

# BUSINESS MEETING

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MEETING  
BEFORE THE  
COMMITTEE ON  
ENVIRONMENT AND PUBLIC WORKS  
UNITED STATES SENATE  
ONE HUNDRED FIFTEENTH CONGRESS  
FIRST SESSION

MARCH 22, 2017

Printed for the use of the Committee on Environment and Public Works



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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED FIFTEENTH CONGRESS  
FIRST SESSION

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## **BUSINESS MEETING**

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**WEDNESDAY, MARCH 22, 2017**

U.S. SENATE,  
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,  
*Washington, DC.*

The Committee met, pursuant to notice, at 10:13 a.m. in room 406, Dirksen Senate Office Building, Hon. John Barrasso (Chairman of the Committee) presiding.

Present: Senators Barrasso, Carper, Inhofe, Capito, Fischer, Moran, Rounds, Ernst, Whitehouse, Merkley, Gillibrand, Booker, and Harris.

### **OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM THE STATE OF WYOMING**

Senator BARRASSO. Good morning. I call this business meeting to order.

We are here to consider bipartisan legislation, S. 512, the Nuclear Energy Innovation and Modernization Act.

[The text of the original bill follows:]



II

115TH CONGRESS  
1ST SESSION

# S. 512

To modernize the regulation of nuclear energy.

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## 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, and Mr. MANCHIN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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## 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”.

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. 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.

#### 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 re-
- 4 actors in the United States must remain the para-
- 5 mount 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 af-
- 9 fordable, reliable, emissions-free energy in the
- 10 United States, providing approximately 20 percent
- 11 of the electricity consumed in the United States and
- 12 60 percent of emissions-free electricity generation in
- 13 the 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;

1 (C) generates approximately \$470,000,000  
2 annually in goods and services in the local com-  
3 munity; and

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

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

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

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

19 (A) the future global and United States  
20 energy supply; and

21 (B) the exports, manufacturing, and econ-  
22 omy of the United States;

23 (8) eventual deployment of commercial ad-  
24 vanced nuclear reactors will require—



1 (A) modernizing the regulatory framework;  
2 and

3 (B) making other necessary changes to fa-  
4 cilitate the efficient, predictable, and affordable  
5 deployment of advanced nuclear reactor tech-  
6 nologies;

7 (9) 2 impediments to the commercialization of  
8 advanced nuclear reactors are the high costs and  
9 long durations associated with applying the existing  
10 nuclear regulatory framework to advanced nuclear  
11 reactors;

12 (10) license application reviews should be as  
13 predictable and efficient as practicable without com-  
14 promising safety or security;

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

21 (12) the existing nuclear regulatory framework  
22 and the requirements of that framework have not  
23 adapted to advances in scientific understanding or  
24 the features and performance characteristics of ad-  
25 vanced nuclear reactor designs;

1           (13) the existing nuclear reactor licensing proc-  
2           ess does not provide iterative feedback to manage  
3           risk as needed for typical technology development  
4           and investment cycles;

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

11          (15) a technology-inclusive Commission regu-  
12          latory framework will—

13                (A) allow greater technological innovation;  
14                and

15                (B) enable inventors, scientists, engineers,  
16                and students to pursue licensing advanced reac-  
17                tor concepts;

18          (16) further preparation by the Commission of  
19          the research and test reactor licensing process will  
20          enable the Commission to more efficiently process  
21          applications for research and test reactors when the  
22          applications are received;

23          (17) it is incumbent on the Commission—

24                (A) to budget appropriate resources to un-  
25                dertake an active role in design familiarization

activities with potential applicants with advanced reactor designs;

(B) to budget for adequate resources to conduct licensing reviews and other work requested by licensees and applicants; and

(C) to preserve those budgeted funds to ensure responsiveness to licensees and applicants in recognition of the dependence of the licensees and applicants on Commission approval before the benefits of the technology of the licensees and applicants can be realized; and

(18) both prospective advanced nuclear reactor applicants and the existing fleet of nuclear reactors in the United States would benefit from modernizing the outdated fee recovery structure of the Commission to better manage fluctuations in workload and the number of licensees in a fair and equitable manner.

**SEC. 3. PURPOSE.**

The purpose of this Act is to provide—

(1) a program to develop the expertise and regulatory processes necessary to allow innovation and the commercialization of advanced nuclear reactors;

(2) a revised fee recovery structure to ensure the availability of resources to meet industry needs

1 without burdening existing licensees unfairly for in-  
2 accurate workload projections or premature existing  
3 reactor closures; and

4 (3) more efficient regulation of uranium recov-  
5 ery.

6 **SEC. 4. DEFINITIONS.**

7 In this Act:

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

17 (A) additional inherent safety features;

18 (B) significantly lower levelized cost of  
19 electricity;

20 (C) lower waste yields;

21 (D) greater fuel utilization;

22 (E) enhanced reliability;

23 (F) increased proliferation resistance;

24 (G) increased thermal efficiency; or

1           (H) ability to integrate into electric and  
2           nonelectric applications.

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

8           (3) AGREEMENT STATE.—The term “Agree-  
9           ment State” means any State with which the Com-  
10          mission has entered into an effective agreement  
11          under section 274 b. of the Atomic Energy Act of  
12          1954 (42 U.S.C. 2021(b)).

13          (4) APPLICANT.—The term “applicant” means  
14          an applicant for a license, certification, permit, or  
15          other form of approval from the Commission for a  
16          commercial advanced nuclear reactor or a research  
17          and test reactor.

18          (5) APPROPRIATE CONGRESSIONAL COMMIT-  
19          TEES.—The term “appropriate congressional com-  
20          mittees” means the Committee on Environment and  
21          Public Works of the Senate and the Committee on  
22          Energy and Commerce of the House of Representa-  
23          tives.

24          (6) COMMISSION.—The term “Commission”  
25          means the Nuclear Regulatory Commission.

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

4           (A) assesses preliminary design informa-  
5       tion for consistency with applicable regulatory  
6       requirements of the Commission;

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

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

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

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

22           (A) the interactions between an applicant  
23       and the Commission; and

24           (B) project schedules and deliverables in  
25       specific detail to support long-range resource

1 planning undertaken by the Commission and an  
2 applicant.

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

7 (11) REQUESTED ACTIVITY OF THE COMMIS-  
8 SION.—The term “requested activity of the Commis-  
9 sion” means—

10 (A) the processing of applications for—

- 11 (i) design certifications or approvals;
- 12 (ii) licenses;
- 13 (iii) permits;
- 14 (iv) license amendments;
- 15 (v) license renewals;
- 16 (vi) certificates of compliance; and
- 17 (vii) power uprates; and

18 (B) any other activity requested by a li-  
19 censee or applicant.

20 (12) RESEARCH AND TEST REACTOR.—

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

- 23 (i) falls within the licensing and re-  
24 lated regulatory authority of the Commis-  
25 sion under section 202 of the Energy Reor-

1                   ganization Act of 1974 (42 U.S.C. 5842);  
2                   and

3                   (ii) is useful in the conduct of re-  
4                   search and development activities as li-  
5                   censed under section 104 c. of the Atomic  
6                   Energy Act (42 U.S.C. 2134(c)).

7                   (B) EXCLUSION.—The term “research and  
8                   test reactor” does not include a commercial ad-  
9                   vanced nuclear reactor.

10                  (13) SECRETARY.—The term “Secretary”  
11                  means the Secretary of Energy.

12                  (14) STANDARD DESIGN APPROVAL.—The term  
13                  “standard design approval” means the approval of a  
14                  final standard design or a major portion of a final  
15                  design standard as described in subpart E of part  
16                  52 of title 10, Code of Federal Regulations (as in ef-  
17                  fect on the date of enactment of this Act).

18                  (15) TECHNOLOGY-INCLUSIVE REGULATORY  
19                  FRAMEWORK.—The term “technology-inclusive regu-  
20                  latory framework” means a regulatory framework  
21                  developed using methods of evaluation that are flexi-  
22                  ble and practicable for application to a variety of re-  
23                  actor technologies, including, where appropriate, the  
24                  use of risk-informed and performance-based tech-  
25                  niques and other tools and methods.



1 (16) TOPICAL REPORT.—The term “topical re-  
 2 port” means a document submitted to the Commis-  
 3 sion that addresses a technical topic related to nu-  
 4 clear power plant safety or design.

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

7 **SEC. 101. NUCLEAR REGULATORY COMMISSION USER FEES**  
 8 **AND ANNUAL CHARGES THROUGH FISCAL**  
 9 **YEAR 2019.**

10 (a) IN GENERAL.—Section 6101(c)(2)(A) of the Om-  
 11 nibus Budget Reconciliation Act of 1990 (42 U.S.C.  
 12 2214(c)(2)(A)) is amended—

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

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

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

17 “(v) amounts appropriated to the  
 18 Commission for the fiscal year for activi-  
 19 ties related to the development of a regu-  
 20 latory framework for advanced nuclear re-  
 21 actor technologies, including activities re-  
 22 quired under section 103 of the Nuclear  
 23 Energy Innovation and Modernization  
 24 Act.”.

1 (b) REPEAL.—Effective October 1, 2019, section  
2 6101 of the Omnibus Budget Reconciliation Act of 1990  
3 (42 U.S.C. 2214) is repealed.

4 **SEC. 102. NUCLEAR REGULATORY COMMISSION USER FEES**  
5 **AND ANNUAL CHARGES FOR FISCAL YEAR**  
6 **2020 AND EACH FISCAL YEAR THEREAFTER.**

7 (a) ANNUAL BUDGET JUSTIFICATION.—

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

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

19 (3) LIMITATION ON CORPORATE SUPPORT  
20 COSTS.—With respect to the annual budget justifica-  
21 tion submitted to Congress, corporate support costs,  
22 to the maximum extent practicable, shall not exceed  
23 the following percentages of the total budget author-  
24 ity of the Commission requested in the annual budg-  
25 et justification:

1 (A) 30 percent for each of fiscal years  
2 2020 and 2021.

3 (B) 29 percent for each of fiscal years  
4 2022 and 2023.

5 (C) 28 percent for fiscal year 2024 and  
6 each fiscal year thereafter.

7 (b) FEES AND CHARGES.—

8 (1) ANNUAL ASSESSMENT.—

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

15 (i) the total budget authority of the  
16 Commission for that fiscal year; less

17 (ii) the budget authority of the Com-  
18 mission for the activities described in sub-  
19 paragraph (B).

20 (B) EXCLUDED ACTIVITIES DESCRIBED.—

21 The activities referred to in subparagraph  
22 (A)(ii) are the following:

23 (i) An activity not attributable to an  
24 existing NRC licensee or class of licensee  
25 as identified by the Commission in Table

1           III of the final rule of the Commission en-  
2           titled “Revision of Fee Schedules; Fee Re-  
3           covery for Fiscal Year 2015” (80 Fed.  
4           Reg. 37432 (June 30, 2015)).

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

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

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

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

24                  (IV) for the Inspector General  
25                  services of the Commission provided

17

16

1 to the Defense Nuclear Facilities  
2 Safety Board;

3 (V) for research and development  
4 at universities in areas relevant to the  
5 mission of the applicable university;

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

13 (VII) for any other fee-relief ac-  
14 tivity described in the final rule of the  
15 Commission entitled “Revision of Fee  
16 Schedules; Fee Recovery for Fiscal  
17 Year 2015” (80 Fed. Reg. 37432  
18 (June 30, 2015)).

19 (iii) Costs for activities related to the  
20 development of regulatory infrastructure  
21 for advanced nuclear reactor technologies,  
22 including activities required under section  
23 103.

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

4 (D) REPORT.—Not later than December  
5 31, 2029, the Commission shall submit to the  
6 Committee on Appropriations and the Com-  
7 mittee on Environment and Public Works of the  
8 Senate and the Committee on Appropriations  
9 and the Committee on Energy and Commerce  
10 of the House of Representatives a report de-  
11 scribing the views of the Commission on the  
12 continued appropriateness and necessity of the  
13 funding described in subparagraph (B)(iii).

14 (2) FEES FOR SERVICE OR THING OF VALUE.—  
15 In accordance with section 9701 of title 31, United  
16 States Code, the Commission shall charge fees to  
17 any person who receives a service or thing of value  
18 from the Commission to cover the costs to the Com-  
19 mission of providing the service or thing of value.

20 (3) ANNUAL FEES.—

21 (A) IN GENERAL.—Subject to subpara-  
22 graph (B) and except as provided in subpara-  
23 graph (D), the Commission may charge to any  
24 licensee or certificate holder of the Commission  
25 an annual fee.

1 (B) CAP ON ANNUAL FEES OF CERTAIN LI-  
2 CENSEES.—

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

17 (ii) WAIVER.—The Commission may  
18 waive, for a period of 1 year, the cap on  
19 annual fees described in clause (i) if the  
20 Commission submits to the Committee on  
21 Appropriations and the Committee on En-  
22 vironment and Public Works of the Senate  
23 and the Committee on Appropriations and  
24 the Committee on Energy and Commerce  
25 of the House of Representatives a written

1 determination that the cap on annual fees  
 2 may compromise the safety and security  
 3 mission of the Commission.

4 (C) AMOUNT PER LICENSEE.—

5 (i) IN GENERAL.—The Commission  
 6 shall establish by rule a schedule of fees  
 7 fairly and equitably allocating the aggre-  
 8 gate amount of charges described in sub-  
 9 paragraph (A) among licensees and certifi-  
 10 cate holders.

11 (ii) REQUIREMENT.—The schedule of  
 12 fees under clause (i)—

13 (I) to the maximum extent prac-  
 14 ticable, shall be based on the cost of  
 15 providing regulatory services; and

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

21 (D) EXEMPTION.—

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



1 (I) is licensed by the Commission  
2 under section 104 c. of the Atomic  
3 Energy Act of 1954 (42 U.S.C.  
4 2134(c)) for operation at a thermal  
5 power level of not more than 10  
6 megawatts; and

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

11 (aa) a circulating loop  
12 through the core in which the li-  
13 censee conducts fuel experiments;

14 (bb) a liquid fuel loading; or

15 (cc) an experimental facility  
16 in the core in excess of 16 square  
17 inches in cross-section.

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

23 (c) PERFORMANCE AND REPORTING.—

24 (1) IN GENERAL.—Not later than 180 days  
25 after the date of enactment of this Act, the Commis-

1 sion shall develop for the requested activities of the  
2 Commission—

3 (A) performance metrics; and

4 (B) on each request, milestone schedules.

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

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

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

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

6 (2) develop and implement processes to audit  
7 invoices to ensure accuracy, transparency, and fair-  
8 ness; and

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

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

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

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

2 (a) LICENSING OF COMMERCIAL ADVANCED NU-  
3 CLEAR REACTORS.—

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

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

13 (B) developing procedures and processes  
14 for—

15 (i) using a licensing project plan; and

16 (ii) optional use of a conceptual de-  
17 sign assessment.

18 (2) RISK-INFORMED LICENSING.—Not later  
19 than 2 years after the date of enactment of this Act,  
20 the Commission shall develop and implement, where  
21 appropriate, strategies for the increased use of risk-  
22 informed, performance-based licensing evaluation  
23 techniques and guidance for commercial advanced  
24 nuclear reactors within existing regulatory frame-  
25 works, including evaluation techniques and guidance  
26 for the resolution of the following:

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

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

- 7 (i) licensing basis event selection and
- 8 evaluation;
- 9 (ii) source terms;
- 10 (iii) containment performance; and
- 11 (iv) emergency preparedness.

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

19 (4) TECHNOLOGY-INCLUSIVE REGULATORY  
 20 FRAMEWORK.—Not later than December 31, 2024,  
 21 the Commission shall complete a rulemaking to es-  
 22 tablish a technology-inclusive, regulatory framework  
 23 for optional use by commercial advanced nuclear re-  
 24 actor applicants for new reactor license applications.

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

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

7           (B) to support preparations—

8           (i) to conduct pre-application inter-  
9       actions; and

10          (ii) to review commercial advanced nu-  
11       clear reactor license applications.

12          (6) AUTHORIZATION OF APPROPRIATIONS.—

13       There are authorized to be appropriated to the Com-  
14       mission to carry out this subsection such sums as  
15       are necessary.

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

19          (1) REPORT REQUIRED.—Not later than 180  
20       days after the date of enactment of this Act, the  
21       Commission shall submit to the appropriate congress-  
22       sional committees a report for expediting and estab-  
23       lishing stages in the licensing process for commercial  
24       advanced nuclear reactors that will allow implemen-  
25       tation of the licensing process by not later than 2

1 years after the date of enactment of this Act (re-  
2 ferred to in this subsection as the “report”).

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

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

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

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

22 (ii) strategies for the qualification of ad-  
23 vanced nuclear reactor fuel, including the use of  
24 computer modeling and simulation and experi-  
25 mental validation; and

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

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

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

17 (I) milestones that—

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

23 (bb) use knowledge of the  
24 ability of the Commission to re-  
25 view certain design aspects; and



1 (II) guidelines defining the roles  
2 and responsibilities between the Com-  
3 mission and the applicant at the onset  
4 of the interaction—

5 (aa) to provide the founda-  
6 tion for effective communication  
7 and effective project manage-  
8 ment; and

9 (bb) to ensure efficient  
10 progress;

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

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

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

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

8 (II) to ensure timely completion  
9 of specific licensing actions;

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

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

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

22 (D) options for improving the predictability  
23 of the commercial advanced nuclear reactor li-  
24 censing process, including the evaluation of op-  
25 portunities to improve the process by which ap-

1           plication review milestones are established and  
2           met; and

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

6       (c) REPORT TO INCREASE THE USE OF RISK-IN-  
7 FORMED AND PERFORMANCE-BASED EVALUATION TECH-  
8 Niques AND REGULATORY GUIDANCE.—

9           (1) REPORT REQUIRED.—Not later than 180  
10          days after the date of enactment of this Act, the  
11          Commission shall submit to the appropriate congres-  
12          sional committees a report for increasing, where ap-  
13          propriate, the use of risk-informed and performance-  
14          based evaluation techniques and regulatory guidance  
15          in licensing commercial advanced nuclear reactors  
16          within the existing regulatory framework (referred to  
17          in this subsection 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, technology developers, and other pub-  
22          lic stakeholders.

23          (3) COST AND SCHEDULE ESTIMATE.—The re-  
24          port shall include proposed cost estimates, budgets,  
25          and timeframes for implementing a strategy to in-

1       crease the use of risk-informed and performance-  
2       based evaluation techniques and regulatory guidance  
3       in licensing commercial advanced nuclear reactors.

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

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

16           (i) issues relating to—

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

19           (II) use of mechanistic source  
20           terms;

21           (III) containment performance;

22           (IV) emergency preparedness;

23           and

24           (V) the qualification of advanced  
25           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 to support  
10 the review process for advanced reactors de-  
11 signs, including designs that use alternative  
12 coolants or alternative fuels, operate at or near  
13 atmospheric pressure, and use passive safety  
14 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 congressional committees a report (referred to in this subsection 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 commercial advanced nuclear reactor technologies in  
9       new reactor license applications; and

11          (B) ensuring that the Commission has adequate expertise, modeling, and simulation capabilities, or access to those capabilities, to support the evaluation of advanced reactor license applications, including the qualification 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 energy industry, a diverse set of technology developers,  
20       and other public stakeholders.

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

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, 2024;

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. ADVANCED NUCLEAR ENERGY LICENSING COST-**  
 7 **SHARE GRANT PROGRAM.**

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

15 (b) REQUIREMENT.—The Secretary shall seek out  
 16 technology diversity in making grants under the program.

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

19 (d) USE OF FUNDS.—Recipients of grants under the  
 20 program may use the grant funds to cover Commission  
 21 fees, including those fees associated with—

- 22 (1) developing a licensing project plan;
- 23 (2) obtaining a conceptual design assessment;
- 24 (3) reviewing topical reports; and

1 (4) other pre-application and application review  
2 activities and interactions with the Commission.

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

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

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

13 (b) REPORT.—Not later than September 30, 2017,  
14 the Commission shall submit to the appropriate congres-  
15 sional 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. 106. EVACUATION REPORT.**

22 (a) IN GENERAL.—Not later than 90 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 **TITLE II—URANIUM**

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

17 Not later than December 31, 2017, the Commission  
 18 shall submit to the appropriate congressional committees  
 19 a report describing—

20 (1) the safety and feasibility of extending the  
 21 duration of uranium recovery licenses from 10 to 20  
 22 years, including any potential benefits of the exten-  
 23 sion;

24 (2) the duration of uranium recovery license  
 25 issuance and amendment reviews; and

1           (3) recommendations to improve efficiency and  
 2           transparency of uranium recovery license issuance  
 3           and amendment reviews.

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

5           Not later than July 31, 2018, the Commission  
 6 shall—

7           (1) complete a voluntary pilot initiative to de-  
 8           termine the feasibility of the establishment of a flat  
 9           fee structure for routine licensing matters relating to  
 10          uranium recovery; and

11          (2) provide to the appropriate congressional  
 12          committees a report describing the results of the  
 13          pilot initiative under paragraph (1).

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

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

17          (1) by redesignating subsections (b) through (f)  
 18          as subsections (d) through (h), respectively;

19          (2) by striking subsection (a) and inserting the  
 20          following:

21          “(a) DEFINITIONS.—In this section:

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

25                 “(A) natural uranium; or

1           “(B) 0.711 percent of the uranium-235  
2           isotope.

3           “(2) HIGHLY ENRICHED URANIUM.—The term  
4           ‘highly enriched uranium’ means uranium having an  
5           assay of 20 percent or greater of the uranium-235  
6           isotope.

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

11          “(4) METRIC TON OF URANIUM.—The term  
12          ‘metric ton of uranium’ means 1,000 kilograms of  
13          uranium.

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

17          “(6) OFF-SPEC URANIUM.—The term ‘off-spec  
18          uranium’ means uranium in any form, including de-  
19          pleted uranium, highly enriched uranium, low-en-  
20          riched uranium, natural uranium, UF<sub>6</sub>, and any by-  
21          product of uranium processing, that does not meet  
22          the specification for commercial material (as defined  
23          by the standards of the American Society for Test-  
24          ing and Materials).

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

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

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

15          “(c) DEVELOPMENT OF FEDERAL EXCESS URANIUM  
16      MANAGEMENT PLAN.—

17           “(1) IN GENERAL.—Beginning on January 1,  
18      2018, and not less frequently than once every 10  
19      years thereafter, the Secretary shall issue a long-  
20      term Federal excess uranium inventory management  
21      plan (referred to in this section as the ‘plan’) that  
22      details the management of the excess uranium inven-  
23      tories of the Department of Energy and covers a pe-  
24      riod of not fewer than 10 years.

25           “(2) CONTENT.—

1           “(A) IN GENERAL.—The plan shall cover  
2           all forms of uranium within the excess uranium  
3           inventory of the Department of Energy, includ-  
4           ing depleted uranium, highly enriched uranium,  
5           low-enriched uranium, natural uranium, off-  
6           spec uranium, and UF6.

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

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

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

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



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

5           “(B) a final plan not later than 1 year  
 6           after the date of enactment of this paragraph.”;  
 7           (3) in subsection (d) (as redesignated by para-  
 8           graph (1))—

9           (A) in the sixth sentence of paragraph (3),  
 10          by striking “subsections (b)(5), (b)(6) and  
 11          (b)(7) of this section” and inserting “para-  
 12          graphs (5), (6), and (7)”; and

13          (B) in paragraph (8), by striking “(b)”;  
 14          (4) in subsection (e)(1) (as redesignated by  
 15          paragraph (1)), by striking “subsection (c)(2)” and  
 16          inserting “paragraph (2)”;

17          (5) in subsection (f) (as redesignated by para-  
 18          graph (1))—

19          (A) by striking paragraph (1) and insert-  
 20          ing the following:

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

1           “(A) Effective for the period of calendar  
2           years 2017 through 2025, and notwithstanding  
3           any other provision of law, the Secretary shall  
4           not transfer, sell, or otherwise provide more  
5           than 2,100 metric tons of natural uranium  
6           equivalent annually in any form, including de-  
7           pleted uranium, highly enriched uranium, low-  
8           enriched uranium, natural uranium, off-spec  
9           uranium, and UF6.

10           “(B) Effective beginning on January 1,  
11           2026, and notwithstanding any other provision  
12           of law, the Secretary shall not transfer, sell, or  
13           otherwise provide more than 2,700 metric tons  
14           of natural uranium equivalent annually in any  
15           form, including depleted uranium, highly en-  
16           riched uranium, low-enriched uranium, natural  
17           uranium, off-spec uranium, and UF6.”;

18           (B) in paragraph (2), in the matter pre-  
19           ceding subparagraph (A), by striking “(2) Ex-  
20           cept as provided in subsections (b), (c), and  
21           (e)” and inserting the following:

22           “(2) DETERMINATIONS.—Except as provided in  
23           subsection (d), (e), and (g), and subject to para-  
24           graph (3)”;

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

1 “(3) REQUIREMENTS FOR DETERMINATIONS.—

2 “(A) PROPOSED DETERMINATION.—Before  
3 making a determination under paragraph  
4 (2)(B), the Secretary shall publish a proposed  
5 determination in the Federal Register pursuant  
6 to a rulemaking under section 553 of title 5,  
7 United States Code.

8 “(B) QUALITY OF MARKET ANALYSIS.—

9 Any market analysis that is prepared by the  
10 Department of Energy, or that the Department  
11 of Energy commissions for the Secretary as  
12 part of the determination process under para-  
13 graph (2)(B), shall be subject to a peer review  
14 process consistent with the guidelines of the Of-  
15 fice of Management and Budget published at  
16 67 Fed. Reg. 8452–8460 (February 22, 2002)  
17 (or successor guidelines), to ensure and maxi-  
18 mize the quality, objectivity, utility, and integ-  
19 rity of information disseminated by Federal  
20 agencies.

21 “(C) WAIVER OF SECRETARIAL DETER-  
22 MINATION.—Beginning on January 1, 2023, the  
23 requirement for a determination by the Sec-  
24 retary under paragraph (2)(B) shall be waived  
25 for transferring, selling, or otherwise providing

1           uranium by the Secretary if the uranium has  
2           been identified in the updated long-term Fed-  
3           eral excess uranium inventory management plan  
4           under subsection (c)(1).”; and  
5           (6) in subsection (g) (as redesignated by para-  
6           graph (1)), in the matter preceding paragraph (1),  
7           by striking “(d)(2)” and inserting “(f)(2)”.

○

Senator BARRASSO. I am going to call up the Barrasso-Carper-Whitehouse-Inhofe-Booker-Fischer-Capito-Duckworth substitute that was circulated on Friday.

We have agreed that this substitute shall be considered the original text for the purposes of amendments. However, no amendments have been filed. So Senator Carper and I will give our statements, then we will vote to report the substitute to the Senate when we have a quorum of 11, and we actually do have a quorum of 11 right now.

After the vote I will recognize other members for any statements that they may wish to make.

[The text of the substitute amendment to S. 512 offered by Senators Barrasso, Carper, Whitehouse, Inhofe, Booker, Fischer, Capito, and Duckworth follows:]

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

Purpose: In the nature of a substitute.

IN THE SENATE OF THE UNITED STATES—115th Cong., 1st 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, Mr. CARPER, Mr. WHITENOUR,  
Mr. TINNIE, Mr. BOOKER, Mrs. FISCHER, Mrs. CAPITO, Mrs. DUCKWORTH  
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. 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 fis-  
cal 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 re-  
 4 actors in the United States must remain the para-  
 5 mount 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 af-  
 9 fordable, reliable, emissions-free energy in the  
 10 United States, providing approximately 20 percent  
 11 of the electricity consumed in the United States and  
 12 60 percent of emissions-free electricity generation in  
 13 the 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  
9 for industrial applications, and power for deep space  
10 exploration;

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

16 (A) the future global and United States  
17 energy supply; and

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

20 (8) eventual deployment of commercial ad-  
21 vanced 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  
5 long durations associated with applying the existing  
6 nuclear regulatory framework to advanced nuclear  
7 reactors;

8 (10) license application reviews should be as  
9 predictable, efficient, and timely as practicable with-  
10 out compromising safety or security;

11 (11) the development of advanced nuclear reac-  
12 tors would benefit from the early identification of  
13 policy issues for timely consideration and resolution  
14 by the Commission to improve the efficient develop-  
15 ment of designs as well as preparing for design re-  
16 view and 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  
24 risk as needed for typical technology development  
25 and investment 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 commer-  
4       cialization of safer and innovative technologies that  
5       will benefit the economy, national security, and envi-  
6       ronment 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  
16       enable the Commission to more efficiently process  
17       applications for research and test reactors when the  
18       applications 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;

## 6

1 (B) to budget for adequate resources to  
2 conduct licensing reviews and other work re-  
3 quested by licensees and applicants; and

4 (C) to use those budgeted funds to ensure  
5 responsiveness to licensees and applicants in  
6 recognition of the dependence of the licensees  
7 and applicants on Commission approval before  
8 the benefits of the technology of the licensees  
9 and applicants can be realized; and

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

17 **SEC. 3. PURPOSE.**

18 The purpose of this Act is to provide—

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

22 (2) a revised fee recovery structure to ensure  
23 the availability of resources to meet industry needs  
24 without burdening existing licensees unfairly for in-

1 accurate workload projections or premature existing  
2 reactor closures; and  
3 (3) more efficient regulation of uranium recov-  
4 ery.

5 **SEC. 4. DEFINITIONS.**

6 In this Act:

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

- 16 (A) additional inherent safety features;  
17 (B) significantly lower levelized cost of  
18 electricity;  
19 (C) lower waste yields;  
20 (D) greater fuel utilization;  
21 (E) enhanced reliability;  
22 (F) increased proliferation resistance;  
23 (G) increased thermal efficiency; or  
24 (H) ability to integrate into electric and  
25 nonelectric applications.

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

6           (3) AGREEMENT STATE.—The term “Agree-  
7           ment State” means any State with which the Com-  
8           mission has entered into an effective agreement  
9           under section 274 b. of the Atomic Energy Act of  
10          1954 (42 U.S.C. 2021(b)).

11          (4) APPROPRIATE CONGRESSIONAL COMMIT-  
12          TEES.—The term “appropriate congressional com-  
13          mittees” means the Committee on Environment and  
14          Public Works of the Senate and the Committee on  
15          Energy and Commerce of the House of Representa-  
16          tives.

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

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

22                (A) assesses preliminary design informa-  
23                tion for consistency with applicable regulatory  
24                requirements of the Commission;

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

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

5 (7) CORPORATE SUPPORT COSTS.—The term  
6 “corporate support costs” means expenditures for  
7 acquisitions, administrative services, financial man-  
8 agement, human resource management, information  
9 management, information technology, policy support,  
10 outreach, and training, as those categories are de-  
11 scribed and calculated in Appendix A of the Con-  
12 gressional Budget Justification for Fiscal Year 2017  
13 of the Commission.

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

16 (A) the interactions between an applicant  
17 and the Commission; and

18 (B) project schedules and deliverables in  
19 specific detail to support long-range resource  
20 planning undertaken by the Commission and an  
21 applicant.

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

1           (10) REQUESTED ACTIVITY OF THE COMMIS-  
2       SION.—The term “requested activity of the Commis-  
3       sion” means—

- 4           (A) the processing of applications for—  
5               (i) design certifications or approvals;  
6               (ii) licenses;  
7               (iii) permits;  
8               (iv) license amendments;  
9               (v) license renewals;  
10              (vi) certificates of compliance; and  
11              (vii) power uprates; and

12           (B) any other activity requested by a li-  
13       censee or applicant.

14       (11) RESEARCH AND TEST REACTOR.—

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

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

- 22               (ii) is useful in the conduct of re-  
23       search and development activities as li-  
24       censed under section 104 c. of the Atomic  
25       Energy Act (42 U.S.C. 2134(c)).

1 (B) EXCLUSION.—The term “research and  
2 test reactor” does not include a commercial nu-  
3 clear reactor.

4 (12) SECRETARY.—The term “Secretary”  
5 means the Secretary of Energy.

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

12 (14) TECHNOLOGY-INCLUSIVE REGULATORY  
13 FRAMEWORK.—The term “technology-inclusive regu-  
14 latory framework” means a regulatory framework  
15 developed using methods of evaluation that are flexi-  
16 ble and practicable for application to a variety of re-  
17 actor technologies, including, where appropriate, the  
18 use of risk-informed and performance-based tech-  
19 niques and other tools and methods.

20 (15) TOPICAL REPORT.—The term “topical re-  
21 port” means a document submitted to the Commis-  
22 sion that addresses a technical topic related to nu-  
23 clear reactor 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 Om-  
7   nibus 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 activi-  
15                   ties related to the development of regu-  
16                   latory infrastructure for advanced nuclear  
17                   reactor technologies, including activities re-  
18                   quired under section 103 of the Nuclear  
19                   Energy Innovation and Modernization  
20                   Act.”.

21       (b) REPEAL.—Effective October 1, 2019, section  
22   6101 of the Omnibus Budget Reconciliation Act of 1990  
23   (42 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 re-  
9 quested activities of the Commission anticipated to  
10 occur during the applicable fiscal year.

11 (2) RESTRICTION.—Budget authority granted  
12 to the Commission for purposes of the requested ac-  
13 tivities of the Commission shall be used, to the max-  
14 imum extent practicable, solely for conducting re-  
15 quested activities 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,  
19 to the maximum extent practicable, shall not exceed  
20 the following percentages of the total budget author-  
21 ity of the Commission requested in the annual budg-  
22 et justification:

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

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

1 (C) 28 percent for fiscal year 2024 and  
2 each 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  
10 is 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  
18 (A)(ii) 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)).

## 15

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  
5 the Nuclear Waste Policy Act of 1982  
6 (42 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  
11 note; Public Law 108–375);

12 (III) for the homeland security  
13 activities of the Commission (other  
14 than for the costs of fingerprinting  
15 and background checks required  
16 under section 149 of the Atomic En-  
17 ergy Act of 1954 (42 U.S.C. 2169)  
18 and the costs of conducting security  
19 inspections);

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

## 16

1 (V) for research and development  
2 at universities in areas relevant to the  
3 mission of the Commission; and

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

11 (iii) Costs for activities related to the  
12 development of regulatory infrastructure  
13 for advanced nuclear reactor technologies,  
14 including activities required under section  
15 103.

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

19 (D) REPORT.—Not later than December  
20 31, 2029, the Commission shall submit to the  
21 Committee on Appropriations and the Com-  
22 mittee on Environment and Public Works of the  
23 Senate and the Committee on Appropriations  
24 and the Committee on Energy and Commerce  
25 of the House of Representatives a report de-

1           scribing the views of the Commission on the  
2           continued appropriateness and necessity of the  
3           funding described in subparagraph (B)(iii).

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

10          (3) ANNUAL FEES.—

11           (A) IN GENERAL.—Subject to subpara-  
12          graph (B) and except as provided in subpara-  
13          graph (D), the Commission may charge to any  
14          licensee or certificate holder of the Commission  
15          an annual fee.

16           (B) CAP ON ANNUAL FEES OF CERTAIN LI-  
17          CENSEES.—

18           (i) IN GENERAL.—The annual fee  
19          under subparagraph (A) charged to an op-  
20          erating reactor licensee, to the maximum  
21          extent practicable, shall not exceed the an-  
22          nual fee amount per operating reactor li-  
23          censee established in the final rule of the  
24          Commission entitled “Revision of Fee  
25          Schedules; Fee Recovery for Fiscal Year

1 2015'' (80 Fed. Reg. 37432 (June 30,  
2 2015)), as may be adjusted annually by  
3 the Commission to reflect changes in the  
4 Consumer Price Index published by the  
5 Bureau of Labor Statistics of the Depart-  
6 ment of Labor.

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

19 (C) AMOUNT PER LICENSEE.—

20 (i) IN GENERAL.—The Commission  
21 shall establish by rule a schedule of fees  
22 fairly and equitably allocating the aggre-  
23 gate amount of charges described in sub-  
24 paragraph (A) among licensees and certifi-  
25 cate holders.

## 19

1 (ii) REQUIREMENT.—The schedule of  
2 fees under clause (i)—

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

6 (II) may be based on the alloca-  
7 tion of the resources of the Commis-  
8 sion among licensees or certificate  
9 holders or classes of licensees or cer-  
10 tificate holders.

11 (D) EXEMPTION.—

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

16 (I) is licensed by the Commission  
17 under section 104 c. of the Atomic  
18 Energy Act of 1954 (42 U.S.C.  
19 2134(c)) for operation at a thermal  
20 power level of not more than 10  
21 megawatts; and

22 (II) if licensed under subclause  
23 (I) for operation at a thermal power  
24 level of more than 1 megawatt, does  
25 not contain—



20

- 1 (aa) a circulating loop  
2 through the core in which the li-  
3 censee conducts fuel experiments;  
4 (bb) a liquid fuel loading; or  
5 (cc) an experimental facility  
6 in the core in excess of 16 square  
7 inches in cross-section.

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

13 (c) PERFORMANCE AND REPORTING.—

14 (1) IN GENERAL.—Not later than 180 days  
15 after the date of enactment of this Act, the Commis-  
16 sion shall develop for the requested activities of the  
17 Commission—

- 18 (A) performance metrics; and  
19 (B) on each request, milestone schedules.

20 (2) DELAYS IN ISSUANCE OF FINAL SAFETY  
21 EVALUATION.—The Executive Director for Oper-  
22 ations of the Commission shall inform the Commis-  
23 sion of a delay in issuance of the final safety evalua-  
24 tion for a requested activity of the Commission by  
25 the completion date required by the performance

1 metrics or milestone schedule under paragraph (1)  
2 by not later than 30 days after the completion date.

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

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

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

20 (2) develop and implement processes to audit  
21 invoices to ensure accuracy, transparency, and fair-  
22 ness; and

23 (3) modify regulations to ensure fair and appro-  
24 priate processes to provide licensees and applicants  
25 an opportunity to efficiently dispute or otherwise

1 seek review and correction of errors in invoices for  
2 fees and charges.

3 (e) REPORT.—Not later than September 30, 2021,  
4 the Commission shall submit to the Committee on Appro-  
5 priations and the Committee on Environment and Public  
6 Works of the Senate and the Committee on Appropria-  
7 tions and the Committee on Energy and Commerce of the  
8 House of Representatives a report describing the imple-  
9 mentation of this section, including any impacts and rec-  
10 ommendations for improvement.

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

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

14 (a) LICENSING.—

15 (1) STAGED LICENSING.—For the purpose of  
16 predictable, efficient, and timely reviews, not later  
17 than 270 days after the date of enactment of this  
18 Act, the Commission shall develop and implement,  
19 within the existing regulatory framework, strategies  
20 for—

21 (A) establishing stages in the licensing  
22 process for commercial advanced nuclear reac-  
23 tors; and

24 (B) developing procedures and processes  
25 for—

- 1 (i) using a licensing project plan; and  
2 (ii) optional use of a conceptual de-  
3 sign assessment.

4 (2) RISK-INFORMED LICENSING.—Not later  
5 than 2 years after the date of enactment of this Act,  
6 the Commission shall develop and implement, where  
7 appropriate, strategies for the increased use of risk-  
8 informed, performance-based licensing evaluation  
9 techniques and guidance for commercial advanced  
10 nuclear reactors within the existing regulatory  
11 framework, including evaluation techniques and  
12 guidance for the resolution of the following:

13 (A) Applicable policy issues identified dur-  
14 ing the course of review by the Commission of  
15 a commercial advanced nuclear reactor licensing  
16 application.

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

- 19 (i) licensing basis event selection and  
20 evaluation;  
21 (ii) source terms;  
22 (iii) containment performance; and  
23 (iv) emergency preparedness.

24 (3) RESEARCH AND TEST REACTOR LICENS-  
25 ING.—For the purpose of predictable, efficient, and

1       timely reviews, not later than 2 years after the date  
 2       of enactment of this Act, the Commission shall de-  
 3       velop and implement strategies within the existing  
 4       regulatory framework for licensing research and test  
 5       reactors, including the issuance of guidance.

6           (4) TECHNOLOGY-INCLUSIVE REGULATORY  
 7       FRAMEWORK.—Not later than December 31, 2024,  
 8       the Commission shall complete a rulemaking to es-  
 9       tablish a technology-inclusive, regulatory framework  
 10      for optional use by commercial advanced nuclear re-  
 11      actor applicants for new reactor license applications.

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

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

18           (B) to support preparations—

19           (i) to conduct pre-application inter-  
 20      actions; and

21           (ii) to review commercial advanced nu-  
 22      clear reactor license applications.

23          (6) AUTHORIZATION OF APPROPRIATIONS.—  
 24      There are authorized to be appropriated to the Com-

1 mission to carry out this subsection such sums as  
2 are necessary.

3 (b) REPORT TO ESTABLISH STAGES IN THE COM-  
4 Mercial Advanced Nuclear Reactor Licensing  
5 PROCESS.—

6 (1) REPORT REQUIRED.—Not later than 180  
7 days after the date of enactment of this Act, the  
8 Commission shall submit to the appropriate congres-  
9 sional committees a report for expediting and estab-  
10 lishing stages in the licensing process for commercial  
11 advanced nuclear reactors that will allow implemen-  
12 tation of the licensing process by not later than 2  
13 years after the date of enactment of this Act (re-  
14 ferred to in this subsection as the “report”).

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

20 (3) COST AND SCHEDULE ESTIMATES.—The re-  
21 port shall include proposed cost estimates, budgets,  
22 and timeframes for implementing strategies to estab-  
23 lish stages in the licensing process for commercial  
24 advanced nuclear reactor technologies.

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

5           (A)(i) the unique aspects of commercial  
6       advanced nuclear reactor licensing, including  
7       the use of alternative coolants, operation at or  
8       near atmospheric pressure, and the use of pas-  
9       sive safety strategies;

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

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

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

1 (i) the development and use under the  
2 regulatory framework of the Commission  
3 in effect on the date of enactment of this  
4 Act of a licensing project plan that could  
5 establish—

6 (I) milestones that—

7 (aa) correspond to stages of  
8 a licensing process for the spe-  
9 cific situation of a commercial  
10 advanced nuclear reactor project;  
11 and

12 (bb) use knowledge of the  
13 ability of the Commission to re-  
14 view certain design aspects; and

15 (II) guidelines defining the roles  
16 and responsibilities between the Com-  
17 mission and the applicant at the onset  
18 of the interaction—

19 (aa) to provide the founda-  
20 tion for effective communication  
21 and effective project manage-  
22 ment; and

23 (bb) to ensure efficient  
24 progress;



1 (ii) the use of topical reports, stand-  
2 ard design approval, and other appropriate  
3 mechanisms as tools to introduce stages  
4 into the commercial advanced nuclear reac-  
5 tor licensing process, including how the li-  
6 censing project plan might structure the  
7 use of those mechanisms;

8 (iii) collaboration with standards-set-  
9 ting organizations to identify specific tech-  
10 nical areas for which new or updated  
11 standards are needed and providing assist-  
12 ance if appropriate to ensure the new or  
13 updated standards are developed and final-  
14 ized in a timely fashion;

15 (iv) the incorporation of consensus-  
16 based codes and standards developed under  
17 clause (iii) into the regulatory frame-  
18 work—

19 (I) to provide predictability for  
20 the regulatory processes of the Com-  
21 mission; and

22 (II) to ensure timely completion  
23 of specific licensing actions;

1 (v) the development of a process for,  
2 and the use of, conceptual design assess-  
3 ments; and

4 (vi) identification of any policies and  
5 guidance for staff that will be needed to  
6 implement clauses (i) and (ii);

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

13 (D) options for improving the predictability  
14 of the commercial advanced nuclear reactor li-  
15 censing process, including the evaluation of op-  
16 portunities to improve the process by which ap-  
17 plication review milestones are established and  
18 met; and

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

22 (c) REPORT TO INCREASE THE USE OF RISK-IN-  
23 FORMED AND PERFORMANCE-BASED EVALUATION TECH-  
24 Niques AND REGULATORY GUIDANCE.—

1           (1) REPORT REQUIRED.—Not later than 180  
2       days after the date of enactment of this Act, the  
3       Commission shall submit to the appropriate congressional committees a report for increasing, where appropriate, the use of risk-informed and performance-based evaluation techniques and regulatory guidance  
4       in licensing commercial advanced nuclear reactors  
5       within the existing regulatory framework (referred to  
6       in this subsection as the “report”).

7           (2) COORDINATION AND STAKEHOLDER  
8       INPUT.—In developing the report, the Commission  
9       shall seek input from the Secretary, the nuclear energy industry, technology developers, and other public stakeholders.

10          (3) COST AND SCHEDULE ESTIMATE.—The report shall include proposed cost estimates, budgets, and timeframes for implementing a strategy to increase the use of risk-informed and performance-based evaluation techniques and regulatory guidance  
11       in licensing commercial advanced nuclear reactors.

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

1 (A) the ability of the Commission to de-  
2 velop and implement, where appropriate, risk-  
3 informed and performance-based licensing eval-  
4 uation techniques and guidance for commercial  
5 advanced nuclear reactors within existing regu-  
6 latory frameworks not later than 2 years after  
7 the date of enactment of this Act, including  
8 policies and guidance for the resolution of—

9 (i) issues relating to—

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

12 (II) use of mechanistic source  
13 terms;

14 (III) containment performance;

15 (IV) emergency preparedness;  
16 and

17 (V) the qualification of advanced  
18 nuclear reactor fuel; and

19 (ii) other policy issues previously iden-  
20 tified; and

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

23 (d) REPORT TO PREPARE THE RESEARCH AND TEST  
24 REACTOR LICENSING PROCESS.—

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

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

13          (3) COST AND SCHEDULE ESTIMATES.—The re-  
14      port shall include proposed cost estimates, budgets,  
15      and timeframes for preparing the licensing process  
16      for research and test reactors.

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

21            (A) the unique aspects of research and test  
22            reactor licensing and any associated legal, regu-  
23            latory, and policy issues the Commission should  
24            address to prepare the licensing process for re-  
25            search and test reactors;

1 (B) the feasibility of developing guidelines  
 2 for advanced reactor demonstrations and proto-  
 3 types to support the review process for ad-  
 4 vanced reactors designs, including designs that  
 5 use alternative coolants or alternative fuels, op-  
 6 erate at or near atmospheric pressure, and use  
 7 passive safety strategies; and

8 (C) the extent to which Commission action  
 9 or modification of policy is needed to implement  
 10 any part of the report.

11 (e) REPORT TO COMPLETE A RULEMAKING TO ES-  
 12 TABLISH A TECHNOLOGY-INCLUSIVE REGULATORY  
 13 FRAMEWORK FOR OPTIONAL USE BY COMMERCIAL AD-  
 14 VANCED NUCLEAR REACTOR TECHNOLOGIES IN NEW RE-  
 15 ACTOR LICENSE APPLICATIONS AND TO ENHANCE COM-  
 16 MISSION EXPERTISE RELATING TO ADVANCED NUCLEAR  
 17 REACTOR TECHNOLOGIES.—

18 (1) REPORT REQUIRED.—Not later than 30  
 19 months after the date of enactment of this Act, the  
 20 Commission shall submit to the appropriate congres-  
 21 sional committees a report (referred to in this sub-  
 22 section as the “report”) for—

23 (A) completing a rulemaking to establish a  
 24 technology-inclusive regulatory framework for  
 25 optional use by applicants in licensing commer-

1           cial advanced nuclear reactor technologies in  
2           new reactor license applications; and

3                 (B) ensuring that the Commission has ade-  
4           quate expertise, modeling, and simulation capa-  
5           bilities, or access to those capabilities, to sup-  
6           port the evaluation of commercial advanced re-  
7           actor license applications, including the quali-  
8           fication of advanced nuclear reactor fuel.

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

14          (3) COST AND SCHEDULE ESTIMATE.—The re-  
15          port shall include proposed cost estimates, budgets,  
16          and timeframes for developing and implementing a  
17          technology-inclusive regulatory framework for licens-  
18          ing commercial advanced nuclear reactor tech-  
19          nologies, including completion of a rulemaking.

20          (4) REQUIRED EVALUATIONS.—Consistent with  
21          the role of the Commission in protecting public  
22          health and safety and common defense and security,  
23          the report shall evaluate—

24                 (A) the ability of the Commission to com-  
25          plete a rulemaking to establish a technology-in-

1 exclusive regulatory framework for licensing com-  
2 mercial advanced nuclear reactor technologies  
3 by December 31, 2024;

4 (B) the extent to which additional legisla-  
5 tion, or Commission action or modification of  
6 policy, is needed to implement any part of the  
7 new regulatory framework;

8 (C) the need for additional Commission ex-  
9 pertise, modeling, and simulation capabilities,  
10 or access to those capabilities, to support the  
11 evaluation of licensing applications for commer-  
12 cial advanced nuclear reactors and research and  
13 test reactors, including applications that use al-  
14 ternative coolants or alternative fuels, operate  
15 at or near atmospheric pressure, and use pas-  
16 sive safety strategies; and

17 (D) the budgets and timeframes for ac-  
18 quiring or accessing the necessary expertise to  
19 support the evaluation of license applications  
20 for commercial advanced nuclear reactors and  
21 research and test reactors.

22 **SEC. 104. ADVANCED NUCLEAR ENERGY LICENSING COST-**  
23 **SHARE GRANT PROGRAM.**

24 (a) DEFINITIONS.—In this section:



1           (1) ELIGIBLE APPLICANT.—The term “eligible  
2       applicant” means an applicant for a grant under the  
3       program that is seeking a license for an advanced  
4       nuclear reactor or a research and test reactor.

5           (2) PROGRAM.—The term “program” means  
6       the Advanced Nuclear Energy Cost-Share Grant  
7       Program established under subsection (b).

8       (b) ESTABLISHMENT.—The Secretary shall establish  
9       a grant program to be known as the “Advanced Nuclear  
10      Energy Cost-Share Grant Program”, under which the Sec-  
11     retary shall make cost-share grants to eligible applicants  
12     for the purpose of funding a portion of the Commission  
13     fees and other costs of the eligible applicant for pre-appli-  
14     cation and application review activities.

15       (c) REQUIREMENT.—The Secretary shall seek out  
16     technology diversity in making grants under the program.

17       (d) COST-SHARE AMOUNT.—The Secretary shall de-  
18     termine the cost-share amount for each grant.

19       (e) USE OF FUNDS.—Recipients of grants under the  
20     program may use the grant funds to cover Commission  
21     fees and other costs, including those fees or other costs  
22     associated with—

23           (1) developing a licensing project plan;

24           (2) preparing an application for and obtaining  
25     a conceptual design assessment;

1 (3) preparing and reviewing topical reports; and  
2 (4) other pre-application and application review  
3 activities and interactions with the Commission.

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

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

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

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

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

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

22 **SEC. 106. EVACUATION REPORT.**

23 (a) IN GENERAL.—Not later than 90 days after the  
24 date of enactment of this Act, the Commission shall sub-  
25 mit to the appropriate congressional committees a report

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

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

8 (1) describe the actions of the Commission—

9 (A) to consider the results from—

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

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

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

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

20 (ii) the World Health Organization;  
21 and

22 (iii) the Fukushima Health Manage-  
23 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     **SEC. 107. ENCOURAGING PRIVATE INVESTMENT IN RE-**  
19     **SEARCH AND TEST REACTORS.**

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

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

1           (1) in the first sentence, by striking “and which  
2       are not facilities of the type specified in subsection  
3       104 b.” and inserting a period; and

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

17 **SEC. 108. COMMISSION REPORT ON ACCIDENT TOLERANT**  
18 **FUEL.**

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

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

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

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

## 9           **TITLE II—URANIUM**

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

11       Not later than December 31, 2017, the Commission  
12 shall submit to the appropriate congressional committees  
13 a report describing—

14           (1) the safety and feasibility of extending the  
15       duration of uranium recovery licenses from 10 to 20  
16       years, including any potential benefits of the exten-  
17       sion;

18           (2) the duration of uranium recovery license  
19       issuance and amendment reviews; and

20           (3) recommendations to improve efficiency and  
21       transparency of uranium recovery license issuance  
22       and amendment reviews.

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

24       Not later than July 31, 2018, the Commission  
25 shall—

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

5           (2) provide to the appropriate congressional  
 6       committees a report describing the results of the  
 7       pilot initiative under paragraph (1).

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

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

11           (1) by redesignating subsections (b) through (f)  
 12       as subsections (d) through (h), respectively;

13           (2) by striking subsection (a) and inserting the  
 14       following:

15       “(a) DEFINITIONS.—In this section:

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

19           “(A) natural uranium; or

20           “(B) 0.711 percent of the uranium-235  
 21       isotope.

22           “(2) HIGHLY ENRICHED URANIUM.—The term  
 23       ‘highly enriched uranium’ means uranium having an  
 24       assay of 20 percent or greater of the uranium-235  
 25       isotope.

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

5           “(4) METRIC TON OF URANIUM.—The term  
6           ‘metric ton of uranium’ means 1,000 kilograms of  
7           uranium.

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

11          “(6) OFF-SPEC URANIUM.—The term ‘off-spec  
12          uranium’ means uranium in any form, including de-  
13          pleted uranium, highly enriched uranium, low-en-  
14          riched uranium, natural uranium, UF<sub>6</sub>, and any by-  
15          product of uranium processing, that does not meet  
16          the specification for commercial material (as defined  
17          by the standards of the American Society for Test-  
18          ing and Materials).

19          “(7) URANIUM.—Other than in subsection (c),  
20          the term ‘uranium’ includes natural uranium, ura-  
21          nium hexafluoride, highly enriched uranium, low-en-  
22          riched uranium, depleted uranium, and any byprod-  
23          uct of uranium processing.

24          “(8) URANIUM HEXAFLUORIDE; UF<sub>6</sub>.—The  
25          terms ‘uranium hexafluoride’ and ‘UF<sub>6</sub>’ mean ura-



1       nium that has been combined with fluorine, to form  
2       a compound that, dependent on temperature and  
3       pressure, can be a solid, liquid, or gas.

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

8       “(c) DEVELOPMENT OF FEDERAL EXCESS URANIUM  
9       MANAGEMENT PLAN.—

10       “(1) IN GENERAL.—Beginning on January 1,  
11       2018, and not less frequently than once every 10  
12       years thereafter, the Secretary shall issue a long-  
13       term Federal excess uranium inventory management  
14       plan (referred to in this section as the ‘plan’) that  
15       details the management of the excess uranium inven-  
16       tories of the Department of Energy and covers a pe-  
17       riod of not fewer than 10 years.

18       “(2) CONTENT.—

19       “(A) IN GENERAL.—The plan shall cover  
20       all forms of uranium within the excess uranium  
21       inventory of the Department of Energy, includ-  
22       ing depleted uranium, highly enriched uranium,  
23       low-enriched uranium, natural uranium, off-  
24       spec uranium, and UF<sub>6</sub>.

1           “(B) REDUCING IMPACT ON DOMESTIC IN-  
2           DUSTRY.—The plan shall outline steps the Sec-  
3           retary will take to minimize the impact of  
4           transferring, selling, or otherwise providing ura-  
5           nium on the domestic uranium mining, conver-  
6           sion, and enrichment industries, including any  
7           actions for which the Secretary would require  
8           new authority.

9           “(C) MAXIMIZING BENEFITS TO THE FED-  
10          ERAL GOVERNMENT.—The plan shall outline  
11          steps the Secretary shall take to ensure that the  
12          Federal Government maximizes the potential  
13          value of uranium for the Federal Government.

14          “(3) PROPOSED PLAN.—Before issuing the final  
15          plan, the Secretary shall publish a proposed plan in  
16          the Federal Register pursuant to a rulemaking  
17          under section 553 of title 5, United States Code.

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

20                 “(A) a proposed plan for public comment  
21                 under paragraph (3) not later than 180 days  
22                 after the date of enactment of this paragraph;  
23                 and

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

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

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

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

8 (4) in subsection (e)(1) (as redesignated by  
9 paragraph (1)), by striking “subsection (c)(2)” and  
10 inserting “paragraph (2)”;

11 (5) in subsection (f) (as redesignated by para-  
12 graph (1))—

13 (A) by striking paragraph (1) and insert-  
14 ing the following:

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

20 “(A) Effective for the period of calendar  
21 years 2017 through 2025, and notwithstanding  
22 any other provision of law, the Secretary shall  
23 not transfer, sell, or otherwise provide more  
24 than 2,100 metric tons of natural uranium  
25 equivalent annually in any form, including de-

47.

1           pleted uranium, highly enriched uranium, low-  
2           enriched uranium, natural uranium, off-spec  
3           uranium, and UF<sub>6</sub>.

4           “(B) Effective beginning on January 1,  
5           2026, and notwithstanding any other provision  
6           of law, the Secretary shall not transfer, sell, or  
7           otherwise provide more than 2,700 metric tons  
8           of natural uranium equivalent annually in any  
9           form, including depleted uranium, highly en-  
10          riched uranium, low-enriched uranium, natural  
11          uranium, off-spec uranium, and UF<sub>6</sub>.”;

12          (B) in paragraph (2), in the matter pre-  
13          ceding subparagraph (A), by striking “(2) Ex-  
14          cept as provided in subsections (b), (c), and  
15          (e)” and inserting the following:

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

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

20          “(3) REQUIREMENTS FOR DETERMINATIONS.—

21                 “(A) PROPOSED DETERMINATION.—Before  
22                 making a determination under paragraph  
23                 (2)(B), the Secretary shall publish a proposed  
24                 determination in the Federal Register pursuant

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

3 “(B) QUALITY OF MARKET ANALYSIS.—  
4 Any market analysis that is prepared by the  
5 Department of Energy, or that the Department  
6 of Energy commissions for the Secretary as  
7 part of the determination process under para-  
8 graph (2)(B), shall be subject to a peer review  
9 process consistent with the guidelines of the Of-  
10 fice of Management and Budget published at  
11 67 Fed. Reg. 8452–8460 (February 22, 2002)  
12 (or successor guidelines), to ensure and maxi-  
13 mize the quality, objectivity, utility, and integ-  
14 rity of information disseminated by Federal  
15 agencies.

16 “(C) WAIVER OF SECRETARIAL DETER-  
17 MINATION.—Beginning on January 1, 2023, the  
18 requirement for a determination by the Sec-  
19 retary under paragraph (2)(B) shall be waived  
20 for transferring, selling, or otherwise providing  
21 uranium by the Secretary if the uranium has  
22 been identified in the updated long-term Fed-  
23 eral excess uranium inventory management plan  
24 under subsection (c)(1).”; and

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

Senator BARRASSO. The Nuclear Innovation and Modernization Act is comprehensive. It is innovative. This is nuclear energy legislation that we have introduced along with Senators Whitehouse, Inhofe, Booker, Crapo, Fischer, Capito, Manchin, additionally, cosponsored by Ranking Member Carper, Senators Duckworth, Casey, Flake, Rounds.

This bipartisan bill seeks to modernize the Nuclear Regulatory Commission by providing a flexible regulatory framework for licensing advanced nuclear reactors. At the same time, the bill maintains the ability of the Commission to assess a variety of technology and still meet its mission of ensuring safety and security.

Our legislation will also update the Nuclear Regulatory Commission's fee recovery structure. This measure will bring increased transparency and accountability to the NRC, while improving the Commission's efficiency and timeliness.

The bill also helps America's uranium producers who are essential to empowering this technology. Specifically, the bill addresses the Department of Energy's mismanagement of the public stockpile of excess uranium.

Since 2009 the Department has repeatedly violated its own written policy and Federal law when managing the public's excess uranium. As a result, the Department of Energy has failed to obtain a fair return on this uranium for American taxpayers.

The Department of Energy's mismanagement has also contributed to volatility in the uranium market and has led to job losses in States across the country, specifically in my home State of Wyoming.

Our bipartisan legislation is going to enable the development of innovative reactors with bold new technologies, and we need to create an environment where entrepreneurs can flourish and create jobs here at home that will revolutionize and revitalize our nuclear energy sector. This legislation does all of that.

I would like to now turn to Ranking Member Carper for his statement.

**OPENING STATEMENT OF HON. THOMAS R. CARPER,  
U.S. SENATOR FROM THE STATE OF DELAWARE**

Senator CARPER. Thanks, Mr. Chairman.

The Chairman and I have enjoyed a brief, but I think very productive, positive relationship in the brief time that he has been our Chairman and I have served as the Ranking Member of this Committee. And while we may not agree on quite everything, my hope and my expectations are we are going to continue to do our best to come together where we can to make progress on any number of fronts.

Today is a perfect example of working together and coming up on an issue that is important for both of us, for our States, for our country, and that is innovation in nuclear energy.

For those of us on the Democratic side of the aisle in the Senate, there are few environmental challenges that are more important than what we believe to be the clear and damaging effect of climate change. Nuclear power is a prime example of how we can combat the negative impact of climate change on our environment and pub-

lic health, while also providing economic opportunity for a lot of Americans.

Done responsibly, nuclear power helps our nation and many others curb our reliance on other fuels—dirtier fuels in many instances—and we can help create the air pollution that damages our lungs and our climate.

I think, Mr. Chairman, if I am not mistaken, about 20 percent of the electricity in our country on a grid comes from nuclear, and about almost two-thirds of the electricity in our country that is carbon-free comes from nuclear, and that is nothing to sniff at.

At the same time, we know that when the United States leads in nuclear energy, we create opportunities for good paying manufacturing jobs, good paying construction jobs, good paying operating jobs right here at home.

Today, nuclear energy provides, as I said earlier, 20 percent of our nation's energy and about two-thirds of our nation's carbon-free energy. If we are smart, we will replace our aging nuclear reactors with new technology, developed in this country, that is safer, produces less spent fuel, and is cheaper to operate and build, and that would be a good, good thing. If we seize this opportunity, the U.S. can be a leader in nuclear energy again, as we once were, reaping the economic benefits that flow from that leadership.

I want to commend our Chairman and the cosponsors of this bill, especially Senators Whitehouse, Inhofe, Booker, and Crapo, for their work to reach a bipartisan agreement. It reminds me a little bit of TSCA, Mr. Chairman, and that is very encouraging. It is a good bill, one that has come quite a way since its introduction last year.

As my colleagues have heard me say again and again, if it isn't perfect, make it better, which is why I have worked with the authors of the legislation in order to make several improvements to the underlying bill. These changes in the manager's amendment now provide more support for advanced nuclear reactors. Specifically, the changes are meant to ensure that all advanced nuclear technologies are treated the same when it comes to Federal funding. They incentivize private investments in research and development in advanced nuclear technology, which is critical for advanced nuclear.

Finally, these changes will help us to assess advanced nuclear technology that has the potential to make nuclear fuel rods in current and future reactors safer than existing technology.

Again, I want to thank our Chairman. I want to thank the bill's cosponsors, along with the members of our staffs for working together to make this collective effort even better, and this industry even safer and more productive.

With these changes, I am happy to cosponsor the legislation and look forward to supporting the bill with all of you. I hope our colleagues will join me in supporting the manager's amendment and the legislation. This legislation finally ensures the U.S. is on the cutting edge of nuclear technology, technology that is safer, more cost competitive than our current fleet. I truly believe this legislation is a critical piece in addressing our climate and clean air goals.

Thank you, Mr. Chairman. Let's rock and roll.



Senator BARRASSO. Thank you very much for all your hard work on this and making sure we get something that so many of us could cosponsor, and I appreciate your efforts and that of your staff.

We do have a quorum present, so we will proceed to the vote.

At this time, I would entertain a motion to adopt the Barrasso-Carper-Whitehouse-Inhofe-Booker-Fischer-Capito-Duckworth substitute amendment to S. 512 and report S. 512, as amended, favorably to the Senate.

Senator WHITEHOUSE. So moved.

Senator BARRASSO. So moved and seconded.

The Clerk will call the roll.

The CLERK. Mr. Booker.

Senator BOOKER. Aye.

The CLERK. Mr. Boozman.

Senator BARRASSO. Aye by proxy.

The CLERK. Mrs. Capito.

Senator CAPITO. Aye.

The CLERK. Mr. Cardin.

Senator CARPER. Yes by proxy.

The CLERK. Mr. Carper.

Senator CARPER. Yes.

The CLERK. Mrs. Duckworth.

Senator CARPER. Yes by proxy.

The CLERK. Mrs. Ernst.

Senator ERNST. Aye.

The CLERK. Mrs. Fischer.

Senator FISCHER. Aye.

The CLERK. Mrs. Gillibrand.

Senator GILLIBRAND. No.

The CLERK. Ms. Harris.

Senator HARRIS. No.

The CLERK. Mr. Inhofe.

Senator INHOFE. Aye.

The CLERK. Mr. Markey.

Senator CARPER. Yes by proxy.

The CLERK. Mr. Merkley.

Senator CARPER. Yes by proxy.

The CLERK. Mr. Moran.

Senator MORAN. Aye.

The CLERK. Mr. Rounds.

Senator ROUNDS. Aye.

The CLERK. Mr. Sanders.

Senator CARPER. No by proxy.

The CLERK. Mr. Shelby.

Senator BARRASSO. Aye by proxy.

The CLERK. Mr. Sullivan.

Senator BARRASSO. Aye by proxy.

The CLERK. Mr. Whitehouse.

Senator WHITEHOUSE. Aye.

The CLERK. Mr. Wicker.

Senator BARRASSO. Aye by proxy.

The CLERK. Mr. Chairman.

Senator BARRASSO. Aye.

The Clerk will report.

The CLERK. Mr. Chairman, the yeas are 18, the nays are 3.

Senator BARRASSO. The legislation is reported favorably to the Senate. I ask unanimous consent the staff have authority to make technical and conforming changes to the measure approved today. Without objection.

I also ask unanimous consent to enter into the record 27 letters of support for the bill. Without objection.

[The referenced information follows:]



**Laramide Resources (USA) Inc.**

March 15, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

As President of Laramide Resources Inc., I wish to express my strong support for the Nuclear Energy Innovation and Modernization Act (S. 512). Your leadership in bringing this bipartisan legislation forward will help to ensure a stable supply of uranium to fuel the country's nuclear reactors, which provides a major portion of the electricity generated in the United States.

In addition, I strongly support the provisions in S. 512 to bring accountability and greater transparency to the Department of Energy's (DOE) management of the federal excess uranium inventory. The DOE has a legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. I believe the DOE has failed to meet that obligation in the past and continues to make uranium transfers without any meaningful public input. Starting with the baseline of DOE's current level of transfers, S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market in the future.

S. 512 also contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years, recognizing the low-risk nature of these projects. This will be very beneficial in developing and maintaining domestic production facilities.

I again applaud your leadership in directing this important legislation.

Sincerely,

**Marc Henderson**  
President & Treasurer

The Exchange Tower  
130 King Street West ~ Suite 3680, Box 99 ~ Toronto, Ontario ~ M5X 1B1  
Tel: 416-599-7363 ~ Fax: 416-599-4959  
[www.laramide.com](http://www.laramide.com)



## THE CLEAN ENERGY PROGRAM

March 6, 2017

Chairman John Barrasso  
307 Dirksen Senate Office Building  
Washington, D.C. 20510

Ranking Member Tom Carper  
513 Hart Senate Office Building  
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

I am writing to voice strong support for the recently-introduced bill, S. 512, the Nuclear Energy Innovation and Modernization Act. Protecting the continued safe operation of the existing fleet of nuclear reactors and enabling the development and deployment of advanced reactors can play a major role in meeting both domestic and global targets for emissions reductions. It can also allow U.S. industry to compete for a growing global market, create domestic job growth, and enhance America's international influence. To reap these rewards, U.S. policy must encourage continued production from our existing nuclear fleet while also providing a viable path to commercialization for advanced nuclear. The current structure of certain processes at the Nuclear Regulatory Commission (NRC), however, may actually act as a deterrent to safe and economical operation and advancement of nuclear technology.

Innovation in the private sector has grown rapidly over the past several years, but regulatory uncertainty at the NRC is hampering long-term investment. The current licensing process was developed for a previous generation of technology and is ill-equipped for advanced reactors. This bipartisan bill would require the NRC to provide a pathway for advanced reactor licensing that would better guarantee their safety and encourage continued investment in innovation. It would also provide much-needed transparency and fee reform to address concerns about increasing regulatory costs for our existing nuclear fleet.

We applaud the introduction of S. 512 and hope that your Committee quickly approves it. The United States government plays a vital role in the future of the advanced nuclear sector and this bill establishes the regulatory certainty the industry needs to succeed. We look forward to continuing to support it as it moves through the House and Senate.

Sincerely,

A handwritten signature in dark ink, appearing to read "Josh Freed".

Josh Freed  
Vice President for the Clean Energy Program  
Third Way

cc:

Senator Mike Crapo  
Senator Sheldon Whitehouse  
Senator Cory Booker  
Senator Jim Inhofe



8121 E. 6<sup>th</sup> Ave  
Denver, CO 80230  
423-902-5330

March 6, 2017

Senator John Barrasso (R-WY) Chairman,  
Senator Tom Carper (D-DE) Ranking Member  
Senate Committee on Environment and Public Works

Re: S512 Nuclear Energy Innovation and Modernization Act (NEIMA)

Dear Honorable Chairman and Ranking Member:

I am writing in support of the timely passage of Senate bill S512. I am a 47 year veteran of the power industry who has been involved in development, design, construction, licensing and operations of multiple generations of nuclear and non-nuclear power plants. This is a very important moment in American history, one where the opportunity to become energy independent, with a well-crafted mix of reliable, secure, carbon free and affordable energy can drive a renewed, reinvigorated economy capable of supporting the needs of American citizens. Nuclear power is an important part of that mix and must remain so for generations to come. Renewables are not a singular answer. The true cost of renewable energy is hidden since backup power, currently in the form of nuclear, natural gas and some coal plants is needed to take up the slack at times wind and solar power are not available. Economic growth and reliable, affordable electricity remain intimately and inextricably tied. Without a new generation of advanced reactors, some envisioned as far back as the Atoms for Peace Program, nuclear energy will wither and die exactly at the time the nation needs it most.

The vision and purpose demonstrated in S512 is essential to have the next generation of nuclear designs ready to fill the gaps caused by retirements of existing generation and to supply the needed new capacity that fuels America's prosperity and security. One key to delivering on time is to make the nuclear regulatory process far more efficient and timely. The first decade of reactors still operating safely and reliably today were designed, licensed and constructed in less than ten years. That should be the goal today. Simpler, safer and more economical reactors are on the drawing boards of small and large companies anxious to fill the energy gap. Yet the single impediment most often heard in boardrooms, financial institutions and energy planning agencies, is can we count on them being delivered in time? To be sure, there are any number of events, natural and man-made that can slow or stop a major project like a nuclear power plant. However, modernizing the regulatory practices and requirements to achieve a predictable, practical and timely end is at the top of the list. This bill recognizes the essential features well. It deserves prompt and bipartisan support for what it can enable if done right. It can open the path to advanced nuclear energy delivery in the early 2030's, just when the country needs it most.

Thank you for your vision and support for this critical legislation.

A handwritten signature in dark ink, appearing to read "Ed Wallace", written in a cursive style.

Edward G. Wallace  
President, GNBC Associates, Inc.  
[ed.wallace@gnbcassociates.com](mailto:ed.wallace@gnbcassociates.com)



8121 E. 6<sup>th</sup> Ave  
Denver, CO 80230  
423-902-5330

CC: The Honorable Senators Sheldon Whitehouse (D-RI), Jim Inhofe (R-OK), Cory Booker (D-NJ), Mike Crapo (R-ID), Deb Fischer (R-NE), Shelley Moore Capito (R-WV), Joe Manchin (D-WV) and Michael F. Bennet, (D-CO), Cory Gardner (R-CO), Lamar Alexander (R-TN)



**BOISE STATE UNIVERSITY**

VICE PRESIDENT FOR RESEARCH AND ECONOMIC DEVELOPMENT

March 7, 2017

The Honorable John Garrasso  
United States Senate  
307 Dirksen Senate Office Building  
Washington, DC, 20510

The Honorable Tom Carper  
United States Senate  
513 Hart Senate Office Building  
Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper:

The demand for clean, efficient and affordable energy has resulted over time in a parallel increase in nuclear energy production. That growth, in turn, has led to a need for improved policies and procedures in both development and production.

Boise State University researchers are working on a number of projects aimed at improving safety and efficiency at our nation's nuclear power plants, much of it in conjunction with Idaho National Laboratory. Thus it is no surprise that we are interested in, and support, the Nuclear Energy Innovation and Modernization Act (NEIMA).

As you know, NEIMA will establish new transparency and accountability measures to the Nuclear Regulatory Commission's budget and fee programs. It also will develop the necessary regulatory framework to enable advanced nuclear reactor licensing. Both of these steps are essential in ensuring that INL, with its university partners, has the opportunity to bring new technologies to market while continuing to safeguard both the public and the environment.

The act will streamline the process for issuing a license in most cases, and the DOE grant component will help companies raise the often prohibitive sums needed to engage with the NRC. Allowing emerging technologies to come to market faster will help the industry more effectively address challenges and take advantage of the innovation that defines this industry.

Sincerely,

Mark Rudin

Vice President for Research and Economic Development

c: Senator Jim Inhofe  
Senator Sheldon Whitehouse  
Senator Mike Crapo  
Senator Cory Booker

Senator Debra Fischer  
Senator Shelley Moore Capito  
Senator Joe Manchin

1910 University Drive Boise, Idaho 83725-1139

Phone (208) 426-5732 Fax (208) 426-2155 markrudin@boisestate.edu research.boisestate.edu



March 7, 2017

Chairman John Barrasso  
U.S. Senate Environment & Public Works Committee  
Washington, DC 20510

Ranking Member Tom Carper  
U.S. Senate Environment & Public Works Committee  
Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper,

On behalf of ClearPath Action, a 501(c)4 organization working to accelerate conservative clean energy solutions, I want to let you know of our support for the proposed Nuclear Energy Innovation and Modernization Act.

Nuclear power is one of the most important energy resources of the United States, representing a triumph of American ingenuity and engineering. Nuclear energy is highly reliable, clean and affordable, and is a vital part of our electricity mix.

Nuclear plants built decades ago still safely provide 20% of our electricity. But as these plants near retirement, a new generation of advanced nuclear technology is being developed by dozens of companies and universities across the nation. Advanced nuclear reactors promise benefits from increased safety and affordability, resistance to proliferation, and the ability to run on old nuclear waste.

Several of these advanced nuclear companies will begin applying for design certifications within the next 5 years, and one company called NuScale Power recently submitted the first Design Certification Application for a Small Modular Reactor. However, expensive and arduous regulations at the NRC are encouraging some others to consider building abroad for initial deployment.



Instead of driving our engineers overseas, we should be promoting a regulatory environment that is safe, innovative and efficient. The Nuclear Energy Innovation and Modernization Act does just that – directing the NRC to develop a technology-inclusive licensing plan that promotes safety without being prescriptive, while modifying the cost recovery mechanism so utilities aren't on the hook for other companies' technologies.

Updating our regulatory system for advanced reactors is an important part of the broader need to "rightsize" the NRC to match its workload. To that end, this legislation also wisely prevents the NRC from allowing its annual fees and administrative costs to overwhelm the broader nuclear industry.

The NRC is second to none for safety, but it has unfortunately also become second to none for cost, delays, and complex rulemaking. This legislation preserves our record of safety while preserving an abundant clean energy future for our children.

Sincerely,

A handwritten signature in black ink, appearing to read "Jay Faison".

Jay Faison  
President

ClearPath Action Fund for Conservative Clean Energy, Inc.  
300 New Jersey St, NW, #907  
Washington, DC 20001

cc: Senators Jim inhofe, Mike Crapo, Cory Booker, Sheldon Whitehouse, Deb Fischer,  
Shelley Capito, Joe Manchin



United States Senate Committee  
on Environment & Public Works  
410 Dirksen Senate Office Building  
Washington, DC 20510

Michael F. Keller  
Hybrid Power Technologies LLC  
14713 Woodward  
Overland Park, Kansas 66223  
March 9, 2017

Re: Nuclear Energy Innovation  
And Modernization Act of 2017, S.512

Dear Chairman Senator Barrasso and Committee Members,

As a small US business developing a unique US patented nuclear/fossil technology, Hybrid Power Technologies welcomes Congressional efforts to further advanced-nuclear reactors. However, we have reservations regarding the ultimate effectiveness of proposed Act.

The Act will improve the process of obtaining a license for an Advanced Reactor. However, the fundamental problem remains: the excessively long time-frames and massive costs involved are incompatible with obtaining financial support from the private sector. Cost-sharing is at best a "Band-Aid" that does not correct the root cause of the problem.

We propose the Act be modified to induce private sector financial support while simultaneously meaningfully reducing costs and time-frames for those Advanced-reactors that are significantly safer than current reactors. In summary:

1. Private Sector Support. Provide tax credits to those investment firms and similar entities that deliver capital to support licensing activities involving Advanced-reactors.
2. Streamlined Licensing. For those Advanced-reactors that can readily demonstrate superior inherent passive protection of the public, the large majority of regulatory efforts be directed at the key safety elements of the design.

Attachment (1) provides mark-ups to the Act to effect these suggested changes.

Also, as a small US business we are quite certain that the cost-sharing provisions of the Act will not "... enable inventors, scientists, engineers, and students to pursue licensing advanced reactor concepts." As an engineer who invented and patented a completely new approach to nuclear energy as well as owner of a small US business, we (and the vast majority of small firms) do not have access cost-sharing capital. The matter is easily resolved by allowing the Department of Energy Secretary to waive cost-sharing requirements for small US Businesses and individuals.

In closing, our firm has developed an advanced reactor that readily overcomes the competitiveness problems plaguing nuclear energy - see attachment (2) which was presented at the Advanced Reactor Summit held at Argonne National Laboratory earlier this year. Our technology saves the US nuclear (and coal) industries. However, absent significant reform of the US regulatory process, we are of the opinion that there is little likelihood the US will regain a leadership role in the development and deployment of advanced nuclear energy.

March 9, 2017

Hybrid Power Comments S.512

With Respect,

*Michael F. Keller*

Michael F. Keller  
President and CEO  
Hybrid Power Technologies LLC\*

913-375-6983 (cell)  
m.keller@hybridpwr.com

Attachments:

- (1) Hybrid Mark-up S.512
- (2) Hybrid Presentation USNIC Argonne Labs

\* A small Kansas US Business

Brief Bio:

BS Nuclear Engineering, University of Virginia, 1972  
MS Mechanical Engineering, Rensselaer Polytechnic Institute, 1979  
MBA, St Martins College, 1986  
Professional Engineer, State of Kansas, #14158  
Senior Reactor Operator Certificate  
Several US Patents involving nuclear energy.

Over 45 years in power industry performing, directing and managing activities involving: project development, financing, design, construction, start-up, operation, overhaul, power sales, and plant management for all types of nuclear and fossil power stations located in the US and overseas.

American Nuclear Society  
555 N. Kensington Ave.  
La Grange Park, IL 60526  
708-352-6611



March 9, 2017

The Honorable John Barrasso  
Chairman  
Committee on Environment and Public Works  
U.S. Senate  
Washington, D.C. 20510

The Honorable Tom Carper  
Ranking Member  
Committee on Environment and Public Works  
U.S. Senate  
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper,

I write on behalf of the over 11,000 men and women of the American Nuclear Society to express our support for S. 512, the Nuclear Energy Innovation and Modernization Act.

It is becoming increasingly clear that the U.S. and the world will need to significantly expand nuclear generating capacity in the coming decades to address growing energy demands through a diverse and reliable electricity generation infrastructure which reduces emissions of greenhouse gases.

Expanded federal engagement in advanced, non-light-water nuclear research and development is critical to achieving these overall objectives. The Nuclear Energy Innovation and Modernization Act would assist the development of advanced nuclear reactor technologies by modernizing the licensing regime to support private investment in advanced reactor technologies.

Historically, the U.S. has led the world in developing new reactor technology. However, several other nations, including Russia and China, have moved aggressively to develop innovative Generation IV reactors which offer distinct advantages over current designs.

The U.S. must recommit itself to improving its advanced reactor technology portfolio in order to ensure future access to abundant clean energy and to maintain its influence over global nuclear safety and nonproliferation norms. This legislation, if enacted, would provide much-needed support toward those objectives.

Sincerely,

A handwritten signature in black ink that reads "Andrew C. Klein".

Andrew Klein  
President  
American Nuclear Society

CC: Senator Jim Inhofe  
Senator Sheldon Whitehouse  
Senator Mike Crapo  
Senator Cory A. Booker  
Senator Deb Fischer  
Senator Shelley Moore Capito  
Senator Joe Manchin

**NEDHO** Nuclear Engineering Department Heads Organization

March 13, 2017

Chairman John Barrasso  
307 Dirksen Senate Office Building  
Washington, D.C. 20510

Ranking Member Tom Carper  
513 Hart Senate Office Building  
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

The Nuclear Engineering Department Heads Organization (NEDHO) is writing this letter in support of the proposed Nuclear Energy Innovation and Modernization Act (S 512).

We understand that this bill has provisions that are aimed at modernizing the regulatory approach that would be more aligned to enabling the development of advanced reactors and to the continued operation of existing reactors. We also are keenly aware of the fact that in order for the regulatory process to be efficacious it must be underpinned by a knowledgeable workforce capable of analyzing and verifying the safety and operability of whatever nuclear technology is being considered. And it is for this reason that NEDHO is supportive of proposed legislation.

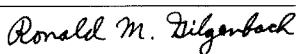
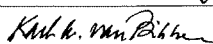
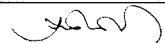
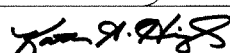
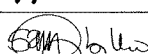
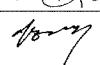
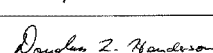
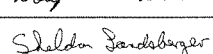
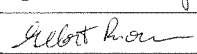
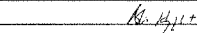

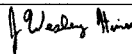
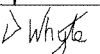
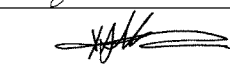
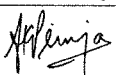
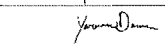
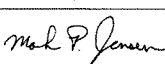
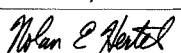
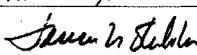
We believe that the provisions of the bill support the underlying mission of NEDHO, which is to prepare students for meaningful careers in nuclear science and technology. Our graduates are employed in the nuclear power industry, national laboratories, the federal government, and in other related nuclear technology companies. Our graduates are spearheading some of the most innovative developments in advanced reactor design and applications.

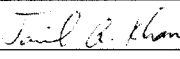
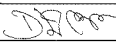

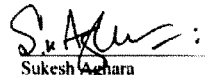
Thank you for your efforts in support of nuclear science and technology.

Sincerely,

(signatures attached)

cc:  
Senator Mike Crapo  
Senator Sheldon Whitehouse  
Senator Cory Booker  
Senator Jim Inhofe

Name	Signature	Institutional Affiliation
Ronald M. Gilgenbach		University of Michigan
Karl van Bibber		University of California Berkeley
Arthur T. Motta		Penn State University
Kathryn A. Higley		Oregon State University
Sama Bilbao y León		Virginia Commonwealth University
Hyoung K. Lee		Missouri University of Science and Technology
Douglass L. Henderson		University of Wisconsin-Madison
Sheldon Landsberger		University of Texas at Austin
Gilbert Brown		University of Massachusetts Lowell
Alireza Haghighat		Virginia Tech
Kostadin Ivanov		North Carolina State University
J. Wesley Hines		University of Tennessee
Dennis Whyte		Massachusetts Institute of Technology
Yassin Hassan		Texas A&M University
Anil K. Prinja		University of New Mexico
Yaron Danon		Rensselaer Polytechnic Institute
Mark P. Jensen		Colorado School of Mines
Nolan E. Hertel		Georgia Institute of Technology
James F. Stubbs		University of Illinois

Name	Signature	Institutional Affiliation
Jamil A. Khan		University of South Carolina
Bill Dunn		Kansas State University
Daniel Cole		University of Pittsburgh
Carol Smidts		Ohio State University
Sukesh Aghara	 Sukesh Aghara	University of Massachusetts Lowell



**United Association of Journeymen and Apprentices of the  
Plumbing and Pipe Fitting Industry of the United States and Canada**

Three Park Place • Annapolis, Maryland 21401  
(410) 269-2000 • Fax (410) 267-0262 • <http://www.uaa.org>

Mark McManus  
*General President*  
Patrick H. Kellett  
*General Secretary-Treasurer*  
Michael A. Pleasant  
*Assistant General President*

General Office File Reference: GP

March 13, 2017

Dear Chairman Barrasso and Ranking Member Carper:

On behalf of the more than 340,000 members of the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, I am writing to strongly support S. 512, the Nuclear Energy Innovation and Modernization Act. This legislation will help put our country on the path toward meeting U.S. and international goals for pollution reduction by supporting the maintenance and safety of our nation's existing nuclear reactors, as well as supporting deployment of the next generation of advanced reactors. Further, S. 512 seeks to correct the potentially harmful effects of the current Nuclear Regulatory Commission (NRC) regulatory red tape which risks deterring innovation on advanced nuclear technology. Through passage of this bill, you will be supporting the competitive stance of U.S. industry in the international marketplace while generating good jobs for the American worker.

While technology continues to advance across many industries, the nuclear energy industry is at risk of being left behind due to the effects of uncertainty over the regulatory decisions of the NRC. Investments in nuclear power generation require heavy up-front investments, and therefore benefit greatly from a stable and predictable regulatory environment. If passed, S. 512 would require the NRC to provide a pathway for advanced reactor licensing that would better guarantee their safety and encourage continued investment in innovation. In addition, S. 512 would make the NRC more transparent by reforming fees and easing the cost burden on operating the nation's existing fleet of nuclear plants.

We applaud the introduction of S. 512 and hope that your Committee moves quickly to approve it. The United States government plays a vital role in the future of the advanced nuclear sector and this bill establishes the regulatory certainty the industry needs to succeed. We look forward to continuing to support it as it moves through the House and Senate.

Sincerely,

Mark McManus  
General President

MM:ail





# Idaho State UNIVERSITY

Office for Research  
921 South 8th Avenue, Stop 8130 • Pocatello, Idaho 83209-8130

March 14, 2017

The Honorable John Barrasso  
Chairman  
Senate Committee of Environment and Public Works  
307 Dirksen Senate Office Building  
Washington D.C. 20510

Dear Chairman Barrasso:

I am writing to you today in regard to a letter of support for the Nuclear Energy Innovation and Modernization Act (NEIMA).

There is significant sustained interest among the private, governmental and academic sectors in the potential for advanced nuclear reactors to mitigate the negative effects of mature nuclear plant closures and the related aging power plant infrastructure. The State of Idaho, Idaho State University (ISU) and the Idaho National Laboratory (INL) play a large part in the development of solutions to these problems now and in the near future. In particular, the high probability that universities and national laboratories will contribute significantly to the design and analysis of new reactor system configurations for producing the electricity to meet public needs is being realized. Related activities, including modeling and simulation of new systems, are coupled with the potential for building new commercial plants in the western United States.

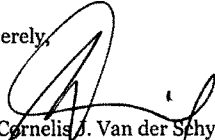
ISU is highly supportive of new legislation including NEIMA that will allow the Nuclear Regulatory Commission to streamline the process that will enable innovation to proceed in the design and licensing of new advanced nuclear reactors, first as pilot projects and then as commercial systems with proven safety and reliability. ISU provides undergraduate and graduate education in Nuclear Science and Engineering in both Idaho Falls and Pocatello, Idaho. The nuclear-related research at ISU is coordinated with and supportive of the research at the INL, and many of our graduates are employed by the related industries and governmental activities throughout the nation. We contribute directly to the development of a new workforce to replace the graying engineers, regulators, managers and operators in the current plants and regulatory agencies.

While the usual role of a university like ISU is primarily undergraduate and graduate education with the related research, design and development, there is considerable activity in adding public-private partnerships in research with the objective of rapid commercialization of designs and processes that will increase the probability that new plants will be built that meet the needs of the public and satisfy the necessary regulatory requirements. In a real sense, having universities, national laboratories and the private sector working together on the entire process from conception to construction and operation will shorten the time to effectively implement new advanced reactors in the national interest. The NEIMA should aid this process by shortening the time to license and implement the best new designs and significantly reduce the unnecessary costs of delays and missed opportunities.

The Honorable John Barrasso  
March 14, 2017  
Page 2

Idaho State University is committed to do its part to support the nuclear renaissance in a safe and effective environment and to assist in providing both workers and technology for the modernization of U. S. nuclear power production. We appreciate the opportunity to comment on the NEIMA and related impending legislation.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Van der Schyf', written over the word 'Sincerely,'.

Dr. Cornelis J. Van der Schyf  
Vice President for Research and Dean of the Graduate School  
Idaho State University

Cc: Senator Carper  
Senator Inhofe  
Senator Whitehouse  
Senator Crapo  
Senator Booker  
Senator Fischer  
Senator Capito  
Senator Manchin

# AUC LLC

*The Reno Creek Project*

March 15, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

On behalf of AUC LLC, a small business engaged in development of a uranium mine and processing plant near Gillette, Wyoming, I want to confirm our support of the proposed Nuclear Energy Innovation and Modernization Act (S. 512). I have long appreciated your leadership on energy legislation and am pleased that you have assembled a strong array of colleagues to support S. 512, including Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth.

It's quite encouraging that such legislation is so strongly bipartisan, as it will help encourage a stable supply of domestic uranium to power our nuclear reactors. Nuclear power is responsible for nearly 2/3 of green electricity in the US, a strong contributor to a healthy and prosperous economy. In addition to the obvious support for the advanced nuclear industry, S. 512 contains important reforms to modernize the Nuclear Regulatory Commissions (NRC) licensing process and resulting fee structure for uranium recovery facilities. We are just the most recent successful participant in the process, having finally received our Source Material License in February 2017, after four and a half years, including multiple delays readily admitted by the agency. The provision to direct the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years is only one of the many excellent features brought about by the legislation, particularly given the known low-risk nature of uranium recovery projects.

We also strongly support the provisions in S. 512 to bring greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. The recent issuance of a Secretarial Determination exempting down-blended uranium from the USEC Privatization Act provisions protecting the domestic uranium industry reinforces the legislation's transparency requirements. We remain concerned that DOE continues to fail to meet that obligation and continues to make uranium transfers without any meaningful public input, in full defiance of the Act.

1536 Cole Blvd.  
Suite 230  
Lakewood CO 80401

Ph. 303-953-7975  
Fx. 303-953-7994

S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers. On behalf of the domestic uranium industry, thank you again for your leadership on this important legislation.

Sincerely,

AUC LLC

A handwritten signature in black ink, appearing to read 'J. Viellenave', with a long horizontal line extending to the right.

James Viellenave  
President



CAMECO  
RESOURCES  
*Corporate Office*  
550 North Poplar  
Suite 100  
Casper, WY  
82601 USA

Tel 307.237-2128  
Fax 307.237-2142  
[www.cameco.com](http://www.cameco.com)

March 15, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

On behalf of Power Resources, Inc. and Crow Butte Resources, Inc. d.b.a. Cameco Resources, I am writing in support of the Nuclear Energy Innovation and Modernization Act (S. 512). Cameco Resources is a U.S. producer of uranium concentrates with operations in Wyoming and Nebraska.

We appreciate your leadership and that of your colleagues, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth on this cosponsored bipartisan legislation. Nuclear reactors, which provide approximately one fifth of the electricity in the United States, are reliant on a stable supply of uranium, and this legislation is key in helping to ensure that supply is available.

This important legislation also contains needed reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities. Further, it directs the NRC to acknowledge the low-risk nature of uranium recovery licenses through reviewing the feasibility of extending licenses from 10 to 20 years.

Cameco Resources also strongly supports the conditions in S. 512 aimed at increasing transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. We remain concerned that DOE uranium transfers can have an adverse impact on the domestic uranium mining, conversion, and enrichment industries. S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers.

Thank you again for your leadership on this important legislation.

Sincerely,

Brent Berg  
President, Cameco Resources



Uranerz Energy Corporation  
(an Energy Fuels Company)  
1701 East "E" Street, Suite 100  
Casper, WY, US 82601  
307 265 8900  
[www.energyfuels.com](http://www.energyfuels.com)

March 15, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

On behalf of Energy Fuels, Inc. (Energy Fuels) and its employees working in Wyoming, Texas, Utah, Colorado, Arizona and New Mexico, I am writing in support of the Nuclear Energy Innovation and Modernization Act (S. 512). We applaud your leadership on this important legislation and that of your colleagues, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth. We believe that this bipartisan legislation will help ensure we have a stable supply of domestic uranium to power our nuclear reactors, which provide one-fifth of the electricity in the United States.

In addition to helping jumpstart the advanced nuclear industry, S. 512 contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years, recognizing the low-risk nature of these projects. These improvements will go a long way to allowing the domestic uranium producers, including Energy Fuels, to be more competitive in a global uranium industry without compromising safety or environmental protection.

We also strongly support the provisions in S. 512 to bring greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. As you know, DOE has a legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. Energy Fuels is concerned DOE has failed to meet that obligation and continues to make uranium transfers without any meaningful public input. S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers.

Thank you again for your leadership on this important legislation.

Sincerely,

A handwritten signature in black ink, appearing to read 'Will Goranson', written in a cursive style.

William Paul Goranson  
Executive Vice President ISR Operations



One Broadway, 14<sup>th</sup> Floor  
Cambridge, MA 02142

March 15, 2017

The Honorable John Barrasso  
Chairman, Senate Committee on Environment and Public Works  
307 Dirksen Senate Office Building  
Washington, D.C. 20510

The Honorable Tom Carper  
Ranking Member, Senate Committee on Environment and Public Works  
513 Hart Senate Office Building  
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper,

As CEO and co-founder of Transatomic Power Corporation, I am writing to express our strong support for S. 512, the Nuclear Energy Innovation and Modernization Act. Transatomic Power counts among our nation's approximately fifty advanced, non-light-water nuclear reactor firms that are currently in the design and development phases, and to date, we are almost entirely supported by private capital.

We have expressed to your Committee, to other Committees, and in public fora that among our greatest challenges in developing advanced nuclear technology is uncertainty surrounding the Nuclear Regulatory Commission's licensing process. This bipartisan bill will streamline the NRC's pathway and revise the agency's fee schedule in such a way as to open the door to smaller, cutting-edge firms like Transatomic. Further, the Department of Energy Cost-Share Grant Program will ensure that the Department is fully engaged with the advanced nuclear community as developers move through the regulatory process. Overall, the bill lays the groundwork for nuclear energy to flourish in the United States.

Along with our counterparts in the advanced nuclear sector, we recognize the need for a sustainable and secure clean energy supply, and we have been greatly encouraged to see growing Congressional support for nuclear technology development. We therefore urge you to continue building that support by passing S. 512. The United States government is a key stakeholder in the future of the advanced nuclear sector, and we are proud to be among your many supporters in this larger effort to achieve sustainable American energy independence.

Sincerely,

Dr. Leslie Dewan  
Chief Executive Officer  
Transatomic Power Corporation

cc: The Honorable James Inhofe  
The Honorable Michael Crapo  
The Honorable Sheldon Whitehouse  
The Honorable Cory Booker

COLORADO OFFICE  
10758 W. CENTENNIAL RD., STE. 200  
LITTLETON, CO 80127  
TEL: 866.981.4588  
FAX: 720.981.5643



WYOMING OFFICE  
5880 ENTERPRISE DR., STE. 200  
CASPER, WY 82609  
TEL: 307.265.2373  
FAX: 307.265.2801

March 15, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:


On behalf of Ur-Energy USA, I am writing in support of the Nuclear Energy Innovation and Modernization Act (S. 512). We applaud your leadership on this important legislation and that of your colleagues, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth. This bipartisan legislation will help ensure we have a stable supply of domestic uranium to power our nuclear reactors, which provide one-fifth of the electricity in the United States.

In addition to helping jumpstart the advanced nuclear industry, S. 512 contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years, recognizing the low-risk nature of these projects.

We also strongly support the provisions in S. 512 which place caps on transfers/sales of DOE excess uranium and require the DOE to establish a Federal excess uranium management plan. The plan, as described in S. 512, must outline steps to minimize the impact of transferring, selling, or otherwise providing uranium on the domestic uranium mining, conversion and enrichment industries. We believe a prudently considered plan can be protective of the domestic industry while allowing the DOE the flexibility it needs to manage the excess uranium inventory.

On behalf of Ur-Energy USA, thank you again for your leadership on this important legislation.

Regards,

  
John W. Cash  
Vice President

*Ur-Energy USA Inc. is a wholly-owned subsidiary of Ur-Energy Inc.*  
TSX: URE | NYSE MKT: URG  
[www.Ur-Energy.com](http://www.Ur-Energy.com)



**MARIA KORSNICK**  
*President and Chief Executive Officer*  
 1201 F Street NW, Suite 1100  
 Washington, DC 20004  
 P: 202.739.8187  
 mgk@nei.org  
 nei.org



March 16, 2017

The Honorable John Barrasso  
 Chairman  
 Committee on Environment and Public Works  
 U.S. Senate  
 410 Dirksen Senate Building  
 Washington, DC 20510

The Honorable James Inhofe  
 Committee on Environment and Public Works  
 U.S. Senate  
 410 Dirksen Senate Building  
 Washington, DC 20510

The Honorable Sheldon Whitehouse  
 Committee on Environment and Public Works  
 U.S. Senate  
 410 Dirksen Senate Building  
 Washington, DC 20510

The Honorable Cory Booker  
 Committee on Environment and Public Works  
 U.S. Senate  
 410 Dirksen Senate Building  
 Washington, DC 20510

The Honorable Michael Crapo  
 U.S. Senate  
 239 Dirksen Senate Building  
 Washington, DC 20510

Dear Chairman Barrasso and Senators Inhofe, Whitehouse, Booker, and Crapo:

On behalf of the commercial nuclear energy industry, the Nuclear Energy Institute (NEI) expresses its support for the Nuclear Energy Innovation and Modernization Act (S. 512), of which I testified in support on March 8, 2017, before the Committee on Environment and Public Works.

This bipartisan bill appropriately recognizes the value of nuclear energy as our nation's largest source of reliable, carbon-free electricity. Given nuclear's contributions to our standard of living, national security, economic growth, and U.S. influence abroad, NEI and its members appreciate Congress's action to ensure that nuclear energy continues to supply a significant portion of the nation's energy.

Reforming the Nuclear Regulatory Commission's (NRC) fee recovery structure is well justified, timely, and reflects sound public policy, for the situation has become untenable for licensees. Despite the NRC's recent efforts to reduce its budget as part of Project Aim, licensee fees continue to be excessive and, even now, do not reflect the agency's decreased workload. Additionally, because licensees are responsible for funding 90 percent of the agency's budget, licensees of the operating plants are obligated to pay higher fees when

NUCLEAR. CLEAN AIR ENERGY

Chairman Barrasso and Senators Inhofe, Whitehouse, Booker, and Crapo  
March 16, 2017  
Page 2

reactors close prematurely. All of these problems are exacerbated by a lack of transparency and predictability in the fee process. For example, the Government Accountability Office recently concluded that NRC's fee regulation "did not define key terms, did not use terms consistently, did not provide a key calculation, and contained errors, all of which obscured fee calculations and limited stakeholders' ability to understand them."

If enacted, S. 512 would markedly improve the NRC's outdated fee recovery structure, making it fairer and more equitable. The bill directs the NRC to identify anticipated expenditures for licensing actions and to use those funds only for the purposes specified. That change means amounts set aside for licensee services cannot be diverted to pay for overhead and other costs to which they were not originally allocated. By limiting corporate support to a maximum of 28 percent of the agency's budget by 2024 and thereafter, the bill mandates more efficient NRC operations in the near term, and should lead to an allocation lower than 28 percent in the longer term. Rebalancing corporate support as a percentage of the agency's budget also should help eliminate wasteful government spending without dictating specific reductions, which are appropriately left to the agency. The bill's establishment of a more rational fee recovery process would ensure that the NRC is sufficiently funded to continue to maintain the highest standards of safety while also driving the agency to achieve greater operational and regulatory efficiency. These reforms go to the heart of good government.

NEI also believes there must be a Congressional mandate to accelerate the licensing and commercialization of new reactor technologies. Developers of advanced technologies do not have infinite resources or unlimited time to bring their designs to market. Therefore, the NRC must carry out its licensing responsibilities more efficiently and without imposing excessive, unjustified costs. S. 512 directs the agency to develop a staged licensing process that will allow applicants to demonstrate the viability of these first-of-a-kind projects to potential investors and other project participants. Further, the bill recognizes that other aspects of NRC regulation must continue to evolve to remain current with scientific and technological advancements. By mandating the increased use of risk-informed, performance-based approaches for advanced reactor licensing, the bill will help to focus licensing reviews on issues most important to safety.

Finally, NEI supports your effort to ensure the viability of the uranium mining industry in the United States. Extending uranium recovery licenses from 10 to 20 years, increasing transparency of license reviews, and initiating a pilot program to establish a flat-fee structure for uranium recovery are welcome steps. NEI also believes it is essential to address the uncertainties in DOE's current practice of bartering of uranium tails. It is imperative that Congress appropriate funding for the environmental cleanup yet to be completed at the gaseous diffusion plants and not further burden the nuclear utility industry, which has already paid twice for gaseous diffusion plant cleanup.

On behalf of NEI and its members, I thank you for writing and introducing this important legislation. Its passage will provide environmental and economic benefits to all Americans by helping to retain the

Chairman Barrasso and Senators Inhofe, Whitehouse, Booker, and Crapo  
March 16, 2017  
Page 3

generation source responsible for 63 percent of the nation's carbon-free electricity, and setting the stage for development and deployment of advanced nuclear technologies.

Sincerely,

A handwritten signature in black ink that reads "Maria Korsnick". The signature is written in a cursive, flowing style.

Maria Korsnick



Ross ISR Uranium Mine  
2929 New Haven Road  
Oshoto, WY 82721  
(307) 467-5995

March 16, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

On behalf of Strata Energy, Inc., a Wyoming uranium mining company, I am writing in support of the Nuclear Energy Innovation and Modernization Act (S. 512). This bipartisan legislation will help ensure we have a stable supply of domestic uranium to power the U.S. fleet of nuclear reactors, which provide approximately 20% of the electricity in the United States.

Additionally, S. 512 contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years. I can say from first-hand experience that the opaque and convoluted way the NRC bills uranium producers like Strata make it impossible to budget for these expenditures. Also, the relative low risk of ISR projects warrants a review of the length of the operating license.

Finally, Strata Energy strongly supports the provisions in S. 512 requiring greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. DOE has turned a blind eye to their legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. The U.S. Energy Information Administration reports that domestic uranium production in the US is the lowest in eleven years. Uranium prices are at historic lows and the DOE continues to assert there is no harm to the domestic industry as a result of their actions. This is absurd and S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market. Something DOE has blatantly failed to do the last several years.

Thank you for allowing Strata Energy to comment on and support this badly needed legislation.

Sincerely,

Ralph Knode  
CEO, Strata Energy, Inc.



March 16, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Re: TMRA Support of S. 512

Dear Chairman Barrasso:

As the Executive Director of the Texas Mining and Reclamation Association (TMRA) and on its behalf, I am writing in support of the Nuclear Energy Innovation and Modernization Act (S. 512). TMRA applauds your leadership on this important legislation and that of your colleagues, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey and Tammy Duckworth. This bipartisan legislation is critical and will help ensure that the United States has a stable supply of domestic uranium to power its nuclear reactors which provide one-fifth of the electricity in the United States.

In addition to helping jumpstart the advanced nuclear industry, S. 512 contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years, recognizing the low-risk nature of these projects.

We also strongly support the provisions in S. 512 to bring greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. As you know, DOE has a legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. As also noted by the Uranium Producers of America (UPA), TMRA is concerned that the DOE has failed to meet that obligation and continues to make uranium transfers without any meaningful public input. S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers.

On behalf of the domestic uranium industry, specifically those with assets and operations in Texas, thank you again for your leadership on this important legislation.

Sincerely,

Chesley N. Blevins  
Executive Director  
Texas Mining and Reclamation Association



March 16, 2017

Senator John Barrasso  
Chairman, Senate Environment and Public  
Works Committee  
410 Dirksen Senate Office Building  
Washington, DC 20510

Senator Cory Booker  
359 Dirksen Senate Office Building  
Washington, DC 20510

Senator Mike Crapo  
239 Dirksen Senate Office Building  
Washington, DC 20510

Senator Deb Fischer  
454 Russell Senate Office Building  
Washington, DC 20510

Senator James Inhofe  
205 Russell Senate Office Building  
Washington, DC 20510

Senator Shelley Moore Capito  
172 Russell Senate Office Building  
Washington, DC 20510

Senator Joe Manchin  
306 Hart Senate Office Building  
Washington, DC 20510

Senator Sheldon Whitehouse  
530 Dirksen Senate Office Building  
Washington, DC 20510

Dear Senators,

Tri Alpha Energy, headquartered in Foothill Ranch CA, is the world's largest private fusion company. We have approximately 160 employees, 450 patents issued or pending globally, and have raised over \$500 million in private capital. Since our founding almost 20 years ago, we have stayed focused on the goal of developing clean fusion technology for the commercially competitive generation of electricity. This has led to the development of a unique combination of well-known particle accelerator and plasma physics that enables a compact, safe, and sustainable "clean-fusion" technology. After successful operation of our first national lab- scale plasma device, we are now nearing completion of a 10x higher energy plasma device that we expect will provide final proof-of-science for our approach by the end of 2018.

We are writing to express support for your bill S. 512, the *Nuclear Energy Innovation and Modernization Act*. You have recognized that fusion energy, along with traditional nuclear fission, present an important new frontier for zero-emission, baseload electricity generation. Global markets and the growing climate crisis demand that new energy technologies be developed, but this can only happen in a favorable policy environment.

S. 512 would establish an important pathway for licensing new reactors, including fusion reactors, informed by the potential risks of each respective design. Tri Alpha Energy agrees that the NRC needs new resources and structures for permitting new nuclear designs, both because the current permitting structure is prohibitively protracted, and because some new reactor concepts being proposed today are so vastly different from incumbent light water fission designs. Tri Alpha Energy's technology concept, for example, presents virtually none of the risks associated with either



traditional nuclear or other types of fusion. Our input materials are non-fissile and environmentally benign, there is zero possibility of meltdown, and the volume and radioactivity of operational waste will be negligible. Providing NRC authority to prioritize relative risk ensures that taxpayer dollars can be used where they are needed. It will be critical to moving fusion energy out of the laboratory to commercialization.

S. 512 is also proactive on reducing timelines and providing greater certainty for technology developers during the permitting process. This will not only help bring fusion to market more quickly, but will also provide greater surety to the private investor community and bring development capital off the sidelines.

If there is an opportunity to improve this already strong legislation, we would recommend directing NRC to conduct a high-level review of the available technical literature on the expected radiation and safety profiles of the most mature advanced nuclear technology proposals under development today. Such a report should consider fusion proposals, including designs that would utilize feedstocks other than deuterium-tritium. This would help NRC establish an early foundation of information for the more appropriate regulatory pathways these technologies will require.

We commend you and your staff for recognizing that innovative new technologies, including fusion, need to see a viable regulatory path in the United States. This thoughtful legislation will help move the industry forward. We hope that S. 512 will pass favorably out of Committee and we offer our support to help move the bill to final passage. Please contact me with any questions at [rbarth@trialphaenergy.com](mailto:rbarth@trialphaenergy.com).

Sincerely,

A handwritten signature in dark ink, appearing to read "Richard C. Barth".

Richard C. Barth, Ph.D.

Senior Vice President, Government Relations

Mobile: 202-390-0338



1401 Airport Parkway, Ste. 230 - Cheyenne, WY 82001 - (307)-635-0331

March 16, 2017

The Honorable John Barrasso  
307 Dirksen Senate Office Building  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

The Wyoming Mining Association (WMA) is a statewide trade organization that represents and advocates for 30 mining company members. WMA also represents 120 associate member companies, two railroads, one electricity co-op, and 180 individual members.

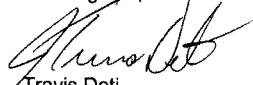
WMA wishes to convey our support of S.512, the "Nuclear Energy Innovation and Modernization Act." We certainly appreciate your leadership on this important legislation. We believe the bill will help ensure we have a stable supply of domestic uranium to power our nuclear reactors, which provide about 20% of the electricity generated in the United States.

In addition to helping jumpstart the advanced nuclear industry, the legislation contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years, recognizing the low-risk nature of these projects.

We also strongly support the provisions in S. 512 to bring greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. As you know, DOE has a legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. WMA is concerned DOE has failed to meet that obligation and continues to make uranium transfers without any meaningful public input. The bill will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers.

Thank you for your kind attention and for your service to Wyoming.

Best regards,

  
Travis Deti  
Executive Director

*THANKS FOR  
YOUR WORK!  
TD*

[www.wyomingmining.org](http://www.wyomingmining.org)





March 17, 2017

Chairman John Barrasso  
307 Dirksen Senate Office Building  
Washington, D.C. 20510

Ranking Member Tom Carper  
513 Hart Senate Office Building  
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper,

I am writing to let you know of our strong support for your recently introduced bill, S.512, the Nuclear Energy and Innovation Modernization Act (NEIMA).

Your bill stresses the need for innovation if the USA is to play a strong role in the future of nuclear energy. It also emphasizes the importance for NRC timely involvement and adjudication of regulatory issues, if there is to be innovation in this industry, be it advanced reactors or the role of new materials in LWRs. Finally, it also points out the important role the NRC plays in stimulating, or delaying innovation. It also emphasizes the importance of lowering the regulatory costs of bringing new nuclear technologies to the market.

We strongly agree with your legislation's premises, and hope other congressional committees will follow your lead and move to advance the issues important for nuclear energy innovation that are under their jurisdiction.

We really appreciate your Committee's leadership in these important issues and thank you for it. We look forward to working with you as this bill moves toward enactment.

Sincerely,

Jeffrey Quintenz, Ph.D.  
Senior Vice President  
Energy Group  
General Atomics



**POWERTECH (USA) INC.**

March 17, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

Powertech (USA) Inc., a South Dakota Corporation, would like to express its support of the Nuclear Energy Innovation and Modernization Act (S. 512). We applaud your leadership bringing this legislation to light as well the efforts of your co-sponsors, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth. This bipartisan legislation will help ensure we have a stable supply of domestic uranium to power our nuclear reactors, which provide one-fifth of the electricity in the United States.

We believe S. 512 provides direct benefit to advancing nuclear power in the United States. Nuclear power provides stable, base-load electricity and produces in excess of 60% of carbon-free electricity in the United States.

We support efforts to optimize aspects of the Nuclear Regulatory Commission's ("NRC") licensing and billing programs, which are key to maintaining cost-effective and efficient domestic uranium supply. As you probably realize, uranium projects within the United States are typically a long-term proposition, often lasting for decades. In accordance with the proposed bill, extending the duration of a NRC license from 10 to 20 years coincides with the existing operating environment of the industry.

As well, provisions in S. 512 bring greater transparency and accountability to the Department of Energy's ("DOE") management of the federal excess uranium inventory. Imposing annual limits on the amount of DOE material that can enter the market, in particular, will provide greater market stability. This will allow producers to plan production without sudden and unpredictable entry of DOE uranium into the market at spot prices.

We would like to join the other voices of the domestic uranium industry and thank you again for your leadership on this important legislation.

Sincerely,

John Mays  
Chief Operating Officer



The Honorable John Barrasso  
 United States Senate  
 Washington, DC 20510

March 17, 2017

Dear Chairman Barrasso:

Uranium Energy Corp would like to express our appreciation of your support of the uranium industry and convey our complete endorsement for the recently introduced Nuclear Energy Innovation and Modernization Act (S. 512 or NEIMA). We applaud your leadership on this important bipartisan legislation as well as your colleagues, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth.

NEIMA is important for the future of the nuclear industry and will "facilitate the efficient, predictable, and affordable deployment of advanced nuclear reactor technologies." Currently, nuclear power provides about 20 percent of this nation's electricity and more than 60 percent of its clean-air energy. Low cost nuclear generation provides highly reliable 24-7 base load energy and stability to the electricity grid. This legislation will help the industry develop new technology containing the same and greater benefits with further enhancements to existing safety measures. Reforming the Nuclear Regulatory Commission (NRC) processes to become more transparent and cost efficient will go a long way in accomplishing these objectives.

We are also fully supportive of the bill's language in Title II to modernize the NRC licensing activities for what are inherently low risk uranium recovery projects. Extending the duration of NRC license periods from 10 to 20 years deserves evaluation by the agency. Additionally, reforming the fee structure with the mandates of accountability and transparency are important features of the legislation that are overdue in the existing NRC fee recovery processes.

We also endorse the language in S.512 relating to the Department of Energy (DOE) and are aligned with the Uranium Producers of America (UPA) position. We support "greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. As you know, DOE has a legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. UPA is concerned DOE has failed to meet that obligation and continues to make uranium transfers without any meaningful public input. S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers."

Thank you again for your continued support of the uranium industry and your leadership in this important legislation.

Sincerely,

A handwritten signature in black ink, appearing to read "Amir Adnani".

Amir Adnani  
 CEO, President, Director

**URANIUM ENERGY CORP**  
 500 NORTH SHORLINE BLVD, SUITE 800  
 CORPUS CHRISTI TEXAS 78401  
 1.866.748.1030 NYSE-MKT: UEC



## URANIUM PRODUCERS OF AMERICA

141 EAST PALACE AVENUE, POST OFFICE BOX 669, SANTA FE, NEW MEXICO 87504-0669  
TELEPHONE (505) 982-4611; FAX (505) 988-2987; WWW.URANIUMPRODUCERSAMERICA.COM

March 17, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

On behalf of the Uranium Producers of America (UPA), I am writing in support of the Nuclear Energy Innovation and Modernization Act (S. 512). We applaud your leadership on this important legislation and that of your colleagues, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth. This bipartisan legislation will help ensure we have a stable supply of domestic uranium to power our nuclear reactors, which provide one-fifth of the electricity in the United States.

In addition to helping jumpstart the advanced nuclear industry, S. 512 contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years, recognizing the low-risk nature of these projects.

We also strongly support the provisions in S. 512 to bring greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. As you know, DOE has a legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. UPA is concerned DOE has failed to meet that obligation and continues to make uranium transfers without any meaningful public input. S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers.

On behalf of the domestic uranium industry, thank you again for your leadership on this important legislation.

Respectfully submitted,

John J. Indall  
Counsel for Uranium Producers of America

JJI:tf



March 17, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

On behalf of the Uranium Producers of America (UPA), Uranium One Americas ("Uranium One") is writing in support of the Nuclear Energy Innovation and Modernization Act (S. 512). Uranium One owns the Willow Creek uranium mine in Wyoming, which is currently operating in a low production mode due to depressed uranium market prices.

We applaud your leadership on this important legislation and that of your colleagues, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth. This bipartisan legislation will help ensure that the U.S. has a stable supply of domestic uranium to power our nuclear reactors, which provides one-fifth of the electricity in the United States.

In addition to helping jumpstart the advanced nuclear industry, S. 512 contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities like ours and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years, recognizing the low-risk nature of these projects.

We also strongly support the provisions in S. 512 to bring greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. As you know, DOE has a legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. UPA is concerned DOE has failed to meet that obligation and continues to make uranium transfers without any meaningful public input. S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers.

On behalf of the domestic uranium industry, thank you again for your leadership on this important legislation.

Sincerely,

A handwritten signature in black ink, appearing to read 'Donna L. Wichers'.

Donna L. Wichers  
Director  
Uranium One Americas, Inc.

cc: Greg Kruse, Manager, U.S. Operations

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907 N. Poplar Street, Suite 260  
Casper, Wyoming 82601  
tel +1 307-234-8235 • fax +1 307-237-8235  
www.uranium1.com

**UNITED STATES NUCLEAR  
INFRASTRUCTURE COUNCIL**

[www.usnic.org](http://www.usnic.org)



March 17, 2017

The Honorable John Barrasso, Chairman  
The Honorable Thomas R. Carper, Ranking Member  
Senate Committee on Environment and Public Works  
Washington DC 20510

Dear Chairman Barrasso and Ranking Member Carper:

The U.S. Nuclear Infrastructure Council is writing to applaud the Committee's bipartisan support for advanced nuclear energy progress and development as manifested by the Nuclear Energy Innovation and Modernization Act (S. 512).

As the leading American business consortium advocate for nuclear energy and the promotion of the U.S. supply chain globally, we believe that trailblazing the advance of nuclear energy technology including Gen 3+, Small Modular Reactors, Non-Light Water Reactor (LWR) Advanced Reactors and Fusion Reactors is one of the key imperatives for U.S. market competitiveness and is pivotal to maintaining the U.S. lead in technology innovation, jobs, exports, energy independence and Made-in-America clean energy leadership.

As reflected in the Council's April 21, 2016 testimony to the Committee and *Framework for Advanced Reactor Licensing Modernization* white paper, we commend the focus of S. 512 on reforms addressing structural issues with the U.S. Nuclear Regulatory Commission's (NRC) budget and fee recovery authorities to promote long-warranted transparency and accountability. We also embrace the directive to establish performance benchmarks and reporting to Congress to improve transparency and surety in the decision-making timelines by the NRC.

As a consortium representing 14 leading nuclear energy developers pioneering next-generation nuclear energy technology, we, in particular, welcome the legislation's focus on modernization of the NRC's regulatory framework to provide the regulatory clarity and predictability for advanced reactor license applicants. We strongly support provisions to reduce up-front regulatory costs through the development of a cost-share program to nurture vital pre-licensing engagement and measures incentivizing the NRC to develop a modern, technology neutral framework that allows for the phased and expedited licensing of advanced reactor technologies. This legislation follows a number of the key recommendations that were included in the *Advanced Reactor White Paper* that the Council issued on February 22, 2016.

It is our hope that as the Committee moves toward mark-up it will look at strengthening the pre-licensing engagement where enhancing the development of phased licensing objectives by incorporating a requirement for an upfront vendor design review modeled after the Canadian nuclear regulatory authority's process allowing pre-licensing regulatory feedback on the designs in a defined period of time and under a defined cost.

**The Honorable John Barrasso, Chairman**  
**The Honorable Thomas R. Carper, Ranking Member**  
**March 17, 2017**  
**Page 2**

The Canadian process, which is attracting U.S. developer interest, allows the applicant to understand the licensability of the design – prior to seeking a full-blown design review. The “licensability” determination provides additional certainty for investors who may wish to invest in these designs.

We also wish to echo the need for consideration of a High Assay LEU (HLEU) amendment advocated by ClearPath to establish a HLEU reserve for advanced reactor use as proposed by the Council in a September 19, 2016 letter to the U.S. Department of Energy. With a specified stockpile of adequate size for fuel supply for next generation reactors, the future will be much clearer for innovators.

Finally, be advised that the Council is fully supportive of the NRC’s current FY2017 request for \$5 million in off-the-fee-base funding to support the development of NRC licensing capabilities for advanced reactors. It is our recommendation that this funding be at least doubled in FY2018.

We salute the Committee for quickly moving forward on this legislation and we appreciate the opportunity to have testified on NRC reform and modernization.

Please note that while these views represent the consensus of the U.S. Nuclear Infrastructure Council, they do not necessarily represent the views of individual member companies.

Again, many thanks for the work of the EPW Committee and staff on this vital legislative measure. We look forward to continuing to work with you and the Committee on these matters.

Sincerely,



The Honorable Jeffrey S. Merrifield (NRC Commissioner 1998-2007)  
Partner, Pillsbury Winthrop Shaw Pittman, LLP  
Chairman, Nuclear Infrastructure Council – Advanced Reactor Task Force

CC: Senator Sheldon Whitehouse  
Senator Corey A. Booker  
Senator Mike Crapo

Attachments:

NIC Senate EPW Testimony (April 21, 2016)  
NIC Advanced Reactor White Paper  
NIC Letter to DOE on creation of HLEU Reserve for AR Developers



**U.S. Nuclear Infrastructure Council  
Advanced Reactors Task Force**

**Issue Brief on  
The Framework for Advanced Reactor Licensing Modernization**

**The Honorable Jeffrey S. Merrifield  
Commissioner, U.S. Nuclear Regulatory Commission (1998-2007)  
Partner, Pillsbury Winthrop Shaw Pittman  
&  
Chairman, USNIC Advanced Reactors Task Force**

**February 23, 2016**

**ISSUE**

A confluence of environmental, energy security and competitiveness considerations are accelerating the need for the expedited development of Advanced Nuclear Reactors in the United States and worldwide. These Advanced Reactors can be used globally to provide economical, carbon-free electricity and industrial heat generation while providing a new option for the looming replacement of America's nuclear energy fleet as existing nuclear reactors reach the end of their licensing life beginning as early as 2030. Ranging widely in size from micro-reactors of a few megawatts electric (MWe) to large gigawatt ("GW")-size reactors of 1000 MWe, these non-light water Advanced Reactors embrace enhanced passive safety features as well as the prospect for improved nuclear energy economics and competitiveness with other energy sources including natural gas for baseload supply. These Advanced Reactors also bring with them significant interest from the financial community which is seeking gateway technologies to invest in this arena. In addition to funding and infrastructure, a modern licensing framework is needed to enable development and deployment of Advanced Reactor technology in the U.S. and to extend U.S. nuclear energy technology leadership that has featured progressive light water reactor designs including passive Generation III+ designs currently being deployed in Georgia and South Carolina – and small, modular, light water nuclear reactors now headed toward deployment.

**BACKGROUND**

Today, U.S. nuclear energy plants provide almost 20 percent of the nation's electricity and over 60 percent of America's carbon emissions-free electricity. The U.S. fleet is comprised of approximately 100 units that are based and adapted on light-water reactor ("LWR") technology directly developed by the U.S. Navy propulsion program. Utilities and the nuclear industry have improved upon and optimized the LWR technology and the current fleet is now operating at world-class high levels of safety and reliability. The U.S. fleet turned in another record setting



year of excellent operating performance, achieving a fleet-wide capacity factor of 91.9 percent in 2015.

However, the existing U.S. nuclear energy fleet is among the oldest in the world with over a third of the current plants being over 40 years old. Many of the reactors could be retired beginning around the 2030 timeframe, although there is a strong basis for extending their life to 80 years through a second license renewal.

With the worldwide impetus to reduce global carbon emissions -- along with a significant increase in electricity demand -- the U.S. has a compelling need to develop and deploy the next generation of Advanced Reactors. Deployment of this new generation of reactors will require a new model, one that is more dynamic and capable of forming private-public partnerships in support of private-sector innovation driven initially by private-sector investment. Already in the U.S., there are a number of Advanced Reactor designs that have progressed to the design and engineering stage and are supported by meaningful investments from the private sector.

While there is wide recognition regarding global climate change and the vital role that nuclear energy plays in meeting carbon reduction targets, the current level of government investment in nuclear technologies is markedly insufficient. According to the Energy Information Agency, with tax incentives, the U.S. government "spent" over \$15 billion on renewable and biomass programs in 2015 -- but "spent" \$1.66 billion for nuclear energy in the same period.

Additionally, the current framework of U.S. government policy, legislation, regulation and requirements, research and development support, and fee-based licensing is more aligned with the past development efforts than what is needed for the future to commercialize a new generation of Advanced Reactors.

This is particularly true of the U.S. Nuclear Regulatory Commission (NRC) licensing process, which presents one of the largest risk factors confronting private developers of Advanced Reactors as it does not accommodate a staged investment approach as the technology development and licensing risks are addressed and resolved.

#### **Revitalizing the U.S. Advanced Reactor Development Mission**

Currently, the DOE and NRC share responsibilities for supporting and overseeing the U.S. nuclear energy program under the Atomic Energy Act ("AEA") and the Energy Reorganization Act ("ERA"). This later Congressional Act assigned the promotional and development responsibilities to the U.S. Department of Energy (DOE -- the successor agency to the Energy Research and Development Agency ("ERDA")), and a companion agency, the NRC, was assigned the responsibilities for assuring public health and safety and carrying out the regulatory and licensing program.

Over the course of time, DOE increasingly focused on basic and applied research, while the NRC moved to focus exclusively on its primary mission of safety oversight and regulation. Today this framework is struggling to foster the private capital formation required to advance promising private-sector nuclear innovation, as those companies are isolated from the types of

support that has been offered historically and, in a contemporary setting, support that is offered to other innovative but non-nuclear energy technology companies.

If the U.S. is to be successful in developing and deploying a new Advanced Reactor fleet as early as 2030, Congress should consider significant policy changes. It should provide additional resources to both agencies as well as direct them to focus and mobilize their resources and expertise on the goal of expanding nuclear energy options with Advanced Reactors.

Both the DOE and NRC must be proactive in developing their capabilities and engaging with the Advanced Reactor community. Today, the NRC interprets its mission as an exclusive safety mission with a caveat that its processes and activities must not place an undue burden on the industry. The NRC typically awaits applications and only reviews design certification applications that are full and complete. While the NRC has long recognized that its paramount goal is to ensure public health and safety, the ERA also requires that the Agency enable the use of nuclear technologies for safe, beneficial uses. The unique features being trail blazed by Advanced Reactors justify an updated and modernized NRC design review and licensing process.

Congress should reinforce and support the NRC's efforts to enable the use of Advanced Reactors by setting appropriate deadlines for design reviews and licensing activities, engaging in active oversight of the NRC's review of these technologies and providing sufficient funding to allow the agency to execute accordingly.

**Recommendations:**

1. Congress should engage in proactive oversight of the NRC's Advanced Reactor design review and licensing process;
2. Congress must provide sufficient resources to create an efficient and robust Advanced Reactor licensing program at the NRC;
3. Congress must set a specific expectation that the NRC conduct Advanced Reactor licensing reviews in no longer than thirty-six months;
4. Congress should direct the NRC to identify any impediments that may hinder its ability to accelerate the design review and licensing activities of Advanced Reactors; and
5. Congress should direct the NRC and DOE to submit an annual report that identifies the key milestones, activities and resources required to develop, deploy and regulate Advanced Reactors.

**Advanced Reactor Regulatory Capabilities**

The NRC currently lacks sufficient capabilities for the licensing of non-light water reactors. In order to develop the appropriate regulatory basis to regulate Advanced Reactors, the NRC needs to better understand how these technologies work, how they can be regulated and how

unnecessary regulatory conservatism can be avoided in the oversight of these designs. Because of the current funding formula wherein the NRC must recover 90 percent of its costs through fees, the resources for these activities must be borne principally by U.S. nuclear utilities – which are understandably concerned about the regulatory burden currently faced by the U.S. nuclear energy fleet. Given that Advanced Reactor companies primarily rely on private funding, this NRC funding paradigm poses an extremely difficult challenge for this new industry’s design advancement.

The requirement to be a fee-based agency resulted from the Omnibus Reconciliation Act of 1990 (“OBRA”). Prior to that time, the cost of the Agency’s review activities were borne by all taxpayers through the use of general revenues. Thus, the current nuclear fleet was, for the most part, licensed and deployed under a framework that did not require the imposition of user fees. Today, with both the Congress and the nuclear industry encouraging the NRC to reduce its budget – as well as related utility plant licensing fees -- and in the absence of new sources of funding, the NRC is hard pressed to request the needed funding for Advanced Reactor activities. In order to accomplish the goal of enabling the development of Advanced Reactor technologies, Congress should provide dedicated general revenue monies targeted to developing the needed Advanced Reactor regulatory infrastructure, including the establishment and deployment of a design review and licensing framework with the dedicated staff and expertise appropriate to evaluate the safety basis of Advanced Reactor technologies.

**Recommendation:**

1. Congress should authorize and appropriate dedicated general revenue funds (beginning with \$5 million requested by the NRC for fiscal year 2017 and growing to \$15 million or more, if necessary for regulatory infrastructure and staffing to review and approve Advanced Reactor technology designs.

**Advanced Reactor Pre-Application Conceptual Design Licensing Review**

**A scaled and proportionate license fee burden**

While the NRC is not a promoter of nuclear technologies, it is appropriate for the Commission to engage in early and enhanced communications and dialog with Advanced Reactor developers to allow new market entrants to fully understand what is needed to successfully prepare and undertake design review and licensing. Currently, the NRC has very limited dialog with Advanced Reactor technology developers, and when it does, it must charge hourly review fees (\$270+ per hour/per NRC staff member) to these companies. As members of the Advanced Reactor community are early stage and entrepreneurially driven private companies, they lack the traditional resources to finance what can be very expensive regulatory fees; additional sources of revenue must be identified. As it would not be appropriate to pass these costs on to the existing nuclear utility fleet, dedicated general revenues should be set aside to allow the NRC staff to engage with Advanced Reactor developers without passing these significant costs onto highly resource-constrained users.

#### **A graduated licensing model congruent with graduated private capital commitment**

Additionally, in order to align with the staged private investment model of step-wise investment based on project de-risking, the NRC needs to develop a staged conceptual design review process for the review of Advanced Reactor designs similar to that developed by the Canadian Nuclear Safety Commission ("CNSC").

The CNSC process is robust and graduated. It requires vendors to reach discrete milestones that allow investors to assess the technology's licensability and identify any potentially significant issues. It features an upfront Vendor Design Review to provide an early verdict on the licensing feasibility of potential designs for less than \$5 million (US).

The early phases of this program would provide interim indications to allow the investment community to understand the licensability of the design without having to wait until the end of the licensing process, which can take 8 to 10 years. The current process lacks transparency in cost and time, requiring potentially hundreds of millions in dollars of up-front investment while strongly discouraging private capital commitment.

The CNSC's graduated process has the potential to enhance the ability of Advanced Reactor designers to attract vital sources of capital because it allows them to build confidence along the way that the design has the potential to be licensed. In order to foster a new generation of Advanced Reactor technologies, this is precisely the type of phased design review and licensing process that needs to be adopted by the NRC.

The use of either Part 50 (separate construction permit and operating license) or Part 52 (combined construction/operating license), which are the traditional licensing approaches utilized for light water reactors, is not fully compatible with the needs of Advanced Reactor developers. The NRC, with the assistance of DOE and others, should identify methods to modify the current regulatory requirements to more appropriately tailor the design review and licensing framework while maintaining the NRC's safety mission. The NRC should also seek to utilize concepts and frameworks from other peer regulators in addition to the Canadian Nuclear Safety Commission, such as the United Kingdom Office for Nuclear Regulation, which have phased design review and licensing processes, to craft a review program that is more adaptable to this emerging industry.

#### **Government funding support for Advanced Reactors that is proportionate to nuclear energy's climate and economic potential.**

In order to address global climate concerns, it is fully appropriate that the federal government make a similar significant investment in carbon-free Advanced Reactors by creating a design review and licensing process that would not be borne entirely by Advanced Reactor developers.

#### **Recommendations:**

1. Congress should provide general revenue funding to allow the NRC to engage in technology specific (molten salt, gas cooled, etc.) and vendor specific workshops and

meetings that take place prior to design review and licensing activities, as well as interagency and intergovernmental meetings and regulatory development activities needed to create common review standards for Advanced Reactors;

2. Congress should provide general revenue funding to allow the NRC to waive the fees for the review of Advanced Reactors through their final design approval; and
3. Congress should require the NRC to establish a phased design review and licensing process that would provide intermediate milestones towards a design certification that would include an early determination of licensability to enable continued development of these designs without requiring a complete design to be submitted upfront.

#### **Advanced Reactor Licensing Framework**

Currently, the NRC's expectation is that it will determine the design-specific changes and exceptions that it would make for Advanced Reactor designs, after they are submitted to the NRC for review. This expectation places Advanced Reactor developers in a difficult and expensive position where they are expected to anticipate what the NRC may potentially find acceptable as they are in the midst of preparing their designs – only to be at significant investment risk if the NRC later determines that these design choices are not acceptable. This potential "Catch 22" could be avoided if the Commission identified policy issues that could be addressed generically – perhaps by groups of design (molten salt, gas reactors and etc.) – in order to avoid cost and reduce unnecessary burden.

#### **Recommendations:**

1. The NRC Commissioners should instruct their staff to bring to conclusion, within two years, the following policy issues as they relate to Advanced Reactors:
  - a. Reduced Emergency Planning Zone ("EPZ") requirements for Advanced Reactors based on source term;
  - b. Reduced security requirements based on source term;
  - c. Reduced control room staffing requirements for passively-cooled non-light water reactors;
  - d. Lack of need for traditional containment based on source term; and
  - e. Establishment of non-LWR generic design criteria

#### **Timeliness of NRC Review Process**

As an independent federal agency, the Nuclear Regulatory Commission is invested, under the Atomic Energy Act, with the responsibility to license new reactor designs that it determines meet a standard of "adequate protection" of public health, the environment and common defense and security. While Congress cannot dictate a specific outcome in this license review process, it is eminently reasonable that Congress can set an expectation that these determinations shall be made in an efficient and timely manner. Based on its previously demonstrated ability to relicense large 1200+ MWe reactors in less than 36 months, the NRC should be capable of licensing small

modular (200 MWe and less) and Advanced Reactors – with significantly smaller source terms – in the same time frame of within 36 months.

**Recommendation:**

1. The NRC should develop a risk informed licensing process for Advanced Reactors that recognizes their reduced source term risk and avoids the unnecessary implementation of regulatory requirements that are more appropriate for large light water reactor technologies.

**Conclusion**

It is time to make dramatic changes in the way we pursue, support and license Advanced Reactor technologies to achieve the full measure of their promise and the success the nation needs for the future. While this will require a sustained focus and investment of resources by government, the return on investment will be pivotal in ensuring the U.S. maintains its technological leadership in nuclear energy's vital and carbon-free source of clean energy while providing jobs, economic competitiveness and energy security while improving our nation's environment and health.

###

*The USNIC Advanced Reactors Working Group is a project of the U.S. Nuclear Infrastructure Council ([www.usnic.org](http://www.usnic.org)), the leading business consortium for new nuclear energy and promotion of the U.S. supply chain globally. The views above represent a consensus of the USNIC's Advanced Reactors Task Force and the Council, but do not necessarily represent the specific views of individual member companies and organizations.*

*For further information contact: Jarret Adams, 202-815-9234 or [jadams@fullon.com](mailto:jadams@fullon.com).*

**UNITED STATES NUCLEAR  
INFRASTRUCTURE COUNCIL**  
[www.usnic.org](http://www.usnic.org)



September 19, 2017

The Honorable Ernest Moniz  
Secretary of Energy  
The Forrestal Building  
Washington DC 20585

**By email:** [RFI-UraniumTransfers@hq.doe.gov](mailto:RFI-UraniumTransfers@hq.doe.gov)

**Re:** U.S. Department of Energy ("DOE") Request for Information for a Potential New Secretarial Determination Covering Down-Blending of High-Enriched Uranium to Low-Enriched Uranium ("LEU")

Dear Mr. Secretary:

We are writing to advise you of a common ground concern, which if left unaddressed, could have potentially significant negative implications for emerging U.S. advanced nuclear energy reactors given a lack of special uranium that will be used as fuel.

As you are aware, Advanced Reactors have every promise of providing enhanced efficiency, flexibility and safety while producing carbon-free electricity at lower costs than current reactor technology. This continued advancement of American nuclear energy technology – including Gen 3+, Small Modular Reactors and Advanced Reactors – is pivotal to maintaining America's market leadership globally in the \$2.8 trillion market worldwide and certainly to environmental progress.

Due to the increased efficiency of advanced nuclear technologies, many Advanced Reactors will require enrichments of the U235 isotope ranging from 6% to as much as 19.75%. (20% enrichment is the threshold of highly enriched uranium ["HEU"]) as opposed to current reactors that typically require uranium enriched to approximately 5%.

Presently, there is no readily available domestic supply of civilian uranium in excess of 5%, which presents a significant challenge for the development of U.S. Advanced Reactors. While there is a potential future domestic supplier for higher enrichments of LEU, this capability will not likely be available in the private sector until the early 2020s under a best case scenario. Without a readily available domestic supply of higher enriched LEU in the U.S, it will be extremely difficult to conduct research on Advanced Reactors potentially driving American innovators overseas. In short, it is in America's economic, environmental and energy security interests to maintain a domestic supply of LEU at levels up to 19.75%.

The most cost-effective way to generate these higher enrichments of LEU in the short term is by down-blending (diluting) HEU with additional LEU. The Department of Energy's current plans

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are to down-blend its excess HEU for use in commercial nuclear reactors for national security requirements or clean-up cost offsets with additional amounts earmarked for high-assay LEU to foreign and domestic research reactors or for space based nuclear powered reactors.

Completely down-blending the remaining inventory -- which is projected to be fully subscribed -- would be a strategic mistake. In the interest of advancing nuclear energy technology, maintaining a small domestic strategic reserve of 19.75% LEU should be a federal priority and we urge you to consider augmenting the Secretarial Determination to this end. While we are in the process of inventorying enrichment requirements and projected needs by Advanced Reactor developers over the next five years, we believe the adverse material impact on the domestic mining, conversion, or enrichment industry will be negligible.

This action will serve to bridge a crucial gap for developers until a commercial option becomes available to produce higher enrichments. Creating a stockpile of 19.75% uranium that could form a strategic reserve of readily available higher enriched LEU will be a catalyst for facilitating U.S. Advanced Reactor technologies. This will discourage the migration of these emerging technologies offshore, and will obviate an increased dependence on China and Russia to supply these needed fuel supplies.

We appreciate that the Department's awareness of the need for this crucial fuel and exploration of potential solutions. Supporting American entrepreneurs in their mission of developing the next generation of nuclear power is an economic, strategic, and environmental imperative. We are encouraged by the Department's attention to the development of Advanced Reactor technologies and wish to reinforce the necessity of an appropriate domestic reserve of higher enriched LEU.

We appreciate your consideration of this issue in the forthcoming Secretarial Determination for the Sale or Transfer of Uranium.

Sincerely,

David Blee  
Executive Director

Copy To:

Mr. Raymond Furstenau, Associate Principal Deputy Assistant Secretary, USDOE  
Ms. Cheryl Moss Herman, Office of Nuclear Energy, USDOE  
Hon. Jeffrey Merrifield, Chairman, USNIC Advanced Reactors Task Force





March 21, 2017

The Honorable John Barrasso  
United States Senate  
Washington, DC 20510

Dear Chairman Barrasso:

The National Mining Association (NMA) appreciates your introduction of the of the Nuclear Energy Innovation and Modernization Act (S. 512) as a critical step to revitalize our nation's uranium industry. NMA is a national trade association that includes the producers of most of the nation's coal, metals, industrial and agricultural minerals; the manufacturers of mining and mineral processing machinery, equipment and supplies; and the engineering and consulting firms, financial institutions and other firms serving the mining industry. NMA's members include producers of domestic uranium as well as companies that have exploration projects or pending applications for development of domestic uranium mining projects.

The U.S. is almost completely reliant on foreign sources of uranium to power our nuclear reactors. According to the U.S. Energy Information Agency, U.S. production of uranium (U3O8) only totaled 2.9 million pounds in 2016, 13 percent lower than the uranium produced in 2015 and the lowest annual U.S. production since 2005. S. 512 can help reverse these troubling trends and ensure we have a stable and affordable supply of domestic uranium to power our nuclear reactors, which provide one-fifth of the electricity in the United States.

S. 512 contains important reforms to modernize the Nuclear Regulatory Commission (NRC) fee structure for uranium recovery facilities and directs the NRC to examine the feasibility of extending the duration of uranium recovery licenses from 10 to 20 years, recognizing the low-risk nature of these projects. Furthermore, the legislation contains much needed provisions to bring greater transparency and accountability to the Department of Energy's (DOE) management of the federal excess uranium inventory. As you are well aware, DOE has a legal obligation to ensure uranium transfers will not have an adverse material impact on the domestic uranium mining, conversion, or enrichment industry. DOE has routinely failed to meet that obligation and continues to make uranium transfers without any meaningful public input. S. 512 will ensure stakeholders have a voice in the process and will place annual limits on the amount of DOE material that can enter the market, starting with the baseline of DOE's current level of transfers.

We applaud your leadership on this important legislation and that of your colleagues, Senators Sheldon Whitehouse, Jim Inhofe, Cory Booker, Mike Crapo, Deb Fischer, Shelly Moore Capito, Joe Manchin, Bob Casey, and Tammy Duckworth.  
Sincerely,

A handwritten signature in black ink that reads "Katie Sweeney". The script is fluid and cursive, with the first name "Katie" and last name "Sweeney" clearly distinguishable.

Katie Sweeney  
General Counsel  
National Mining Association



**Magneto-Inertial  
Fusion Technologies, Inc.**  
2600 Walnut Avenue, Suite A  
Tustin, CA 92780

Gerald W. Simmons, Chairman/CEO  
[jerry@mifti.com](mailto:jerry@mifti.com)

(714) 329-3990  
[www.mifti.com](http://www.mifti.com)

March 15, 2017

Chairman John Barrasso  
307 Dirksen Senate Office Building  
Washington, D.C. 20510

Dear Chairman Barrasso,

Humankind is on the verge of a technological breakthrough that will rival the discovery of electricity, the automobile, human flight, television, modern medicine, space travel, fiber-optics, cellular phones, personal computers, and the Internet. All these historical milestones occurred within the last 150 years. All were transformative, and changed the world in ways few might have imagined. The world is now on the threshold of another groundbreaking event. This breakthrough is in harnessing the power of nuclear fusion; the fundamental energy source of the Universe.

It is for this reason that I cannot stress enough the importance of and support for the reintroduction of S. 512 – The Nuclear Energy Innovation and Modernization Act (NEIMA). I believe that there will be a nuclear revolution for reliable, clean, environmentally safe, carbon-free, cost-effective energy in the near term.

The U.S. Government plays a critical role in the invention and modernization of current nuclear technologies. The Department of Energy's Advanced Research Project Agency -- Energy (DOE/ARPA-E) is the premier agency tasked with the advancement of the next generation of scientific and innovative discoveries. The government's support is especially important for the new nuclear revolution in small modular reactors (SMR's) and pre-fabricated, decentralized power stations vital to our energy future. Whether it is for fission or fusion-based reactors, the passage of S. 512 is paramount in bringing the NRC into the mainstream regarding advanced nuclear reactors and the licensing of those companies pursuing the ultimate clean energy technology.

Our company, Magneto-Inertial Fusion Technologies, Inc. (MIFTI), supports the reintroduction of S. 512 and its successful passage through the House and Senate.

Sincerely,

Gerald Simmons  
CEO  
Magneto-Inertial Fusion Technologies, Inc. (MIFTI)

GWS/alj

CC:

Senator Mike Crapo  
Senator Sheldon Whitehouse  
Senator Cory Booker  
Senator Jim Inhofe


**HITACHI**
**GE Hitachi Nuclear Energy**

Jay Wileman  
President & CEO  
GE Hitachi Nuclear Energy

3901 Castle Hayne Road  
P.O. Box 780  
Wilmington, NC 28402  
USA

T 910-819-2029

March 17, 2017

The Honorable John A. Barrasso  
Chairman, U.S. Senate Committee on  
Energy & Natural Resources  
Washington D.C. 20510

The Honorable Cory A. Booker  
359 Dirksen Senate Office Building  
Washington D.C. 20510

The Honorable Shelley Moore Capito  
172 Russell Senate Office Building  
Washington D.C. 20510

The Honorable Michael D. Crapo  
239 Dirksen Senate Office Building  
Washington D.C. 20510

The Honorable Debra S. Fischer  
454 Russell Senate Office Building  
Washington D.C. 20510

The Honorable James M. Inhofe  
205 Russell Senate Office Building  
Washington D.C. 20510

The Honorable Joseph Manchin III  
306 Hart Senate Office Building  
Washington D.C. 20510

The Honorable Sheldon Whitehouse  
530 Hart Senate Office Building  
Washington D.C. 20510

Dear Chairman Barrasso, and Senators Booker, Capito, Crapo, Fischer, Inhofe, Manchin, and Whitehouse:

On behalf of GE Hitachi Nuclear Energy (GEH), an alliance between the General Electric Company (GE) and Hitachi Ltd., nuclear reactor technology vendors with over 100 years of combined experience, I write to express our support for S. 512, the Nuclear Energy Innovation and Modernization Act (NEIMA). We were proud to support NEIMA during the 114<sup>th</sup> Congress and are happy to once again support this important legislation.

In 1957, GE connected the first commercial nuclear reactor to the electric grid and we have continued to pioneer innovative technologies and deliver critical services to our customers ever since. Underpinning our success is a safety culture that informs every decision we make. We are proud to work with the Nuclear Regulatory Commission (NRC) to develop and license our technology and ensure proper deployment of our products.


While we enjoy a positive working relationship with the NRC, we are concerned that the Commission's current fee structure and budget process hinder the U.S. nuclear industry by imposing unnecessary costs and, in some cases, unjustifiable regulatory burdens on the industry. With most of our non-U.S. competitors offering government financing, the U.S. nuclear industry must find ways

to minimize costs to its customers without jeopardizing safety. Further, as global power demand increases, the industry is ready to deliver the next generation nuclear reactor-- producing carbon-free power, with less waste. However, unless the NRC modernizes its licensing processes to better accommodate the unique licensing needs of advanced reactors, these breakthrough technologies may never be developed or deployed.

GEH is convinced that the Act strikes a proper balance by reforming the Commission's fee structure, and modernizing its licensing processes, while ensuring the Commission remains properly funded so it may carry out its critical mission. First, by amending the NRC's fee structure, NEIMA ensures that the user-fees collected from industry are properly allocated to industry requested activities such as licensing and permitting. Second, by reforming the NRC fee recovery system, the Act ensures the existing operating fleet does not bear a disproportionate burden of NRC fees as older units are retired. Finally, recognizing the need for a distinct licensing framework for advanced reactors, the Act establishes an appropriate risk-informed, performance-based licensing process, with certain advanced reactor programs excluded from the Commission's fee recovery mandate.

GEH is committed to developing and delivering cutting-edge nuclear technologies and services to power the world safely. Once enacted, NEIMA would reform and modernize the Commission so we can compete more effectively in a global marketplace without compromising that commitment, and continue to lead the world in nuclear innovation.

Sincerely,

A handwritten signature in dark ink, appearing to read 'J. Wileman', is written over a faint, stylized circular logo or watermark.

Jay Wileman  
President and CEO  
GE Hitachi Nuclear Energy

*DEPARTMENT of ENGINEERING PHYSICS**College of Engineering, University of Wisconsin-Madison*Nuclear EngineeringEngineering PhysicsEngineering MechanicsAstronautics

17 March 2017

Senator John Barrasso  
 307 Dirksen Senate Office Building  
 Building  
 Washington, D.C. 20510

Senator Thomas Carper  
 513 Hart Senate Office  
 Washington, D.C. 20510

Dear Senators Barrasso and Carper:

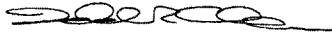
I am writing to voice strong support for your recently introduced legislation, S. 512, the Nuclear Energy Innovation and Modernization Act (NEIMA). Nuclear energy is a critical part of a well-structured modern energy system, providing clean energy and supporting vital U.S. jobs. To be most effective, nuclear energy needs to provide a wider range of products that the traditional large electricity production machines currently offer. However, to move to a wider range of products requires nimble regulation that provides for public safety but also responds at a speed consistent with developing commerce.

Over the past year a community of innovators has begun to emerge that is altering the way we develop and commercialize nuclear technologies. Over fifty companies are spending private funds on nuclear innovation, partnering with our national laboratories and universities to accelerate the modernization of our nuclear fleet. This bipartisan bill sets an important national expectation that our regulator charges reasonable fees, is trained and ready to regulate an emerging set of innovative nuclear products, and provides an important framework for ensuring a supply of uranium that properly relies on our commercial mining infrastructure.

Thank you for introducing this important legislation, which is an important step in ensuring the U.S. nuclear industry leads in innovation and development of new commercial products. If I can

be of any assistance in providing more information or answering questions about how this legislation will impact research being done at universities like UW-Madison's, please let me know. I look forward to working with you in support NEIMA as it moves through the Senate and Congress.

Sincerely,

A handwritten signature in black ink, appearing to read "Todd Allen", with a horizontal line extending to the right.

Professor Todd Allen  
Energy and Sustainability Lead  
Grainger Institute for Engineering  
University of Wisconsin

cc:

Senator Cory Booker  
Senator Mike Crapo  
Senator Shelly Moore Capito  
Senator Deb Fischer  
Senator James Inhofe  
Senator Joseph Manchin  
Senator Sheldon Whitehouse



**X Energy, LLC**  
 7701 Greenbelt Road  
 Suite 320  
 Greenbelt, MD 20770  
 +1 301-358-5600

March 17, 2017

The Honorable John Barrasso  
 Chairman  
 United States Senate Committee on  
 Environment and Public Works  
 Washington, DC 20510

The Honorable Tom Carper  
 Ranking Member  
 United State Senate Committee on  
 Environment and Public Works  
 Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper,

X Energy, LLC (X-energy) is a small advanced nuclear reactor company developing a meltdown proof and proliferation-resistant next generation nuclear reactor. We have pledged to create American jobs and help rebuild American leadership in nuclear energy innovation. X-energy has received one of the two DOE awards in January 2016 to progress the development of our advanced reactor; a high temperature gas-cooled reactor (HTGR). Licensing our HTGR within a reasonable schedule and within affordable cost is vital to our commercial success. We believe that moving forward with domestically developed advanced reactors now is crucial. The modernization of our energy infrastructure, for electricity production and for process heat, is critical to our nation's competitiveness.

The Nuclear Energy Innovation and Modernization Act is a significant step in the right direction and we appreciate your leadership in addressing issues affecting advanced nuclear reactor development. Of the many challenges to developing an advanced nuclear energy capability, we are most critically concerned about the affordability of upfront costs associated with licensing. We are particularly pleased that you have included Section 104, the Advanced Nuclear Energy Licensing Cost-share Grant program. If we, as a Nation, are going to achieve the multiple benefits of advanced reactors, we must identify what needs to be done to bring these designs to fruition by 2030. This provision is vital to achieve that deployment.

This is a compelling time to influence the future of energy solutions in this country and in fact, the world. Nuclear energy must be a part of this solution, and the development of the next generation non-light water reactors are essential to accomplishing this. China has just committed to 40 new nuclear power plants between 2016 and 2020, and they, along with Russia and several other countries, are moving forward with non-LWR technology. China has been operating a small 10Mwe HTGR reactor since 2013 and could begin operation of their commercial scale HTGR by 2018. Additionally, they have built a fuel manufacturing facility in Inner Mongolia. The United States has been the "gold standard" for safety of nuclear reactors. If the United States is going to continue to lead, we must accelerate the development and licensing of the next generation non-light water nuclear reactors. Failure to do so will relinquish this critical leadership role to countries such as China, Korea and Japan.

There is an urgency to the modernization of the NRC's licensing process to accommodate non-light water advanced nuclear reactors. We are excited about this bill and strongly support its intent. We look forward to continuing to work with you to move it through Congress.

Please feel free to contact us to answer any questions, or if you would like any additional information.

Respectfully,

*Harlan Bowers*

Harlan Bowers  
 President  
 X Energy, LLC





**Chairman John Barrasso**  
**307 Dirksen Senate Office Building**  
**Washington, D.C. 20510**

**Ranking Member Tom Carper**  
**513 Hart Senate Office Building**  
**Washington, D.C. 20510**

Chairman Barrasso and Ranking Member Carper,

It is with sincere gratitude for your efforts that I provide this letter of support for the **Nuclear Energy Innovation and Modernization Act** (S. 512). This legislation wholeheartedly represents a rare and beautiful quality in American politics: bipartisanship. While the technical merits of this legislation are strong, one of its greatest strengths comes from the ability of its cosponsors to move beyond partisan challenges to address the needs of the nation.

I have been honored to work with the staff of the original cosponsors of this legislation for the past two years in efforts to improve and clarify the important details of modernizing the nuclear regulatory environment both for current and future nuclear reactors. The impressive collaboration of a variety of engaged stakeholders leads me to believe this legislation will lead to an even more robust nuclear innovation ecosystem in the coming years.

With NEIMA consideration as one of the first legislative hearings in 2017 for the Committee on Environment and Public Works, it is clear you recognize the urgency of the situation. My peers similarly recognize the urgent need of the nation and are designing and preparing to test and demonstrate advanced reactors capable of reducing nuclear waste production, increasing the strong safety record against nuclear accidents, addressing global proliferation concerns, and improving the economic accessibility of nuclear power.

Nuclear regulation is an area in which balance is critical. There must be no race to the bottom but there must also not be an insurmountable wall of red-tape keeping innovators from bringing their best ideas to the table. Nuclear Regulatory Commission fee schedules may not be the talk of the town but their right-sizing will allow nuclear innovation to prosper. The advanced nuclear energy licensing cost-share grant program will also be a critical step in the evolution of nuclear policy.

As former Chairman Senator Jim Inhofe said at the NEIMA hearing, “..It is a lot fun when we can work on issues that we agree on, so let’s get it done.”

**Samuel Brinton**  
**Founder, Core Solutions Consulting**

*CC: Sens. Sheldon Whitehouse (D-RI), Jim Inhofe (R-OK), Cory Booker (D-NJ), Mike Crapo (R-ID), Deb Fischer (R-NE), Shelley Moore Capito (R-WV), Joe Manchin (D-WV), Robert Casey (D-PA), Tammy Duckworth (D-IL), and Jeff Flake (R-AZ)*



March 21, 2017

The Honorable John Barrasso  
United States Senate  
Senate Office Building  
307 Dirksen  
Washington D.C. 20510

Dear Chairman Barrasso:

On behalf of the New Mexico Mining Association (NMMA), I am writing in support of S. 512, the Nuclear Energy Innovation and Modernization Act. We appreciate your leadership on this important legislation and the bipartisan support you have achieved. This legislation will help our nation's nuclear utilities achieve a stable supply of domestic uranium, which is important to our energy independence.


The NMMA is a Trade Association that serves as a spokesman for the New Mexico Mining Industry in both the Legislative and Regulatory Arenas. This legislation is very important to our members as we have the second largest deposits of Uranium in the United States.

The legislation contains needed reforms to the Nuclear Regulatory Commission's (NRC) fee structure for uranium recovery operations and directs the NRC to review the feasibility of extending the term of uranium recovery licenses from ten to twenty years, recognizing the low-risk nature of these operations.

NMMA also supports the legislation's provisions which would bring necessary transparency to the Department of Energy's (DOE) management of excess federal uranium inventories. The DOE's disposition of these inventories has been the subject of much scrutiny by Congress and the General Accounting Office. This legislation will provide stakeholders with more input on the process and more certainty to the amounts of uranium DOE transfers. We believe the legislation will increase the value to the taxpayers of this valuable asset.

On behalf of the NMMA, thank you for your attention and leadership on this important legislation.

Respectfully submitted,

A handwritten signature in cursive script that reads "Mike Bowen".

Mike Bowen  
Executive Director



CENTER FOR CLIMATE  
AND ENERGY SOLUTIONS

March 17, 2017

The Honorable John Barrasso, Chairman  
Committee on Environment and Public Works  
410 Dirksen Senate Office Building  
Washington, DC 20510

The Honorable Tom Carper, Ranking Member  
Committee on Environment and Public Works  
456 Dirksen Senate Office Building  
Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper:

On behalf of the Center for Climate and Energy Solutions (C2ES), I write you in support of the *Nuclear Energy Innovation and Modernization Act* (S. 512). This legislation will strengthen and streamline the regulation of nuclear power plants in the United States and support development of advanced nuclear technologies.

In order to achieve the emission reductions necessary to avoid the worst potential consequences of climate change, it is crucial to obtain increasing quantities of electric power from zero-emission sources. Nuclear power is the largest source of zero-emission power in the United States, and it provides stable and steady baseload power, which helps ensure electric grid reliability. As the United States considers options for a low-carbon future, it is critical we develop advanced nuclear technologies as well as maintain the current fleet of nuclear reactors.

I commend this effort to improve the regulatory framework of nuclear power and look forward to working with you to address our energy and environmental challenges.

Sincerely,

Bob Perciasepe  
President



Cc: Senator Booker  
Senator Capito  
Senator Crapo  
Senator Fischer  
Senator Inhofe  
Senator Manchin  
Senator Whitehouse

Senator BARRASSO. At this time, I would like to ask any Senator who seeks recognition to please do so so they can make a statement concerning the bill.

Senator Harris.

Senator HARRIS. Thank you, Mr. Chairman.

I want to thank in particular, you, Chairman, and Ranking Member Carper and Senators Inhofe, Whitehouse, and Booker for your leadership in this act. I understand that this legislation builds on last year's version to address a significant deficiency in clean energy that would follow as nuclear power plants begin to decommission in the next decade. And I appreciate the cooperative and bipartisan manner in which this Committee has engaged on this issue.

From my perspective, this promising legislation has the potential to expand research and development opportunities for advanced nuclear energy by updating policies of the Nuclear Regulatory Commission to keep pace with the technology of this growing industry.

However, real concerns from the public regarding the San Onofre Nuclear Generating Station in my home State of California still resonate with me. It has negatively affected the surrounding community and its residents in San Diego County. Therefore, it is my firm belief that our Committee should continue to carefully review the rapid progress of advanced nuclear energy projects to ensure their safety and reliability in guaranteeing safety to the general public.

I would also like to continue working with my colleagues here to find a solution to any and all radioactive waste that is produced by nuclear energy power plants. Safely disposing of any radioactive material is a key priority of mine to ensure that we leave our environment pristine and unharmed for future generations in our country.

After reviewing the manager's amendment package, I am encouraged at the progress our Committee has made to improve this bill, and agree with the amendments that my colleagues have offered. However, as the bill currently stands, I must vote against the Nuclear Energy Innovation and Modernization Act from moving passed our Committee and would like to work with all the sponsors closely to produce a comprehensive bill to further and fully address any uncertainties of advanced nuclear development.

Again, I thank you, Chairman, and the members of our Committee for the bipartisan and important work that was done here.

Senator BARRASSO. Well, thank you very much for your comments. We look forward to continuing working with you. Thank you very much.

Senator Inhofe.

Senator INHOFE. Well, first of all, I am in shock here. This is really a big deal. This place ought to be mobbed right now. We have been trying to do this since 21 years ago, that I know of. Also, carrying on the things that we have done in this Committee that no one else was able to do, the TSCA bill, the transportation reauthorization bill, the chemical bill. These are all big things, and we crossed the line, got leaders on both sides. So I have no doubt.

By the way, I have to get in the record this has nothing to do with global warming, nothing to do with climate change.

[Laughter.]

Senator INHOFE. But if that is what it takes to get you guys on board, I am all for it.

[Laughter.]

Senator INHOFE. So I have no reason to believe that this isn't going to fly through and we are going to be able to accomplish something really, really big.

Thank you, Mr. Chairman.

Senator BARRASSO. Thank you.

Senator CARPER. Maybe this is an unintended consequence. But a happy one.

[Laughter.]

Senator WHITEHOUSE. Mr. Chairman.

Senator BARRASSO. Senator Whitehouse.

Senator WHITEHOUSE. First, let me thank the Ranking Member on our side for his leadership and the improvements that he has overseen to this bill, and let me thank my original coauthor on our side, Senator Booker, as well as the Democrats who have joined us in this, Senator Manchin, Senator Casey, and Senator Duckworth.

Let me also thank the Chairman for his leadership and our former chairman for his leadership, Chairman Inhofe. No concessions are implied with respect to climate change on this, Mr. Chairman, but it will help. So we are going to work together.

[Laughter.]

Senator WHITEHOUSE. Let me just also single out our original author, Senator Crapo, Mike Crapo, who has worked long and hard on this and I think deserves considerable credit for placing us where we are today.

I would make two points very briefly. One is that carbon-free power has value. We need to support it. We need to be a part of the innovation and leadership around the world on developing nuclear power. Our Russian and Chinese rivals are busily using our technology and trying to propagate it around the world as their innovation. In fact, it is ours, and we should continue to be leading innovators in this country.

Second, and perhaps the thing that means the most to me in all of this, is that we presently have a nuclear waste stockpile that we have no idea what to do with. We have been at loggerheads and have done nothing about it for years and years and years and years and years now.

There is a possibility, indeed, it is not the first generation of new technology, but it is the next generation of new technology. It is not operative yet, but it is in the planning phase, and it is in the discussion phase. It is technology that would allow our existing stockpile of nuclear waste to be turned into productive fuel without the proliferation problems of reprocessing.

If we can get there, we will have done this country and the world a vital public service. One of the problems around here is that very often our accounting doesn't add up to reality. Right now, if we were a corporation, the liability to the United States of America of all that fossil fuel waste sitting around our nuclear plants with no plan for its disposal, with immense costs that will last for mil-

lennia, that would be a huge liability on the company's books, and the company, as a consequence, would be driven to try to find a solution.

This bill puts us in the position to move toward that solution, perhaps not with the alacrity that the full force and effect of treating the nuclear waste as the liability it is for our country would justify or suggest, but at least it puts us in the right direction.

And I will close by saying that Senator Inhofe and I have some very strong disagreements about certain things, but when one is working with Senator Inhofe together, I know of no stronger and better legislator in this building. So when we can work together, I celebrate it, and I look forward to very positive results.

Thank you.

Senator BARRASSO. Thank you, Senator Whitehouse.

Senator Capito.

Senator CAPITO. Thank you, Mr. Chairman. I want to thank the Ranking Member.

Senator Whitehouse and I are working on the Clean Air and Nuclear Safety Subcommittee, so this is a big day for us. Certainly, we passed this in the 114th, but we have made it stronger and I think more viable as we move to hopefully moving this legislation to the floor in the 115th Congress.

We have worked together. Obviously, the vote of 18 to 3 indicates that an all of the above energy policy is something that we embrace, and nuclear power needs to be and should be a part of this with the innovations that come along.

We are hearing daily, or maybe not daily, but monthly, of facilities that are having issues, financial issues, and are unable to keep functioning because of the expense and the age and relative age of the technology that exists now on our nuclear plants. So we want to make sure that with this Nuclear Energy Innovation and Modernization Act that we move forward to streamlining the approval to incenting new innovative technologies, smart technologies that are not just scientifically smart, but economically smart at the same time, maintaining that very crucial tenet that we all believe in. That is, the safety not only of those who work there, those who live in and around the facility, and those for the general public and really for the world, like Senator Whitehouse said. We need to be part of an innovative global community that is working to use nuclear power in the best possible way.

So I congratulate you as the Chairman of the Committee for moving this forward, and I look forward to a positive vote.

Thank you.

Senator BARRASSO. Thank you so much for all your help.

Senator Booker.

Senator BOOKER. I am grateful, Chairman, just to share a few words as well.

I agree with Senator Inhofe, Chairman Emeritus Inhofe on his understanding that this is actually a really, really big moment. I have been very blessed to really learn on this Committee that even though there are deep rifts in thought on a lot of the subjects of EPW, there is actually tremendous potential for us to do bipartisan work. In fact, as a new legislator, 3 and a half years in this body, I really don't know of two better experiences that I have had than



working on TSCA and working on this with my colleagues across the aisle.

This is one that from early on in my Senate career got me very charged up, because I thought that our country was not leaning in to nuclear energy like we should have, that we were causing, I think, serious problems in terms of our ability to demonstrate American power, and I use that word for multiple purposes. If we are going to lead in this globe on issues of power and purpose, nuclear has got to be one of those areas, both for leading in industry as well as leading in national security. This is such a critical space, and that is why I feel such gratitude.

On the energy side, I am really stunned that this is not a larger priority in our country. Not only the technology and the exciting technology of the future, which has made me a believer early in my Senate career, but just the mere fact right now that 20 percent of our power is being generated by nuclear energy. And for those of us, and I tread lightly on the friendship I have with Senator Inhofe, but 60 percent, 60 percent of our non-carbon producing power is nuclear energy. And for these plants to be coming offline like they do gives a severe threat to the larger goals of the United States in terms of climate change.

So there is an urgency here, and this is one time that I am proud of Congress, I am proud of the Senate and my colleagues and us coming together to meet a national urgency, step up and put together a piece of legislation that will absolutely make a difference.

We have more work to do in this space, and I know you all understand that, but to come together to work across the aisle to create something as strong as this through a bipartisan effort is really a testimony to Congress. I am proud of the work we did in the last Congress, and I am really proud of this day as well. So I want to thank all those that were involved, and I am hoping that we can continue to build on this and this is actually momentum for great things to come.

Senator BARRASSO. Thank you very much for your comments, your support, all your hard work on this.

Any other members like to make a statement?

Senator Gillibrand, yes, please.

Senator GILLIBRAND. Thank you, Mr. Chairman and Mr. Ranking Member for holding this hearing. I didn't vote in favor of the Nuclear Energy Innovation and Modernization Act because I would like to briefly address the concerns that I have with the bill and with the approach that we took.

I appreciate the time that the sponsors put into this bill and the work that they have done with me and my staff to include sections on baffle bolts and emergency planning. That was something really important to our State, and I am pleased that those two provisions are part of the bill, but my concerns deal with other parts.

As this Committee heard in testimony from Dr. Edwin Lyman of the Union of Concerned Scientists earlier this month, there are safety concerns with using the risk informed licensing for new and novel reactor designs because we can't quantify the risk of a terrorist attack or a natural disaster, which is the biggest concern we have for New York. Having Indian Point be so close to New York City, 8 million people, without any way to evacuate in the instance

of a terrorist attack or a natural disaster is what drives these concerns.

I am concerned that this leads to a reduction in the required emergency planning zone for new reactors and diminished activities to ensure the communities are prepared to respond to a radiological release. I believe that would be a serious mistake with potentially devastating consequences. I have worked for years trying to convince the NRC and the nuclear industry to do more for evacuations using the lessons learned from Fukushima and natural disasters that have occurred here in the U.S. The NRC should not move in the opposite direction.

So just as a reminder, the industry and the NRC were wrong in their assumption about the extent of the degraded baffle bolts before they inspected Indian Point Unit 2 last year and found far more degraded bolts than expected. The NRC should be guided by the most conservative assumptions when it comes to safety and security of communities located in close proximity to nuclear plants, and not, as Dr. Lyman stated in his testimony 2 weeks ago, "accept the results of paper studies on faith."

While new and novel technology may well prove to be safer than current reactor designs, we just have the responsibility to plan for the worst even as we hope for the best. I also believe that we must do more to address the decommissioning of current nuclear reactors and ensure the safe disposal of set nuclear fuel before we give the industry an expedited path for nuclear plants; and I say this because we are going to decommission Indian Point, but it is still a terror target. As long as the radioactive material stays there and doesn't have a plan for cleaning it up, it is still a very huge risk for New York City and the country.

So I hope that I can work with all of you in the future to come up with some better planning for safety, for evacuations, and for decommissioning when you do have a nuclear site like ours that is a very high terrorist risk.

Thank you.

Senator BARRASSO. Well, thank you for your comments, and thank you for helping strengthen the bill with the recommendations that you made on the other points that were incorporated. We appreciate your efforts and continue to look forward to working with you.

Immediately following today's business meeting, as we are adjourning, members of the press are invited to join the Committee's cosponsors of this bill for media availability. We will do it right down here in front of the dais.

No other concerns to be raised?

Senator WHITEHOUSE. Mr. Chairman, just very briefly. I hope that the Committee will take into sincere consideration the home State concerns of Senator Harris and Senator Gillibrand. It has been a longstanding tradition of Senate committees, and particularly this one, where there is a significant home State problem, to allow Senators to try to get some attention here in the Committee and try to help them find a resolution. It may not be an issue for everyone, but I think it is a matter of comity and an important tradition that we try to pay sincere attention to those home State concerns.

Senator BARRASSO. I appreciate the comments, and that is the intention, yes.

Senator Carper.

Senator CARPER. I would certainly concur with what Senator Whitehouse has just said. I also want to say, again, legislation that makes this kind of progress doesn't happen just because of the folks sitting on this side of the dais. We have actually a lot of witnesses come in, people we have met with from industry, environmental community, and others. Our staffs have done excellent work, and I just want to say a special thank you to all of them. Thank you.

Senator BARRASSO. Well, thanks to everyone for all your hard work in making sure that this has gotten through this staff. The bill passed today 18 to 3, certainly a sign of incredible bipartisan effort.

Thank you very much. The Committee is adjourned.

[Whereupon, at 10:37 a.m. the Committee was adjourned.]

