

**AMENDMENT TO RULES COMMITTEE PRINT 116-**

**57**

**OFFERED BY MRS. LURIA OF VIRGINIA**

Insert at the end of title XXXI the following new subtitle (and amend the table of contents accordingly):

1           **Subtitle C—Nuclear Energy**

2   **SEC. 3131. ADVANCED NUCLEAR REACTOR RESEARCH AND**  
3                           **DEVELOPMENT GOALS.**

4           (a) IN GENERAL.—Subtitle E of title IX of the En-  
5   ergy Policy Act of 2005 (42 U.S.C. 16271 et seq.) is  
6   amended by adding at the end the following:

7   **“SEC. 959A. ADVANCED NUCLEAR REACTOR RESEARCH**  
8                           **AND DEVELOPMENT GOALS.**

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

10                   “(1) ADVANCED NUCLEAR REACTOR.—The  
11           term ‘advanced nuclear reactor’ means—

12                           “(A) a nuclear fission reactor, including a  
13                           prototype plant (as defined in sections 50.2 and  
14                           52.1 of title 10, Code of Federal Regulations  
15                           (or successor regulations)), with significant im-  
16                           provements compared to the most recent gen-  
17                           eration of fission reactors, including improve-  
18                           ments such as—

- 1                   “(i) additional inherent safety fea-  
2                   tures;  
3                   “(ii) lower waste yields;  
4                   “(iii) improved fuel performance;  
5                   “(iv) increased tolerance to loss of  
6                   fuel cooling;  
7                   “(v) enhanced reliability;  
8                   “(vi) increased proliferation resist-  
9                   ance;  
10                   “(vii) increased thermal efficiency;  
11                   “(viii) reduced consumption of cooling  
12                   water;  
13                   “(ix) the ability to integrate into elec-  
14                   tric applications and nonelectric applica-  
15                   tions;  
16                   “(x) modular sizes to allow for deploy-  
17                   ment that corresponds with the demand  
18                   for electricity; or  
19                   “(xi) operational flexibility to respond  
20                   to changes in demand for electricity and to  
21                   complement integration with intermittent  
22                   renewable energy; and  
23                   “(B) a fusion reactor.

1           “(2) DEMONSTRATION PROJECT.—The term  
2           ‘demonstration project’ means an advanced nuclear  
3           reactor operated—

4                   “(A) as part of the power generation facili-  
5                   ties of an electric utility system; or

6                   “(B) in any other manner for the purpose  
7                   of demonstrating the suitability for commercial  
8                   application of the advanced nuclear reactor.

9           “(b) PURPOSE.—The purpose of this section is to di-  
10          rect the Secretary, as soon as practicable after the date  
11          of enactment of this section, to advance the research and  
12          development of domestic advanced, affordable, and clean  
13          nuclear energy by—

14                   “(1) demonstrating different advanced nuclear  
15                   reactor technologies that could be used by the pri-  
16                   vate sector to produce—

17                           “(A) emission-free power at a levelized cost  
18                           of electricity of \$60 per megawatt-hour or less;

19                           “(B) heat for community heating, indus-  
20                           trial purposes, or synthetic fuel production;

21                           “(C) remote or off-grid energy supply; or

22                           “(D) backup or mission-critical power sup-  
23                           plies;

24                   “(2) developing subgoals for nuclear energy re-  
25                   search programs that would accomplish the goals of

1 the demonstration projects carried out under sub-  
2 section (c);

3 “(3) identifying research areas that the private  
4 sector is unable or unwilling to undertake due to the  
5 cost of, or risks associated with, the research; and

6 “(4) facilitating the access of the private sec-  
7 tor—

8 “(A) to Federal research facilities and per-  
9 sonnel; and

10 “(B) to the results of research relating to  
11 civil nuclear technology funded by the Federal  
12 Government.

13 “(c) DEMONSTRATION PROJECTS.—

14 “(1) IN GENERAL.—The Secretary shall, to the  
15 maximum extent practicable—

16 “(A) complete not fewer than two ad-  
17 vanced nuclear reactor demonstration projects  
18 by not later than December 31, 2025; and

19 “(B) establish a program to demonstrate  
20 not fewer than two, and not more than five, ad-  
21 ditional operational advanced reactor designs by  
22 not later than December 31, 2035.

23 “(2) REQUIREMENTS.—In carrying out dem-  
24 onstration projects under paragraph (1), the Sec-  
25 retary shall—

1           “(A) include diversity in designs for the  
2 advanced nuclear reactors demonstrated under  
3 this section, including designs using various—

4                   “(i) primary coolants;

5                   “(ii) fuel types and compositions; and

6                   “(iii) neutron spectra;

7           “(B) seek to ensure that—

8                   “(i) the long-term cost of electricity or  
9 heat for each design to be demonstrated  
10 under this subsection is cost-competitive in  
11 the applicable market;

12                   “(ii) the selected projects can meet  
13 the deadline established in paragraph (1)  
14 to demonstrate first-of-a-kind advanced  
15 nuclear reactor technologies, for which ad-  
16 ditional information shall be considered, in-  
17 cluding—

18                           “(I) the technology readiness  
19 level of a proposed advanced nuclear  
20 reactor technology;

21                           “(II) the technical abilities and  
22 qualifications of teams desiring to  
23 partner with the Department to dem-  
24 onstrate a proposed advanced nuclear  
25 reactor technology; and

1                   “(III) the capacity to meet cost-  
2                   share requirements of the Depart-  
3                   ment;

4                   “(C) ensure that each evaluation of can-  
5                   didate technologies for the demonstration  
6                   projects is completed through an external re-  
7                   view of proposed designs, which review shall—

8                   “(i) be conducted by a panel that in-  
9                   cludes not fewer than 1 representative of  
10                  each of—

11                  “(I) an electric utility; and

12                  “(II) an entity that uses high-  
13                  temperature process heat for manu-  
14                  facturing or industrial processing,  
15                  such as a petrochemical company, a  
16                  manufacturer of metals, or a manu-  
17                  facturer of concrete; and

18                  “(ii) include a review of cost-competi-  
19                  tiveness and other value streams, together  
20                  with the technology readiness level, of each  
21                  design to be demonstrated under this sub-  
22                  section;

23                  “(D) enter into cost-sharing agreements  
24                  with partners in accordance with section 988  
25                  for the conduct of activities relating to the re-

1 search, development, and demonstration of pri-  
2 vate-sector advanced nuclear reactor designs  
3 under the program;

4 “(E) work with private sector partners to  
5 identify potential sites, including Department-  
6 owned sites, for demonstrations, as appropriate;  
7 and

8 “(F) align specific activities carried out  
9 under demonstration projects carried out under  
10 this subsection with priorities identified through  
11 direct consultations between—

12 “(i) the Department;

13 “(ii) National Laboratories;

14 “(iii) institutions of higher education;

15 “(iv) traditional end-users (such as  
16 electric utilities);

17 “(v) potential end-users of new tech-  
18 nologies (such as users of high-tempera-  
19 ture process heat for manufacturing proc-  
20 essing, including petrochemical companies,  
21 manufacturers of metals, or manufacturers  
22 of concrete); and

23 “(vi) developers of advanced nuclear  
24 reactor technology.

1           “(3) ADDITIONAL REQUIREMENTS.—In car-  
2           rying out demonstration projects under paragraph  
3           (1), the Secretary shall—

4                   “(A) identify candidate technologies that—

5                           “(i) are not developed sufficiently for  
6                           demonstration within the initial required  
7                           timeframe described in paragraph (1)(A);  
8                           but

9                                   “(ii) could be demonstrated within the  
10                                   timeframe described in paragraph (1)(B);

11                           “(B) identify technical challenges to the  
12                           candidate technologies identified in subpara-  
13                           graph (A);

14                           “(C) support near-term research and devel-  
15                           opment to address the highest-risk technical  
16                           challenges to the successful demonstration of a  
17                           selected advanced reactor technology, in accord-  
18                           ance with—

19                                   “(i) subparagraph (B); and

20                                   “(ii) the research and development ac-  
21                                   tivities under section 958;

22                           “(D) establish such technology advisory  
23                           working groups as the Secretary determines to  
24                           be appropriate to advise the Secretary regard-  
25                           ing the technical challenges identified under



1           subparagraph (B) and the scope of research  
2           and development programs to address the chal-  
3           lenges, in accordance with subparagraph (C), to  
4           be comprised of—

5                   “(i) private-sector advanced nuclear  
6                   reactor technology developers;

7                   “(ii) technical experts with respect to  
8                   the relevant technologies at institutions of  
9                   higher education; and

10                   “(iii) technical experts at the National  
11                   Laboratories.

12       “(d) GOALS.—

13               “(1) IN GENERAL.—The Secretary shall estab-  
14               lish goals for research relating to advanced nuclear  
15               reactors facilitated by the Department that support  
16               the objectives of the program for demonstration  
17               projects established under subsection (c).

18               “(2) COORDINATION.—In developing the goals  
19               under paragraph (1), the Secretary shall coordinate,  
20               on an ongoing basis, with members of private indus-  
21               try to advance the demonstration of various designs  
22               of advanced nuclear reactors.

23               “(3) REQUIREMENTS.—In developing the goals  
24               under paragraph (1), the Secretary shall ensure  
25               that—

1           “(A) research activities facilitated by the  
2 Department to meet the goals developed under  
3 this subsection are focused on key areas of nu-  
4 clear research and deployment ranging from  
5 basic science to full-design development, safety  
6 evaluation, and licensing;

7           “(B) research programs designed to meet  
8 the goals emphasize—

9                   “(i) resolving materials challenges re-  
10 lating to extreme environments, including  
11 extremely high levels of—

12                           “(I) radiation fluence;

13                           “(II) temperature;

14                           “(III) pressure; and

15                           “(IV) corrosion; and

16                   “(ii) qualification of advanced fuels;

17           “(C) activities are carried out that address  
18 near-term challenges in modeling and simula-  
19 tion to enable accelerated design and licensing;

20           “(D) related technologies, such as tech-  
21 nologies to manage, reduce, or reuse nuclear  
22 waste, are developed;

23           “(E) nuclear research infrastructure is  
24 maintained or constructed, such as—

1 “(i) currently operational research re-  
2 actors at the National Laboratories and in-  
3 stitutions of higher education;

4 “(ii) hot cell research facilities;

5 “(iii) a versatile fast neutron source;

6 and

7 “(iv) a molten salt testing facility;

8 “(F) basic knowledge of non-light water  
9 coolant physics and chemistry is improved;

10 “(G) advanced sensors and control systems  
11 are developed; and

12 “(H) advanced manufacturing and ad-  
13 vanced construction techniques and materials  
14 are investigated to reduce the cost of advanced  
15 nuclear reactors.”.

16 (b) TABLE OF CONTENTS.—The table of contents of  
17 the Energy Policy Act of 2005 (Public Law 109–58; 119  
18 Stat. 594) is amended—

19 (1) in the item relating to section 917, by strik-  
20 ing “Efficiency”;

21 (2) in the items relating to sections 957, 958,  
22 and 959, by inserting “Sec.” before “9” each place  
23 it appears; and

24 (3) by inserting after the item relating to sec-  
25 tion 959 the following:

“Sec. 959A. Advanced nuclear reactor research and development goals.”.

1 **SEC. 3132. NUCLEAR ENERGY STRATEGIC PLAN.**

2 (a) IN GENERAL.—Subtitle E of title IX of the En-  
3 ergy Policy Act of 2005 (42 U.S.C. 16271 et seq.) (as  
4 amended by section 4(a)) is amended by adding at the  
5 end the following:

6 **“SEC. 959B. NUCLEAR ENERGY STRATEGIC PLAN.**

7 “(a) IN GENERAL.—Not later than 180 days after  
8 the date of enactment of this section, the Secretary shall  
9 submit to the Committee on Energy and Natural Re-  
10 sources of the Senate and the Committees on Energy and  
11 Commerce and Science, Space, and Technology of the  
12 House of Representatives a 10-year strategic plan for the  
13 Office of Nuclear Energy of the Department, in accord-  
14 ance with this section.

15 “(b) REQUIREMENTS.—

16 “(1) COMPONENTS.—The strategic plan under  
17 this section shall designate—

18 “(A) programs that support the planned  
19 accomplishment of—

20 “(i) the goals established under sec-  
21 tion 959A; and

22 “(ii) the demonstration programs  
23 identified under subsection (c) of that sec-  
24 tion; and

25 “(B) programs that—

1                   “(i) do not support the planned ac-  
2                   complishment of demonstration programs,  
3                   or the goals, referred to in subparagraph  
4                   (A); but

5                   “(ii) are important to the mission of  
6                   the Office of Nuclear Energy, as deter-  
7                   mined by the Secretary.

8                   “(2) PROGRAM PLANNING.—In developing the  
9                   strategic plan under this section, the Secretary shall  
10                  specify expected timelines for, as applicable—

11                  “(A) the accomplishment of relevant objec-  
12                  tives under current programs of the Depart-  
13                  ment; or

14                  “(B) the commencement of new programs  
15                  to accomplish those objectives.

16                  “(c) UPDATES.—Not less frequently than once every  
17                  2 years, the Secretary shall submit to the Committee on  
18                  Energy and Natural Resources of the Senate and the  
19                  Committees on Energy and Commerce and Science, Space,  
20                  and Technology of the House of Representatives an up-  
21                  dated 10-year strategic plan in accordance with subsection  
22                  (b), which shall identify, and provide a justification for,  
23                  any major deviation from a previous strategic plan sub-  
24                  mitted under this section.”.

1 (b) TABLE OF CONTENTS.—The table of contents of  
2 the Energy Policy Act of 2005 (Public Law 109–58; 119  
3 Stat. 594) (as amended by section 4(b)(3)) is amended  
4 by inserting after the item relating to section 959A the  
5 following:

“Sec. 959B. Nuclear energy strategic plan.”.

6 **SEC. 3133. VERSATILE, REACTOR-BASED FAST NEUTRON**  
7 **SOURCE.**

8 Section 955(c)(1) of the Energy Policy Act of 2005  
9 (42 U.S.C. 16275(c)(1)) is amended—

10 (1) in the paragraph heading, by striking “MIS-  
11 SION NEED” and inserting “AUTHORIZATION”; and

12 (2) in subparagraph (A), by striking “determine  
13 the mission need” and inserting “provide”.

14 **SEC. 3134. ADVANCED NUCLEAR FUEL SECURITY PRO-**  
15 **GRAM.**

16 (a) FINDINGS.—Congress finds that—

17 (1) the national security nuclear enterprise,  
18 which supports the nuclear weapons stockpile stew-  
19 ardship and naval reactors functions of the National  
20 Nuclear Security Administration, requires a domes-  
21 tic source of low- and high-enriched uranium in ac-  
22 cordance with legal restrictions regarding foreign ob-  
23 ligations relating to the beginning stage of the nu-  
24 clear fuel cycle;

1           (2) many domestic advanced nuclear power in-  
2           dustry participants require access to high-assay, low-  
3           enriched uranium fuel for—

4                   (A) initial fuel testing;

5                   (B) operation of demonstration reactors;

6           and

7                   (C) commercial operation of advanced nu-  
8           clear reactors;

9           (3) as of the date of enactment of this Act, no  
10          domestic uranium enrichment or fuel fabrication ca-  
11          pability exists for uranium fuel enriched to greater  
12          than 5 weight percent of the uranium-235 isotope;

13          (4) a healthy commercial nuclear fuel cycle ca-  
14          pable of providing higher levels of enriched uranium  
15          would benefit—

16                   (A) the relevant national security functions  
17                   of the National Nuclear Security Administra-  
18                   tion; and

19                   (B) the domestic advanced nuclear indus-  
20                   try of the United States; and

21          (5) making limited quantities of high-assay,  
22          low-enriched uranium available from Department of  
23          Energy stockpiles of uranium would allow for initial  
24          fuel testing and demonstration of advanced nuclear  
25          reactor concepts, accelerating—

1 (A) the path to market of those concepts;

2 and

3 (B) the development of—

4 (i) a market for advanced nuclear re-  
5 actors; and

6 (ii) a resulting growing commercial  
7 nuclear fuel cycle capability.

8 (b) AMENDMENT.—

9 (1) IN GENERAL.—Subtitle E of title IX of the  
10 Energy Policy Act of 2005 (42 U.S.C. 16271 et  
11 seq.) (as amended by section 5(a)) is amended by  
12 adding at the end the following:

13 **“SEC. 960. ADVANCED NUCLEAR FUEL SECURITY PRO-**  
14 **GRAM.**

15 “(a) DEFINITIONS.—In this section:

16 “(1) HALEU TRANSPORTATION PACKAGE.—  
17 The term ‘HALEU transportation package’ means a  
18 transportation package that is suitable for trans-  
19 porting high-assay, low-enriched uranium.

20 “(2) HIGH-ASSAY, LOW-ENRICHED URANIUM.—  
21 The term ‘high-assay, low-enriched uranium’ means  
22 uranium with an assay greater than 5 weight per-  
23 cent, but less than 20 weight percent, of the ura-  
24 nium-235 isotope.



1           “(3) HIGH-ENRICHED URANIUM.—The term  
2           ‘high-enriched uranium’ means uranium with an  
3           assay of 20 weight percent or more of the uranium-  
4           235 isotope.

5           “(b) HIGH-ASSAY, LOW-ENRICHED URANIUM PRO-  
6           GRAM FOR ADVANCED REACTORS.—

7           “(1) ESTABLISHMENT.—Not later than 1 year  
8           after the date of enactment of this section, the Sec-  
9           retary shall establish a program to make available  
10          high-assay, low-enriched uranium, through contracts  
11          for sale, resale, transfer, or lease, for use in com-  
12          mercial or noncommercial advanced nuclear reactors.

13          “(2) NUCLEAR FUEL OWNERSHIP.—Each lease  
14          under this subsection shall include a provision estab-  
15          lishing that the nuclear fuel that is the subject of  
16          the lease shall remain the property of the Depart-  
17          ment, including with respect to responsibility for the  
18          final disposition of all radioactive waste created by  
19          the irradiation, processing, or purification of any  
20          leased uranium.

21          “(3) QUANTITY.—In carrying out the program  
22          under this subsection, the Secretary shall make  
23          available—

1           “(A) by December 31, 2022, high-assay,  
2           low-enriched uranium containing not less than  
3           2 metric tons of the uranium-235 isotope; and

4           “(B) by December 31, 2025, high-assay,  
5           low-enriched uranium containing not less than  
6           10 metric tons of the uranium-235 isotope (as  
7           determined including the quantities of the ura-  
8           nium-235 isotope made available before Decem-  
9           ber 31, 2022).

10          “(4) FACTORS FOR CONSIDERATION.—In car-  
11          rying out the program under this subsection, the  
12          Secretary shall take into consideration options for  
13          providing the high-assay, low-enriched uranium  
14          under this subsection from a stockpile of uranium  
15          owned by the Department (including the National  
16          Nuclear Security Administration), including—

17                 “(A) fuel that—

18                         “(i) directly meets the needs of an  
19                         end-user; but

20                         “(ii) has been previously used or fab-  
21                         ricated for another purpose;

22                 “(B) fuel that can meet the needs of an  
23                 end-user after removing radioactive or other  
24                 contaminants that resulted from a previous use  
25                 or fabrication of the fuel for research, develop-

1           ment, demonstration, or deployment activities  
2           of the Department (including activities of the  
3           National Nuclear Security Administration); and

4                   “(C) fuel from a high-enriched uranium  
5           stockpile, which can be blended with lower-  
6           assay uranium to become high-assay, low-en-  
7           riched uranium to meet the needs of an end-  
8           user.

9           “(5) LIMITATION.—The Secretary shall not  
10          barter or otherwise sell or transfer uranium in any  
11          form in exchange for services relating to the final  
12          disposition of radioactive waste from uranium that is  
13          the subject of a lease under this subsection.

14          “(6) SUNSET.—The program under this sub-  
15          section shall terminate on the earlier of—

16                   “(A) January 1, 2035; and

17                   “(B) the date on which uranium enriched  
18           up to, but not equal to, 20 weight percent can  
19           be obtained in the commercial market from do-  
20           mestic suppliers.

21          “(c) REPORT.—

22                   “(1) IN GENERAL.—Not later than 180 days  
23           after the date of enactment of this section, the Sec-  
24           retary shall submit to the appropriate committees of

1 Congress a report that describes actions proposed to  
2 be carried out by the Secretary—

3 “(A) under the program under subsection  
4 (b); or

5 “(B) otherwise to enable the commercial  
6 use of high-assay, low-enriched uranium.

7 “(2) COORDINATION AND STAKEHOLDER  
8 INPUT.—In developing the report under this sub-  
9 section, the Secretary shall seek input from—

10 “(A) the Nuclear Regulatory Commission;

11 “(B) the National Laboratories;

12 “(C) institutions of higher education;

13 “(D) a diverse group of entities operating  
14 in the nuclear energy industry; and

15 “(E) a diverse group of technology devel-  
16 opers.

17 “(3) COST AND SCHEDULE ESTIMATES.—The  
18 report under this subsection shall include estimated  
19 costs, budgets, and timeframes for enabling the use  
20 of high-assay, low-enriched uranium.

21 “(4) REQUIRED EVALUATIONS.—The report  
22 under this subsection shall evaluate—

23 “(A) the costs and actions required to es-  
24 tablish and carry out the program under sub-  
25 section (b), including with respect to—

1                   “(i) proposed preliminary terms for  
2                   the sale, resale, transfer, and leasing of  
3                   high-assay, low-enriched uranium (includ-  
4                   ing guidelines defining the roles and re-  
5                   sponsibilities between the Department and  
6                   the purchaser, transfer recipient, or les-  
7                   see); and

8                   “(ii) the potential to coordinate with  
9                   purchasers, transfer recipients, and lessees  
10                  regarding—

11                                 “(I) fuel fabrication; and

12                                 “(II) fuel transport;

13                   “(B) the potential sources and fuel forms  
14                   available to provide uranium for the program  
15                   under subsection (b);

16                   “(C) options to coordinate the program  
17                   under subsection (b) with the operation of the  
18                   versatile, reactor-based fast neutron source  
19                   under section 959A;

20                   “(D) the ability of the domestic uranium  
21                   market to provide materials for advanced nu-  
22                   clear reactor fuel; and

23                   “(E) any associated legal, regulatory, and  
24                   policy issues that should be addressed to en-  
25                   able—

1 “(i) the program under subsection (b);

2 and

3 “(ii) the establishment of a domestic  
4 industry capable of providing high-assay,  
5 low-enriched uranium for commercial and  
6 noncommercial purposes, including with re-  
7 spect to the needs of—

8 “(I) the Department;

9 “(II) the Department of Defense;

10 and

11 “(III) the National Nuclear Se-  
12 curity Administration.

13 “(d) HALEU TRANSPORTATION PACKAGE RE-  
14 SEARCH PROGRAM.—

15 “(1) IN GENERAL.—As soon as practicable  
16 after the date of enactment of this section, the Sec-  
17 retary shall establish a research, development, and  
18 demonstration program under which the Secretary  
19 shall provide grants, on a competitive basis, to es-  
20 tablish the capability to transport high-assay, low-  
21 enriched uranium.

22 “(2) REQUIREMENT.—The focus of the pro-  
23 gram under this subsection shall be to establish one  
24 or more HALEU transportation packages that can  
25 be certified by the Nuclear Regulatory Commission

1 to transport high-assay, low-enriched uranium to the  
2 various facilities involved in producing or using nu-  
3 clear fuel containing high-assay, low-enriched ura-  
4 nium, such as—

5 “(A) enrichment facilities;

6 “(B) fuel processing facilities;

7 “(C) fuel fabrication facilities; and

8 “(D) nuclear reactors.”.

9 (2) TABLE OF CONTENTS.—The table of con-  
10 tents of the Energy Policy Act of 2005 (Public Law  
11 109–58; 119 Stat. 594) (as amended by section  
12 5(b)) is amended by inserting after the item relating  
13 to section 959B the following:

“Sec. 960. Advanced nuclear fuel security program.”.

14 **SEC. 3135. UNIVERSITY NUCLEAR LEADERSHIP PROGRAM.**

15 (a) FINDINGS.—Congress finds that—

16 (1) nuclear power plants—

17 (A) generate billions of dollars in national  
18 economic activity through procurements  
19 throughout the United States; and

20 (B) provide tens of thousands of people in  
21 the United States with high-paying jobs, con-  
22 tributing substantially to the local economies of  
23 the communities in which the plants operate;

24 (2) the world market for the growth of commer-  
25 cial nuclear power was estimated by the Department

1 of Commerce to be valued at up to  
2 \$740,000,000,000 during the period of calendar  
3 years 2018 through 2028;

4 (3) the participation and leadership of the  
5 United States in the market described in paragraph  
6 (2) will—

7 (A)(i) increase economic activity in the  
8 United States through robust nuclear exports,  
9 leading to the enhanced economic security of  
10 the United States; and

11 (ii) preserve and enhance the ability of the  
12 United States to positively influence inter-  
13 national nuclear safety, security, and non-  
14 proliferation standards through commercial en-  
15 gagement with other nations; but

16 (B) require significant investment in  
17 United States-origin advanced nuclear tech-  
18 nologies;

19 (4) in order to lead the world in the next gen-  
20 eration of commercial nuclear power, the advanced  
21 nuclear industry in the United States should be posi-  
22 tioned for accelerated growth, which requires public-  
23 private partnerships between industry entities and  
24 the Federal Government;



1           (5) success in achieving the goals described in  
2           this subsection will require a whole-government Fed-  
3           eral approach that focuses on the shared needs and  
4           individual mission requirements of, at a minimum—

5                       (A) the Department of Energy;

6                       (B) the National Nuclear Security Admin-  
7           istration; and

8                       (C) the Nuclear Regulatory Commission;

9           (6) advanced reactors present new challenges  
10          and opportunities in reactor design, safeguards, and  
11          regulation;

12          (7) the challenges referred to in paragraph  
13          (6)—

14                       (A) are directly relevant to the missions  
15          of—

16                               (i) the Office of Nuclear Energy of  
17                               the Department of Energy;

18                               (ii) the National Nuclear Security Ad-  
19                               ministration; and

20                               (iii) the Nuclear Regulatory Commis-  
21                               sion; and

22                       (B) require a highly skilled workforce in  
23          order to be met; and

1           (8) nuclear science and engineering programs  
2           at institutions of higher education in the United  
3           States—

4                   (A) annually award degrees in nuclear en-  
5                   gineering and related fields to more than 600  
6                   undergraduate students, and 500 graduate stu-  
7                   dents, who are critical to maintaining United  
8                   States leadership in the development of ad-  
9                   vanced nuclear systems;

10                   (B) perform cutting-edge research and  
11                   technology development activities that have  
12                   made fundamental contributions to advancing  
13                   United States nuclear technology; and

14                   (C) support workforce development critical  
15                   to maintaining United States leadership in nu-  
16                   clear detection, nonproliferation, nuclear medi-  
17                   cine, advanced manufacturing, and other non-  
18                   energy areas.

19           (b) AMENDMENT.—Section 313 of the Energy and  
20           Water Development and Related Agencies Appropriations  
21           Act, 2009 (42 U.S.C. 16274a), is amended to read as fol-  
22           lows:

23           **“SEC. 313. UNIVERSITY NUCLEAR LEADERSHIP PROGRAM.**

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

1           “(1) ADVANCED NUCLEAR REACTOR.—The  
2           term ‘advanced nuclear reactor’ means—

3                   “(A) a nuclear fission reactor, including a  
4                   prototype plant (as defined in sections 50.2 and  
5                   52.1 of title 10, Code of Federal Regulations  
6                   (or successor regulations)), with significant im-  
7                   provements compared to the most recent gen-  
8                   eration of fission reactors, including improve-  
9                   ments such as—

10                           “(i) additional inherent safety fea-  
11                           tures;

12                           “(ii) lower waste yields;

13                           “(iii) improved fuel performance;

14                           “(iv) increased tolerance to loss of  
15                           fuel cooling;

16                           “(v) enhanced reliability;

17                           “(vi) increased proliferation resist-  
18                           ance;

19                           “(vii) increased thermal efficiency;

20                           “(viii) reduced consumption of cooling  
21                           water;

22                           “(ix) the ability to integrate into elec-  
23                           tric applications and nonelectric applica-  
24                           tions;

1                   “(x) modular sizes to allow for deploy-  
2                   ment that corresponds with the demand  
3                   for electricity; or

4                   “(xi) operational flexibility to respond  
5                   to changes in demand for electricity and to  
6                   complement integration with intermittent  
7                   renewable energy; and

8                   “(B) a fusion reactor.

9                   “(2) INSTITUTION OF HIGHER EDUCATION.—

10                  The term ‘institution of higher education’ has the  
11                  meaning given the term in section 101(a) of the  
12                  Higher Education Act of 1965 (20 U.S.C. 1001(a)).

13                  “(3) PROGRAM.—The term ‘Program’ means  
14                  the University Nuclear Leadership Program estab-  
15                  lished under subsection (b).

16                  “(b) ESTABLISHMENT.—The Secretary of Energy,  
17                  the Administrator of the National Nuclear Security Ad-  
18                  ministration, and the Chairman of the Nuclear Regulatory  
19                  Commission shall jointly establish a program, to be known  
20                  as the ‘University Nuclear Leadership Program’.

21                  “(c) USE OF FUNDS.—

22                  “(1) IN GENERAL.—Except as provided in para-  
23                  graph (2), amounts made available to carry out the  
24                  Program shall be used to provide financial assistance  
25                  for scholarships, fellowships, and research and devel-

1       opment projects at institutions of higher education  
2       in areas relevant to the programmatic mission of the  
3       applicable Federal agency providing the financial as-  
4       sistance with respect to research, development, dem-  
5       onstration, and deployment activities for technologies  
6       relevant to advanced nuclear reactors, including rel-  
7       evant fuel cycle technologies.

8               “(2) EXCEPTION.—Notwithstanding paragraph  
9       (1), amounts made available to carry out the Pro-  
10      gram may be used to provide financial assistance for  
11      a scholarship, fellowship, or multiyear research and  
12      development project that does not align directly with  
13      a programmatic mission of the applicable Federal  
14      agency providing the financial assistance, if the ac-  
15      tivity for which assistance is provided would facili-  
16      tate the maintenance of the discipline of nuclear  
17      science or nuclear engineering.

18           “(d) AUTHORIZATION OF APPROPRIATIONS.—There  
19      are authorized to be appropriated such sums as are nec-  
20      essary to carry out the Program.”.

