

117TH CONGRESS
2D SESSION

S. 4066

To amend the Energy Act of 2020 to require the Secretary of Energy to establish a program to accelerate the availability of commercially produced high-assay, low-enriched uranium in the United States and to make high-assay, low-enriched uranium produced from Department of Energy inventories available for use in advanced nuclear reactors, and for other purposes.

IN THE SENATE OF THE UNITED STATES

APRIL 7, 2022

Mr. BARRASSO introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

A BILL

To amend the Energy Act of 2020 to require the Secretary of Energy to establish a program to accelerate the availability of commercially produced high-assay, low-enriched uranium in the United States and to make high-assay, low-enriched uranium produced from Department of Energy inventories available for use in advanced nuclear reactors, 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 “Fueling Our Nuclear
3 Future Act of 2022”.

4 **SEC. 2. SENSE OF CONGRESS.**

5 It is the sense of Congress that—

6 (1) the Department of Energy (referred to in
7 this section as the “Department”) should prioritize
8 activities to establish a domestic high-assay, low-en-
9 riched uranium (referred to in this section as
10 “HALEU”) enrichment capability, consistent with
11 subsection (c) of section 2001 of the Energy Act of
12 2020 (42 U.S.C. 16281);

13 (2) domestic HALEU enrichment will not be
14 commercially available at the scale needed in time to
15 meet the needs of advanced nuclear reactor dem-
16 onstration projects; and

17 (3) the Department needs to make available
18 HALEU, produced from inventories owned by the
19 Department, for use by advanced nuclear reactors
20 consistent with subsection (d) of section 2001 of the
21 Energy Act of 2020 (42 U.S.C. 16281), until such
22 time as commercial HALEU enrichment capability
23 exists consistent with that subsection.

24 **SEC. 3. HALEU FOR ADVANCED NUCLEAR REACTORS.**

25 Section 2001 of the Energy Act of 2020 (42 U.S.C.
26 16281) is amended—

1 (1) in subsection (a)—

2 (A) in paragraph (2)—

3 (i) in subparagraph (D)—

4 (I) in clause (v)(III), by adding

5 “or” after the semicolon at the end;

6 (II) by striking clause (vi); and

7 (III) by redesignating clause (vii)

8 as clause (vi);

9 (ii) in subparagraph (E), by striking

10 “for domestic commercial use” and insert-

11 ing “to meet the needs of commercial, gov-

12 ernment, academic, and international enti-

13 ties”; and

14 (iii) in subparagraph (I), by inserting

15 “nuclear” after “advanced”;

16 (B) in paragraph (5), in the paragraph

17 heading, by striking “HA-LEU” and inserting

18 “HALEU”; and

19 (C) by redesignating paragraphs (6) and

20 (7) as paragraphs (8) and (6), respectively, and

21 moving the paragraphs so as to appear in nu-

22 merical order;

23 (2) in subsection (b)(2)—

24 (A) in the paragraph heading, by striking

25 “HA-LEU” and inserting “HALEU”;

1 (B) by striking “subsection (a)(1)” each
 2 place it appears and inserting “subsection
 3 (b)(1)”;

4 (C) in subparagraph (B)(viii), by striking
 5 “subsection (a)(2)(F)” and inserting “sub-
 6 section (b)(2)(F)”;

7 (D) in subparagraph (D)(vi), by striking
 8 “subsection (a)(2)(A)” and inserting “sub-
 9 section (b)(2)(A)”;
 10 (3) in subsection (c)—

11 (A) by redesignating paragraphs (1)
 12 through (5) as subparagraphs (A) through (E),
 13 respectively, and indenting appropriately; and

14 (B) in the matter preceding subparagraph
 15 (A) (as so redesignated)—

16 (i) by striking “in this section” and
 17 inserting “under this subsection”; and

18 (ii) by striking “There are” and in-
 19 serting the following:

20 “(7) AUTHORIZATION OF APPROPRIATIONS.—
 21 There are”;

22 (4) in subsection (d)—

23 (A) in paragraph (4)—

24 (i) in the paragraph heading, by strik-
 25 ing “HIGH-ASSAY LOW-ENRICHED” and in-

1 serting “HIGH-ASSAY, LOW-ENRICHED”;

2 and

3 (ii) by striking “high-assay low-en-
4 riched” and inserting “high-assay, low-en-
5 riched”;

6 (B) by redesignating paragraphs (1)
7 through (6) as paragraphs (3), (4), (6), (7),
8 (8), and (9), respectively;

9 (C) by inserting before paragraph (3) (as
10 so redesignated) the following:

11 “(1) ADVANCED NUCLEAR REACTOR.—The
12 term ‘advanced nuclear reactor’ has the meaning
13 given the term in section 951(b) of the Energy Pol-
14 icy Act of 2005 (42 U.S.C. 16271(b)).

15 “(2) ADVANCED NUCLEAR REACTOR END-
16 USER.—The term ‘advanced nuclear reactor end-
17 user’ means an entity seeking or receiving HALEU
18 under subsection (d)(1) for use by an advanced nu-
19 clear reactor, including—

20 “(A) the recipient of an award made pur-
21 suant to the funding opportunity announcement
22 of the Department numbered DE-FOA-
23 0002271 for Pathway 1, Advanced Reactor
24 Demonstrations; and

1 “(B) a member of the consortium estab-
 2 lished under subsection (b)(2)(F).”;

3 (D) by inserting after paragraph (4) (as so
 4 redesignated) the following:

5 “(5) DEPARTMENT.—The term ‘Department’
 6 means the Department of Energy.”; and

7 (E) by striking paragraph (6) (as so redес-
 8 igned) and inserting the following:

9 “(6) HALEU.—The term ‘HALEU’ means
 10 high-assay, low-enriched uranium.”;

11 (5) by striking “HA–LEU” each place it ap-
 12 pears and inserting “HALEU”;

13 (6) by moving paragraph (7) of subsection (c)
 14 (as designated by paragraph (3)(B)(ii)) so as to ap-
 15 pear after paragraph (6) of subsection (a) (as redес-
 16 igned by paragraph (1)(C));

17 (7) by striking subsection (c);

18 (8) by redesignating subsections (a), (b), and
 19 (d) as subsections (b), (g), and (a), respectively, and
 20 moving the subsections so as to appear in alphabet-
 21 ical order;

22 (9) by inserting after subsection (b) (as so re-
 23 designated) the following:

24 “(c) COMMERCIAL HALEU AVAILABILITY.—

1 “(1) ESTABLISHMENT.—Not later than 30 days
2 after the date of enactment of the Fueling Our Nu-
3 clear Future Act of 2022, the Secretary, acting
4 through the Assistant Secretary for Nuclear Energy,
5 shall establish a program (referred to in this sub-
6 section as the ‘program’) to accelerate the avail-
7 ability of commercially produced HALEU in the
8 United States in accordance with this subsection.

9 “(2) PURPOSES.—The purposes of the program
10 are—

11 “(A) to provide for the availability of
12 HALEU produced, chemically converted, en-
13 riched, chemically deconverted, and suitable for
14 fabrication into final fuel form in the United
15 States;

16 “(B) to address nuclear fuel supply chain
17 gaps and deficiencies in the United States; and

18 “(C) to support strategic nuclear fuel sup-
19 ply chain capabilities in the United States.

20 “(3) CONSIDERATIONS.—In carrying out the
21 program, the Secretary shall consider and, as appro-
22 priate, execute—

23 “(A) options to establish, through a com-
24 petitive process, a domestic commercial
25 HALEU production capability of not less than

1 20 metric tons of HALEU per year, with initial
2 availability by—

3 “(i) December 31, 2027; or

4 “(ii) the earliest operationally feasible
5 date thereafter;

6 “(B) options that provide for an array of
7 HALEU—

8 “(i) enrichment levels;

9 “(ii) output levels to meet demand;

10 and

11 “(iii) fuel forms; and

12 “(C) options to establish, through a com-
13 petitive process, a HALEU Bank—

14 “(i) to replenish, as necessary, De-
15 partment stockpiles of uranium used in
16 carrying out activities under subsection
17 (d);

18 “(ii) to continue supplying HALEU to
19 meet the needs of the recipients of an
20 award made pursuant to the funding op-
21 portunity announcement of the Depart-
22 ment numbered DE-FOA-0002271 for
23 Pathway 1, Advanced Reactor Demonstra-
24 tions; and

1 “(iii) to make HALEU available to
2 members of the consortium established
3 under subsection (b)(2)(F), after address-
4 ing the needs described in clauses (i) and
5 (ii).

6 “(4) AUTHORIZATION OF APPROPRIATIONS.—In
7 addition to amounts otherwise made available (other
8 than amounts made available under section 4(b) of
9 the Fueling Our Nuclear Future Act of 2022), there
10 is authorized to be appropriated to the Secretary to
11 carry out this subsection \$150,000,000 for each of
12 fiscal years 2023 through 2032.

13 “(d) HALEU FOR ADVANCED NUCLEAR REACTOR
14 DEMONSTRATION PROJECTS.—

15 “(1) ACTIVITIES.—On enactment of the Fuel-
16 ing Our Nuclear Future Act of 2022, the Secretary
17 shall immediately accelerate and, as necessary, ini-
18 tiate activities to make available HALEU, produced
19 from inventories owned by the Department, for use
20 by advanced nuclear reactors, with priority given to
21 the awards made pursuant to the funding oppor-
22 tunity announcement of the Department numbered
23 DE-FOA-0002271 for Pathway 1, Advanced Reac-
24 tor Demonstrations, with additional HALEU to be

1 made available to members of the consortium estab-
2 lished under subsection (b)(2)(F), as available.

3 “(2) OWNERSHIP.—HALEU made available
4 under this subsection—

5 “(A) shall remain the property of, and title
6 shall remain with, the Department; and

7 “(B) shall not be subject to the require-
8 ments of section 3112(d)(2) and 3113 of the
9 USEC Privatization Act (42 U.S.C. 2297h–
10 10(d)(2), 2297h–11).

11 “(3) QUANTITY.—In carrying out activities
12 under this subsection, the Secretary shall make
13 available—

14 “(A) by September 30, 2024, not less than
15 3 metric tons of HALEU;

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

18 “(C) by June 30, 2026, not less than an
19 additional 10 metric tons of HALEU.

20 “(4) FACTORS FOR CONSIDERATION.—In car-
21 rying out activities under this subsection, the Sec-
22 retary shall take into consideration—

23 “(A) options for providing HALEU from a
24 stockpile of uranium owned by the Department

(including the National Nuclear Security Administration), including—

“(i) fuel that—

“(I) directly meets the needs of advanced nuclear reactor end-users; but

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

“(ii) fuel that can meet the needs of advanced nuclear reactor end-users after removing radioactive or other contaminants that resulted from a previous use or fabrication of the fuel for research, development, demonstration, or deployment activities of the Department (including activities of the National Nuclear Security Administration);

“(iii) fuel from a high-enriched uranium stockpile, which can be blended with lower assay uranium to become HALEU to meet the needs of advanced nuclear reactor end-users; and

“(iv) fuel from uranium stockpiles intended for other purposes, but for which uranium could be swapped or replaced in

1 time in such a manner that would not neg-
2 atively impact the missions of the Depart-
3 ment;

4 “(B) options for providing HALEU from
5 domestically enriched HALEU procured by the
6 Department through a competitive process pur-
7 suant to the HALEU Bank established under
8 subsection (c)(3)(C); and

9 “(C) options to replenish, as needed, De-
10 partment stockpiles of uranium made available
11 pursuant to subparagraph (A) with domestically
12 enriched HALEU procured by the Department
13 through a competitive process pursuant to the
14 HALEU Bank established under subsection
15 (c)(3)(C).

16 “(5) LIMITATION.—The Secretary shall not
17 barter or otherwise sell or transfer uranium in any
18 form in exchange for services relating to—

19 “(A) the final disposition of radioactive
20 waste from uranium that is the subject of a
21 contract for sale, resale, transfer, or lease under
22 this subsection; or

23 “(B) environmental cleanup activities.

24 “(6) AUTHORIZATION OF APPROPRIATIONS.—In
25 addition to amounts otherwise made available (other

1 than amounts made available under section 4(b) of
2 the Fueling Our Nuclear Future Act of 2022), there
3 is authorized to be appropriated to the Secretary to
4 carry out this subsection \$200,000,000 for each of
5 fiscal years 2023 through 2027.

6 “(7) SUNSET.—The authority of the Secretary
7 to carry out activities under this subsection shall ter-
8 minate on the date on which the HALEU needs of
9 advanced nuclear reactor end-users can be fully met
10 by commercial HALEU suppliers in the United
11 States, as mutually agreed to by the Secretary and
12 advanced nuclear reactor end-users.

13 “(e) COST RECOVERY.—

14 “(1) IN GENERAL.—In carrying out activities
15 under subsections (c) and (d), the Secretary shall
16 ensure that any HALEU acquired, provided, or
17 made available under those subsections for advanced
18 nuclear reactor end-users is subject to cost recovery
19 in accordance with subsection (b)(2)(G).

20 “(2) AVAILABILITY OF CERTAIN FUNDS.—Not-
21 withstanding section 3302 of title 31, United States
22 Code, revenues received from the sale or transfer of
23 fuel feed material and other activities related to
24 making HALEU available pursuant to this section—

1 “(A) shall be available to the Department
2 for carrying out the purposes of this section, to
3 reduce the need for further appropriations for
4 those purposes; and

5 “(B) shall remain available until expended.

6 “(f) EXCLUSION.—In carrying out activities under
7 this section, the Secretary shall not make available, or pro-
8 vide funding for, uranium that is recovered, downblended,
9 produced, chemically converted, enriched, chemically
10 deconverted, or fabricated by an entity that—

11 “(1) is owned or controlled by the Government
12 of the Russian Federation or the Government of the
13 People’s Republic of China; or

14 “(2) is organized under the laws of, or other-
15 wise subject to the jurisdiction of, the Russian Fed-
16 eration or the People’s Republic of China.”; and

17 (10) by adding at the end the following:

18 “(h) BRIEFING.—Not later than 90 days after the
19 date of enactment of the Fueling Our Nuclear Future Act
20 of 2022, the Secretary shall provide a briefing to the Com-
21 mittee on Energy and Natural Resources of the Senate
22 and the Committee on Energy and Commerce of the
23 House of Representatives that—

24 “(1) summarizes the reports required by sub-
25 section (g);

1 “(2) summarizes the planning of the Depart-
2 ment for the storage and disposal of waste products
3 resulting from the production and use of HALEU;
4 and

5 “(3) summarizes the ability of uranium sup-
6 pliers to provide uranium for advanced nuclear reac-
7 tor fuel, including—

8 “(A) uranium that has been produced
9 prior to the date of enactment of the Fueling
10 Our Nuclear Future Act of 2022;

11 “(B) the sufficiency of existing uranium
12 production to meet the needs described in this
13 section;

14 “(C) an assessment of the countries from
15 which the United States currently imports ura-
16 nium, including the form and annual quantity;

17 “(D) the impact of increased reliance on
18 domestic uranium production, conversion, and
19 enrichment to sustain the continued operation
20 of existing nuclear reactors; and

21 “(E) the need for increased domestic ura-
22 nium production to meet the needs described
23 this section.”.

1 **SEC. 4. TRANSFER OF FUNDS FROM THE UNITED STATES**

2 **ENRICHMENT CORPORATION FUND.**

3 (a) DEFINITIONS.—In this section:

4 (1) FUND.—The term “Fund” means the
5 United States Enrichment Corporation Fund estab-
6 lished by section 1308 of the Atomic Energy Act of
7 1954 (68 Stat. 921, chapter 1073; 106 Stat. 2929)
8 (repealed by section 3116(a)(1) of the Omnibus Con-
9 solidated Rescissions and Appropriations Act of
10 1996 (Public Law 104–134; 110 Stat. 1321–349)).

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

13 (b) AUTHORIZATION OF TRANSFER OF AMOUNTS.—

14 (1) IN GENERAL.—All amounts in the Fund as
15 of the date of enactment of this Act are authorized
16 to be transferred and merged with the amounts au-
17 thorized to be appropriated to the Secretary to carry
18 out subsections (c) and (d) of section 2001 of the
19 Energy Act of 2020 (42 U.S.C. 16281).

20 (2) ALLOCATION.—Of the amounts authorized
21 to be transferred under paragraph (1)—

22 (A) 50 percent is authorized to be appro-
23 priated to carry out subsection (c) of that sec-
24 tion; and

1 (B) 50 percent is authorized to be appro-
2 priated to carry out subsection (d) of that sec-
3 tion.

4 (3) APPLICATION.—Any amounts made avail-
5 able to the Secretary under subparagraph (A) or (B)
6 of paragraph (2)—

7 (A) shall be considered to be part of the
8 amounts authorized to be appropriated to the
9 Secretary under subsection (c)(4) or (d)(6), re-
10 spectively, of section 2001 of the Energy Act of
11 2020 (42 U.S.C. 16281); and

12 (B) shall remain available until expended.

13 (c) TERMINATION OF FUND.—The Fund shall termi-
14 nate on completion of the transfer under subsection (b)(1).

○