

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.

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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

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## A BILL

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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 redesi-  
8           gnated) 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 redesi-  
16          gnated 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

1 (including the National Nuclear Security Ad-  
2 ministration), including—

3 “(i) fuel that—

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

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

9 “(ii) fuel that can meet the needs of  
10 advanced nuclear reactor end-users after  
11 removing radioactive or other contami-  
12 nants that resulted from a previous use or  
13 fabrication of the fuel for research, devel-  
14 opment, demonstration, or deployment ac-  
15 tivities of the Department (including ac-  
16 tivities of the National Nuclear Security  
17 Administration);

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

23 “(iv) fuel from uranium stockpiles in-  
24 tended for other purposes, but for which  
25 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-  
8minate 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-  
21withstanding 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).

○