

Suspend the Rules and Pass the Bill, H.R. 8674, With an Amendment

(The amendment strikes all after the enacting clause and inserts a new text)

118TH CONGRESS
2^D SESSION

H. R. 8674

To establish milestone-based development and demonstration projects relating to nuclear fuel, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 7, 2024

Mr. WILLIAMS of New York (for himself and Mr. SORENSEN) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

To establish milestone-based development and demonstration projects relating to nuclear fuel, 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,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Milestones for Ad-
5 vanced Nuclear Fuel Act”.

1 **SEC. 2. MILESTONE-BASED DEVELOPMENT AND DEM-**
2 **ONSTRATION PROJECTS.**

3 (a) MILESTONE-BASED DEVELOPMENT AND DEM-
4 ONSTRATION PROGRAM.—The Nuclear Fuel Security Act
5 of 2023 (enacted as section 3131 of subtitle C of title
6 XXXI of division C of the National Defense Authorization
7 Act for Fiscal Year 2024 (Public Law 118–31)) is amend-
8 ed—

9 (1) in subsection (d)—

10 (A) by redesignating paragraphs (8), (9),
11 and (10) as paragraphs (9), (10), and (11), re-
12 spectively; and

13 (B) by inserting after paragraph (7) the
14 following new paragraph:

15 “(8) NATIONAL LABORATORY.—The term ‘Na-
16 tional Laboratory’ has the meaning given such term
17 in section 2 of the Energy Policy Act of 2005 (42
18 U.S.C. 15801).”; and

19 (2) by adding at the end the following new sub-
20 section:

21 “(q) APPLICATION OF CERTAIN MILESTONE-BASED
22 DEVELOPMENT AND DEMONSTRATION PROJECTS.—

23 “(1) IN GENERAL.—The Secretary shall award
24 milestone-based advanced fuel cycle technologies de-
25 velopment and demonstration projects in accordance
26 with section 9005 of the Energy Act of 2020 (42

1 U.S.C. 7256c; enacted as part of title IX of division
2 Z of the Consolidated Appropriations Act, 2021) in
3 carrying out the Nuclear Fuel Security Program and
4 the HALEU for Advanced Nuclear Reactor Dem-
5 onstration Projects Program (established pursuant
6 to subsection (e), and carried out in accordance with
7 subsections (f) and (h), respectively) in the same
8 manner and to the same extent as such section 9005
9 applies to section 846(g) of the Department of En-
10 ergy Organization Act (42 U.S.C. 7256(g)).

11 “(2) PURPOSE.—In carrying out milestone-
12 based advanced fuel cycle technologies development
13 and demonstration projects referred to in paragraph
14 (1), the Secretary shall support the development and
15 demonstration of an economically competitive, nu-
16 clear fuel supply chain by not later than three years
17 after the date of the enactment of this subsection
18 that includes domestic uranium production, conver-
19 sion, enrichment, deconversion, and waste reduction
20 for advanced fuels, such as HALEU and other ad-
21 vanced nuclear reactor fuels, for the following:

22 “(A) Department research, development,
23 and demonstration projects for advanced nu-
24 clear reactors, including civilian research and
25 experimental reactors.

1 “(B) Advanced nuclear reactors.

2 “(C) Strategic radioactive and stable iso-
3 topes producers, such as energy, medical, space-
4 based heating and power, and national security
5 application, and for basic research.

6 “(D) Interagency and intra-agency part-
7 nerships and collaborations, including with the
8 National Laboratories, the Advanced Research
9 Projects Agency-Energy, the National Aero-
10 nautics and Space Administration, the Depart-
11 ment of Defense, and other relevant Federal
12 and State departments and agencies, as deter-
13 mined appropriate by the Secretary.

14 “(3) ELIGIBILITY.—Any associated entity is eli-
15 gible to participate in the projects under this sub-
16 section if the Secretary has determined such entity
17 has the necessary resources and expertise. In select-
18 ing eligible associated entities, the Secretary shall
19 select, to the maximum extent practicable, associated
20 entities that—

21 “(A) prioritize novel technologies and proc-
22 esses;

23 “(B) utilize technologies and processes
24 that reduce nonproliferation risks; and

1 “(C) leverage matching funds from non-
2 Federal sources.

3 “(4) REQUIREMENTS.—In carrying out such
4 projects, the Secretary shall consult with developers
5 of advanced nuclear reactors and owners and opera-
6 tors of electric utilities to review proposed technical
7 and financial milestones and assist in the develop-
8 ment of such milestones.

9 “(5) SELECTION.—For the associated entities
10 selected under this subsection, the following condi-
11 tions shall apply:

12 “(A) Consistent with the existing authori-
13 ties of the Department, the Secretary may ter-
14 minate an agreement with a selected associated
15 entity for cause during the performance period.

16 “(B) Support under this subsection may
17 not be used to cover any costs or reimburse-
18 ment of expenses that are covered by Federal
19 funding provided through other support, includ-
20 ing awards.

21 “(6) APPLICATIONS.—A project proposal sub-
22 mitted under this subsection shall be evaluated
23 based upon the scientific, technical, and business
24 merits of such proposal, including consideration of
25 waste management benefits, through a peer-review

1 process, which shall include reviewers with appro-
2 priate expertise from the private sector, electric utili-
3 ties, the investment community, and nuclear fuel
4 and supply chain experts.

5 “(7) PROJECT MANAGEMENT.—In carrying out
6 projects under this subsection and assessing the
7 completion of the milestones developed pursuant to
8 paragraph (4), the Secretary shall consult with nu-
9 clear fuel and supply experts representing diverse
10 perspectives and professional experiences, including
11 developers of advanced nuclear reactor owners and
12 operators of electric utilities, to ensure a complete
13 and thorough review.

14 “(8) ANNUAL BRIEFING.—As part of the an-
15 nual budget request submitted for each fiscal year,
16 the Secretary shall provide the Committee on
17 Science, Space, and Technology of the House of
18 Representatives and the Committee on Energy and
19 Natural Resources of the Senate a briefing describ-
20 ing the selected projects under this subsection dur-
21 ing the previous fiscal year, the benefits and draw-
22 backs of milestone-based projects as compared to
23 traditional project structure funding models, and les-
24 sons-learned from project operations.”.

1 (b) NUCLEAR FUEL RECYCLING AND VIABILITY TO
2 SUPPORT EXISTING AND FUTURE REACTORS.—Section
3 953 of the Energy Policy Act of 2005 (42 U.S.C. 16273)
4 is amended by adding at the end the following new sub-
5 sections:

6 “(c) MILESTONE-BASED DEMONSTRATIONS
7 PROJECTS.—The Secretary shall carry out demonstration
8 projects under this section as a milestone-based dem-
9 onstration project in the same manner and to the same
10 extent as under section 9005 of the Energy Act of 2020
11 (42 U.S.C. 7256c; enacted as part of title IX of division
12 Z of the Consolidated Appropriations Act, 2021), with pri-
13 ority placed on awarding milestone-based awards to
14 projects that increase domestic fabrication and recycling
15 capacity of spent nuclear fuel for advanced fuels.

16 “(d) REPORT.—Not later than 180 days after the
17 date of the date of the enactment of this subsection, the
18 Secretary, acting through the Assistant Secretary for Nu-
19 clear Energy, shall complete and make publicly available
20 a study that analyzes the practicability, potential benefits,
21 including relating to waste reduction through separation
22 of high- and low-level waste or utilization of transuranic
23 materials, and estimated lifecycle costs of the following:

24 “(1) Dedicated recycling facilities, and co-locat-
25 tion with other nuclear energy infrastructure, that

1 utilize spent nuclear fuel from existing nuclear reac-
2 tors and future advanced nuclear reactors into usa-
3 ble nuclear fuel for the following:

4 “(A) Commercial light water reactors.

5 “(B) Advanced nuclear reactors.

6 “(C) Space-based heating and power.

7 “(D) Research reactors.

8 “(E) Nuclear battery applications.

9 “(F) Such other applications as deter-
10 mined appropriate by the Secretary.

11 “(2) Dedicated recycling facilities, and co-loc-
12 ation with other nuclear energy infrastructure, to uti-
13 lize high-assay low-enriched uranium (HALEU) (as
14 such term is defined in section 2001(d) of the En-
15 ergy Act of 2020 (42 U.S.C. 16281(d)), or other
16 feedstocks, such as uranium and transuranic mate-
17 rials, into usable nuclear fuel for the following:

18 “(A) Commercial light water reactors.

19 “(B) Advanced nuclear reactors.

20 “(C) Space-based power.

21 “(D) Research reactors.

22 “(E) Nuclear battery applications.

23 “(F) Such other applications as deter-
24 mined appropriate by the Secretary.

1 “(3) Utilizing recycled fuel in advanced nuclear
2 reactors or existing light water reactors as compared
3 to non-recycled fuel.

4 “(4) Dedicated spent nuclear fuel reprocessing
5 facilities, and co-location with other nuclear energy
6 infrastructure, to extract certain radioactive and sta-
7 ble isotopes needed for domestic and international
8 use, including for the following:

9 “(A) Advanced nuclear reactors.

10 “(B) Medical, industrial, space-based
11 power, and nuclear battery applications.

12 “(C) Such other applications as deter-
13 mined appropriate by the Secretary.

14 “(5) Commercial associated entities acquiring
15 spent fuel from operating or shutdown reactors and
16 any contract or policy revisions that could better fa-
17 cilitate such transactions.

18 “(6) Private sector associated entities that take
19 title of spent nuclear fuel from commercial nuclear
20 reactor sites for any of the following:

21 “(A) Research or reuse.

22 “(B) Recycling.

23 “(C) Strategic radioactive or stable isotope
24 extraction.

1 “(7) Comprehensive cost-benefit analysis associ-
2 ated with spent fuel recycling, including consider-
3 ations of net reduction in spent fuel inventory, separa-
4 tion of high- and low-level waste with new storage
5 requirements, disposal of byproducts from spent fuel
6 recycling, supply chain impacts, and list of indus-
7 tries that would benefit from spent fuel recycling by-
8 products.

9 “(8) Policy, legal, or regulatory changes to sup-
10 port the safe and secure development and deploy-
11 ment of recycling and waste utilizing reactor tech-
12 nologies, and any impacts such changes would have
13 on domestic storage of spent nuclear fuel and dis-
14 posal through the recycling of spent nuclear fuel.”.