

AMENDMENT NO. _____ Calendar No. _____

Purpose: In the nature of a substitute.

IN THE SENATE OF THE UNITED STATES—112th Cong., 1st Sess.

S. 1113

To facilitate the reestablishment of domestic, critical mineral designation, assessment, production, manufacturing, recycling, analysis, forecasting, workforce, education, research, and international capabilities in the United States, and for other purposes.

Referred to the Committee on _____ and
ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT IN THE NATURE OF A SUBSTITUTE intended
to be proposed by _____

Viz:

1 Strike all after the enacting clause and insert the fol-
2 lowing:

3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4 (a) **SHORT TITLE.**—This Act may be cited as the
5 “Critical Minerals Policy Act of 2012”.

6 (b) **TABLE OF CONTENTS.**—The table of contents of
7 this Act is as follows:

Sec. 1. Short title; table of contents.

Sec. 2. Definitions.

TITLE I—DESIGNATIONS AND POLICIES

Sec. 101. Designations.

Sec. 102. Policy.

- Sec. 103. Resource assessment.
- Sec. 104. Study.
- Sec. 105. Agency review and reports.
- Sec. 106. Recycling and efficiency.
- Sec. 107. Alternatives.
- Sec. 108. Analysis and forecasting.
- Sec. 109. Education and workforce.
- Sec. 110. International cooperation.

TITLE II—MINERAL-SPECIFIC ACTIONS

- Sec. 201. Administration.
- Sec. 202. Cobalt.
- Sec. 203. Lead.
- Sec. 204. Lithium.
- Sec. 205. Low btu-gas.
- Sec. 206. Thorium.
- Sec. 207. Updated resource information.

TITLE III—MISCELLANEOUS

- Sec. 301. Repeal; authorization offset.
- Sec. 302. Administration.
- Sec. 303. Authorization of appropriations.

1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) **CLEAN ENERGY TECHNOLOGY.**—The term
 4 “clean energy technology” means a technology re-
 5 lated to the production, use, transmission, storage,
 6 control, or conservation of energy that—

7 (A) reduces the need for additional energy
 8 supplies by using existing energy supplies with
 9 greater efficiency or by transmitting, distrib-
 10 uting, storing, or transporting energy with
 11 greater effectiveness in or through the infra-
 12 structure of the United States;

13 (B) diversifies the sources of energy supply
 14 of the United States to strengthen energy secu-

1 rity and to increase supplies with a favorable
2 balance of environmental effects if the entire
3 technology system is considered; or

4 (C) contributes to a stabilization of atmos-
5 pheric greenhouse gas concentrations through
6 reduction, avoidance, or sequestration of en-
7 ergy-related greenhouse gas emissions.

8 (2) CRITICAL MINERAL.—

9 (A) IN GENERAL.—The term “critical min-
10 eral” means any mineral designated as a crit-
11 ical mineral pursuant to section 101.

12 (B) EXCLUSIONS.—The term “critical
13 mineral” does not include—

14 (i) fuel minerals, including oil, natural
15 gas, or any other fossil fuels; or

16 (ii) water, ice, or snow.

17 (C) ADMINISTRATION.—For purposes of
18 section 101(d)(2), all rare earth elements shall
19 be considered 1 critical mineral.

20 (3) CRITICAL MINERAL MANUFACTURING.—The
21 term “critical mineral manufacturing” means—

22 (A) the production, processing, refining,
23 alloying, separation, concentration, magnetic
24 sintering, melting, or beneficiation of critical
25 minerals within the United States;

1 (B) the fabrication, assembly, or produc-
2 tion, within the United States, of equipment,
3 components, or other goods with clean energy
4 technology-, defense-, agriculture-, consumer
5 electronics-, or health care-related applications;
6 or

7 (C) any other value-added, manufacturing-
8 related use of critical minerals undertaken with-
9 in the United States.

10 (4) INDIAN TRIBE.—The term “Indian tribe”
11 has the meaning given the term in section 4 of the
12 Indian Self-Determination and Education Assistance
13 Act (25 U.S.C. 450b).

14 (5) MILITARY EQUIPMENT.—The term “mili-
15 tary equipment” means equipment used directly by
16 the Armed Forces to carry out military operations.

17 (6) RARE EARTH ELEMENT.—

18 (A) IN GENERAL.—The term “rare earth
19 element” means the chemical elements in the
20 periodic table from lanthanum (atomic number
21 57) up to and including lutetium (atomic num-
22 ber 71).

23 (B) INCLUSIONS.—The term “rare earth
24 element” includes the similar chemical elements

1 yttrium (atomic number 39) and scandium
2 (atomic number 21).

3 (7) SECRETARY.—

4 (A) TITLE I.—In title I, the term “Sec-
5 retary” means the Secretary of the Interior.

6 (B) TITLE II.—In title II, the term “Sec-
7 retary” means the Secretary of Energy.

8 (8) STATE.—The term “State” means—

9 (A) a State;

10 (B) the District of Columbia;

11 (C) the Commonwealth of Puerto Rico;

12 (D) Guam.

13 (E) American Samoa;

14 (F) the Commonwealth of the Northern
15 Mariana Islands; and

16 (G) the United States Virgin Islands.

17 **TITLE I—DESIGNATIONS AND**
18 **POLICIES**

19 **SEC. 101. DESIGNATIONS.**

20 (a) DRAFT METHODOLOGY.—Not later than 90 days
21 after the date of enactment of this Act, the Secretary shall
22 publish in the Federal Register for public comment a draft
23 methodology for determining which minerals qualify as
24 critical minerals based on an assessment of whether the
25 minerals are—

1 (1) subject to potential supply restrictions (in-
2 cluding restrictions associated with foreign political
3 risk, abrupt demand growth, military conflict, and
4 anti-competitive or protectionist behaviors); and

5 (2) important in use (including clean energy
6 technology-, defense-, agriculture-, consumer elec-
7 tronics-, and health care-related applications).

8 (b) AVAILABILITY OF DATA.—If available data is in-
9 sufficient to provide a quantitative basis for the method-
10 ology developed under this section, qualitative evidence
11 may be used.

12 (c) FINAL METHODOLOGY.—After reviewing public
13 comments on the draft methodology under subsection (a)
14 and updating the draft methodology as appropriate, not
15 later than 270 days after the date of enactment of this
16 Act, the Secretary shall publish in the Federal Register
17 a description of the final methodology for determining
18 which minerals qualify as critical minerals.

19 (d) DESIGNATIONS.—

20 (1) IN GENERAL.—Subject to paragraph (2),
21 not later than 1 year after the date of enactment of
22 this Act, the Secretary shall publish in the Federal
23 Register a list of minerals designated as critical,
24 pursuant to the final methodology under subsection
25 (c), for purposes of carrying out this title.

1 (2) LIMITATION.—In carrying out this title,
2 subject to section 2(2)(C), the Secretary may des-
3 ignate as critical minerals not more than 10 min-
4 erals.

5 (e) SUBSEQUENT REVIEW.—

6 (1) IN GENERAL.—The Secretary shall review
7 the methodology and designations under subsections
8 (c) and (d) at least every 5 years, or more frequently
9 if considered appropriate by the Secretary.

10 (2) REVISIONS.—Subject to subsection (d)(2),
11 the Secretary may—

12 (A) revise the methodology described in
13 paragraph (1);

14 (B) determine that minerals previously de-
15 termined to be critical minerals are no longer
16 critical minerals; and

17 (C) designate additional minerals as crit-
18 ical minerals.

19 (f) NOTICE.—On finalization of the methodology
20 under subsection (c), the list under subsection (d), or any
21 update to the list under subsection (e), the Secretary shall
22 submit to Congress written notice of the action.

23 **SEC. 102. POLICY.**

24 (a) IN GENERAL.—Section 3 of the National Mate-
25 rials and Minerals Policy, Research and Development Act

1 of 1980 (30 U.S.C. 1602) is amended in the second sen-
2 tence—

3 (1) by striking paragraph (3) and inserting the
4 following:

5 “(3) establish an analytical and forecasting ca-
6 pability for identifying critical mineral demand, sup-
7 ply, and other market dynamics relevant to policy
8 formulation to allow informed actions to be taken to
9 avoid supply shortages, mitigate price volatility, and
10 prepare for demand growth and other market
11 shifts;”;

12 (2) in paragraph (6), by striking “and” after
13 the semicolon at the end;

14 (3) in paragraph (7), by striking the period at
15 the end and inserting a semicolon; and

16 (4) by adding at the end the following:

17 “(8) encourage Federal agencies to facilitate
18 the availability, development, and environmentally
19 responsible production of domestic resources to meet
20 national critical materials needs;

21 “(9) avoid duplication of effort, prevent need-
22 less paperwork, and minimize delays in the adminis-
23 tration of applicable laws (including regulations) and
24 the issuance of permits and authorizations necessary
25 to explore for, develop, and produce critical minerals

1 and to construct critical mineral manufacturing fa-
2 cilities in accordance with applicable environmental
3 laws;

4 “(10) strengthen educational and research ca-
5 pabilities and workforce training;

6 “(11) bolster international cooperation through
7 technology transfer, information sharing, and other
8 means;

9 “(12) promote the efficient production, use, and
10 recycling of critical minerals;

11 “(13) develop alternatives to critical minerals;
12 and

13 “(14) establish contingencies for the production
14 of, or access to, critical minerals for which viable
15 sources do not exist within the United States.”.

16 (b) CONFORMING AMENDMENT.—Section 2(b) of the
17 National Materials and Minerals Policy, Research and De-
18 velopment Act of 1980 (30 U.S.C. 1601(b)) is amended
19 by striking “(b) As used in this Act, the term” and insert-
20 ing the following:

21 “(b) DEFINITIONS.—In this Act:

22 “(1) CRITICAL MINERAL.—The term ‘critical
23 mineral’ means any mineral designated as a critical
24 mineral pursuant to section 101 of the Critical Min-
25 erals Policy Act of 2012.

1 “(2) MATERIALS.—The term”.

2 **SEC. 103. RESOURCE ASSESSMENT.**

3 (a) IN GENERAL.—Not later than 4 years after the
4 date of enactment of this Act, in consultation with applica-
5 ble State (including geological surveys), local, academic,
6 industry, and other entities, the Secretary shall complete,
7 using established resource assessment methodologies and
8 authorities of the United States Geological Survey, a com-
9 prehensive national assessment of each critical mineral
10 that—

11 (1) identifies and quantifies known critical min-
12 eral resources, using all available public and private
13 information and datasets, including exploration his-
14 tories;

15 (2) estimates the cost of production of the crit-
16 ical mineral resources identified and quantified
17 under this section, using all available public and pri-
18 vate information and datasets, including exploration
19 histories;

20 (3) provides a quantitative and qualitative as-
21 sessment of undiscovered critical mineral resources
22 throughout the United States on land available for
23 mineral production, including probability estimates
24 of tonnage and grade, using all available public and

1 private information and datasets, including explo-
2 ration histories; and

3 (4) provides qualitative information on the envi-
4 ronmental attributes of the critical mineral resources
5 identified under this section.

6 (b) SUPPLEMENTARY INFORMATION.—In carrying
7 out this section, the Secretary (acting through the Direc-
8 tor of the United States Geological Survey) may carry out
9 field work (including drilling, remote sensing, geophysical
10 surveys, geological mapping, hyperspectral imaging, and
11 geochemical sampling and analysis) that is necessary or
12 appropriate to supplement existing information and
13 datasets available for determining the existence of critical
14 minerals in the United States.

15 (c) TECHNICAL ASSISTANCE.—At the request of the
16 Governor of a State or an Indian tribe, the Secretary may
17 provide technical assistance to State governments and In-
18 dian tribes conducting critical mineral resource assess-
19 ments on non-Federal land.

20 (d) REPORT.—Not later than 4 years and 60 days
21 after the date of enactment of this Act, the Secretary shall
22 submit to Congress a report describing the results of the
23 assessment conducted under this section.

24 (e) PRIORITIZATION.—

1 (1) IN GENERAL.—The Secretary may sequence
2 the completion of resource assessments for each crit-
3 ical mineral such that critical materials considered
4 to be most critical under the methodology estab-
5 lished pursuant to section 101 are completed first.

6 (2) REPORTING.—If the Secretary sequences
7 the completion of resource assessments for each crit-
8 ical material, the Secretary shall submit a report
9 under subsection (d) on an interim basis over the 4-
10 year and 60-day period beginning on the date of en-
11 actment of this Act.

12 (f) UPDATES.—The Secretary shall periodically up-
13 date the assessment conducted under this section based
14 on—

15 (1) the generation of new information or
16 datasets by the Federal government; or

17 (2) the receipt of new information or datasets
18 from critical mineral producers, State geological sur-
19 veys, academic institutions, trade associations, or
20 other entities or individuals.

21 **SEC. 104. STUDY.**

22 (a) IN GENERAL.—The Secretary shall enter into an
23 arrangement with the National Academy of Sciences (re-
24 ferred to in this section as the “Academy”) under which
25 the Academy shall—

1 (1) conduct a study of using a life cycle ap-
2 proach to critical mineral analysis and management
3 through the examination of not less than 3, and not
4 more than 5, minerals or groups of minerals as ex-
5 amples; and

6 (2) not later than 2 years after the date of en-
7 actment of this Act, submit to Congress and the
8 Secretary a report on the results of the study, in-
9 cluding any recommendations.

10 (b) MINERALS.—In selecting minerals for examina-
11 tion under this section, the Academy—

12 (1) shall select minerals that represent a range
13 of needs in critical defense, energy, infrastructure,
14 and telecommunications technologies; and

15 (2) may base the selection on factors such as—

16 (A) large-scale primary production from
17 highly concentrated ores;

18 (B) large-scale primary production or co-
19 production from low-concentration ores; and

20 (C) minerals recovered as byproducts.

21 (c) COMPONENTS.—

22 (1) IN GENERAL.—The Academy shall study—

23 (A) advanced technologies for mineral ex-
24 ploration, extraction, processing, and reclama-

1 tion, including an examination of technologies
2 for—

3 (i) exploration for new mineral re-
4 sources;

5 (ii) in-situ, underground, and surface
6 mining;

7 (iii) remining, reprocessing, or reopen-
8 ing of existing or abandoned mines and
9 mine-related facilities; and

10 (iv) recycling;

11 (B) the comparative and potential impact
12 of activities described in subparagraph (A) on
13 the environment and human health, if under-
14 taken in compliance with—

15 (i) applicable laws (including regula-
16 tions) of the United States; and

17 (ii) applicable laws (including regula-
18 tions) of a representative sample of other
19 countries with active mining or related
20 manufacturing industries;

21 (C) the degree to which new technology de-
22 velopments can incorporate—

23 (i) increased measures of worker safe-
24 ty; or

1 (ii) improved environmental perform-
2 ance;

3 (D) the degree to which new technology de-
4 velopments can lower the costs of exploration,
5 extraction, production, processing, or recycling;

6 (E) relevant technologies from other indus-
7 tries, including the petroleum, medical, and
8 transportation industries;

9 (F) necessary research and data collection
10 to support exploration, extraction, processing,
11 and recycling;

12 (G) the use of energy and water in extrac-
13 tion, processing, and recycling;

14 (H) incentives for research on advanced
15 technologies described in this paragraph; and

16 (I) as appropriate, a comparison of the
17 practices and policies in the United States and
18 other relevant countries with regard to any of
19 the factors described in subparagraphs (A)
20 through (H).

21 (2) BASELINE CONDITIONS.—The Academy
22 shall study advanced approaches for establishing
23 baseline conditions for land, surface, and ground
24 water, and ecological systems and for monitoring
25 mine sites before, during, and after mine operation,

1 and through the period of post-closure management
2 of mine sites, including an examination of—

3 (A) key datasets required and gaps in
4 knowledge, including the potential effect on
5 biota and water;

6 (B) the geochemistry of mine wastes and
7 water; and

8 (C) best practices for—

9 (i) mine reclamation;

10 (ii) reuse and recycling; and

11 (iii) long-term care and maintenance.

12 (3) REGULATORY FRAMEWORK.—The Academy
13 shall provide an update of the 1999 report of the
14 Academy entitled “Hardrock Mining on Federal
15 Lands,” prepared pursuant to section 120 of the
16 Department of the Interior and Related Agencies
17 Appropriations Act, 1999 (Public Law 105–277;
18 112 Stat. 2681–257), including an examination of—

19 (A) regulatory changes implemented since
20 1999 and the extent to which the changes ad-
21 dress recommendations made in the report; and

22 (B) additional steps that can be taken—

23 (i) to reduce the quantity of time re-
24 quired to reach final decisions on applica-
25 tions, operating plans, leases, licenses, per-

1 mits, and other use authorizations for min-
2 ing activities on Federal land; and

3 (ii) to prevent unnecessary or undue
4 degradation of Federal land.

5 (4) LIFE CYCLE.—The Academy shall conduct
6 an analysis of the life cycle from the time a mineral
7 is first explored through extraction and subsequent
8 processing for incorporation and use in manufac-
9 tured products, including an examination of—

10 (A) key datasets and information used or
11 needed by the Federal Government;

12 (B) signals at different points in the sup-
13 ply chain that might be used to anticipate sup-
14 ply chain pinch points;

15 (C) Federal responsibilities along different
16 parts of the supply chain to identify the appro-
17 priate information required to address pinch
18 points; and

19 (D) the potential for recyclability.

20 **SEC. 105. AGENCY REVIEW AND REPORTS.**

21 (a) PERFORMANCE IMPROVEMENTS.—To signifi-
22 cantly reduce the aggregate time required to make deci-
23 sions in the permitting and review of critical mineral
24 projects by the Federal Government, while improving envi-
25 ronmental and community outcomes, the Secretary (acting

1 through the Director of the Bureau of Land Management)
2 and the Secretary of Agriculture (acting through the Chief
3 of the Forest Service) (referred to in this section as the
4 “Secretaries”) shall—

5 (1) ensure that Federal permitting and review
6 processes inform decisionmakers and affected com-
7 munities about the potential benefits and impacts of
8 proposed projects;

9 (2) ensure that projects are designed, built, and
10 maintained in a manner that is consistent with pro-
11 tecting the public health, welfare, safety, national se-
12 curity, and environment of the United States; and

13 (3) take all steps within the authority of the
14 Secretaries, consistent with available resources, to
15 execute Federal permitting and review processes
16 with maximum efficiency and effectiveness, ensuring
17 the health, safety, and security of communities and
18 the environment while supporting vital economic
19 growth, by—

20 (A) setting and adhering to timelines and
21 schedules for completion of reviews;

22 (B) setting clear permitting performance
23 goals and tracking progress against those goals;

24 (C) encouraging early collaboration among
25 agencies, project sponsors, and affected stake-

1 holders to incorporate and address their inter-
2 ests and minimize delays;

3 (D) providing for transparency and ac-
4 countability by using cost-effective information
5 technology to collect and disseminate informa-
6 tion about individual projects and agency per-
7 formance;

8 (E) achieving early and active consultation
9 with State, local, and tribal governments to
10 avoid conflicts or duplication of effort, resolve
11 concerns, and allow for concurrent rather than
12 sequential reviews;

13 (F) integrating the elements under sub-
14 paragraphs (A) through (E) into project plan-
15 ning processes so that projects are designed ap-
16 propriately—

17 (i) to avoid, to the extent practicable,
18 adverse impacts on public health, security,
19 historic properties and other cultural re-
20 sources, and the environment; and

21 (ii) to minimize or mitigate impacts
22 that may occur;

23 (G) providing demonstrable improvements
24 in the performance of Federal permitting and
25 review processes, including lower costs, more

1 timely decisions, and a healthier and cleaner en-
2 vironment;

3 (H) expanding and institutionalizing per-
4 mitting and review process improvements that
5 have proven effective;

6 (I) developing mechanisms to better com-
7 municate priorities and resolve disputes among
8 agencies at the national and regional levels; and

9 (J) developing other practices, such as pre-
10 application procedures.

11 (b) REVIEW AND REPORT.—Not later than 180 days
12 after the date of receipt of the report of the study under
13 section 104, the Secretaries shall submit to Congress a
14 report that—

15 (1) describes the recommendations from the
16 study under section 104 that the Secretaries have
17 existing legal authority for and intend to implement,
18 including estimated timelines for the implementa-
19 tion;

20 (2) identifies additional measures (including
21 regulatory and legislative proposals, as appropriate)
22 that would increase the effectiveness and operational
23 efficiency of agency management of permitting ac-
24 tivities for the exploration and development of do-
25 mestic critical minerals;

1 (3) identifies options (including cost recovery
2 paid by applicants) for ensuring adequate staffing
3 (including training programs) of Federal entities re-
4 sponsible for the consideration of applications, oper-
5 ating plans, leases, licenses, permits, and other use
6 authorizations for critical mineral-related activities
7 on Federal land;

8 (4) in coordination with the heads of other ap-
9 propriate Federal agencies, assesses whether other
10 Federal laws (including regulations and tax provi-
11 sions) or policies are adversely affecting the global
12 competitiveness of , or investment in, the domestic
13 critical minerals industry, including the critical min-
14 erals manufacturing industry;

15 (5) evaluates the quantity of time typically re-
16 quired (including the range derived from minimum
17 and maximum durations, mean, median, variance,
18 and other statistical measures or representations) to
19 complete each step (including those aspects outside
20 the control of the executive branch of the Federal
21 Government, such as judicial review, applicant deci-
22 sions, or State and local government involvement)
23 associated with the development and processing of
24 applications, operating plans, leases, licenses, per-

1 mits, and other use authorizations for critical min-
2 eral-related activities on Federal land; and

3 (6) describes actions taken pursuant to sub-
4 section (a).

5 (c) ANNUAL REPORTS.—Beginning with the first
6 budget submission by the President under section 1105
7 of title 31, United States Code, after submission to Con-
8 gress of the report under subsection (b), and for the next
9 10 annual budget submissions thereafter, the Secretaries
10 shall submit to Congress a report on—

11 (1) the implementation of recommendations,
12 measures, and options identified in paragraphs (1)
13 through (3) of subsection (b);

14 (2) achievement of, or progress towards, the
15 target levels of performance developed under sub-
16 section (d); and

17 (3) actions taken under subsection (a).

18 (d) METRICS OF AGENCY PERFORMANCE.—

19 (1) ESTABLISHMENT.—Not later than 180 days
20 after the date of the submission of the report under
21 subsection (b), the Secretaries, after public notice
22 and comment, shall develop and publish target levels
23 of performance for agency management of activities
24 associated with the exploration for and development
25 of domestic critical minerals in accordance with ap-

1 plicable laws, against which actual achievement or
2 progress can be compared, in—

3 (A) the timeliness of decisions, taking into
4 consideration the evaluation described in sub-
5 section (b)(5); and

6 (B) cost savings.

7 (2) INCORPORATION IN ANNUAL PERFORMANCE
8 PLANS.—The Secretaries shall use the target levels
9 of performance under paragraph (1) as performance
10 goals in the appropriate agency performance plans
11 under section 1115 of title 31, United States Code.

12 (e) JUDICIAL REVIEW.—

13 (1) IN GENERAL.—Nothing in this section af-
14 fects the judicial review of an agency action under
15 any 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) or any other person.

1 **SEC. 106. RECYCLING AND EFFICIENCY.**

2 (a) ESTABLISHMENT.—The Secretary of Energy
3 shall conduct a program of research and development to
4 promote the efficient production, use, and recycling of crit-
5 ical minerals.

6 (b) COOPERATION.—In carrying out the program, the
7 Secretary of Energy shall cooperate with appropriate—

- 8 (1) Federal agencies and National Laboratories;
- 9 (2) critical mineral producers;
- 10 (3) critical mineral manufacturers;
- 11 (4) trade associations;
- 12 (5) academic institutions;
- 13 (6) small businesses; and
- 14 (7) other relevant entities or individuals.

15 (c) ACTIVITIES.—Under the program, the Secretary
16 of Energy shall carry out activities that include the identi-
17 fication and development of—

- 18 (1) advanced critical mineral extraction, pro-
19 duction, separation, alloying, or processing tech-
20 nologies that decrease the energy consumption, envi-
21 ronmental impact, and costs of those activities;
- 22 (2) technologies or process improvements that
23 minimize the use, or lead to more efficient use, of
24 critical minerals across the full supply chain;
- 25 (3) technologies, process improvements, or de-
26 sign optimizations that facilitate the recycling of

1 critical minerals, and options for improving the rates
2 of collection of products and scrap containing critical
3 minerals from post-consumer, industrial, or other
4 waste streams;

5 (4) commercial markets, advanced storage
6 methods, energy applications, and other beneficial
7 uses of critical minerals processing byproducts; and

8 (5) alternative minerals, metals, and materials,
9 particularly those available in abundance within the
10 United States and not subject to potential supply re-
11 strictions, that lessen the need for critical minerals.

12 (d) REPORT.—Not later than 3 years after the date
13 of enactment of this Act, the Secretary of Energy shall
14 submit to Congress a report summarizing the activities,
15 findings, and progress of the program.

16 **SEC. 107. ALTERNATIVES.**

17 (a) ESTABLISHMENT.—The Secretary of Energy
18 shall conduct a program of research, development, dem-
19 onstration, and commercial application to promote the de-
20 velopment of alternatives to critical minerals.

21 (b) COOPERATION.—In carrying out the program, the
22 Secretary of Energy shall cooperate with appropriate—

23 (1) Federal agencies (including National Lab-
24 oratories);

25 (2) critical mineral producers;

- 1 (3) critical mineral manufacturers;
- 2 (4) trade associations;
- 3 (5) academic institutions;
- 4 (6) small businesses; and
- 5 (7) other relevant entities or individuals.

6 (c) ACTIVITIES.—To lessen the need for critical mate-
7 rials, the program under this section shall carry out activi-
8 ties that include the identification and development of—

9 (1) alternative minerals, metals, and materials
10 used in clean energy technologies, particularly those
11 that are available in abundance in the United States
12 and are not subject to potential supply restrictions;
13 and

14 (2) alternative clean energy technologies or al-
15 ternative designs of existing clean energy tech-
16 nologies, particularly those that use materials in
17 abundance in the United States and are not subject
18 to potential supply restrictions.

19 (d) REPORT.—Not later than 3 years after the date
20 of enactment of this Act, the Secretary of Energy shall
21 submit to Congress a report summarizing the activities,
22 findings, and progress of the program under this section.

23 **SEC. 108. ANALYSIS AND FORECASTING.**

24 (a) CAPABILITIES.—In order to evaluate existing crit-
25 ical mineral policies and inform future actions that may

1 be taken to avoid supply shortages, mitigate price vola-
2 tility, and prepare for demand growth and other market
3 shifts, the Secretary, in consultation with academic insti-
4 tutions, the Energy Information Administration, and oth-
5 ers in order to maximize the application of existing com-
6 petencies related to developing and maintaining computer-
7 models and similar analytical tools, shall conduct and pub-
8 lish the results of an annual report that includes—

9 (1) as part of the annually-published Mineral
10 Commodity Summaries from the United States Geo-
11 logical Survey, a comprehensive review of critical
12 mineral production, consumption, and recycling pat-
13 terns, including—

14 (A) the quantity of each critical mineral
15 domestically produced during the preceding
16 year;

17 (B) the quantity of each critical mineral
18 domestically consumed during the preceding
19 year;

20 (C) market price data for each critical
21 mineral;

22 (D) an assessment of—

23 (i) critical mineral requirements to
24 meet the national security, energy, eco-
25 nomic, industrial, technological, and other

1 needs of the United States during the pre-
2 ceding year;

3 (ii) the reliance of the United States
4 on foreign sources to meet those needs
5 during the preceding year; and

6 (iii) the implications of any supply
7 shortages, restrictions, or disruptions dur-
8 ing the preceding year;

9 (E) the quantity of each critical mineral
10 domestically recycled during the preceding year;

11 (F) the market penetration during the pre-
12 ceding year of alternatives to each critical min-
13 eral;

14 (G) a discussion of applicable international
15 trends associated with the discovery, produc-
16 tion, consumption, use, costs of production,
17 prices, and recycling of each critical mineral as
18 well as the development of alternatives to crit-
19 ical minerals; and

20 (H) such other data, analyses, and evalua-
21 tions as the Secretary finds are necessary to
22 achieve the purposes of this section; and

23 (2) a comprehensive forecast, entitled the “An-
24 nual Critical Minerals Outlook”, of projected critical

1 mineral production, consumption, and recycling pat-
2 terns, including—

3 (A) the quantity of each critical mineral
4 projected to be domestically produced over the
5 subsequent 1-year, 5-year, and 10-year periods;

6 (B) the quantity of each critical mineral
7 projected to be domestically consumed over the
8 subsequent 1-year, 5-year, and 10-year periods;

9 (C) market price projections for each crit-
10 ical mineral, to the maximum extent practicable
11 and based on the best available information;

12 (D) an assessment of—

13 (i) critical mineral requirements to
14 meet projected national security, energy,
15 economic, industrial, technological, and
16 other needs of the United States;

17 (ii) the projected reliance of the
18 United States on foreign sources to meet
19 those needs; and

20 (iii) the projected implications of po-
21 tential supply shortages, restrictions, or
22 disruptions;

23 (E) the quantity of each critical mineral
24 projected to be domestically recycled over the
25 subsequent 1-year, 5-year, and 10-year periods;

1 (F) the market penetration of alternatives
2 to each critical mineral projected to take place
3 over the subsequent 1-year, 5-year, and 10-year
4 periods;

5 (G) a discussion of reasonably foreseeable
6 international trends associated with the dis-
7 covery, production, consumption, use, costs of
8 production, prices, and recycling of each critical
9 mineral as well as the development of alter-
10 natives to critical minerals; and

11 (H) such other projections relating to each
12 critical mineral as the Secretary determines to
13 be necessary to achieve the purposes of this sec-
14 tion.

15 (b) PROPRIETARY INFORMATION.—In preparing a re-
16 port described in subsection (a), the Secretary shall en-
17 sure, consistent with section 5(f) of the National Materials
18 and Minerals Policy, Research and Development Act of
19 1980 (30 U.S.C. 1604(f)), that—

20 (1) no person uses the information and data
21 collected for the report for a purpose other than the
22 development of or reporting of aggregate data in a
23 manner such that the identity of the person who
24 supplied the information is not discernible and is not
25 material to the intended uses of the information;

1 (2) no person discloses any information or data
2 collected for the report unless the information or
3 data has been transformed into a statistical or ag-
4 gregate form that does not allow the identification of
5 the person who supplied particular information; and

6 (3) procedures are established to require the
7 withholding of any information or data collected for
8 the report if the Secretary determines that with-
9 holding is necessary to protect proprietary informa-
10 tion, including any trade secrets or other confiden-
11 tial information.

12 **SEC. 109. EDUCATION AND WORKFORCE.**

13 (a) **WORKFORCE ASSESSMENT.**—Not later than 1
14 year and 300 days after the date of enactment of this Act,
15 the Secretary of Labor (in consultation with the Secretary
16 of the Interior, the Director of the National Science Foun-
17 dation, and employers in the critical minerals sector) shall
18 submit to Congress an assessment of the domestic avail-
19 ability of technically trained personnel necessary for crit-
20 ical mineral assessment, production, manufacturing, recy-
21 cling, analysis, forecasting, education, and research, in-
22 cluding an analysis of—

23 (1) skills that are in the shortest supply as of
24 the date of the assessment;

1 (2) skills that are projected to be in short sup-
2 ply in the future;

3 (3) the demographics of the critical minerals in-
4 dustry and how the demographics will evolve under
5 the influence of factors such as an aging workforce;

6 (4) the effectiveness of training and education
7 programs in addressing skills shortages;

8 (5) opportunities to hire locally for new and ex-
9 isting critical mineral activities;

10 (6) the sufficiency of personnel within relevant
11 areas of the Federal Government for achieving the
12 policies described in section 3 of the National Mate-
13 rials and Minerals Policy, Research and Develop-
14 ment Act of 1980 (30 U.S.C. 1602); and

15 (7) the potential need for new training pro-
16 grams to have a measurable effect on the supply of
17 trained workers in the critical minerals industry.

18 (b) CURRICULUM STUDY.—

19 (1) IN GENERAL.—The Secretary and the Sec-
20 retary of Labor shall jointly enter into an arrange-
21 ment with the National Academy of Sciences and the
22 National Academy of Engineering under which the
23 Academies shall coordinate with the National
24 Science Foundation on conducting a study—

1 (A) to design an interdisciplinary program
2 on critical minerals that will support the critical
3 mineral supply chain and improve the ability of
4 the United States to increase domestic, critical
5 mineral exploration, development, and manufac-
6 turing;

7 (B) to address undergraduate and grad-
8 uate education, especially to assist in the devel-
9 opment of graduate level programs of research
10 and instruction that lead to advanced degrees
11 with an emphasis on the critical mineral supply
12 chain or other positions that will increase do-
13 mestic, critical mineral exploration, develop-
14 ment, and manufacturing;

15 (C) to develop guidelines for proposals
16 from institutions of higher education with sub-
17 stantial capabilities in the required disciplines
18 to improve the critical mineral supply chain and
19 advance the capacity of the United States to in-
20 crease domestic, critical mineral exploration, de-
21 velopment, and manufacturing; and

22 (D) to outline criteria for evaluating per-
23 formance and recommendations for the amount
24 of funding that will be necessary to establish

1 and carry out the grant program described in
2 subsection (c).

3 (2) REPORT.—Not later than 2 years after the
4 date of enactment of this Act, the Secretary shall
5 submit to Congress a description of the results of
6 the study required under paragraph (1).

7 (c) GRANT PROGRAM.—

8 (1) ESTABLISHMENT.—The Secretary and the
9 National Science Foundation shall jointly conduct a
10 competitive grant program under which institutions
11 of higher education may apply for and receive 4-year
12 grants for—

13 (A) startup costs for newly designated fac-
14 ulty positions in integrated critical mineral edu-
15 cation, research, innovation, training, and work-
16 force development programs consistent with
17 subsection (b);

18 (B) internships, scholarships, and fellow-
19 ships for students enrolled in critical mineral
20 programs; and

21 (C) equipment necessary for integrated
22 critical mineral innovation, training, and work-
23 force development programs.

24 (2) RENEWAL.—A grant under this subsection
25 shall be renewable for up to 2 additional 3-year

1 terms based on performance criteria outlined under
2 subsection (b)(1)(D).

3 **SEC. 110. INTERNATIONAL COOPERATION.**

4 (a) ESTABLISHMENT.—The Secretary of State, in co-
5 ordination with the Secretary, shall carry out a program
6 to promote international cooperation on critical mineral
7 supply chain issues with allies of the United States.

8 (b) ACTIVITIES.—Under the program, the Secretary
9 of State may work with allies of the United States—

10 (1) to increase the global, responsible produc-
11 tion of critical minerals, if a determination is made
12 by the Secretary of State that there is no viable pro-
13 duction capacity for the critical minerals within the
14 United States;

15 (2) to improve the efficiency and environmental
16 performance of extraction techniques;

17 (3) to increase the recycling of, and deployment
18 of alternatives to, critical minerals;

19 (4) to assist in the development and transfer of
20 critical mineral extraction, processing, and manufac-
21 turing technologies that would have a beneficial im-
22 pact on world commodity markets and the environ-
23 ment;

24 (5) to strengthen and maintain intellectual
25 property protections; and

1 (6) to facilitate the collection of information
2 necessary for analyses and forecasts conducted pur-
3 suant to section 108.

4 **TITLE II—MINERAL-SPECIFIC**
5 **ACTIONS**

6 **SEC. 201. ADMINISTRATION.**

7 Nothing in this title or an amendment made by this
8 title affects the methodology or designations established
9 under section 101.

10 **SEC. 202. COBALT.**

11 (a) **AUTHORIZATION.**—The Secretary shall support
12 research programs that focus on novel uses for cobalt (in-
13 cluding energy technologies and super-alloys), including—

14 (1) use in clean energy technologies (including,
15 for purposes of this section, rechargeable batteries,
16 catalysts, photovoltaic cells, permanent magnets, and
17 fuel cells);

18 (2) use in alloys with military equipment, civil
19 aviation, and electricity generation applications; and

20 (3) use as coal-to-gas and coal-to-liquid cata-
21 lysts.

22 (b) **CATEGORIES.**—Research under this section shall
23 be conducted in—

24 (1) a fundamental category, including labora-
25 tory and literature research; and

1 (2) an applied category, including plant and
2 field research.

3 (c) REPORT.—Not later than 2 years after the date
4 of enactment of this Act, the Secretary shall submit to
5 Congress a report describing—

6 (1) the research programs carried out under
7 this section;

8 (2) the findings of the programs; and

9 (3) future research efforts planned.

10 **SEC. 203. LEAD.**

11 (a) IN GENERAL.—The Secretary shall support re-
12 search programs that focus on advanced lead manufac-
13 turing processes, including programs that—

14 (1) contribute to the establishment of a secure,
15 domestic supply of lead;

16 (2) produce technologies that represent an envi-
17 ronmental improvement compared to conventional
18 production processes; or

19 (3) produce technologies that attain a higher ef-
20 ficiency level compared to conventional production
21 processes.

22 (b) COORDINATION.—In carrying out the programs
23 under subsection (a), the Secretary shall coordinate with
24 other entities to promote the development of environ-
25 mentally responsible lead manufacturing, including—

- 1 (1) other Federal agencies;
- 2 (2) States with affected interests;
- 3 (3) manufacturers;
- 4 (4) clean energy technology manufacturers, in-
- 5 cluding producers of batteries and other energy stor-
- 6 age technologies; and
- 7 (5) any others considered appropriate by the
- 8 Secretary.

9 **SEC. 204. LITHIUM.**

10 Subtitle E of title VI of the Energy Independence and
11 Security Act of 2007 (42 U.S.C. 17241 et seq.) is amend-
12 ed by adding at the end the following:

13 **“SEC. 657. GRANTS FOR LITHIUM PRODUCTION RESEARCH**
14 **AND DEVELOPMENT.**

15 “(a) **DEFINITION OF ELIGIBLE ENTITY.**—In this sec-
16 tion, the term ‘eligible entity’ means—

17 “(1) a private partnership or other entity that
18 is—

19 “(A) organized in accordance with Federal
20 law; and

21 “(B) engaged in lithium production for use
22 in advanced battery technologies;

23 “(2) a public entity, such as a State, tribal, or
24 local governmental entity; or

1 “(3) a consortium of entities described in para-
2 graphs (1) and (2).

3 “(b) GRANTS.—The Secretary shall provide grants to
4 eligible entities for research, development, demonstration,
5 and commercial application of domestic industrial pro-
6 cesses that are designed to enhance domestic lithium pro-
7 duction for use in advanced battery technologies, as deter-
8 mined by the Secretary.

9 “(c) USE.—An eligible entity shall use a grant pro-
10 vided under this section to develop or enhance—

11 “(1) domestic industrial processes that increase
12 lithium production, processing, or recycling for use
13 in advanced lithium batteries; or

14 “(2) industrial processes associated with new
15 formulations of lithium feedstock for use in ad-
16 vanced lithium batteries.”.

17 **SEC. 205. LOW BTU-GAS.**

18 (a) DEFINITION OF LOW-BTU GAS.—In this section,
19 the term “low-Btu gas” means a fuel gas with a heating
20 value of less than 250 Btu per cubic foot measured as
21 the higher heating value resulting from the inclusion of
22 noncombustible gases, including nitrogen, helium, argon,
23 and carbon dioxide.

24 (b) AUTHORIZATION.—The Secretary shall support
25 programs of research, development, commercial applica-

1 tion, and conservation to expand the domestic production
2 of low-Btu gas and helium resources, including the pro-
3 grams described in subsection (c).

4 (c) PROGRAMS.—

5 (1) MEMBRANE TECHNOLOGY RESEARCH.—The
6 Secretary, in consultation with appropriate agencies,
7 shall support a civilian research program to develop
8 advanced membrane technology that is used in the
9 separation of gases from applications, including
10 technologies that—

11 (A) remove constituent gases that lower
12 the Btu content of natural gas; or

13 (B) remove gases from landfills and sepa-
14 rate out methane.

15 (2) HELIUM SEPARATION TECHNOLOGY.—The
16 Secretary shall support a research program to de-
17 velop technologies for separating, gathering, and
18 processing helium in low concentrations that occur
19 naturally in geologic reservoirs or formations, includ-
20 ing low-Btu gas production streams.

21 (3) INDUSTRIAL HELIUM PROGRAM.—The Sec-
22 retary, working through the Industrial Technologies
23 Program of the Department of Energy, shall support
24 a research program—

1 (A) to develop technologies for recycling,
2 reprocessing, and reusing helium; and

3 (B) to develop industrial gathering tech-
4 nologies to capture helium from other chemical
5 processing, including ammonia processing.

6 **SEC. 206. THORIUM.**

7 (a) STUDY.—The Secretary, in consultation with the
8 Nuclear Regulatory Commission, shall conduct a study on
9 the technical, economic, and policy issues (including non-
10 proliferation) associated with establishing a licensing
11 pathway for the complete thorium nuclear fuel cycle (in-
12 cluding mining, milling, processing, fabrication, reactors,
13 disposal, and decommissioning) that—

14 (1) identifies the gaps in the technical knowl-
15 edge that could lead to a licensing pathway; and

16 (2) considers technologies and applications for
17 any thorium byproducts of critical mineral produc-
18 tion or processing.

19 (b) COOPERATION.—In conducting the study under
20 subsection (a), the Secretary shall cooperate with appro-
21 priate—

22 (1) trade associations;

23 (2) equipment manufacturers;

24 (3) National Laboratories;

25 (4) institutions of higher education; and

1 (5) other applicable entities.

2 (c) REPORT.—Not later than 2 years after the date
3 of enactment of this Act, the Secretary shall submit to
4 Congress a report summarizing the findings of the study.

5 **SEC. 207. UPDATED RESOURCE INFORMATION.**

6 (a) RESOURCES.—Not later than 1 year after the
7 date of enactment of this Act, the Secretary of the Interior
8 shall complete an update of existing resource information
9 for phosphate, potash, and rare earth elements.

10 (b) CONSULTATION.—In updating resource informa-
11 tion under this section, the Secretary of the Interior shall
12 consult with—

13 (1) the heads of appropriate State geological
14 surveys;

15 (2) mineral producers;

16 (3) mineral processors;

17 (4) trade associations;

18 (5) academic institutions; and

19 (6) such other entities or individuals as the Sec-
20 retary of the Interior considers appropriate.

21 (c) LIMITATION.—

22 (1) IN GENERAL.—Resource information up-
23 dates carried out pursuant to this section shall be
24 limited to collection of existing information.

1 (2) ADMINISTRATION.—If any mineral covered
2 by this section is designated as a critical mineral
3 under section 101, this section shall not apply.

4 (d) REPORT.—Not later than 2 years after the date
5 of enactment of this Act, the Secretary of the Interior
6 shall submit to Congress written notification certifying
7 that the resource information for phosphate and rare
8 earth elements is up-to-date.

9 **TITLE III—MISCELLANEOUS**

10 **SEC. 301. REPEAL; AUTHORIZATION OFFSET.**

11 (a) REPEAL.—

12 (1) IN GENERAL.—The National Critical Mate-
13 rials Act of 1984 (30 U.S.C. 1801 et seq.) is re-
14 pealed.

15 (2) CONFORMING AMENDMENT.—Section 3(d)
16 of the National Superconductivity and Competitive-
17 ness Act of 1988 (15 U.S.C. 5202(d)) is amended
18 in the first sentence by striking “, with the assist-
19 ance of the National Critical Materials Council as
20 specified in the National Critical Materials Act of
21 1984 (30 U.S.C. 1801 et seq.),”.

22 (b) AUTHORIZATION OFFSET.—Section 207(c) of the
23 Energy Independence and Security Act of 2007 (42
24 U.S.C. 17022(c)) is amended by inserting before the pe-
25 riod at the end the following: “, except that the amount

1 authorized to be appropriated to carry out this section not
2 appropriated as of the date of enactment of the Critical
3 Minerals Policy Act of 2012 shall be reduced by
4 \$60,000,000”.

5 **SEC. 302. ADMINISTRATION.**

6 Nothing in this Act or an amendment made by this
7 Act modifies any requirement or authority provided by the
8 matter under the heading “GEOLOGICAL SURVEY” of
9 the first section of the Act of March 3, 1879 (43 U.S.C.
10 31(a)).

11 **SEC. 303. AUTHORIZATION OF APPROPRIATIONS.**

12 There is authorized to be appropriated to carry out
13 this Act and the amendments made by this Act
14 \$60,000,000, of which—

15 (1) \$2,000,000 may be used to carry out sec-
16 tion 101, to remain available until expended;

17 (2) \$20,000,000 may be used to carry out the
18 amendment made by section 103, to remain avail-
19 able until expended;

20 (3) \$2,000,000 may be used to carry out sec-
21 tion 104, to remain available until expended;

22 (4) \$4,000,000 may be used to carry out sec-
23 tion 105, to remain available until expended;

1 (5) \$1,000,000 for each of fiscal years 2013
2 through 2015 may be used to carry out sections 106
3 and 107, to remain available until expended;

4 (6)(A) \$1,500,000 for each of fiscal years 2013
5 and 2014 may be used to carry out section 108, to
6 remain available until expended; and

7 (B) \$3,000,000 for fiscal year 2015 may be
8 used to carry out section 108, to remain available
9 until expended;

10 (7) \$2,000,000 for each of fiscal years 2013
11 through 2015 may be used to carry out section 109,
12 to remain available until expended;

13 (8) \$500,000 for each of fiscal years 2013
14 through 2015 may be used to carry out section 110,
15 to remain available until expended;

16 (9) \$1,000,000 for each of fiscal years 2013
17 through 2015 may be used to carry out sections
18 202, 203, 204, and 205 and the amendment made
19 by those sections; and

20 (10) \$500,000 may be used to carry out section
21 206, to remain available until expended.