

117TH CONGRESS
2D SESSION

S. 3428

AN ACT

To require the Secretary of Energy to establish a Nuclear Fuel Security Program, expand the American Assured Fuel Supply Program, and submit a report on a civil nuclear credit program, and for other purposes.

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

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Fission for the Future
3 Act”.

4 **SEC. 2. U.S. NUCLEAR FUELS SECURITY INITIATIVE.**

5 (a) SENSE OF CONGRESS.—It is the sense of Con-
6 gress that—

7 (1) the Department should—

8 (A) prioritize activities to increase domes-
9 tic production of low-enriched uranium; and

10 (B) accelerate efforts to establish a domes-
11 tic high-assay, low-enriched uranium enrich-
12 ment capability; and

13 (2) if domestic enrichment of high-assay, low-
14 enriched uranium will not be commercially available
15 at the scale needed in time to meet the needs of the
16 advanced nuclear reactor demonstration projects of
17 the Department, the Secretary shall consider and
18 implement, as necessary—

19 (A) all viable options to make high-assay,
20 low-enriched uranium produced from inven-
21 tories owned by the Department available in a
22 manner that is sufficient to maximize the po-
23 tential for the Department to meet the needs
24 and schedules of advanced nuclear reactor de-
25 velopers, without impacting existing Depart-
26 ment missions, until such time that commercial

1 enrichment and deconversion capability for
2 high-assay, low-enriched uranium exists at a
3 scale sufficient to meet future needs; and

4 (B) all viable options for partnering with
5 countries that are allies or partners of the
6 United States to meet those needs and sched-
7 ules until that time.

8 (b) OBJECTIVES.—The objectives of this section
9 are—

10 (1) to expeditiously increase domestic produc-
11 tion of low-enriched uranium;

12 (2) to expeditiously increase domestic produc-
13 tion of high-assay, low-enriched uranium by an an-
14 nual quantity, and in such form, determined by the
15 Secretary to be sufficient to meet the needs of—

16 (A) advanced nuclear reactor developers;
17 and

18 (B) the consortium;

19 (3) to ensure the availability of domestically
20 produced, converted, and enriched uranium in a
21 quantity determined by the Secretary, in consulta-
22 tion with U.S. nuclear energy companies, to be suffi-
23 cient to address a reasonably anticipated supply dis-
24 ruption;

1 (4) to address gaps and deficiencies in the do-
2 mestic production, conversion, enrichment,
3 deconversion, and reduction of uranium by
4 partnering with countries that are allies or partners
5 of the United States if domestic options are not
6 practicable;

7 (5) to ensure that, in the event of a supply dis-
8 ruption in the nuclear fuel market, a reserve of nu-
9 clear fuels is available to serve as a backup supply
10 to support the nuclear nonproliferation and civil nu-
11 clear energy objectives of the Department;

12 (6) to support enrichment, deconversion, and
13 reduction technology deployed in the United States;
14 and

15 (7) to ensure that, until such time that domes-
16 tic enrichment and deconversion of high-assay, low-
17 enriched uranium is commercially available at the
18 scale needed to meet the needs of advanced nuclear
19 reactor developers, the Secretary considers and im-
20 plements, as necessary—

21 (A) all viable options to make high-assay,
22 low-enriched uranium produced from inven-
23 tories owned by the Department available in a
24 manner that is sufficient to maximize the po-
25 tential for the Department to meet the needs

1 and schedules of advanced nuclear reactor de-
2 velopers; and

3 (B) all viable options for partnering with
4 countries that are allies or partners of the
5 United States to meet those needs and sched-
6 ules.

7 (c) DEFINITIONS.—In this section:

8 (1) ADVANCED NUCLEAR REACTOR.—The term
9 “advanced nuclear reactor” has the meaning given
10 the term in section 951(b) of the Energy Policy Act
11 of 2005 (42 U.S.C. 16271(b)).

12 (2) ASSOCIATED ENTITY.—The term “associ-
13 ated entity” means an entity that—

14 (A) is owned, controlled, or dominated
15 by—

16 (i) the government of a country that
17 is an ally or partner of the United States;
18 or

19 (ii) an associated individual; or

20 (B) is organized under the laws of, or oth-
21 erwise subject to the jurisdiction of, a country
22 that is an ally or partner of the United States,
23 including a corporation that is incorporated in
24 such a country.

1 (3) ASSOCIATED INDIVIDUAL.—The term “asso-
2 ciated individual” means an alien who is a national
3 of a country that is an ally or partner of the United
4 States.

5 (4) CONSORTIUM.—The term “consortium”
6 means the consortium established under section
7 2001(a)(2)(F) of the Energy Act of 2020 (42 U.S.C.
8 16281(a)(2)(F)).

9 (5) DEPARTMENT.—The term “Department”
10 means the Department of Energy.

11 (6) HIGH-ASSAY, LOW-ENRICHED URANIUM;
12 HALEU.—The term “high-assay, low-enriched ura-
13 nium” or “HALEU” means high-assay low-enriched
14 uranium (as defined in section 2001(d) of the En-
15 ergy Act of 2020 (42 U.S.C. 16281(d))).

16 (7) LOW-ENRICHED URANIUM; LEU.—The term
17 “low-enriched uranium” or “LEU” means each of—

18 (A) low-enriched uranium (as defined in
19 section 3102 of the USEC Privatization Act
20 (42 U.S.C. 2297h)); and

21 (B) low-enriched uranium (as defined in
22 section 3112A(a) of that Act (42 U.S.C.
23 2297h–10a(a))).

24 (8) PROGRAMS.—The term “Programs”
25 means—

1 (A) the Nuclear Fuel Security Program es-
2 tablished under subsection (d)(1);

3 (B) the American Assured Fuel Supply
4 Program of the Department; and

5 (C) the HALEU for Advanced Nuclear Re-
6 actor Demonstration Projects Program estab-
7 lished under subsection (d)(3).

8 (9) SECRETARY.—The term “Secretary” means
9 the Secretary of Energy.

10 (10) U.S. NUCLEAR ENERGY COMPANY.—The
11 term “U.S. nuclear energy company” means a com-
12 pany that—

13 (A) is organized under the laws of, or oth-
14 erwise subject to the jurisdiction of, the United
15 States; and

16 (B) is involved in the nuclear energy indus-
17 try.

18 (d) ESTABLISHMENT AND EXPANSION OF PRO-
19 GRAMS.—The Secretary, consistent with the objectives de-
20 scribed in subsection (b), shall—

21 (1) establish a program, to be known as the
22 “Nuclear Fuel Security Program”, to increase the
23 quantity of LEU and HALEU produced by U.S. nu-
24 clear energy companies;

1 (2) expand the American Assured Fuel Supply
2 Program of the Department to ensure the avail-
3 ability of domestically produced, converted, and en-
4 riched uranium in the event of a supply disruption;
5 and

6 (3) establish a program, to be known as the
7 “HALEU for Advanced Nuclear Reactor Dem-
8 onstration Projects Program”—

9 (A) to maximize the potential for the De-
10 partment to meet the needs and schedules of
11 advanced nuclear reactor developers until such
12 time that commercial enrichment and
13 deconversion capability for HALEU exists in
14 the United States at a scale sufficient to meet
15 future needs; and

16 (B) where practicable, to partner with
17 countries that are allies or partners of the
18 United States to meet those needs and sched-
19 ules until that time.

20 (e) NUCLEAR FUEL SECURITY PROGRAM.—

21 (1) IN GENERAL.—In carrying out the Nuclear
22 Fuel Security Program, the Secretary—

23 (A) shall—

24 (i) not later than 180 days after the
25 date of enactment of this Act, enter into 2

1 or more contracts to begin acquiring not
2 less than 100 metric tons per year of LEU
3 by December 31, 2026 (or the earliest
4 operationally feasible date thereafter), to
5 ensure diverse domestic uranium mining,
6 conversion, enrichment, and deconversion
7 capacity and technologies, including new
8 capacity, among U.S. nuclear energy com-
9 panies;

10 (ii) not later than 180 days after the
11 date of enactment of this Act, enter into 2
12 or more contracts with members of the
13 consortium to begin acquiring not less than
14 20 metric tons per year of HALEU by De-
15 cember 31, 2027 (or the earliest operation-
16 ally feasible date thereafter), from U.S.
17 nuclear energy companies;

18 (iii) utilize only uranium produced,
19 converted, enriched, deconverted, and re-
20 duced in—

21 (I) the United States; or

22 (II) if domestic options are not
23 practicable, a country that is an ally
24 or partner of the United States; and

1 (iv) to the maximum extent prac-
2 ticable, ensure that the use of domestic
3 uranium utilized as a result of that pro-
4 gram does not negatively affect the eco-
5 nomic operation of nuclear reactors in the
6 United States; and

7 (B)(i) may not make commitments under
8 this subsection (including cooperative agree-
9 ments (used in accordance with section 6305 of
10 title 31, United States Code), purchase agree-
11 ments, guarantees, leases, service contracts, or
12 any other type of commitment) for the purchase
13 or other acquisition of HALEU or LEU un-
14 less—

15 (I) funds are specifically provided for
16 those purposes in advance in appropria-
17 tions Acts enacted after the date of enact-
18 ment of this Act; or

19 (II) the commitment is funded en-
20 tirely by funds made available to the Sec-
21 retary from the account described in sub-
22 section (i)(2)(B); and

23 (ii) may make a commitment described in
24 clause (i) only—

1 (I) if the full extent of the anticipated
2 costs stemming from the commitment is
3 recorded as an obligation at the time that
4 the commitment is made; and

5 (II) to the extent of that up-front ob-
6 ligation recorded in full at that time.

7 (2) CONSIDERATIONS.—In carrying out para-
8 graph (1)(A)(ii), the Secretary shall consider and, if
9 appropriate, implement—

10 (A) options to ensure the quickest avail-
11 ability of commercially enriched HALEU, in-
12 cluding—

13 (i) partnerships between 2 or more
14 commercial enrichers; and

15 (ii) utilization of up to 10-percent en-
16 riched uranium as feedstock in demonstra-
17 tion-scale or commercial HALEU enrich-
18 ment facilities;

19 (B) options to partner with countries that
20 are allies or partners of the United States to
21 provide LEU and HALEU for commercial pur-
22 poses;

23 (C) options that provide for an array of
24 HALEU—

25 (i) enrichment levels;

1 (ii) output levels to meet demand; and

2 (iii) fuel forms, including uranium

3 metal and oxide; and

4 (D) options—

5 (i) to replenish, as necessary, Depart-

6 ment stockpiles of uranium that was in-

7 tended to be downblended for other pur-

8 poses, but was instead used in carrying out

9 activities under the HALEU for Advanced

10 Nuclear Reactor Demonstration Projects

11 Program;

12 (ii) to continue supplying HALEU to

13 meet the needs of the recipients of an

14 award made pursuant to the funding op-

15 portunity announcement of the Depart-

16 ment numbered DE-FOA-0002271 for

17 Pathway 1, Advanced Reactor Demonstra-

18 tions; and

19 (iii) to make HALEU available to

20 other advanced nuclear reactor developers

21 and other end-users.

22 (3) AVOIDANCE OF MARKET DISRUPTIONS.—In

23 carrying out the Nuclear Fuel Security Program, the

24 Secretary, to the extent practicable and consistent

25 with the purposes of that program, shall not disrupt

1 or replace market mechanisms by competing with
2 U.S. nuclear energy companies.

3 (f) EXPANSION OF THE AMERICAN ASSURED FUEL
4 SUPPLY PROGRAM.—The Secretary, in consultation with
5 U.S. nuclear energy companies, shall—

6 (1) expand the American Assured Fuel Supply
7 Program of the Department by merging the oper-
8 ations of the Uranium Reserve Program of the De-
9 partment with the American Assured Fuel Supply
10 Program; and

11 (2) in carrying out the American Assured Fuel
12 Supply Program of the Department, as expanded
13 under paragraph (1)—

14 (A) maintain, replenish, diversify, or in-
15 crease the quantity of uranium made available
16 by that program in a manner determined by the
17 Secretary to be consistent with the purposes of
18 that program and the objectives described in
19 subsection (b);

20 (B) utilize only uranium produced, con-
21 verted, and enriched in—

22 (i) the United States; or

23 (ii) if domestic options are not prac-
24 ticable, a country that is an ally or partner
25 of the United States;

1 (C) make uranium available from the
2 American Assured Fuel Supply, subject to
3 terms and conditions determined by the Sec-
4 retary to be reasonable and appropriate;

5 (D) refill and expand the supply of ura-
6 nium in the American Assured Fuel Supply, in-
7 cluding by maintaining a limited reserve of ura-
8 nium to address a potential event in which a
9 domestic or foreign recipient of uranium experi-
10 ences a supply disruption for which uranium
11 cannot be obtained through normal market
12 mechanisms or under normal market conditions;
13 and

14 (E) take other actions that the Secretary
15 determines to be necessary or appropriate to
16 address the purposes of that program and the
17 objectives described in subsection (b).

18 (g) HALEU FOR ADVANCED NUCLEAR REACTOR
19 DEMONSTRATION PROJECTS PROGRAM.—

20 (1) ACTIVITIES.—On enactment of this Act, the
21 Secretary shall immediately accelerate and, as nec-
22 essary, initiate activities to make available from in-
23 ventories or stockpiles owned by the Department and
24 made available to the consortium, HALEU for use
25 in advanced nuclear reactors that cannot operate on

1 uranium with lower enrichment levels or on alternate
2 fuels, with priority given to the awards made pursu-
3 ant to the funding opportunity announcement of the
4 Department numbered DE-FOA-0002271 for Path-
5 way 1, Advanced Reactor Demonstrations, with ad-
6 ditional HALEU to be made available to other ad-
7 vanced nuclear reactor developers, as the Secretary
8 determines to be appropriate.

9 (2) QUANTITY.—In carrying out activities
10 under this subsection, the Secretary shall consider
11 and implement, as necessary, all viable options to
12 make HALEU available in quantities sufficient to
13 maximize the potential for the Department to meet
14 the needs and schedules of advanced nuclear reactor
15 developers, including by seeking to make available—

16 (A) by September 30, 2024, not less than
17 3 metric tons of HALEU;

18 (B) by December 31, 2025, not less than
19 an additional 8 metric tons of HALEU; and

20 (C) by June 30, 2026, not less than an ad-
21 ditional 10 metric tons of HALEU.

22 (3) FACTORS FOR CONSIDERATION.—In car-
23 rying out activities under this subsection, the Sec-
24 retary shall take into consideration—

1 (A) options for providing HALEU from a
2 stockpile of uranium owned by the Department,
3 including—

4 (i) uranium that has been declared ex-
5 cess to national security needs during or
6 prior to fiscal year 2022;

7 (ii) uranium that—

8 (I) directly meets the needs of
9 advanced nuclear reactor developers;
10 but

11 (II) has been previously used or
12 fabricated for another purpose;

13 (iii) uranium that can meet the needs
14 of advanced nuclear reactor developers
15 after removing radioactive or other con-
16 taminants that resulted from previous use
17 or fabrication of the fuel for research, de-
18 velopment, demonstration, or deployment
19 activities of the Department, including ac-
20 tivities that reduce the environmental li-
21 ability of the Department by accelerating
22 the processing of uranium from stockpiles
23 designated as waste;

24 (iv) uranium from a high-enriched
25 uranium stockpile, which can be blended

1 with lower assay uranium to become
2 HALEU to meet the needs of advanced
3 nuclear reactor developers; and

4 (v) uranium from stockpiles intended
5 for other purposes (excluding stockpiles in-
6 tended for national security needs), but for
7 which uranium could be swapped or re-
8 placed in time in such a manner that
9 would not negatively impact the missions
10 of the Department;

11 (B) options for expanding, or establishing
12 new, capabilities or infrastructure to support
13 the processing of uranium from Department in-
14 ventories;

15 (C) options for accelerating the availability
16 of HALEU from HALEU enrichment dem-
17 onstration projects of the Department;

18 (D) options for providing HALEU from
19 domestically enriched HALEU procured by the
20 Department through a competitive process pur-
21 suant to the Nuclear Fuel Security Program es-
22 tablished under subsection (d)(1);

23 (E) options to replenish, as needed, De-
24 partment stockpiles of uranium made available
25 pursuant to subparagraph (A) with domestically

1 enriched HALEU procured by the Department
2 through a competitive process pursuant to the
3 Nuclear Fuel Security Program established
4 under subsection (d)(1); and

5 (F) options that combine 1 or more of the
6 approaches described in subparagraphs (A)
7 through (E) to meet the deadlines described in
8 paragraph (2).

9 (4) LIMITATIONS.—

10 (A) CERTAIN SERVICES.—The Secretary
11 shall not barter or otherwise sell or transfer
12 uranium in any form in exchange for services
13 relating to—

14 (i) the final disposition of radioactive
15 waste from uranium that is the subject of
16 a contract for sale, resale, transfer, or
17 lease under this subsection; or

18 (ii) environmental cleanup activities.

19 (B) CERTAIN COMMITMENTS.—In carrying
20 out activities under this subsection, the Sec-
21 retary—

22 (i) may not make commitments under
23 this subsection (including cooperative
24 agreements (used in accordance with sec-
25 tion 6305 of title 31, United States Code),

1 purchase agreements, guarantees, leases,
2 service contracts, or any other type of com-
3 mitment) for the purchase or other acquisi-
4 tion of HALEU or LEU unless—

5 (I) funds are specifically provided
6 for those purposes in advance in ap-
7 propriations Acts enacted after the
8 date of enactment of this Act; or

9 (II) the commitment is funded
10 entirely by funds made available to
11 the Secretary from the account de-
12 scribed in subsection (i)(2)(B); and

13 (ii) may make a commitment de-
14 scribed in clause (i) only—

15 (I) if the full extent of the antici-
16 pated costs stemming from the com-
17 mitment is recorded as an obligation
18 at the time that the commitment is
19 made; and

20 (II) to the extent of that up-front
21 obligation recorded in full at that
22 time.

23 (5) SUNSET.—The authority of the Secretary to
24 carry out activities under this subsection shall termi-
25 nate on the date on which the Secretary notifies

1 Congress that the HALEU needs of advanced nu-
2 clear reactor developers can be fully met by commer-
3 cial HALEU suppliers in the United States, as de-
4 termined by the Secretary, in consultation with U.S.
5 nuclear energy companies.

6 (h) DOMESTIC SOURCING CONSIDERATIONS.—

7 (1) IN GENERAL.—Except as provided in para-
8 graph (2), the Secretary may only carry out an ac-
9 tivity in connection with 1 or more of the Programs
10 if—

11 (A) the activity promotes manufacturing in
12 the United States associated with uranium sup-
13 ply chains; or

14 (B) the activity relies on resources, mate-
15 rials, or equipment developed or produced—

16 (i) in the United States; or

17 (ii) in a country that is an ally or
18 partner of the United States by—

19 (I) the government of that coun-
20 try;

21 (II) an associated entity; or

22 (III) a U.S. nuclear energy com-
23 pany.

24 (2) WAIVER.—The Secretary may waive the re-
25 quirements of paragraph (1) with respect to an ac-

1 tivity if the Secretary determines a waiver to be nec-
2 essary to achieve 1 or more of the objectives de-
3 scribed in subsection (b).

4 (i) REASONABLE COMPENSATION.—

5 (1) IN GENERAL.—In carrying out activities
6 under this section, the Secretary shall ensure that
7 any LEU and HALEU made available by the Sec-
8 retary under 1 or more of the Programs is subject
9 to reasonable compensation, taking into account the
10 fair market value of the LEU or HALEU and the
11 purposes of this section.

12 (2) AVAILABILITY OF CERTAIN FUNDS.—

13 (A) IN GENERAL.—Notwithstanding sec-
14 tion 3302(b) of title 31, United States Code,
15 revenues received by the Secretary from the
16 sale or transfer of fuel feed material acquired
17 by the Secretary pursuant to a contract entered
18 into under clause (i) or (ii) of subsection
19 (e)(1)(A) shall—

20 (i) be deposited in the account de-
21 scribed in subparagraph (B);

22 (ii) be available to the Secretary for
23 carrying out the purposes of this section,
24 to reduce the need for further appropria-
25 tions for those purposes; and

1 (iii) remain available until expended.

2 (B) REVOLVING FUND.—There is estab-
3 lished in the Treasury an account into which
4 the revenues described in subparagraph (A)
5 shall be—

6 (i) deposited in accordance with clause
7 (i) of that subparagraph; and

8 (ii) made available in accordance with
9 clauses (ii) and (iii) of that subparagraph.

10 (j) NUCLEAR REGULATORY COMMISSION.—The Nu-
11 clear Regulatory Commission shall prioritize and expedite
12 consideration of any action related to the Programs to the
13 extent permitted under the Atomic Energy Act of 1954
14 (42 U.S.C. 2011 et seq.) and related statutes.

15 (k) USEC PRIVATIZATION ACT.—The requirements
16 of section 3112 of the USEC Privatization Act (42 U.S.C.
17 2297h–10) shall not apply to activities related to the Pro-
18 grams.

19 (l) NATIONAL SECURITY NEEDS.—The Secretary
20 shall only make available to a member of the consortium
21 under this section for commercial use or use in a dem-
22 onstration project material that the President has deter-
23 mined is not necessary for national security needs, subject
24 to the condition that the material made available shall not
25 include any material that the Secretary determines to be

1 necessary for the National Nuclear Security Administra-
2 tion or any critical mission of the Department.

3 (m) INTERNATIONAL AGREEMENTS.—This section
4 shall be applied in a manner consistent with the obliga-
5 tions of the United States under international agreements.

6 **SEC. 3. REPORT ON CIVIL NUCLEAR CREDIT PROGRAM.**

7 Not later than 180 days after the date of enactment
8 of this Act, the Secretary of Energy shall submit to the
9 appropriate committees of Congress a report that identi-
10 fies the anticipated funding requirements for the civil nu-
11 clear credit program described in section 40323 of the In-
12 frastructure Investment and Jobs Act (42 U.S.C. 18753),
13 taking into account—

14 (1) the zero-emission nuclear power production
15 credit authorized by section 45U of the Internal
16 Revenue Code of 1986; and

17 (2) any increased fuel costs associated with the
18 use of domestic fuel that may arise from the imple-
19 mentation of that program.

Passed the Senate December 22, 2022.

Attest:

Secretary.

117TH CONGRESS
2^D SESSION

S. 3428

AN ACT

To require the Secretary of Energy to establish a Nuclear Fuel Security Program, expand the American Assured Fuel Supply Program, and submit a report on a civil nuclear credit program, and for other purposes.