary revisions to the guidance on the baseline examination*  
 25 *schedule and subsequent examination frequency for baffle-*

1 *former bolts in pressurized water reactors with down-flow*  
2 *configurations.*

3 (b) *REPORT.*—*Not later than September 30, 2017, the*  
4 *Commission shall submit to the appropriate congressional*  
5 *committees—*

6 (1) *a report explaining any revisions made to*  
7 *the guidance described in subsection (a); or*

8 (2) *if no revisions were made, a report explain-*  
9 *ing why the guidance, as in effect on the date of sub-*  
10 *mission of the report, is sufficient.*

11 **SEC. 106. EVACUATION REPORT.**

12 (a) *IN GENERAL.*—*Not later than 90 days after the*  
13 *date of enactment of this Act, the Commission shall submit*  
14 *to the appropriate congressional committees a report de-*  
15 *scribing the actions the Commission has taken, or plans to*  
16 *take, to consider lessons learned since September 11, 2001,*  
17 *Superstorm Sandy, Fukushima, and other recent natural*  
18 *disasters regarding directed or spontaneous evacuations in*  
19 *densely populated urban and suburban areas.*

20 (b) *INCLUSIONS.*—*The report under subsection (a)*  
21 *shall—*

22 (1) *describe the actions of the Commission—*

23 (A) *to consider the results from—*

24 (i) *the State-of-the-Art Reactor Con-*  
25 *sequence Analyses project; and*

1                   (ii) the current examination by the  
2                   Commission of emergency planning zones  
3                   for small modular reactors and advanced  
4                   nuclear reactors; and

5                   (B) to monitor international reviews, in-  
6                   cluding reviews conducted by—

7                   (i) the United Nations Scientific Com-  
8                   mittee on the Effects of Atomic Radiation;

9                   (ii) the World Health Organization;  
10                  and

11                  (iii) the Fukushima Health Manage-  
12                  ment Survey; and

13                  (2) with respect to a disaster similar to a dis-  
14                  aster described in subsection (a), include information  
15                  about—

16                  (A) potential shadow evacuations in re-  
17                  sponse to the disaster; and

18                  (B) what levels of self-evacuation should be  
19                  expected during the disaster, including outside  
20                  the 10-mile evacuation zone.

21                  (c) *CONSULTATION REQUIRED.*—The report under sub-  
22                  section (a) shall be prepared after consultation with—

23                  (1) the Federal Radiological Preparedness Co-  
24                  ordinating Committee;

1           (2) *State emergency planning officials from*  
2           *States that the Commission determines to be relevant*  
3           *to the report; and*

4           (3) *experts in analyzing human behavior and*  
5           *probable responses to a radiological emission event.*

6 **SEC. 107. ENCOURAGING PRIVATE INVESTMENT IN RE-**  
7           **SEARCH AND TEST REACTORS.**

8           (a) *PURPOSE.*—*The purpose of this section is to en-*  
9           *courage private investment in research and test reactors.*

10          (b) *RESEARCH AND DEVELOPMENT ACTIVITIES.*—*Sec-*  
11          *tion 104 c. of the Atomic Energy Act of 1954 (42 U.S.C.*  
12          *2134(c)) is amended—*

13               (1) *in the first sentence, by striking “and which*  
14               *are not facilities of the type specified in subsection*  
15               *104 b.” and inserting a period; and*

16               (2) *by adding at the end the following: “The*  
17               *Commission is authorized to issue licenses under this*  
18               *section for utilization facilities useful in the conduct*  
19               *of research and development activities of the types*  
20               *specified in section 31 in which the licensee sells re-*  
21               *search and testing services and energy to others, sub-*  
22               *ject to the condition that the licensee shall recover not*  
23               *more than 75 percent of the annual costs to the li-*  
24               *censee of owning and operating the facility through*  
25               *sales of nonenergy services, energy, or both, other than*

1       *research and development or education and training,*  
2       *of which not more than 50 percent may be through*  
3       *sales of energy.”.*

4   **SEC. 108. COMMISSION REPORT ON ACCIDENT TOLERANT**  
5               **FUEL.**

6       *(a) DEFINITION OF ACCIDENT TOLERANT FUEL.—In*  
7       *this section, the term “accident tolerant fuel” means a new*  
8       *technology that—*

9               *(1) makes an existing commercial nuclear reac-*  
10       *tor more resistant to a nuclear incident (as defined*  
11       *in section 11 of the Atomic Energy Act of 1954 (42*  
12       *U.S.C. 2014)); and*

13               *(2) lowers the cost of electricity over the licensed*  
14       *lifetime of an existing commercial nuclear reactor.*

15       *(b) REPORT TO CONGRESS.—Not later than 1 year*  
16       *after the date of enactment of this Act, the Commission shall*  
17       *submit to Congress a report describing the status of the li-*  
18       *censing process of the Commission for accident tolerant fuel.*

19                               **TITLE II—URANIUM**

20   **SEC. 201. URANIUM RECOVERY REPORT.**

21       *Not later than December 31, 2017, the Commission*  
22       *shall submit to the appropriate congressional committees a*  
23       *report describing—*

24               *(1) the safety and feasibility of extending the du-*  
25       *ration of uranium recovery licenses from 10 to 20*

1        *years, including any potential benefits of the exten-*  
2        *sion;*

3            *(2) the duration of uranium recovery license*  
4        *issuance and amendment reviews; and*

5            *(3) recommendations to improve efficiency and*  
6        *transparency of uranium recovery license issuance*  
7        *and amendment reviews.*

8        **SEC. 202. PILOT PROGRAM FOR URANIUM RECOVERY FEES.**

9        *Not later than July 31, 2018, the Commission shall—*

10            *(1) complete a voluntary pilot initiative to deter-*  
11        *mine the feasibility of the establishment of a flat fee*  
12        *structure for routine licensing matters relating to*  
13        *uranium recovery; and*

14            *(2) provide to the appropriate congressional*  
15        *committees a report describing the results of the pilot*  
16        *initiative under paragraph (1).*

17        **SEC. 203. URANIUM TRANSFERS AND SALES.**

18        *Section 3112 of the USEC Privatization Act (42*  
19        *U.S.C. 2297h–10) is amended—*

20            *(1) by redesignating subsections (b) through (f)*  
21        *as subsections (d) through (h), respectively;*

22            *(2) by striking subsection (a) and inserting the*  
23        *following:*

24        *“(a) DEFINITIONS.—In this section:*

1           “(1) *DEPLETED URANIUM.*—The term ‘depleted  
2 uranium’ means uranium having an assay less than  
3 the assay for—

4           “(A) natural uranium; or

5           “(B) 0.711 percent of the uranium-235 iso-  
6 tope.

7           “(2) *HIGHLY ENRICHED URANIUM.*—The term  
8 ‘highly enriched uranium’ means uranium having an  
9 assay of 20 percent or greater of the uranium-235 iso-  
10 tope.

11           “(3) *LOW-ENRICHED URANIUM.*—The term ‘low-  
12 enriched uranium’ means uranium having an assay  
13 greater than 0.711 percent but less than 20 percent of  
14 the uranium-235 isotope.

15           “(4) *METRIC TON OF URANIUM.*—The term ‘met-  
16 ric ton of uranium’ means 1,000 kilograms of ura-  
17 nium.

18           “(5) *NATURAL URANIUM.*—The term ‘natural  
19 uranium’ means uranium having an assay of 0.711  
20 percent of the uranium-235 isotope.

21           “(6) *OFF-SPEC URANIUM.*—The term ‘off-spec  
22 uranium’ means uranium in any form, including de-  
23pleted uranium, highly enriched uranium, low-en-  
24riched uranium, natural uranium, UF<sub>6</sub>, and any by-  
25product of uranium processing, that does not meet the



1 *specification for commercial material (as defined by*  
2 *the standards of the American Society for Testing and*  
3 *Materials).*

4 “(7) *URANIUM.*—*Other than in subsection (c),*  
5 *the term ‘uranium’ includes natural uranium, ura-*  
6 *nium hexafluoride, highly enriched uranium, low-en-*  
7 *riched uranium, depleted uranium, and any byprod-*  
8 *uct of uranium processing.*

9 “(8) *URANIUM HEXAFLUORIDE; UF<sub>6</sub>.*—*The terms*  
10 *‘uranium hexafluoride’ and ‘UF<sub>6</sub>’ mean uranium*  
11 *that has been combined with fluorine, to form a com-*  
12 *pound that, dependent on temperature and pressure,*  
13 *can be a solid, liquid, or gas.*

14 “(b) *TRANSFERS AND SALES BY THE SECRETARY.*—  
15 *The Secretary is not authorized to provide enrichment serv-*  
16 *ices or transfer or sell any uranium except in accordance*  
17 *with this section.*

18 “(c) *DEVELOPMENT OF FEDERAL EXCESS URANIUM*  
19 *MANAGEMENT PLAN.*—

20 “(1) *IN GENERAL.*—*Beginning on January 1,*  
21 *2018, and not less frequently than once every 10 years*  
22 *thereafter, the Secretary shall issue a long-term Fed-*  
23 *eral excess uranium inventory management plan (re-*  
24 *ferred to in this section as the ‘plan’) that details the*  
25 *management of the excess uranium inventories of the*

1        *Department of Energy and covers a period of not*  
2        *fewer than 10 years.*

3            “(2) *CONTENT.—*

4            “(A) *IN GENERAL.—The plan shall cover all*  
5        *forms of uranium within the excess uranium in-*  
6        *ventory of the Department of Energy, including*  
7        *depleted uranium, highly enriched uranium,*  
8        *low-enriched uranium, natural uranium, off-spec*  
9        *uranium, and UF6.*

10           “(B) *REDUCING IMPACT ON DOMESTIC IN-*  
11        *DUSTRY.—The plan shall outline steps the Sec-*  
12        *retary will take to minimize the impact of trans-*  
13        *ferring or selling uranium on the domestic ura-*  
14        *anium mining, conversion, and enrichment indus-*  
15        *tries, including any actions for which the Sec-*  
16        *retary would require new authority.*

17           “(C) *MAXIMIZING BENEFITS TO THE FED-*  
18        *ERAL GOVERNMENT.—The plan shall outline*  
19        *steps the Secretary shall take to ensure that the*  
20        *Federal Government maximizes the potential*  
21        *value of uranium for the Federal Government.*

22           “(3) *PROPOSED PLAN.—Before issuing the final*  
23        *plan, the Secretary shall publish a proposed plan in*  
24        *the Federal Register pursuant to a rulemaking under*  
25        *section 553 of title 5, United States Code.*

1           “(4) *DEADLINES FOR SUBMISSION.*—*The Sec-*  
2           *retary shall issue—*

3                   “(A) *a proposed plan for public comment*  
4                   *under paragraph (3) not later than 180 days*  
5                   *after the date of enactment of this paragraph;*  
6                   *and*

7                   “(B) *a final plan not later than 1 year*  
8                   *after the date of enactment of this paragraph.”;*

9           (3) *in subsection (d) (as redesignated by para-*  
10           *graph (1))—*

11                   (A) *in the sixth sentence of paragraph (3),*  
12                   *by striking “subsections (b)(5), (b)(6) and (b)(7)*  
13                   *of this section” and inserting “paragraphs (5),*  
14                   *(6), and (7)”;* and

15                   (B) *in paragraph (8), by striking “(b)”;*

16           (4) *in subsection (e)(1) (as redesignated by para-*  
17           *graph (1)), by striking “subsection (c)(2)” and insert-*  
18           *ing “paragraph (2)”;*

19           (5) *in subsection (f) (as redesignated by para-*  
20           *graph (1))—*

21                   (A) *in paragraph (1), by striking “(c) and*  
22                   *(e)” and all that follows through “uranium)”*  
23                   *and inserting “(e) and (g), the Secretary may,*  
24                   *from time to time, sell uranium”;*

1           (B) by redesignating paragraph (2) as  
2 paragraph (3);

3           (C) by inserting after paragraph (1) the fol-  
4 lowing:

5           “(2) *LIMITATIONS.*—*The transfers authorized*  
6 *under subsections (e) and (g), and the sales author-*  
7 *ized under paragraph (1), shall be subject to the fol-*  
8 *lowing limitations:*

9           “(A) *Effective for the period of calendar*  
10 *years 2017 through 2025, the Secretary shall not*  
11 *transfer or sell more than 2,100 metric tons of*  
12 *natural uranium equivalent annually in any*  
13 *form, including depleted uranium, highly en-*  
14 *riched uranium, low-enriched uranium, natural*  
15 *uranium, off-spec uranium, and UF<sub>6</sub>.*

16           “(B) *Effective beginning on January 1,*  
17 *2026, the Secretary shall not transfer or sell*  
18 *more than 2,700 metric tons of natural uranium*  
19 *equivalent annually in any form, including de-*  
20 *pleted uranium, highly enriched uranium, low-*  
21 *enriched uranium, natural uranium, off-spec*  
22 *uranium, and UF<sub>6</sub>.”;*

23           (D) in paragraph (3) (as redesignated by  
24 subparagraph (B))—

1                   (i) *in the matter preceding subpara-*  
2                   *graph (A), by striking the paragraph des-*  
3                   *ignation and all that follows through “un-*  
4                   *less—” and inserting the following:*

5                   “(3) *DETERMINATIONS.—Except as provided in*  
6                   *subsections (d), (e), and (g), and subject to paragraph*  
7                   *(4), no sale or transfer of uranium shall be made un-*  
8                   *less—”; and*

9                   (ii) *in subparagraph (B), by striking*  
10                   *“the sale” and inserting “the sale or trans-*  
11                   *fer”; and*

12                   *(E) by adding at the end the following:*

13                   “(4) *REQUIREMENTS FOR DETERMINATIONS.—*

14                   “(A) *PROPOSED DETERMINATION.—Before*  
15                   *making a determination under paragraph*  
16                   *(3)(B), the Secretary shall publish a proposed*  
17                   *determination in the Federal Register pursuant*  
18                   *to a rulemaking under section 553 of title 5,*  
19                   *United States Code.*

20                   “(B) *QUALITY OF MARKET ANALYSIS.—Any*  
21                   *market analysis that is prepared by the Depart-*  
22                   *ment of Energy, or that the Department of En-*  
23                   *ergy commissions for the Secretary as part of the*  
24                   *determination process under paragraph (3)(B),*  
25                   *shall be subject to a peer review process con-*

1           *sistent with the guidelines of the Office of Man-*  
2           *agement and Budget published at 67 Fed. Reg.*  
3           *8452–8460 (February 22, 2002) (or successor*  
4           *guidelines), to ensure and maximize the quality,*  
5           *objectivity, utility, and integrity of information*  
6           *disseminated by Federal agencies.*

7           “(C) *WAIVER OF SECRETARIAL DETERMINA-*  
8           *TION.—Beginning on January 1, 2023, the re-*  
9           *quirement for a determination by the Secretary*  
10          *under paragraph (3)(B) shall be waived for*  
11          *transferring or selling uranium by the Secretary*  
12          *if the uranium has been identified in the up-*  
13          *dated long-term Federal excess uranium inven-*  
14          *tory management plan under subsection (c)(1).”;*  
15          *and*

16          *(6) in subsection (g) (as redesignated by para-*  
17          *graph (1)), in the matter preceding paragraph (1), by*  
18          *striking “(d)(2)” and inserting “(f)(3), but subject to*  
19          *subsection (f)(2)”.*



Calendar No. 108

115<sup>TH</sup> CONGRESS  
1<sup>ST</sup> Session

**S. 512**

[Report No. 115-86]

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**A BILL**

To modernize the regulation of nuclear energy.

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MAY 25, 2017

Reported with an amendment