

111TH CONGRESS  
2D SESSION

# S. 4031

To promote exploration for and development of rare earth elements in the United States, to reestablish a competitive supply chain for rare earth materials in the United States and countries that are allies of the United States, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

DECEMBER 15, 2010

Mr. BAYH (for himself and Mr. BOND) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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## A BILL

To promote exploration for and development of rare earth elements in the United States, to reestablish a competitive supply chain for rare earth materials in the United States and countries that are allies of the United States, 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       (a) SHORT TITLE.—This Act may be cited as the  
5       “Rare Earths Supply-Chain Technology and Resources  
6       Transformation Act of 2010” or the “RESTART Act”.

1 (b) TABLE OF CONTENTS.—The table of contents for  
 2 this Act is as follows:

- Sec. 1. Short title.
- Sec. 2. Findings.
- Sec. 3. Statement of policy with respect to the reestablishment of a rare earth materials supply chain in the United States and countries that are allies of the United States.
- Sec. 4. Definitions.
- Sec. 5. Actions to promote exploration for and development of rare earth elements in the United States.
- Sec. 6. Executive agents for matters related to the rare earth materials supply chain.
- Sec. 7. Assessments related to rare earth supply chain vulnerability.
- Sec. 8. Rare earth materials loan guarantee program.
- Sec. 9. Rare earth materials program.
- Sec. 10. Defense-related manufacturing of rare earth materials.
- Sec. 11. Study on cooperative development of production of and supply chain for rare earth materials in the United States.
- Sec. 12. Restrictions on use of appropriated funds.
- Sec. 13. Amendments to the National Materials and Minerals Policy, Research and Development Act of 1980.
- Sec. 14. Repeal of National Critical Materials Act of 1984.

3 **SEC. 2. FINDINGS.**

4 Congress makes the following findings:

- 5 (1) Significant quantities of rare earth elements
- 6 are used in the production of clean energy tech-
- 7 nologies, including advanced automotive propulsion
- 8 batteries, electric motors, high-efficiency light bulbs,
- 9 solar panels, and wind turbines. These technologies
- 10 are used to advance the United States energy policy
- 11 of reducing dependence on foreign oil and decreasing
- 12 greenhouse gas emissions through expansion of
- 13 cleaner sources of energy.
- 14 (2) Many modern defense technologies, such as
- 15 radar and sonar systems, precision-guided weapons,
- 16 cruise missiles, and lasers, cannot be built, as de-

1 signed and specified, without the use of rare earth  
2 elements and materials produced from them.

3 (3) Rare earth materials also provide core  
4 functionality to a variety of high technology applica-  
5 tions in computing, pollution abatement, power gen-  
6 eration, water treatment, oil refining, metal alloying,  
7 communications, health care, agriculture, and other  
8 sectors.

9 (4) Although at least 40 percent of the world's  
10 reserves of rare earth elements are located within  
11 the United States and countries that are allies of the  
12 United States, the United States now depends on  
13 imports for nearly 100 percent of its needs for rare  
14 earth materials because there are virtually no active  
15 producers of rare earth materials in the United  
16 States.

17 (5) The United States remains nearly entirely  
18 dependent on overseas refineries for elemental and  
19 alloy processing of rare earth elements and does not  
20 currently maintain a "strategic reserve" of rare  
21 earth compounds, metals, or alloys.

22 (6) By way of contrast, more than 97 percent  
23 of all rare earth materials for world consumption are  
24 produced in the People's Republic of China. The  
25 ability and willingness of China to export rare earth

1 materials is eroding due to the growing demand for  
2 such materials in China, the enforcement of environ-  
3 mental laws on current producers by the Govern-  
4 ment of China, and the mandate of the Government  
5 of China to consolidate the rare earth materials in-  
6 dustry by decreasing the number of mining permits.

7 (7) The Government of China has taken several  
8 steps recently that have caused significant perturba-  
9 tions in the market for rare earth materials. For ex-  
10 ample, the draft rare earth materials plan for 2009  
11 to 2015 of the Ministry of Industry and Information  
12 Technology of China proposed an immediate ban on  
13 the exportation of dysprosium, terbium, thulium, lu-  
14 tetium, and yttrium, the so-called “heavy” rare  
15 earth elements, and a restriction on the exportation  
16 of all other, light, rare earth metals to a level well  
17 below that sufficient to satisfy the 2008 demand of  
18 Japan alone for such metals.

19 (8) In July 2010, the Government of China de-  
20 creased the export quota allocations for rare earth  
21 oxides and metals by more than 70 percent, causing  
22 price increases of three to eight times and causing  
23 supply shortages of some materials.

24 (9) In September 2010, the Government of  
25 China reportedly restricted the exportation of all

1 rare earth oxides and metals to Japan over a diplo-  
2 matic incident.

3 (10) In October 2010, the Government of China  
4 reportedly restricted the exportation of all rare earth  
5 oxides and metals to the United States and Europe,  
6 essentially cutting off the global community from  
7 supplies of rare earth materials.

8 (11) Given that the dominance of the rare earth  
9 materials market by China has adversely impacted  
10 the stability of the supply of such materials and en-  
11 dangers the access of the United States and allies of  
12 the United States to such materials, rare earth ma-  
13 terials should qualify as materials either strategic or  
14 critical to national security.

15 (12) As such, there is an urgent need to iden-  
16 tify and assess the current global market situation  
17 with respect to rare earth materials, the strategic  
18 value placed on rare earth materials by foreign coun-  
19 tries including China, and the vulnerability of the  
20 supply chains of the Department of Defense and the  
21 domestic manufacturing industry for rare earth ele-  
22 ments and products containing rare earth elements,  
23 such as neodymium iron boron and other specialty  
24 magnets and rare earth “doped” lasers.

1           (13) The United States should facilitate the re-  
 2           establishment of a globally competitive rare earth  
 3           materials industry, in countries other than China,  
 4           with multiple sources of mining, processing, alloying,  
 5           and manufacturing to achieve self-sufficiency with  
 6           respect to the production of rare earth materials.

7           (14) That self-sufficiency requires an uninter-  
 8           rupted supply of strategic materials critical to na-  
 9           tional security and innovative commercial product  
 10          development, including with respect to rare earth  
 11          materials, to support the clean energy and defense  
 12          supply chains.

13          (15) The United States currently cannot  
 14          produce valuable rare earth materials and perma-  
 15          nent magnets. The capability to do so should be ex-  
 16          plored using appropriate research and development  
 17          projects.

18 **SEC. 3. STATEMENT OF POLICY WITH RESPECT TO THE RE-**  
 19 **ESTABLISHMENT OF A RARE EARTH MATE-**  
 20 **RIALS SUPPLY CHAIN IN THE UNITED STATES**  
 21 **AND COUNTRIES THAT ARE ALLIES OF THE**  
 22 **UNITED STATES.**

23          It is the policy of the United States—

24               (1) to take any and all actions necessary to en-  
 25          sure the reestablishment of a competitive supply

1 chain for rare earth materials in the United States  
2 and in countries that are allies of the United States;  
3 and

4 (2) that such a supply chain should include the  
5 capacity to conduct mining, refining, processing,  
6 alloying, and manufacturing operations using sup-  
7 pliers in the United States and countries that are al-  
8 lies of the United States to provide a secure source  
9 of rare earth materials as a vital component of na-  
10 tional security and economic policy.

11 **SEC. 4. DEFINITIONS.**

12 In this Act:

13 (1) ALLOY.—The term “alloy” means a partial  
14 or complete solid solution of one or more elements  
15 in a metallic matrix.

16 (2) ALLOYING.—The term “alloying” means the  
17 melting of metal to create a metallic matrix.

18 (3) CLEAN ENERGY TECHNOLOGY.—The term  
19 “clean energy technology” means a technology re-  
20 lated to the production, use, transmission, storage,  
21 control, or conservation of energy that is designed  
22 to—

23 (A) reduce the need for additional energy  
24 supplies by—

1 (i) using existing energy supplies with  
 2 greater efficiency; or

3 (ii) transmitting, distributing, or  
 4 transporting energy with greater effective-  
 5 ness through the infrastructure of a coun-  
 6 try;

7 (B) diversify the sources of the energy sup-  
 8 ply of a country—

9 (i) to strengthen energy security; and

10 (ii) to increase supplies of energy in a  
 11 manner that reflects consideration of the  
 12 environmental effects of the entire energy  
 13 supply system; or

14 (C) contribute to a stabilization of atmos-  
 15 pheric greenhouse gas concentrations through  
 16 reduction, avoidance, or sequestration of en-  
 17 ergy-related emissions.

18 (4) PROCESS.—The term “process”, in the case  
 19 of a rare earth oxide, means the conversion of the  
 20 oxide into usable rare earth metals and specialty al-  
 21 loys and powders for domestic magnet and other  
 22 manufacturing.

23 (5) RARE EARTH.—The term “rare earth”  
 24 means any of the following chemical elements in any  
 25 of their physical forms or chemical combinations:



- 1 (A) Scandium.
  - 2 (B) Yttrium.
  - 3 (C) Lanthanum.
  - 4 (D) Cerium.
  - 5 (E) Praseodymium.
  - 6 (F) Neodymium.
  - 7 (G) Promethium.
  - 8 (H) Samarium.
  - 9 (I) Europium.
  - 10 (J) Gadolinium.
  - 11 (K) Terbium.
  - 12 (L) Dysprosium.
  - 13 (M) Holmium.
  - 14 (N) Erbium.
  - 15 (O) Thulium.
  - 16 (P) Ytterbium.
  - 17 (Q) Lutetium.
- 18 (6) REFINE.—The term “refine”, in the case of  
19 a rare earth element extracted from rock, means the  
20 separation and purification of the rare earth element  
21 to commercial grades of oxides or other salts such  
22 as oxalates or chlorides.

1 **SEC. 5. ACTIONS TO PROMOTE EXPLORATION FOR AND DE-**  
2 **VELOPMENT OF RARE EARTH ELEMENTS IN**  
3 **THE UNITED STATES.**

4 (a) **POLICY.**—It is the policy of the United States  
5 that each Federal agency shall take appropriate actions,  
6 to the extent consistent with applicable law, to expedite  
7 permitting and projects that will increase exploration for,  
8 and development of, rare earth elements in the United  
9 States.

10 (b) **RARE EARTH POLICY TASK FORCE.**—

11 (1) **ESTABLISHMENT.**—There is established  
12 within the Department of the Interior a task force  
13 to be known as the “Rare Earth Policy Task Force”  
14 (in this section referred to as the “Task Force”),  
15 which shall report to the President through the Sec-  
16 retary of the Interior.

17 (2) **COMPOSITION.**—The Task Force shall be  
18 composed of the following:

19 (A) The Secretary of the Interior (or a  
20 designee), who shall serve as chair of the Task  
21 Force.

22 (B) The Secretary of Energy (or a des-  
23 ignee).

24 (C) The Secretary of Agriculture (or a des-  
25 ignee).

1 (D) The Secretary of Defense (or a des-  
2 ignee).

3 (E) The Secretary of Commerce (or a des-  
4 ignee).

5 (F) The Secretary of State (or a designee).

6 (G) The Director of the Office of Manage-  
7 ment and Budget (or a designee).

8 (H) The Chairman of the Council on Envi-  
9 ronmental Quality (or a designee).

10 (I) Such other members as the Secretary  
11 of the Interior considers appropriate.

12 (c) DUTIES.—The Task Force shall—

13 (1) monitor and assist Federal agencies in expe-  
14 diting the review and approval of permits or other  
15 actions, as necessary, to accelerate the completion of  
16 projects that will increase investment in, exploration  
17 for, and development of domestic rare earth ele-  
18 ments pursuant to the Federal Land Policy and  
19 Management Act of 1976 (43 U.S.C. 1701 et seq.),  
20 the Act of June 4, 1897 (commonly known as the  
21 “Organic Act of 1897” (16 U.S.C. 473–482, 551)),  
22 the National Forest Management Act of 1976 (16  
23 U.S.C. 1600 et seq.), and any other applicable statu-  
24 tory authorities related to domestic mining oper-  
25 ations;

1           (2) assist Federal agencies in reviewing laws  
2           (including regulations) and policies that discourage  
3           investment in, exploration for, and development of  
4           domestic rare earth elements pursuant to Federal  
5           Land Policy and Management Act of 1976, the Act  
6           of June 4, 1897, the National Forest Management  
7           Act of 1976, and any other applicable statutory au-  
8           thorities related to domestic mining operations; and

9           (3) take such other actions to otherwise in-  
10          crease investment in, exploration for, and develop-  
11          ment of domestic rare earth elements as the Task  
12          Force considers appropriate.

13          (d) ANNUAL REPORTS.—At least once each year, the  
14          Task Force shall submit to the President, the Committee  
15          on Natural Resources of the Senate, the Committee on  
16          Energy and Commerce of the House of Representatives,  
17          and the Committee on Natural Resources of the House  
18          of Representatives a report setting forth the following:

19               (1) A description of the results of the coordi-  
20               nated and expedited review of permits or other ac-  
21               tions to promote investment in, exploration for, and  
22               development of domestic rare earth elements, and an  
23               identification of the procedures and actions that  
24               have proven to be the most useful and appropriate  
25               in coordinating and expediting the review of projects

1 that will increase investment in, exploration for, and  
2 development of domestic rare earth elements.

3 (2) An identification of the substantive and pro-  
4 cedural requirements of Federal, State, tribal, and  
5 local laws (including regulations) and Executive or-  
6 ders that are inconsistent with, duplicative of, or  
7 structured so as to restrict effective implementation  
8 of the projects described in paragraph (1).

9 (3) Such recommendations as the Task Force  
10 considers appropriate to advance the policy set forth  
11 in subsection (a).

12 (e) JUDICIAL REVIEW.—

13 (1) IN GENERAL.—Nothing in this section shall  
14 be construed to affect any judicial review of an agen-  
15 cy action under any other provision of law.

16 (2) CONSTRUCTION.—This section—

17 (A) is intended to improve the internal  
18 management of the Federal Government; and

19 (B) does not create any right or benefit,  
20 substantive or procedural, enforceable at law or  
21 equity by a party against the United States (in-  
22 cluding an agency, instrumentality, officer, or  
23 employee of the United States) or any other  
24 person.

1 **SEC. 6. EXECUTIVE AGENTS FOR MATTERS RELATED TO**  
2 **THE RARE EARTH MATERIALS SUPPLY**  
3 **CHAIN.**

4 (a) ESTABLISHMENT.—Not later than 30 days after  
5 the date of the enactment of this Act, the Secretary of  
6 Commerce, the Secretary of Defense, the Secretary of En-  
7 ergy, the Secretary of the Interior, and the Secretary of  
8 State shall jointly establish an interagency working group  
9 for the purposes of reestablishing the production of, and  
10 a competitive supply chain for, rare earth materials in the  
11 United States.

12 (b) REPRESENTATIVES OF EXECUTIVE DEPART-  
13 MENTS.—

14 (1) IN GENERAL.—The Secretary of Commerce,  
15 the Secretary of Defense, the Secretary of Energy,  
16 the Secretary of the Interior, and the Secretary of  
17 State shall each appoint in the department under  
18 the jurisdiction of such Secretary an Executive  
19 Agent to serve as a representative on the inter-  
20 agency working group established under subsection  
21 (a). Each Executive Agent so appointed shall be an  
22 Assistant Secretary of the department concerned.

23 (2) DEADLINE FOR INITIAL APPOINTMENT OF  
24 REPRESENTATIVES.—The initial appointment under  
25 paragraph (1) of representatives to the interagency  
26 working group established under subsection (a) shall

1 be made not later than 30 days after the date of the  
2 enactment of this Act.

3 **SEC. 7. ASSESSMENTS RELATED TO RARE EARTH SUPPLY**  
4 **CHAIN VULNERABILITY.**

5 (a) REPORT ON RARE EARTH SUPPLY CHAIN VUL-  
6 NERABILITY.—

7 (1) IN GENERAL.—Not later than 180 days  
8 after the date of the enactment of this Act, the Sec-  
9 retary of the Interior and the Secretary of Energy  
10 shall jointly, in consultation with the Secretary of  
11 Defense, the Secretary of Commerce, the Secretary  
12 of State, and the United States Trade Representa-  
13 tive—

14 (A) conduct an assessment of the vulner-  
15 ability of the supply chain for rare earth mate-  
16 rials in the United States; and

17 (B) determine pursuant to such assess-  
18 ment which rare earth elements are critical to  
19 clean energy technologies and the national and  
20 economic security of the United States.

21 (2) SUBMITTAL TO CONGRESS.—

22 (A) IN GENERAL.—Not later than 270  
23 days after the date of the enactment of this  
24 Act, the Secretary of the Interior and the Sec-  
25 retary of Energy shall jointly submit to Con-

1           gress a report setting forth the results of the  
2           assessment and the determinations under para-  
3           graph (1).

4                   (B) FORM.—The report required by sub-  
5           paragraph (A) shall be submitted in unclassi-  
6           fied form.

7           (b) REPORT ON ESTABLISHMENT OF A RARE EARTH  
8 STOCKPILE.—Not later than one year after the date of  
9 the enactment of this Act, the Secretary of the Interior  
10 and the Secretary of Energy shall jointly, in consultation  
11 with the Secretary of Defense, the Secretary of Commerce,  
12 the Secretary of State, and the United States Trade Rep-  
13 resentative, submit to Congress a report setting forth the  
14 following:

15                   (1) A determination with respect to whether the  
16 rare earth materials determined to be critical to  
17 clean energy technologies and the national and eco-  
18 nomic security of the United States pursuant to sub-  
19 section (a)(1)(B) should be procured and placed in  
20 a stockpile.

21                   (2) A description of legal authorities required to  
22 procure and place in a stockpile the rare earth mate-  
23 rials so determined to be critical to clean energy  
24 technologies and the national and economic security  
25 of the United States.



1           (3) Recommendations on criteria and consider-  
2           ations necessary to determine the commencement  
3           and termination of the stockpiling of such materials.

4           (4) Recommendations on criteria and consider-  
5           ations with respect to the use of materials in the  
6           stockpile, such as in instances of—

7                   (A) the importation of rare earth materials  
8                   into the United States in violation of the anti-  
9                   dumping or countervailing duty provisions of  
10                  title VII of the Tariff Act of 1930 (19 U.S.C.  
11                  1671 et seq.); or

12                  (B) other violations of the WTO Agree-  
13                  ment or the agreements annexed to the WTO  
14                  Agreement by WTO member countries with re-  
15                  spect to the importation or exportation of rare  
16                  earth materials.

17           (5) An assessment of the funding required, not  
18           including the cost of the rare earth materials, to  
19           commence, operate, and terminate the stockpiling of  
20           rare earth materials.

21           (c) DEFINITIONS.—In this section:

22                   (1) AGREEMENTS ANNEXED TO THE WTO  
23                   AGREEMENT.—The term “agreements annexed to  
24                   the WTO Agreement” means the agreements re-

ferred to in section 101(d) of the Uruguay Round  
Agreements Act (19 U.S.C. 3511(d)).

(2) STOCKPILE.—The term “stockpile” means a  
strategic reserve of rare earth oxides, and storable  
forms of rare earth elements and alloys for purposes  
of clean energy technology and the national and eco-  
nomic security of the United States.

(3) WTO AGREEMENT; WTO MEMBER COUN-  
TRY.—The terms “WTO Agreement” and “WTO  
member country” have the meanings given those  
terms in section 2 of the Uruguay Round Agree-  
ments Act (19 U.S.C. 3501).

**SEC. 8. RARE EARTH MATERIALS LOAN GUARANTEE PRO-  
GRAM.**

(a) AMENDMENT.—Title XVII of the Energy Policy  
Act of 2005 (42 U.S.C. 16511 et seq.) is amended by add-  
ing at the end the following:

**“SEC. 1706. TEMPORARY PROGRAM FOR RARE EARTH MA-  
TERIALS REVITALIZATION.**

“(a) AUTHORITY OF SECRETARY.—

“(1) IN GENERAL.—Subject to the availability  
of appropriations, the Secretary may make guaran-  
tees under this title for the commercial application  
of new or significantly improved technologies (as  
compared to technologies in use in the United States

1 as of the date on which the guarantee is made) for  
2 each project category described in paragraph (2).

3 “(2) PROJECT CATEGORIES.—A project cat-  
4 egory referred to in paragraph (1) includes—

5 “(A) the separation and recovery of rare  
6 earth materials from ores or other sources;

7 “(B) the preparation of rare earth mate-  
8 rials in oxide, metal, alloy, or other forms need-  
9 ed for—

10 “(i) national security purposes;

11 “(ii) the economic well-being of the  
12 United States; or

13 “(iii) industrial production purposes;

14 “(C) the application of rare earth mate-  
15 rials in the production of improved—

16 “(i) magnets;

17 “(ii) batteries;

18 “(iii) refrigeration systems;

19 “(iv) optical systems;

20 “(v) electronics;

21 “(vi) catalysis; and

22 “(vii) applications that the Secretary  
23 determines to be necessary; and

1                   “(D) the application of rare earth mate-  
2                   rials in any other appropriate use, as deter-  
3                   mined by the Secretary.

4           “(b) TIMELINESS.—To the maximum extent prac-  
5           ticable, in a manner that is consistent with the appropriate  
6           protection of the interests of the taxpayers of the United  
7           States, the Secretary shall minimize any delay in approv-  
8           ing applications for loan guarantees under this section.

9           “(c) COOPERATION.—To the maximum extent prac-  
10          ticable, the Secretary shall cooperate with appropriate pri-  
11          vate sector participants to achieve a complete rare earth  
12          materials production capability in the United States by the  
13          date that is 5 years after the date of enactment of the  
14          Rare Earths and Critical Materials Revitalization Act of  
15          2010.

16          “(d) LIMITATIONS.—The Secretary may make a  
17          guarantee for a project described in subsection (a)(2) only  
18          if the project, due to technical or financial uncertainty, is  
19          not, as of the date of receipt of the application for the  
20          guarantee—

21                   “(1) being undertaken by the private sector; or

22                   “(2) likely to be undertaken by the private sec-  
23          tor.

1       “(e) TERMINATION OF AUTHORITY.—The authority  
2 provided by this section shall terminate on September 30,  
3 2015.”.

4       (b) TABLE OF CONTENTS AMENDMENT.—The table  
5 of contents in section 1(b) of the Energy Policy Act of  
6 2005 (Public Law 109–58; 119 Stat. 594) is amended by  
7 inserting after the item relating to section 1705 the fol-  
8 lowing:

“Sec. 1706. Temporary program for rare earth materials revitalization.”.

9       **SEC. 9. RARE EARTH MATERIALS PROGRAM.**

10       (a) DEFINITIONS.—In this section:

11               (1) INSTITUTION OF HIGHER EDUCATION.—The  
12 term “institution of higher education” has the  
13 meaning given the term in section 102 of the Higher  
14 Education Act of 1965 (20 U.S.C. 1002).

15               (2) PROGRAM.—The term “program” means a  
16 program for the research, development, demonstra-  
17 tion, and commercial application of rare earth mate-  
18 rials established by subsection (b).

19               (3) SECRETARY.—The term “Secretary” means  
20 the Secretary of Energy.

21       (b) ESTABLISHMENT.—There is established in the  
22 Department of Energy a program to ensure the long-term,  
23 secure, and sustainable supply of rare earth materials in  
24 quantities that are sufficient to satisfy the national secu-

1 rity, economic well-being, and industrial production needs  
2 of the United States.

3 (c) PROGRAM ACTIVITIES.—In carrying out the pro-  
4 gram, the Secretary shall support activities—

5 (1) to better characterize and quantify virgin  
6 stocks of rare earth materials using theoretical geo-  
7 chemical research;

8 (2) to explore, discover, and recover rare earth  
9 materials using advanced science and technology;

10 (3) to improve methods for the extraction, proc-  
11 essing, use, recovery, and recycling of rare earth ma-  
12 terials;

13 (4) to improve the understanding of the per-  
14 formance, processing, and adaptability in engineer-  
15 ing designs of rare earth materials;

16 (5) to identify and test alternative materials  
17 that could be substituted for rare earth materials in  
18 particular applications;

19 (6) to engineer and test applications that—

20 (A) use recycled rare earth materials;

21 (B) use alternative materials; or

22 (C) seek to minimize rare earth materials  
23 content;

24 (7) to collect, catalogue, archive, and dissemi-  
25 nate information on rare earth materials, including

1 scientific and technical data generated by the re-  
2 search and development activities supported under  
3 this section;

4 (8) to assist scientists and engineers in making  
5 the fullest possible use of the data holdings de-  
6 scribed in paragraph (7);

7 (9) to facilitate information-sharing and col-  
8 laboration among program participants and stake-  
9 holders; and

10 (10) to assess, and subsequently provide for,  
11 the appropriate protection of intellectual property re-  
12 garding research, processing, and use of rare earth  
13 materials, including—

14 (A) applications in magnetic materials and  
15 catalysts;

16 (B) processing of proprietary materials;  
17 and

18 (C) techniques used in solvent extraction.

19 (d) IMPROVED PROCESSES AND TECHNOLOGIES.—

20 To the maximum extent practicable, the Secretary shall  
21 support new or significantly improved processes and tech-  
22 nologies as compared to processes and technologies, as of  
23 the date of enactment of this Act, that are in use in the  
24 rare earth materials industry.

1 (e) EXPANSION OF PARTICIPATION.—In carrying out  
2 the program, the Secretary shall encourage—

3 (1) multidisciplinary collaborations among pro-  
4 gram participants; and

5 (2) extensive opportunities for students at insti-  
6 tutions of higher education, including each institu-  
7 tion described in section 371(a) of the Higher Edu-  
8 cation Act of 1965 (20 U.S.C. 1067q(a)).

9 (f) CONSISTENCY.—The Secretary shall carry out the  
10 program in a manner consistent with the each policy and  
11 program described in the National Materials and Minerals  
12 Policy, Research and Development Act of 1980 (30 U.S.C.  
13 1601 et seq.).

14 (g) INTERNATIONAL COLLABORATION.—To the max-  
15 imum extent practicable, in carrying out the program, the  
16 Secretary may collaborate on activities of mutual interest  
17 with any relevant agency of a foreign country that has  
18 an interest relating to rare earth materials.

19 (h) PLAN.—

20 (1) IN GENERAL.—Not later than 180 days  
21 after the date of enactment of this Act and bienni-  
22 ally thereafter, in accordance with paragraph (2),  
23 the Secretary shall prepare and submit to the appro-  
24 priate committees of Congress a plan that contains



1 a description of, for the period covered by the plan,  
2 the manner by which carry out the program.

3 (2) SPECIFIC REQUIREMENTS.—A plan de-  
4 scribed in paragraph (1) shall contain a description  
5 of—

6 (A) for the 2-year period beginning on the  
7 date of submission of the plan, the research and  
8 development activities to be carried out under  
9 the program;

10 (B) the expected contributions of the pro-  
11 gram to the creation of innovative methods and  
12 technologies for the efficient and sustainable  
13 provision of rare earth materials to the domes-  
14 tic economy of the United States;

15 (C) the criteria to be used to evaluate ap-  
16 plications for loan guarantees under section  
17 1706 of the Energy Policy Act of 2005;

18 (D) any project that receives loan guar-  
19 antee support under section 1706 of the Energy  
20 Policy Act of 2005 (including the status of the  
21 project);

22 (E) the manner by which the program pro-  
23 motes the broadest possible participation by  
24 academic, industrial, and other contributors;  
25 and

1 (F)(i) each action taken or proposed that  
 2 reflects recommendations from the assessment  
 3 conducted under subsection (i); or

4 (ii) the rationale of the Secretary for not  
 5 taking action pursuant to any recommendation  
 6 of an assessment under subsection (i) for a plan  
 7 submitted following the completion of an assess-  
 8 ment.

9 (3) CONSULTATION.—In preparing each plan  
 10 under paragraph (1), the Secretary shall consult  
 11 with—

12 (A) appropriate representatives of indus-  
 13 try;

14 (B) institutions of higher education;

15 (C) National Laboratories;

16 (D) professional and technical societies;

17 and

18 (E) other appropriate entities, as deter-  
 19 mined by the Secretary.

20 (i) ASSESSMENT.—

21 (1) IN GENERAL.—On the date on which the  
 22 Secretary has carried out the program for 4 years,  
 23 the Secretary shall offer to enter into an arrange-  
 24 ment with the National Academy of Sciences under

1       which the Academy shall conduct an assessment of  
2       the program.

3               (2) INCLUSIONS.—The assessment described in  
4       paragraph (1) shall include—

5                       (A)(i) the recommendation of the National  
6       Academy of Sciences that the program should  
7       be continued; and

8                       (ii) a description of any program improve-  
9       ment that the Academy determines to be nec-  
10      essary; or

11                      (B)(i) the recommendation of the National  
12      Academy of Sciences that the program should  
13      be terminated; and

14                      (ii) a description of each lesson learned  
15      from the conduct of the program.

16               (3) AVAILABILITY.—Upon completion, the as-  
17      sessment described in paragraph (1) shall be made  
18      available to—

19                      (A) the appropriate committees of Con-  
20      gress; and

21                      (B) the public.

22   **SEC. 10. DEFENSE-RELATED MANUFACTURING OF RARE**  
23       **EARTH MATERIALS.**

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

1           (1) the capability to produce rare earth mate-  
2           rials is the backbone of both the defense and energy  
3           supply chains;

4           (2) the United States lacks sufficient capability  
5           to produce rare earth materials;

6           (3) there is an urgent need to reestablish a sup-  
7           ply chain in the United States for processing rare  
8           earth oxides into metals and rare earth magnets;  
9           and

10          (4) that urgency warrants the exercise of the  
11          authority of the President under title I of the De-  
12          fense Production Act of 1950 (50 U.S.C. App. 2071  
13          et seq.) to support the reestablishment of the capa-  
14          bility to produce rare earth materials and the supply  
15          chain described in paragraph (3) to meet a defi-  
16          ciency in the defense industrial base and renewable  
17          energy sectors of the United States.

18          (b) AUTHORIZATION OF APPROPRIATIONS.—There  
19          are authorized to be appropriated such sums as may be  
20          necessary to provide loans or loan guarantees under title  
21          III of the Defense Production Act of 1950 (50 U.S.C.  
22          App. 2091 et seq.) for which the total loan principal does  
23          not exceed—

24                (1) \$20,000,000 in the case of projects for the  
25                establishment of a supply chain in the United States

1 for processing rare earth oxides into metals, into al-  
2 loys, and into powders; and

3 (2) \$30,000,000 in the case of projects for the  
4 establishment of the capability to produce sintered  
5 domestic neodymium iron boron magnets.

6 (c) REPORT.—Not later than 180 days after the date  
7 of the enactment of this Act, the Secretary of Defense  
8 shall submit to Congress a report describing past, current,  
9 and future projects for which loans or loan guarantees are  
10 provided under title III of the Defense Production Act of  
11 1950 to support the reestablishment of a rare earth mate-  
12 rials supply chain in the United States. If no such project  
13 is in process or planned as of the date of the report, the  
14 report shall include a justification for the lack of such  
15 projects, particularly the lack of projects to establish or  
16 support production capability in the United States in crit-  
17 ical segments of the rare earth materials market.

18 **SEC. 11. STUDY ON COOPERATIVE DEVELOPMENT OF PRO-**  
19 **DUCTION OF AND SUPPLY CHAIN FOR RARE**  
20 **EARTH MATERIALS IN THE UNITED STATES.**

21 (a) FINDINGS.—Congress makes the following find-  
22 ings:

23 (1) It may not be possible for the United States  
24 to depend on any single producer of rare earth mate-  
25 rials to supply the production and supply chain re-

1        requirements necessary for the national security and  
2        industrial development of the United States.

3            (2) It is also not reasonable to expect any one  
4        producer of rare earth materials to overcome the  
5        challenges posed by the monopoly in the rare earth  
6        materials market sponsored by the Government of  
7        the People's Republic of China.

8            (3) Therefore, a cooperative effort, involving  
9        several producers of rare earth materials, should be  
10       considered as a collaborative approach to leverage  
11       the resources of the United States and countries  
12       that are allies of the United States.

13        (b) STUDY REQUIRED.—The Secretary of the Inte-  
14       rior and the Secretary of Energy shall jointly, in consulta-  
15       tion with the Secretary of Defense, the Secretary of Com-  
16       merce, the Secretary of State, and the United States  
17       Trade Representative, conduct a study to determine the  
18       feasibility and effectiveness of using a cooperative struc-  
19       ture involving multiple producers of rare earth materials  
20       to reestablish the production of, and a supply chain for,  
21       rare earth materials in the United States.

22        (c) ELEMENTS.—The study required by subsection  
23       (b) shall include an assessment of the following:

24            (1) Whether establishing a cooperative involving  
25        multiple producers of rare earth materials to rees-

1 tablish the production of, and a supply chain for,  
2 rare earth materials in the United States would be  
3 in the national security and industrial development  
4 interests of the United States, including by—

5 (A) resulting in improved heavy rare earth  
6 elements distribution values for a cooperative  
7 refinery described in paragraph (3); and

8 (B) creating depth in the supply chain for  
9 rare earth materials.

10 (2) The qualifications necessary for a producer  
11 of rare earth materials to participate in the coopera-  
12 tive described in paragraph (1), such as whether  
13 such a producer should be—

14 (A) permitted, based, and owned in the  
15 United States;

16 (B) capable of producing both heavy and  
17 light rare earth elements; or

18 (C) eligible for any of the loan guarantee  
19 programs described in paragraph (3).

20 (3) How existing programs could be used to fa-  
21 cilitate the establishment of a national cooperative  
22 rare earth refinery by providing financing to rare  
23 earth elements mines that are owned and permitted  
24 in the United States, such as through—

1 (A) loan guarantees under title III of the  
2 Defense Production Act of 1950 (50 U.S.C.  
3 App. 2091 et seq.) or section 1706 of the En-  
4 ergy Policy Act of 2005, as added by section 8  
5 of this Act; or

6 (B) funds in the National Defense Stock-  
7 pile Transaction Fund under section 9 of the  
8 Strategic and Critical Materials Stock Piling  
9 Act (50 U.S.C. 98h).

10 (4) The areas of knowledge, expertise, and skill  
11 that would be necessary to the success of a coopera-  
12 tive refinery described in paragraph (3), such as—

13 (A) production of rare earth elemental ox-  
14 ides and metals from rare earth concentrates;

15 (B) production of any companion materials  
16 such as tellurium, vanadium, cobalt, thorium,  
17 or other strategic materials and metals; and

18 (C) development and use of “front end”  
19 processes required by certain rare earth con-  
20 centrates and use of “back end” processes for  
21 rare earth oxides.

22 (5) Other characteristics necessary to the suc-  
23 cess of the refinery, such as the ability and willing-  
24 ness to purchase rare earth concentrates from pro-  
25 ducers that participate in the cooperative described



1 in paragraph (1) and producers that do not partici-  
2 pate in the cooperative.

3 (6) How to allow the participation in the coop-  
4 erative of producers of rare earth materials from  
5 countries that are allies of the United States, such  
6 as through direct investment by such producers in  
7 the cooperative refinery described in paragraph (3).

8 (7) The advisability of establishing a special ad-  
9 visory board to ensure that the cooperative meets  
10 the national security and industrial development  
11 needs of the United States, consisting of representa-  
12 tives of the producers participating in the coopera-  
13 tive, the United States Geological Survey, the Soci-  
14 ety of Mining, Metallurgy and Exploration, the De-  
15 partment of Defense (including representation with  
16 respect to the National Defense Stockpile), the De-  
17 partment of Energy, and other appropriate Federal  
18 agencies and nongovernmental organizations.

19 (8) The advisability of providing the special ad-  
20 visory board described in paragraph (7) with author-  
21 ity to expend funds in the National Defense Stock-  
22 pile Transaction Fund under section 9 of the Stra-  
23 tegic and Critical Materials Stock Piling Act (50  
24 U.S.C. 98h) for the development of the cooperative.

1           (9) Whether the cooperative could increase the  
2       viability of the supply chain for rare earth materials  
3       in the United States and countries that are allies of  
4       the United States by providing or participating in  
5       pre-feasibility and exploration funding for promising  
6       rare earth mining companies.

7           (10) The feasibility and desirability of estab-  
8       lishing a design and prototype team at an organiza-  
9       tion that may participate in the cooperative, such as  
10      a institution of higher education, to provide tech-  
11      nology transfer services to participants in the coop-  
12      erative.

13          (11) The funds necessary to establish the coop-  
14      erative and the advisability of selling materials in a  
15      stockpile of rare earth materials as described in sec-  
16      tion 7(b), if such a stockpile is established, to main-  
17      tain the financial integrity of the cooperative, if nec-  
18      essary.

19          (d) REPORT.—Not later than one year after the date  
20      of the enactment of this Act, the Secretary of the Interior  
21      and the Secretary of Energy shall jointly submit to Con-  
22      gress a report on the results of the study required by sub-  
23      section (b).

1 **SEC. 12. RESTRICTIONS ON USE OF APPROPRIATED FUNDS.**

2 A person that receives funds appropriated by Con-  
3 gress for the purpose of supporting the reestablishment  
4 of the production of, and a supply chain for, rare earth  
5 materials in the United States, as described in this Act—

6 (1) may not sell or otherwise transfer any re-  
7 sources or assets purchased, in whole or in part,  
8 using such funds to a foreign-owned or controlled  
9 entity without the concurrence of the Secretary of  
10 Energy, the Secretary of Defense, the Secretary of  
11 State, and the Secretary of Commerce; and

12 (2) shall be subject to the provisions of section  
13 2538 of title 10, United States Code, in the utiliza-  
14 tion of such funds, including with respect to any  
15 rare earth materials sold by the person.

16 **SEC. 13. AMENDMENTS TO THE NATIONAL MATERIALS AND**  
17 **MINERALS POLICY, RESEARCH AND DEVEL-**  
18 **OPMENT ACT OF 1980.**

19 (a) POLICY.—Section 3 of the National Materials and  
20 Minerals Policy, Research and Development Act of 1980  
21 (30 U.S.C. 1602) is amended—

22 (1) in the first sentence, by striking “The Con-  
23 gress declares that it” and inserting “It”; and

24 (2) in the second sentence, by striking “The  
25 Congress further declares that implementation” and  
26 inserting “Implementation”.

1 (b) IMPLEMENTATION.—Section 4 of the National  
2 Materials and Minerals Policy, Research and Development  
3 Act of 1980 (30 U.S.C. 1603) is amended—

4 (1) by striking “For the purpose” and all that  
5 follows through “declares that the” and inserting  
6 “The”; and

7 (2) by striking “departments and agencies,”  
8 and inserting “departments and agencies to imple-  
9 ment the policies described in section 3”.

10 (c) PROGRAM PLAN.—Section 5 of the National Ma-  
11 terials and Minerals Policy, Research and Development  
12 Act of 1980 (30 U.S.C. 1604) is amended—

13 (1) by striking “date of enactment of this Act”  
14 each place it appears and inserting “date of enact-  
15 ment of the Rare Earths and Critical Materials Re-  
16 vitalization Act of 2010”;

17 (2) in subsection (b)(1), by striking “Federal  
18 Coordinating Council for Science, Engineering, and  
19 Technology” and inserting “National Science and  
20 Technology Council,”;

21 (3) in subsection (c)—

22 (A) in the matter preceding paragraph

23 (1)—

1 (i) by striking “the Federal Emer-  
2 gency” and all that follows through “Agen-  
3 cy, and”; and

4 (ii) by striking “appropriate shall”  
5 and inserting “appropriate, shall”;

6 (B) by striking paragraph (1);

7 (C) by redesignating paragraph (2) as  
8 paragraph (1);

9 (D) in paragraph (1) (as redesignated by  
10 subparagraph (C)), by striking “in the case”  
11 and all that follows through “subsection, and  
12 which”; and

13 (E) by striking paragraph (3) and insert-  
14 ing the following:

15 “(2) assess the adequacy, accessibility, and sta-  
16 bility of the supply of materials necessary to main-  
17 tain national security, economic well-being, and in-  
18 dustrial production.”;

19 (4) by striking subsections (d) and (e); and

20 (5) by redesignating subsection (f) as sub-  
21 section (d).

1 **SEC. 14. REPEAL OF NATIONAL CRITICAL MATERIALS ACT**  
2 **OF 1984.**

3 Title II of Public Law 98–373 (30 U.S.C. 1801 et  
4 seq.) is repealed.

