

AMENDMENT NO. \_\_\_\_\_ Calendar No. \_\_\_\_\_

Purpose: In the nature of a substitute.

**IN THE SENATE OF THE UNITED STATES—115th Cong., 2d Sess.**

**S. 512**

To modernize the regulation of nuclear energy.

Referred to the Committee on \_\_\_\_\_ and  
ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT IN THE NATURE OF A SUBSTITUTE intended  
to be proposed by Mr. BARRASSO

Viz:

1 Strike all after the enacting clause and insert the fol-  
2 lowing:

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”.

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

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

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

- Sec. 101. Nuclear Regulatory Commission user fees and annual charges through fiscal year 2020.
- Sec. 102. Nuclear Regulatory Commission user fees and annual charges for fiscal year 2021 and each fiscal year thereafter.
- Sec. 103. Advanced nuclear reactor program.
- Sec. 104. Baffle-former bolt guidance.
- Sec. 105. Evacuation report.

- Sec. 106. Encouraging private investment in research and test reactors.  
Sec. 107. Commission report on accident tolerant fuel.  
Sec. 108. Report identifying best practices for establishment and operation of  
local community advisory boards.  
Sec. 109. Report on study recommendations.

#### TITLE II—URANIUM

- Sec. 201. Uranium recovery report.  
Sec. 202. Pilot program for uranium recovery fees.

### 1 **SEC. 2. PURPOSE.**

2 The purpose of this Act is to provide—

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

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

11 (3) more efficient regulation of uranium recov-  
12 ery.

### 13 **SEC. 3. DEFINITIONS.**

14 In this Act:

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

1 construction as of the date of enactment of this Act, in-  
2 cluding improvements such as—

3 (A) additional inherent safety features;

4 (B) significantly lower levelized cost of  
5 electricity;

6 (C) lower waste yields;

7 (D) greater fuel utilization;

8 (E) enhanced reliability;

9 (F) increased proliferation resistance;

10 (G) increased thermal efficiency; or

11 (H) ability to integrate into electric and  
12 nonelectric applications.

13 (2) ADVANCED NUCLEAR REACTOR FUEL.—The  
14 term “advanced nuclear reactor fuel” means fuel for  
15 use in an advanced nuclear reactor or a research  
16 and test reactor, including fuel with a low uranium  
17 enrichment level of not greater than 20 percent.

18 (3) AGREEMENT STATE.—The term “Agree-  
19 ment State” means any State with which the Com-  
20 mission has entered into an effective agreement  
21 under section 274 b. of the Atomic Energy Act of  
22 1954 (42 U.S.C. 2021(b)).

23 (4) APPROPRIATE CONGRESSIONAL COMMIT-  
24 TEES.—The term “appropriate congressional com-  
25 mittees” means the Committee on Environment and

1 Public Works of the Senate and the Committee on  
2 Energy and Commerce of the House of Representa-  
3 tives.

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

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

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

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

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

16 (7) CORPORATE SUPPORT COSTS.—The term  
17 “corporate support costs” means expenditures for  
18 acquisitions, administrative services, financial man-  
19 agement, human resource management, information  
20 management, information technology, policy support,  
21 outreach, and training, as those categories are de-  
22 scribed and calculated in Appendix A of the Con-  
23 gressional Budget Justification for Fiscal Year 2018  
24 of the Commission.

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

3                   (A) the interactions between an applicant  
4                   and the Commission; and

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

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

13           (10) REQUESTED ACTIVITY OF THE COMMIS-  
14           SION.—The term “requested activity of the Commis-  
15           sion” means—

16                   (A) the processing of applications for—

17                           (i) design certifications or approvals;

18                           (ii) licenses;

19                           (iii) permits;

20                           (iv) license amendments;

21                           (v) license renewals;

22                           (vi) certificates of compliance; and

23                           (vii) power uprates; and

24                   (B) any other activity requested by a li-  
25                   censee or applicant.

1 (11) RESEARCH AND TEST REACTOR.—

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

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

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

13 (B) EXCLUSION.—The term “research and  
14 test reactor” does not include a commercial nu-  
15 clear reactor.

16 (12) SECRETARY.—The term “Secretary”  
17 means the Secretary of Energy.

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

24 (14) TECHNOLOGY-INCLUSIVE REGULATORY  
25 FRAMEWORK.—The term “technology-inclusive regu-

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

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

## 11 **TITLE I—ADVANCED NUCLEAR** 12 **REACTORS AND USER FEES**

### 13 **SEC. 101. NUCLEAR REGULATORY COMMISSION USER FEES** 14 **AND ANNUAL CHARGES THROUGH FISCAL** 15 **YEAR 2020.**

16 (a) IN GENERAL.—Section 6101(c)(2)(A) of the Om-  
17 nibus Budget Reconciliation Act of 1990 (42 U.S.C.  
18 2214(c)(2)(A)) is amended—

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

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

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

23 “(v) amounts appropriated to the  
24 Commission for the fiscal year for activi-  
25 ties related to the development of regu-

1 latory infrastructure for advanced nuclear  
2 reactor technologies, including activities re-  
3 quired under section 103 of the Nuclear  
4 Energy Innovation and Modernization  
5 Act.”.

6 (b) REPEAL.—Effective October 1, 2020, section  
7 6101 of the Omnibus Budget Reconciliation Act of 1990  
8 (42 U.S.C. 2214) is repealed.

9 **SEC. 102. NUCLEAR REGULATORY COMMISSION USER FEES**  
10 **AND ANNUAL CHARGES FOR FISCAL YEAR**  
11 **2021 AND EACH FISCAL YEAR THEREAFTER.**

12 (a) ANNUAL BUDGET JUSTIFICATION.—

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

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

24 (3) LIMITATION ON CORPORATE SUPPORT  
25 COSTS.—With respect to the annual budget justifica-

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

6               (A) 30 percent for each of fiscal years  
7               2021 and 2022.

8               (B) 29 percent for each of fiscal years  
9               2023 and 2024.

10              (C) 28 percent for fiscal year 2025 and  
11              each fiscal year thereafter.

12       (b) FEES AND CHARGES.—

13              (1) ANNUAL ASSESSMENT.—

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

21                              (i) the total budget authority of the  
22                              Commission for that fiscal year; less

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

1 (B) EXCLUDED ACTIVITIES DESCRIBED.—

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

4 (i) Any fee relief activity, as identified  
5 by the Commission.

6 (ii) Amounts appropriated for a fiscal  
7 year to the Commission—

8 (I) from the Nuclear Waste Fund  
9 established under section 302(c) of  
10 the Nuclear Waste Policy Act of 1982  
11 (42 U.S.C. 10222(c));

12 (II) for implementation of section  
13 3116 of the Ronald W. Reagan Na-  
14 tional Defense Authorization Act for  
15 Fiscal Year 2005 (50 U.S.C. 2601  
16 note; Public Law 108–375);

17 (III) for the homeland security  
18 activities of the Commission (other  
19 than for the costs of fingerprinting  
20 and background checks required  
21 under section 149 of the Atomic En-  
22 ergy Act of 1954 (42 U.S.C. 2169)  
23 and the costs of conducting security  
24 inspections);

1 (IV) for the Inspector General  
2 services of the Commission provided  
3 to the Defense Nuclear Facilities  
4 Safety Board;

5 (V) for research and development  
6 at universities in areas relevant to the  
7 mission of the Commission; and

8 (VI) for a nuclear science and en-  
9 gineering grant program that will sup-  
10 port multiyear projects that do not  
11 align with programmatic missions but  
12 are critical to maintaining the dis-  
13 cipline of nuclear science and engi-  
14 neering.

15 (iii) Costs for activities related to the  
16 development of regulatory infrastructure  
17 for advanced nuclear reactor technologies,  
18 including activities required under section  
19 103.

20 (C) EXCEPTION.—The exclusion described  
21 in subparagraph (B)(iii) shall cease to be effec-  
22 tive on January 1, 2031.

23 (D) REPORT.—Not later than December  
24 31, 2029, the Commission shall submit to the  
25 Committee on Appropriations and the Com-



1 charged to an operating reactor licensee, to  
2 the maximum extent practicable, shall not  
3 exceed the annual fee amount per oper-  
4 ating reactor licensee established in the  
5 final rule of the Commission entitled “Re-  
6 vision of Fee Schedules; Fee Recovery for  
7 Fiscal Year 2015” (80 Fed. Reg. 37432  
8 (June 30, 2015)), as may be adjusted an-  
9 nually by the Commission to reflect  
10 changes in the Consumer Price Index pub-  
11 lished by the Bureau of Labor Statistics of  
12 the Department of Labor.

13 (ii) WAIVER.—The Commission may  
14 waive, for a period of 1 year, the cap on  
15 annual charges described in clause (i) if  
16 the Commission submits to the Committee  
17 on Appropriations and the Committee on  
18 Environment and Public Works of the Sen-  
19 ate and the Committee on Appropriations  
20 and the Committee on Energy and Com-  
21 merce of the House of Representatives a  
22 written determination that the cap on an-  
23 nual charges may compromise the safety  
24 and security mission of the Commission.

25 (C) AMOUNT PER LICENSEE.—

1 (i) IN GENERAL.—The Commission  
2 shall establish by rule a schedule of annual  
3 charges fairly and equitably allocating the  
4 aggregate amount of charges described in  
5 subparagraph (A) among licensees and cer-  
6 tificate holders.

7 (ii) REQUIREMENT.—The schedule of  
8 annual charges under clause (i)—

9 (I) to the maximum extent prac-  
10 ticable, shall be reasonably related to  
11 the cost of providing regulatory serv-  
12 ices; and

13 (II) may be based on the alloca-  
14 tion of the resources of the Commis-  
15 sion among licensees or certificate  
16 holders or classes of licensees or cer-  
17 tificate holders.

18 (D) EXEMPTION.—

19 (i) DEFINITION OF RESEARCH REAC-  
20 TOR.—In this subparagraph, the term “re-  
21 search reactor” means a nuclear reactor  
22 that—

23 (I) is licensed by the Commission  
24 under section 104 c. of the Atomic  
25 Energy Act of 1954 (42 U.S.C.

1 2134(e)) for operation at a thermal  
2 power level of not more than 10  
3 megawatts; and

4 (II) if licensed under subclause  
5 (I) for operation at a thermal power  
6 level of more than 1 megawatt, does  
7 not contain—

8 (aa) a circulating loop  
9 through the core in which the li-  
10 censee conducts fuel experiments;

11 (bb) a liquid fuel loading; or

12 (cc) an experimental facility  
13 in the core in excess of 16 square  
14 inches in cross-section.

15 (ii) EXEMPTION.—Subparagraph (A)  
16 shall not apply to the holder of any license  
17 for a federally owned research reactor used  
18 primarily for educational training and aca-  
19 demic research purposes.

20 (c) PERFORMANCE AND REPORTING.—

21 (1) IN GENERAL.—Not later than 180 days  
22 after the date of enactment of this Act, the Commis-  
23 sion shall develop for the requested activities of the  
24 Commission—

25 (A) performance metrics; and

1 (B) milestone schedules.

2 (2) DELAYS IN ISSUANCE OF FINAL SAFETY  
3 EVALUATION.—The Executive Director for Oper-  
4 ations of the Commission shall inform the Commis-  
5 sion of a delay in issuance of the final safety evalua-  
6 tion for a requested activity of the Commission by  
7 the completion date required by the performance  
8 metrics or milestone schedule under paragraph (1)  
9 by not later than 30 days after the completion date.

10 (3) DELAYS IN ISSUANCE OF FINAL SAFETY  
11 EVALUATION EXCEEDING 180 DAYS.—If the final  
12 safety evaluation for the requested activity of the  
13 Commission described in paragraph (2) is not com-  
14 pleted by the date that is 180 days after the comple-  
15 tion date required by the performance metrics or  
16 milestone schedule under paragraph (1), the Com-  
17 mission shall submit to the appropriate congres-  
18 sional committees a timely report describing the  
19 delay, including a detailed explanation accounting  
20 for the delay and a plan for timely completion of the  
21 final safety evaluation.

22 (d) ACCURATE INVOICING.—With respect to invoices  
23 for fees described in subsection (b)(2), the Commission  
24 shall—

1           (1) ensure appropriate review and approval  
2 prior to the issuance of invoices;

3           (2) develop and implement processes to audit  
4 invoices to ensure accuracy, transparency, and fair-  
5 ness; and

6           (3) modify regulations to ensure fair and appro-  
7 priate processes to provide licensees and applicants  
8 an opportunity to efficiently dispute or otherwise  
9 seek review and correction of errors in invoices for  
10 those fees.

11       (e) REPORT.—Not later than September 30, 2021,  
12 the Commission shall submit to the Committee on Appro-  
13 priations and the Committee on Environment and Public  
14 Works of the Senate and the Committee on Appropria-  
15 tions and the Committee on Energy and Commerce of the  
16 House of Representatives a report describing the imple-  
17 mentation of this section, including any impacts and rec-  
18 ommendations for improvement.

19       (f) EFFECTIVE DATE.—Except as provided in sub-  
20 section (e), this section takes effect on October 1, 2020.

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

22       (a) LICENSING.—

23           (1) STAGED LICENSING.—For the purpose of  
24 predictable, efficient, and timely reviews, not later  
25 than 270 days after the date of enactment of this

1 Act, the Commission shall develop and implement,  
2 within the existing regulatory framework, strategies  
3 for—

4 (A) establishing stages in the licensing  
5 process for commercial advanced nuclear reac-  
6 tors; and

7 (B) developing procedures and processes  
8 for—

9 (i) using a licensing project plan; and

10 (ii) optional use of a conceptual de-  
11 sign assessment.

12 (2) RISK-INFORMED LICENSING.—Not later  
13 than 2 years after the date of enactment of this Act,  
14 the Commission shall develop and implement, where  
15 appropriate, strategies for the increased use of risk-  
16 informed, performance-based licensing evaluation  
17 techniques and guidance for commercial advanced  
18 nuclear reactors within the existing regulatory  
19 framework, including evaluation techniques and  
20 guidance for the resolution of the following:

21 (A) Applicable policy issues identified dur-  
22 ing the course of review by the Commission of  
23 a commercial advanced nuclear reactor licensing  
24 application.

1 (B) The issues described in SECY-93-092  
2 and SECY-15-077, including—

3 (i) licensing basis event selection and  
4 evaluation;

5 (ii) source terms;

6 (iii) containment performance; and

7 (iv) emergency preparedness.

8 (3) RESEARCH AND TEST REACTOR LICENS-  
9 ING.—For the purpose of predictable, efficient, and  
10 timely reviews, not later than 2 years after the date  
11 of enactment of this Act, the Commission shall de-  
12 velop and implement strategies within the existing  
13 regulatory framework for licensing research and test  
14 reactors, including the issuance of guidance.

15 (4) TECHNOLOGY-INCLUSIVE REGULATORY  
16 FRAMEWORK.—Not later than December 31, 2027,  
17 the Commission shall complete a rulemaking to es-  
18 tablish a technology-inclusive, regulatory framework  
19 for optional use by commercial advanced nuclear re-  
20 actor applicants for new reactor license applications.

21 (5) TRAINING AND EXPERTISE.—As soon as  
22 practicable after the date of enactment of this Act,  
23 the Commission shall provide for staff training or  
24 the hiring of experts, as necessary—

1 (A) to support the activities described in  
2 paragraphs (1) through (4); and

3 (B) to support preparations—

4 (i) to conduct pre-application inter-  
5 actions; and

6 (ii) to review commercial advanced nu-  
7 clear reactor license applications.

8 (6) AUTHORIZATION OF APPROPRIATIONS.—

9 There is authorized to be appropriated to the Com-  
10 mission to carry out this subsection \$14,420,000 for  
11 each of fiscal years 2020 through 2024.

12 (b) REPORT TO ESTABLISH STAGES IN THE COM-  
13 Mercial Advanced Nuclear Reactor Licensing  
14 PROCESS.—

15 (1) REPORT REQUIRED.—Not later than 180  
16 days after the date of enactment of this Act, the  
17 Commission shall submit to the appropriate congres-  
18 sional committees a report for expediting and estab-  
19 lishing stages in the licensing process for commercial  
20 advanced nuclear reactors that will allow implemen-  
21 tation of the licensing process by not later than 2  
22 years after the date of enactment of this Act (re-  
23 ferred to in this subsection as the “report”).

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

1 shall seek input from the Secretary, the nuclear en-  
2 ergy industry, a diverse set of technology developers,  
3 and other public stakeholders.

4 (3) COST AND SCHEDULE ESTIMATES.—The re-  
5 port shall include proposed cost estimates, budgets,  
6 and timeframes for implementing strategies to estab-  
7 lish stages in the licensing process for commercial  
8 advanced nuclear reactor technologies.

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

13 (A)(i) the unique aspects of commercial  
14 advanced nuclear reactor licensing, including  
15 the use of alternative coolants, operation at or  
16 near atmospheric pressure, and the use of pas-  
17 sive safety strategies;

18 (ii) strategies for the qualification of ad-  
19 vanced nuclear reactor fuel, including the use of  
20 computer modeling and simulation and experi-  
21 mental validation; and

22 (iii) for the purposes of predictable, effi-  
23 cient, and timely reviews, any associated legal,  
24 regulatory, and policy issues the Commission  
25 should address with regard to the licensing of

1 commercial advanced nuclear reactor tech-  
2 nologies;

3 (B) options for licensing commercial ad-  
4 vanced nuclear reactors under the regulations  
5 of the Commission contained in title 10, Code  
6 of Federal Regulations (as in effect on the date  
7 of enactment of this Act), including—

8 (i) the development and use under the  
9 regulatory framework of the Commission  
10 in effect on the date of enactment of this  
11 Act of a licensing project plan that could  
12 establish—

13 (I) milestones that—

14 (aa) correspond to stages of  
15 a licensing process for the spe-  
16 cific situation of a commercial  
17 advanced nuclear reactor project;  
18 and

19 (bb) use knowledge of the  
20 ability of the Commission to re-  
21 view certain design aspects; and

22 (II) guidelines defining the roles  
23 and responsibilities between the Com-  
24 mission and the applicant at the onset  
25 of the interaction—

1 (aa) to provide the founda-  
2 tion for effective communication  
3 and effective project manage-  
4 ment; and

5 (bb) to ensure efficient  
6 progress;

7 (ii) the use of topical reports, stand-  
8 ard design approval, and other appropriate  
9 mechanisms as tools to introduce stages  
10 into the commercial advanced nuclear reac-  
11 tor licensing process, including how the li-  
12 censing project plan might structure the  
13 use of those mechanisms;

14 (iii) collaboration with standards-set-  
15 ting organizations to identify specific tech-  
16 nical areas for which new or updated  
17 standards are needed and providing assist-  
18 ance if appropriate to ensure the new or  
19 updated standards are developed and final-  
20 ized in a timely fashion;

21 (iv) the incorporation of consensus-  
22 based codes and standards developed under  
23 clause (iii) into the regulatory frame-  
24 work—

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1 (I) to provide predictability for  
2 the regulatory processes of the Com-  
3 mission; and

4 (II) to ensure timely completion  
5 of specific licensing actions;

6 (v) the development of a process for,  
7 and the use of, conceptual design assess-  
8 ments; and

9 (vi) identification of any policies and  
10 guidance for staff that will be needed to  
11 implement clauses (i) and (ii);

12 (C) options for improving the efficiency,  
13 timeliness, and cost-effectiveness of licensing re-  
14 views of commercial advanced nuclear reactors,  
15 including opportunities to minimize the delays  
16 that may result from any necessary amendment  
17 or supplement to an application;

18 (D) options for improving the predictability  
19 of the commercial advanced nuclear reactor li-  
20 censing process, including the evaluation of op-  
21 portunities to improve the process by which ap-  
22 plication review milestones are established and  
23 met; and

1                   (E) the extent to which Commission action  
2                   or modification of policy is needed to implement  
3                   any part of the report.

4           (c) REPORT TO INCREASE THE USE OF RISK-IN-  
5 FORMED AND PERFORMANCE-BASED EVALUATION TECH-  
6 NIQUEs AND REGULATORY GUIDANCE.—

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

16          (2) COORDINATION AND STAKEHOLDER  
17          INPUT.—In developing the report, the Commission  
18          shall seek input from the Secretary, the nuclear en-  
19          ergy industry, technology developers, and other pub-  
20          lic stakeholders.

21          (3) COST AND SCHEDULE ESTIMATE.—The re-  
22          port shall include proposed cost estimates, budgets,  
23          and timeframes for implementing a strategy to in-  
24          crease the use of risk-informed and performance-

1 based evaluation techniques and regulatory guidance  
2 in licensing commercial advanced nuclear 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 ability of the Commission to de-  
8 velop and implement, where appropriate, risk-  
9 informed and performance-based licensing eval-  
10 uation techniques and guidance for commercial  
11 advanced nuclear reactors within existing regu-  
12 latory frameworks not later than 2 years after  
13 the date of enactment of this Act, including  
14 policies and guidance for the resolution of—

15 (i) issues relating to—

16 (I) licensing basis event selection  
17 and evaluation;

18 (II) use of mechanistic source  
19 terms;

20 (III) containment performance;

21 (IV) emergency preparedness;

22 and

23 (V) the qualification of advanced  
24 nuclear reactor fuel; and

1 (ii) other policy issues previously iden-  
2 tified; and

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

5 (d) REPORT TO PREPARE THE RESEARCH AND TEST  
6 REACTOR LICENSING PROCESS.—

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

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

19 (3) COST AND SCHEDULE ESTIMATES.—The re-  
20 port shall include proposed cost estimates, budgets,  
21 and timeframes for preparing the licensing process  
22 for research and test reactors.

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

1 health and safety and common defense and security,  
2 the report shall evaluate—

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

8 (B) the feasibility of developing guidelines  
9 for advanced reactor demonstrations and proto-  
10 types to support the review process for ad-  
11 vanced reactors designs, including designs that  
12 use alternative coolants or alternative fuels, op-  
13 erate at or near atmospheric pressure, and use  
14 passive safety strategies; and

15 (C) the extent to which Commission action  
16 or modification of policy is needed to implement  
17 any part of the report.

18 (e) REPORT TO COMPLETE A RULEMAKING TO ES-  
19 TABLISH A TECHNOLOGY-INCLUSIVE REGULATORY  
20 FRAMEWORK FOR OPTIONAL USE BY COMMERCIAL AD-  
21 VANCED NUCLEAR REACTOR TECHNOLOGIES IN NEW RE-  
22 ACTOR LICENSE APPLICATIONS AND TO ENHANCE COM-  
23 MISSION EXPERTISE RELATING TO ADVANCED NUCLEAR  
24 REACTOR TECHNOLOGIES.—

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

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

11           (B) ensuring that the Commission has ade-  
12 quate expertise, modeling, and simulation capa-  
13 bilities, or access to those capabilities, to sup-  
14 port the evaluation of commercial advanced re-  
15 actor license applications, including the quali-  
16 fication of advanced nuclear reactor fuel.

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

22           (3) COST AND SCHEDULE ESTIMATE.—The re-  
23 port shall include proposed cost estimates, budgets,  
24 and timeframes for developing and implementing a  
25 technology-inclusive regulatory framework for licens-

1       ing commercial advanced nuclear reactor tech-  
2       nologies, including completion of a rulemaking.

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 ability of the Commission to com-  
8       plete a rulemaking to establish a technology-in-  
9       clusive regulatory framework for licensing com-  
10      mercial advanced nuclear reactor technologies  
11      by December 31, 2027;

12              (B) the extent to which additional legisla-  
13      tion, or Commission action or modification of  
14      policy, is needed to implement any part of the  
15      new regulatory framework;

16              (C) the need for additional Commission ex-  
17      pertise, modeling, and simulation capabilities,  
18      or access to those capabilities, to support the  
19      evaluation of licensing applications for commer-  
20      cial advanced nuclear reactors and research and  
21      test reactors, including applications that use al-  
22      ternative coolants or alternative fuels, operate  
23      at or near atmospheric pressure, and use pas-  
24      sive safety strategies; and

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

6 **SEC. 104. BAFFLE-FORMER BOLT GUIDANCE.**

7 (a) REVISIONS TO GUIDANCE.—Not later than 90  
8 days after the date of enactment of this Act, the Commis-  
9 sion shall publish any necessary revisions to the guidance  
10 on the baseline examination schedule and subsequent ex-  
11 amination frequency for baffle-former bolts in pressurized  
12 water reactors with down-flow configurations.

13 (b) REPORT.—Not later than 90 days after the date  
14 of enactment of this Act, the Commission shall submit to  
15 the appropriate congressional committees—

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

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

21 **SEC. 105. EVACUATION REPORT.**

22 (a) IN GENERAL.—Not later than 180 days after the  
23 date of enactment of this Act, the Commission shall sub-  
24 mit to the appropriate congressional committees a report  
25 describing the actions the Commission has taken, or plans

1 to take, to consider lessons learned since September 11,  
2 2001, Superstorm Sandy, Fukushima, and other recent  
3 natural disasters regarding directed or spontaneous evacu-  
4 ations in densely populated urban and suburban areas.

5 (b) INCLUSIONS.—The report under subsection (a)  
6 shall—

7 (1) describe the actions of the Commission—

8 (A) to consider the results from—

9 (i) the State-of-the-Art Reactor Con-  
10 sequence Analyses project; and

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

15 (B) to monitor international reviews, in-  
16 cluding reviews conducted by—

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

19 (ii) the World Health Organization;  
20 and

21 (iii) the Fukushima Health Manage-  
22 ment Survey; and

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

1 (A) potential shadow evacuations in re-  
2 sponse to the disaster; and

3 (B) what levels of self-evacuation should be  
4 expected during the disaster, including outside  
5 the 10-mile evacuation zone.

6 (c) CONSULTATION REQUIRED.—The report under  
7 subsection (a) shall be prepared after consultation with—

8 (1) the Federal Radiological Preparedness Co-  
9 ordinating Committee;

10 (2) State emergency planning officials from  
11 States that the Commission determines to be rel-  
12 evant to the report; and

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

15 **SEC. 106. ENCOURAGING PRIVATE INVESTMENT IN RE-**  
16 **SEARCH AND TEST REACTORS.**

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

19 (b) RESEARCH AND DEVELOPMENT ACTIVITIES.—  
20 Section 104 c. of the Atomic Energy Act of 1954 (42  
21 U.S.C. 2134(c)) is amended—

22 (1) in the first sentence, by striking “and which  
23 are not facilities of the type specified in subsection  
24 104 b.” and inserting a period; and

1           (2) by adding at the end the following: “The  
2           Commission is authorized to issue licenses under this  
3           section for utilization facilities useful in the conduct  
4           of research and development activities of the types  
5           specified in section 31 in which the licensee sells re-  
6           search and testing services and energy to others,  
7           subject to the condition that the licensee shall re-  
8           cover not more than 75 percent of the annual costs  
9           to the licensee of owning and operating the facility  
10          through sales of nonenergy services, energy, or both,  
11          other than research and development or education  
12          and training, of which not more than 50 percent  
13          may be through sales of energy.”.

14 **SEC. 107. COMMISSION REPORT ON ACCIDENT TOLERANT**  
15 **FUEL.**

16          (a) DEFINITION OF ACCIDENT TOLERANT FUEL.—  
17 In this section, the term “accident tolerant fuel” means  
18 a new technology that—

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

23           (2) lowers the cost of electricity over the li-  
24          censed lifetime of an existing commercial nuclear re-  
25          actor.

1 (b) REPORT TO CONGRESS.—Not later than 1 year  
2 after the date of enactment of this Act, the Commission  
3 shall submit to Congress a report describing the status  
4 of the licensing process of the Commission for accident  
5 tolerant fuel.

6 **SEC. 108. REPORT IDENTIFYING BEST PRACTICES FOR ES-**  
7 **TABLISHMENT AND OPERATION OF LOCAL**  
8 **COMMUNITY ADVISORY BOARDS.**

9 (a) BEST PRACTICES REPORT.—Not later than 18  
10 months after the date of enactment of this Act, the Com-  
11 mission shall submit to Congress, and make publicly avail-  
12 able, a report identifying best practices with respect to the  
13 establishment and operation of a local community advisory  
14 board to foster communication and information exchange  
15 between a licensee planning for and involved in decommis-  
16 sioning activities and members of the community that de-  
17 commissioning activities may affect, including lessons  
18 learned from any such board in existence before the date  
19 of enactment of this Act.

20 (b) CONTENTS.—The report described in subsection

21 (a) shall include—

22 (1) a description of—

23 (A) the topics that could be brought before  
24 a local community advisory board;

1 (B) how such a board's input could be  
2 used to inform the decision-making processes of  
3 stakeholders for various decommissioning activi-  
4 ties;

5 (C) what interactions such a board could  
6 have with the Commission and other Federal  
7 regulatory bodies to support the board mem-  
8 bers' overall understanding of the decommis-  
9 sioning process and promote dialogue between  
10 the affected stakeholders and the licensee in-  
11 volved in decommissioning activities; and

12 (D) how such a board could offer opportu-  
13 nities for public engagement throughout all  
14 phases of the decommissioning process;

15 (2) a discussion of the composition of a local  
16 community advisory board; and

17 (3) best practices relating to the establishment  
18 and operation of a local community advisory board,  
19 including—

20 (A) the time of establishment of such a  
21 board;

22 (B) the frequency of meetings of such a  
23 board;

24 (C) the selection of board members;

25 (D) the term of board members;

1           (E) the responsibility for logistics required  
2           to support such a board's meetings and other  
3           routine activities; and

4           (F) any other best practices relating to  
5           such a local community advisory board that are  
6           identified by the Commission.

7           (c) CONSULTATION.—In developing the report de-  
8           scribed under subsection (a), the Commission shall consult  
9           with any host State, any community within the emergency  
10          planning zone of an applicable nuclear power reactor, and  
11          any existing local community advisory board.

12          (d) PUBLIC MEETINGS.—

13           (1) IN GENERAL.—The consultation required  
14           under subsection (c) shall include public meetings.

15           (2) PUBLIC PARTICIPATION.—The public meet-  
16           ings under paragraph (1) shall be conducted under  
17           the requirements applicable to category 3 meetings  
18           under the policy statement of the Commission enti-  
19           tled “Enhancing Public Participation in NRC Meet-  
20           ings; Policy Statement” (67 Fed. Reg. 36920 (May  
21           28, 2002)) (or a successor policy statement).

22           (3) NUMBER OF MEETINGS.—

23           (A) IN GENERAL.—The Commission shall  
24           conduct not less than 10 public meetings under

1 paragraph (1) in locations that ensure geo-  
2 graphic diversity across the United States.

3 (B) PRIORITY.—In determining locations  
4 in which to conduct a public meeting under sub-  
5 paragraph (A), the Commission shall give pri-  
6 ority to States that—

7 (i) have a nuclear power reactor cur-  
8 rently undergoing the decommissioning  
9 process; and

10 (ii) request a public meeting under  
11 this paragraph.

12 (4) WRITTEN SUMMARY.—The report under  
13 subsection (a) shall include a written summary of  
14 the public meetings conducted under paragraph (1).

15 **SEC. 109. REPORT ON STUDY RECOMMENDATIONS.**

16 Not later than 90 days after the date of enactment  
17 of this Act, the Commission shall submit to Congress a  
18 report describing the status of addressing and imple-  
19 menting the recommendations contained in the memo-  
20 randum of the Executive Director of Operations of the  
21 Commission entitled “Tasking in Response to the Assess-  
22 ment of the Considerations Identified in a ‘Study of Re-  
23 prisal and Chilling Effect for Raising Mission-Related  
24 Concerns and Differing Views at the Nuclear Regulatory

1 Commission'” and dated June 19, 2018 (ADAMS Acces-  
2 sion No.: ML18165A296).

## 3 **TITLE II—URANIUM**

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

5 Not later than 90 days after the date of enactment  
6 of this Act, the Commission shall submit to the appro-  
7 priate congressional committees a report describing—

8 (1) the duration of uranium recovery license  
9 issuance and amendment reviews; and

10 (2) recommendations to improve efficiency and  
11 transparency of uranium recovery license issuance  
12 and amendment reviews.

### 13 **SEC. 202. PILOT PROGRAM FOR URANIUM RECOVERY FEES.**

14 Not later than 1 year after the date of enactment  
15 of this Act, the Commission shall—

16 (1) complete a voluntary pilot initiative to de-  
17 termine the feasibility of the establishment of a flat  
18 fee structure for routine licensing matters relating to  
19 uranium recovery; and

20 (2) provide to the appropriate congressional  
21 committees a report describing the results of the  
22 pilot initiative under paragraph (1).