

**AMENDMENT TO RULES COMMITTEE PRINT 119-**

**33**

**OFFERED BY MR. MOORE OF NORTH CAROLINA**

At the end of subtitle B of title XVII, insert the following:

1 **SEC. 17\_\_ . STUDY ON NEW TECHNOLOGIES TO RECYCLE**  
2 **SPENT NUCLEAR FUEL.**

3 (a) **DEFINITIONS.**—In this section:

4 (1) **NATIONAL LABORATORY.**—The term “Na-  
5 tional Laboratory” has the meaning given the term  
6 in section 2 of the Energy Policy Act of 2005 (42  
7 U.S.C. 15801).

8 (2) **NUCLEAR WASTE.**—The term “nuclear  
9 waste” means spent nuclear fuel and high-level ra-  
10 dioactive waste (as defined in section 2 of the Nu-  
11 clear Waste Policy Act of 1982 (42 U.S.C. 10101)).

12 (3) **RECYCLING.**—The term “recycling” means  
13 the recovery of valuable radionuclides, including  
14 fissile materials, from nuclear waste, and any subse-  
15 quent processes, such as enrichment and fuel fab-  
16 rication, necessary for reuse in nuclear reactors or  
17 other commercial applications.

1           (4) SECRETARY.—The term “Secretary” means  
2 the Secretary of Energy.

3           (5) SPENT NUCLEAR FUEL.—The term “spent  
4 nuclear fuel” has the meaning given the term in sec-  
5 tion 2 of the Nuclear Waste Policy Act of 1982 (42  
6 U.S.C. 10101).

7           (b) STUDY.—Not later than 90 days after the date  
8 of enactment of this Act, the Secretary, acting through  
9 the Assistant Secretary for Nuclear Energy, shall carry  
10 out a study—

11           (1) to analyze the practicability, potential bene-  
12 fits, costs, and risks, including proliferation, of using  
13 dedicated recycling facilities to convert spent nuclear  
14 fuel, including spent high-assay low-enriched ura-  
15 nium fuel, into useable nuclear fuels, such as those  
16 for—

17                   (A) commercial light water reactors;

18                   (B) advanced nuclear reactors; and

19                   (C) medical, space-based, advanced-bat-  
20 tery, and other non-reactor applications, as de-  
21 termined by the Secretary;

22           (2)(A) to analyze the practicability, potential  
23 benefits, costs, and risks of recycling spent nuclear  
24 fuel, which is taken from temporary storage sites  
25 throughout the United States, and using it as fuel

1 or input for advanced nuclear reactors, existing reac-  
2 tors, or commercial applications;

3 (B) to compare such practicability, potential  
4 benefits, costs, and risks of recycling spent nuclear  
5 fuel with the practicability, potential benefits, costs,  
6 and risks of the once-through fuel cycle, including  
7 temporary and permanent storage requirements; and

8 (C) to analyze the practicability, potential bene-  
9 fits, costs, and risks of aqueous (such as PUREX  
10 and the derivatives of PUREX) recycling processes  
11 with the practicability, potential benefits, costs, and  
12 risk of non-aqueous (such as pyro-electrochemistry)  
13 recycling processes;

14 (3) to analyze the technical and economic feasi-  
15 bility of utilizing nuclear waste processing to extract  
16 certain isotopes needed for domestic and inter-  
17 national use, including medical, industrial, space-  
18 based power source, and advanced-battery applica-  
19 tions;

20 (4) to analyze the practicability, potential bene-  
21 fits, costs, risks, and potential approaches for cou-  
22 pling or collocating recycling facilities with other  
23 pertinent facilities, such as advanced nuclear reac-  
24 tors (that can use the recycled fuel), interim storage,  
25 and fuel-fabrication facilities, including through—

1 (A) relevant analyses, such as capital and  
2 operating cost estimates, public-private partner-  
3 ships to encourage investment, infrastructure  
4 requirements, timeline to full-scale commercial  
5 deployment, and distinguishing characteristics  
6 or requirements of such facilities;

7 (B) input from interested private tech-  
8 nology developers and relevant assumptions re-  
9 garding cost; and

10 (C) comparison with the practicability, po-  
11 tential benefits, costs, and risks of the once-  
12 through fuel cycle, including temporary and  
13 permanent storage requirements;

14 (5) to identify parties, including individuals,  
15 communities, businesses, and local and Tribal gov-  
16 ernments, that are impacted economically, or  
17 through health, safety, or environmental risks, by  
18 the current practice of indefinite temporary storage  
19 of spent nuclear fuel, and assess potential risks and  
20 benefits for those parties should spent nuclear fuel  
21 be removed from their sites for the purposes of nu-  
22 clear waste recycling;

23 (6) to assess different approaches for siting and  
24 sizing nuclear waste recycling facilities, including a  
25 centralized national facility, regional facilities, on-

1 site facilities where spent nuclear fuel is currently  
2 stored, and on-site facilities where newly recycled  
3 fuel can be used by an on-site reactor, and rec-  
4 ommend one or more approaches that consider envi-  
5 ronmental, transportation, infrastructure, capital,  
6 and other risks;

7 (7) to identify tracking and accountability  
8 methods for new recycled fuel and radioactive waste  
9 streams for byproducts of the recycling process;

10 (8)(A) to identify any regulatory gaps related to  
11 nuclear waste management and recycling, including  
12 accuracy and consistency of relevant definitions for  
13 radioactive waste (including “high-level radioactive  
14 waste”, “spent nuclear fuel”, “low-level radioactive  
15 waste”, “reprocessing”, “recycling”, and “vitrifica-  
16 tion”) and classifications of radioactive waste that  
17 exist in Federal law on the date of enactment of this  
18 Act;

19 (B) to compare such definitions to those used  
20 by other nations that manage radioactive waste; and

21 (C) to make recommendations for modernizing  
22 such definitions; and

23 (9) to evaluate—

24 (A) potential Federal and State-level policy  
25 changes to support development and deploy-

1           ment of recycling and waste-utilizing reactor  
2           technologies; and

3                   (B) impacts of spent nuclear fuel recycling  
4           on requirements for domestic nuclear waste  
5           storage.

6           (c) REPORT.—Not later than 1 year after the date  
7 of enactment of this Act, the Secretary, acting through  
8 the Assistant Secretary for Nuclear Energy, shall submit  
9 to the Committee on Energy and Natural Resources of  
10 the Senate, the Committee on Energy and Commerce of  
11 the House of Representatives, the Committee on Science,  
12 Space, and Technology of the House of Representatives,  
13 and the Committee on Natural Resources of the House  
14 of Representatives, a report that complies with each of the  
15 following:

16                   (1) Describes the results of the study carried  
17           out under subsection (b).

18                   (2) Is released to the public.

19                   (3) Totals not more than 120 pages (excluding  
20           Front Matter, References, and Appendices) written  
21           and formatted to facilitate review by a nonspecialist  
22           readership, including the following sections:

23                           (A) A Front Matter section that includes a  
24           cover page with identifying information, tables  
25           of contents, figures, and tables.

1 (B) An Executive Summary section.

2 (C) An Introductory section that includes a  
3 historical overview that also explains why recy-  
4 cling is not performed in the United States  
5 today, such as economic, political, or techno-  
6 logical obstacles.

7 (D) Results and Findings sections that  
8 summarize the results and findings of the study  
9 carried out under subsection (b).

10 (E) A Key Remaining Challenges and Bar-  
11 riers section that identifies key technical and  
12 nontechnical (such as economic) challenges and  
13 barriers that need to be addressed to enable  
14 scale-up and commercial adoption of spent nu-  
15 clear fuel recycling, with preference given to se-  
16 cure, proliferation resistant, environmentally  
17 safe, and economical recycling methods.

18 (F) A Policy Recommendations section  
19 that—

20 (i) lists policy recommendations to ad-  
21 dress remaining technical and nontechnical  
22 (such as economic) challenges and barriers  
23 to enable scale-up and commercial adop-  
24 tion of spent nuclear fuel recycling, includ-  
25 ing with government support;

1 (ii) contrasts the potential benefits  
2 and risks of each policy; and

3 (iii) compares benefits to current or  
4 past policies.

5 (G) An Other section in which other rel-  
6 evant information may be added.

7 (H) A References section.

8 (I) An Appendices section.

