

1 Purpose: In the nature of a substitute.

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4 S. 1113

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

11

12 Referred to the Committee on _____ and ordered to be
13 printed

14 Ordered to lie on the table and to be printed

15 AMENDMENT IN THE NATURE OF A SUBSTITUTE INTENDED TO BE
16 PROPOSED BY _____

17 Viz:

18 Strike all after the enacting clause and insert the following:

19 SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

20 (a) Short Title.—This Act may be cited as the “Critical Minerals Policy Act of 2011”.

21 (b) Table of Contents.—The table of contents of this Act is as follows:

22 Sec.1.Short title; table of contents.

23 Sec.2.Definitions.

24 TITLE I—DESIGNATIONS AND POLICIES

25 Sec.101.Designations.

26 Sec.102.Policy.

27 Sec.103.Resource assessment.

28 Sec.104.Study of life cycle approach to critical mineral analysis and management.

29 Sec.105.Recycling and alternatives.

30 Sec.106.Analysis and forecasting.

1 Sec.107.Education and workforce.

2 Sec.108.International cooperation.

3 TITLE II—MINERAL-SPECIFIC ACTIONS

4 Sec.201.Administration.

5 Sec.202.Cobalt.

6 Sec.203.Lead.

7 Sec.204.Lithium.

8 Sec.205.Low Btu-gas.

9 Sec.206.Thorium.

10 Sec.207.Updated resource information.

11 TITLE III—MISCELLANEOUS

12 Sec.301.Repeal.

13 Sec.302.Administration.

14 Sec.303.Authorization of appropriations.

15 SEC. 2. DEFINITIONS.

16 In this Act:

17 (1) CRITICAL MINERAL.—

18 (A) IN GENERAL.—The term “critical mineral” means any mineral designated as a
19 critical mineral pursuant to section 101.

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

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

22 (ii) water, ice, or snow.

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

25 (3) RARE EARTH ELEMENT.—

26 (A) IN GENERAL.—The term “rare earth element” means the chemical elements in
27 the periodic table from lanthanum (atomic number 57) up to and including lutetium
28 (atomic number 71).

29 (B) INCLUSIONS.—The term “rare earth element” includes the similar chemical
30 elements yttrium (atomic number 39) and scandium (atomic number 21).

31 (4) SECRETARY.—

32 (A) TITLE I.—In title I, the term “Secretary” means the Secretary of the Interior,
33 acting through the Director of the United States Geological Survey.

1 (B) TITLE II.—In title II, the term “Secretary” means the Secretary of Energy.

2 (5) STATE.—The term “State” means—

3 (A) a State;

4 (B) the District of Columbia;

5 (C) the Commonwealth of Puerto Rico;

6 (D) Guam.

7 (E) American Samoa;

8 (F) the Commonwealth of the Northern Mariana Islands; and

9 (G) the United States Virgin Islands.

10 TITLE I—DESIGNATIONS AND POLICIES

11 SEC. 101. DESIGNATIONS.

12 (a) Draft Methodology.—Not later than 30 days after the date of enactment of this Act, the
13 Secretary shall publish in the Federal Register for public comment a draft methodology for
14 determining which minerals qualify as critical minerals based on an assessment of whether the
15 minerals are—

16 (1) subject to potential supply restrictions (including restrictions associated with foreign
17 political risk, abrupt demand growth, military conflict, and anti-competitive or protectionist
18 behaviors); and

19 (2) important in use (including clean energy technology-, defense-, and health care-
20 related applications).

21 (b) Availability of Data.—If available data is insufficient to provide a quantitative basis for the
22 methodology developed under this section, qualitative evidence may be used.

23 (c) Review of Methodology.—After reviewing public comments on the draft methodology
24 under subsection (a) and updating that draft methodology as appropriate, the Secretary shall enter
25 into an arrangement with the National Academy of Sciences and the National Academy of
26 Engineering to obtain, not later than 300 days after the date of enactment of this Act—

27 (1) a review of the methodology; and

28 (2) recommendations for improving the methodology.

29 (d) Final Methodology.—After reviewing the recommendations under subsection (c), not later
30 than 1 year after the date of enactment of this Act, the Secretary shall publish in the Federal
31 Register a description of the final methodology for determining which minerals qualify as critical
32 minerals.

33 (e) Designations.—

34 (1) IN GENERAL.—Not later than 18 months after the date of enactment of this Act,
35 subject to paragraph (2), the Secretary shall publish in the Federal Register a list of minerals
36 designated as critical, pursuant to the final methodology under subsection (d), for purposes
37 of carrying out this title.

1 (2) LIMITATION.—In carrying out this title, the Secretary may designate as critical not
2 more than 10 minerals.

3 (f) Subsequent Review.—

4 (1) IN GENERAL.—The Secretary shall review the methodology and designations
5 developed under subsections (d) and (e) at least every 5 years, or in more frequent intervals
6 if considered appropriate by the Secretary.

7 (2) REVISIONS.—Subject to subsection (e)(2), the Secretary may (as determined
8 appropriate by the Secretary)—

9 (A) revise the methodology described in paragraph (1);

10 (B) determine that minerals previously determined to be critical minerals are no
11 longer critical minerals; and

12 (C) designate additional minerals as critical minerals.

13 (g) Notice.—On finalization of the methodology under subsection (d), the list under
14 subsection (e), or any update to the list under subsection (f), the Secretary shall submit to
15 Congress written notice of the action.

16 SEC. 102. POLICY.

17 (a) Declaration.—Congress declares that—

18 (1) it is the continuing policy of the United States to promote an adequate and stable
19 supply of materials necessary to maintain national security, economic well-being, and
20 industrial production with appropriate attention to a long-term balance between resource
21 production, energy use, a healthy environment, natural resources conservation, and social
22 needs; and

23 (2) implementation of the policy described in paragraph (1) requires that the President,
24 acting through the Executive Office of the President, coordinate the responsible departments
25 and agencies to, among other measures—

26 (A) identify materials needs and assist in the pursuit of measures that ensure the
27 availability of materials critical to commerce, the economy, and national security;

28 (B) establish a mechanism for the coordination and evaluation of Federal materials
29 programs, including programs involving research and development, to complement
30 related efforts by the private sector and other domestic and international agencies and
31 organizations;

32 (C) establish a long-range assessment capability concerning materials demands and
33 supply and needs, and provide for the policies and programs necessary to meet those
34 needs;

35 (D) promote a vigorous, comprehensive, and coordinated program of materials
36 research and development consistent with the policies and priorities established under
37 the National Science and Technology Policy, Organization, and Priorities Act of 1976
38 (42 U.S.C. 6601 et seq.);

39 (E) promote cooperative research and development programs with other nations for

1 the equitable and frugal use of materials and energy;

2 (F) promote and encourage private enterprise in the development of economically
3 sound and stable domestic materials industries; and

4 (G) encourage Federal agencies to facilitate the availability and development of
5 domestic resources to meet critical materials needs.

6 (b) Implementation.—For the purpose of implementing the policies described in subsection
7 (a), the President, acting through the Executive Office of the President, shall—

8 (1) coordinate the responsible departments and agencies;

9 (2) direct that the responsible departments and agencies identify, assist, and make
10 recommendations for carrying out appropriate policies and programs to ensure adequate,
11 stable, and economical materials supplies essential to national security, economic well-
12 being, and industrial production;

13 (3) support basic and applied research and development to provide for, among other
14 objectives—

15 (A) advanced science and technology for the exploration, discovery, and recovery of
16 nonfuel materials;

17 (B) enhanced methods or processes for the more efficient production and use of
18 renewable and nonrenewable resources;

19 (C) improved methods for the extraction, processing, use, recovery, and recycling of
20 materials which encourage the conservation of materials, energy, and the environment;
21 and

22 (D) improved understanding of current and new materials performance, processing,
23 substitution, and adaptability in engineering designs;

24 (4) provide for improved collection, analysis, and dissemination of scientific, technical
25 and economic materials information and data from Federal, State, and local governments
26 and other sources as appropriate;

27 (5) assess the need for and make recommendations concerning the availability and
28 adequacy of supply of technically trained personnel necessary for materials research,
29 development, extraction, and harvest and industrial practice, especially with regard to the
30 problem of attracting and maintaining high quality materials professionals in the Federal
31 service;

32 (6) establish early warning systems for materials supply problems;

33 (7) recommend to Congress appropriate measures to promote industrial innovation in
34 materials and materials technologies;

35 (8) encourage cooperative materials research and problem-solving by—

36 (A) private corporations performing the same or related activities in materials
37 industries; and

38 (B) Federal and State institutions having shared interests or objectives;

39 (9)(A) assess Federal policies that adversely or positively affect all stages of the materials

1 cycle from exploration to final product recycling and disposal, including financial assistance
2 and tax policies for recycled and virgin sources of materials; and

3 (B) make recommendations to Congress for equalizing any existing imbalances, or
4 removing any impediments, that may be created by the application of Federal law
5 (including regulations) to the market for materials; and

6 (10) assess the opportunities for the United States to promote cooperative multilateral and
7 bilateral agreements for materials development in foreign nations for the purpose of
8 increasing the reliability of materials supplies to the United States.

9 SEC. 103. RESOURCE ASSESSMENT.

10 (a) In General.—Not later than 4 years after the date of enactment of this Act, in consultation
11 with applicable State (including geological surveys), local, academic, industry, and other entities,
12 the Secretary shall complete, using established resource assessment methodologies of the United
13 States Geological Survey, a comprehensive national assessment of each critical mineral that—

14 (1) identifies and quantifies known critical mineral resources, using all available public
15 and private information and datasets, including exploration histories;

16 (2) estimates the cost of production of the critical mineral resources identified and
17 quantified under this section, using all available public and private information and datasets,
18 including exploration histories;

19 (3) provides a quantitative and qualitative assessment of undiscovered critical mineral
20 resources throughout the United States on land available for mineral production, including
21 probability estimates of tonnage and grade, using all available public and private
22 information and datasets, including exploration histories; and

23 (4) provides qualitative information on the environmental attributes of the critical mineral
24 resources identified under this section.

25 (b) Technical Assistance.—At the request of the Governor of a State or an Indian tribe, the
26 Secretary may provide technical assistance to State governments and Indian tribes conducting
27 critical mineral resource assessments on non-Federal land.

28 (c) Financial Assistance.—The Secretary may make grants to State governments, or Indian
29 tribes and economic development entities of Indian tribes, to cover the costs associated with
30 assessments of critical mineral resources on State or Indian tribe land.

31 (d) Report.—Not later than 4 years after the date of enactment of this Act, the Secretary shall
32 submit to Congress a report describing the results of the assessment conducted under this section.

33 (e) Prioritization.—

34 (1) IN GENERAL.—The Secretary may sequence the completion of resource assessments
35 for each critical mineral such that critical materials considered to be most critical under the
36 methodology established pursuant to section 101 are completed first.

37 (2) REPORTING.—If the Secretary sequences the completion of resource assessments for
38 each critical material, the Secretary shall submit a report under subsection (d) on an iterative
39 basis over the 4-year period beginning on the date of enactment of this Act.

1 (f) Updates.—The Secretary shall periodically update the assessment conducted under this
2 section based on—

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

4 (2) the receipt of new information or datasets from critical mineral producers, State
5 geological surveys, academic institutions, trade associations, or other entities or individuals.

6 **SEC. 104. STUDY OF LIFE CYCLE APPROACH TO**
7 **CRITICAL MINERAL ANALYSIS AND MANAGEMENT.**

8 (a) In General.—The Secretary shall enter into an arrangement with the National Academy of
9 Sciences (referred to in this section as the “Academy”) under which the Academy shall—

10 (1) conduct a study of using a life cycle approach to critical mineral analysis and
11 management through the examination of not less than 3, and not more than 5, minerals or
12 groups of minerals as examples; and

13 (2) not later than 18 months after the date of enactment of this Act, submit to the
14 Committee on Energy and Natural Resources of the Senate and the Committee on Natural
15 Resources of the House of Representatives a report on the results of the study, including any
16 recommendations.

17 (b) Minerals.—In selecting minerals for examination under this section, the Academy—

18 (1) shall select minerals that represent a range of needs in critical defense, energy, and
19 telecommunications technologies; and

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

21 (A) large-scale primary production from relatively rich ores;

22 (B) large-scale primary production or coproduction from low-concentration ores;
23 and

24 (C) minerals recovered as byproducts.

25 (c) Components.—

26 (1) IN GENERAL.—

27 (A) REQUIREMENT.—As part of the study required by this section, the Academy
28 shall study the components described in this subsection.

29 (B) MINERALS.—In studying each of the components described in this section, the
30 Academy shall use not less than 3, and not more than 5, minerals as examples.

31 (2) ADVANCED TECHNOLOGIES.—The Academy shall study advanced technologies for
32 mineral exploration, extraction, and processing, including an examination of —

33 (A) technologies for—

34 (i) exploration for new mineral resources;

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

36 (iii) reprocessing or reopening of existing or abandoned mine wastes and sites

- 1 and recycling at mines;
- 2 (B) the potential impact of mining described in subparagraph (A) on the
3 environment and human health;
- 4 (C) the degree to which new technology developments can incorporate increased
5 measures of safety for miners, processing engineers, and the environment;
- 6 (D) comparative technologies from other industries, including the petroleum,
7 medical, and transportation industries;
- 8 (E) necessary research and data collection to support exploration, extraction, and
9 processing;
- 10 (F) the use of energy and water in extraction, processing, and recycling; and
- 11 (G) incentives for research on advanced technologies described in this paragraph.
- 12 (3) **BASELINE CONDITIONS.**—The Academy shall study advanced approaches for
13 establishing baseline conditions for land, surface, and ground water, and ecological systems
14 and for monitoring mine sites during and after mine operation, and through the period of
15 post-closure management of mine sites, including an examination of—
- 16 (A) key datasets required and gaps in knowledge, including the potential effect on
17 biota and water;
- 18 (B) the geochemistry of mine wastes and water; and
- 19 (C) best practices for—
- 20 (i) mine reclamation;
- 21 (ii) reuse and recycling; and
- 22 (iii) long-term care and maintenance.
- 23 (4) **REGULATORY FRAMEWORK.**—The Academy shall conduct a review and examination
24 of the Federal and State regulatory framework for mineral exploration, production,
25 reclamation, and recycling, including an examination of—
- 26 (A) leasing, operating, environmental, reclamation, and permitting laws (including
27 regulations) for mining and processing, including requirements for enforcement and
28 for post-mining rehabilitation and reclamation drawing on previous work of the
29 Academy;
- 30 (B) the time required at various stages of the leasing and permitting process,
31 including an identification of any redundancies;
- 32 (C) incentives (including tax and nontax incentives) for the production of critical
33 minerals; and
- 34 (D) best practices, including land-use planning, engagement with local communities,
35 and financial assurance measures, with specific attention to means for—
- 36 (i) improving the efficiency of the permitting process; and
- 37 (ii) ensuring that the process guarantees environmental protection.

1 (5) LIFE CYCLE.—The Academy shall conduct an analysis of the life cycle from the time a
2 mineral is first explored through extraction and subsequent processing for incorporation and
3 use in manufactured products, including an examination of—

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

5 (B) signals at different points in the supply chain that might be used to anticipate
6 supply chain pinch points;

7 (C) Federal responsibilities along different parts of the supply chain to identify the
8 appropriate information required to address pinch points; and

9 (D) the potential for recyclability.

10 SEC. 105. RECYCLING AND ALTERNATIVES.

11 (a) Establishment.—The Secretary of Energy shall conduct a program of research and
12 development to promote the efficient production, use, and recycling of, and alternatives to,
13 critical minerals.

14 (b) Cooperation.—In carrying out the program, the Secretary of Energy shall cooperate with
15 appropriate—

16 (1) Federal agencies and National Laboratories;

17 (2) critical mineral producers;

18 (3) critical mineral manufacturers;

19 (4) trade associations;

20 (5) academic institutions; and

21 (6) small businesses; and

22 (7) other relevant entities or individuals.

23 (c) Activities.—Under the program, the Secretary of Energy shall carry out activities that
24 include the identification and development of—

25 (1) advanced critical mineral production or processing technologies that decrease the
26 environmental impact, and costs of production, of such activities;

27 (2) techniques and practices that minimize or lead to more efficient use of critical
28 minerals;

29 (3) techniques and practices that facilitate the recycling of critical minerals, including
30 options for improving the rates of collection of post-consumer products containing critical
31 minerals;

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

34 (5) alternative minerals, metals, and materials, particularly those available in abundance
35 within the United States and not subject to potential supply restrictions, that lessen the need
36 for critical minerals.

37 (d) Report.—Not later than 2 years after the date of enactment of this Act and every 5 years

1 thereafter, the Secretaries shall submit to Congress a report summarizing the activities, findings,
2 and progress of the program.

3 SEC. 106. ANALYSIS AND FORECASTING.

4 (a) Capabilities.—In order to evaluate existing critical mineral policies and inform future
5 actions that may be taken to avoid supply shortages, mitigate price volatility, and prepare for
6 demand growth and other market shifts, the Secretary, in consultation with academic institutions,
7 the Energy Information Administration, and others in order to maximize the application of
8 existing competencies related to developing and maintaining computer-models and similar
9 analytical tools, shall conduct and publish the results of an annual report that includes—

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

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

15 (B) the quantity of each critical mineral domestically consumed during the
16 preceding year;

17 (C) market price data for each critical mineral;

18 (D) an assessment of—

19 (i) critical mineral requirements to meet the national security, energy,
20 economic, industrial, technological, and other needs of the United States during
21 the preceding year;

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

24 (iii) the implications of any supply shortages, restrictions, or disruptions during
25 the preceding year;

26 (E) the quantity of each critical mineral domestically recycled during the preceding
27 year;

28 (F) the market penetration during the preceding year of alternatives to each critical
29 mineral;

30 (G) a discussion of applicable international trends associated with the discovery,
31 production, consumption, use, costs of production, prices, and recycling of each critical
32 mineral as well as the development of alternatives to critical minerals; and

33 (H) such other data, analyses, and evaluations as the Secretary finds are necessary to
34 achieve the purposes of this section; and

35 (2) a comprehensive forecast, entitled the “Annual Critical Minerals Outlook”, of
36 projected critical mineral production, consumption, and recycling patterns, including—

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

39 (B) the quantity of each critical mineral projected to be domestically consumed over

1 the subsequent 1-year, 5-year, and 10-year periods;

2 (C) market price projections for each critical mineral, to the maximum extent
3 practicable and based on the best available information;

4 (D) an assessment of—

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

7 (ii) the projected reliance of the United States on foreign sources to meet those
8 needs; and

9 (iii) the projected implications of potential supply shortages, restrictions, or
10 disruptions;

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

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

15 (G) a discussion of reasonably foreseeable international trends associated with the
16 discovery, production, consumption, use, costs of production, prices, and recycling of
17 each critical mineral as well as the development of alternatives to critical minerals; and

18 (H) such other projections relating to each critical mineral as the Secretary
19 determines to be necessary to achieve the purposes of this section.

20 (b) Proprietary Information.—In preparing a report described in subsection (a), the Secretary
21 shall ensure, consistent with section 5(f) of the National Materials and Minerals, Policy,
22 Research and Development Act of 1980 (30 U.S.C. 1604(f)), that—

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

27 (2) no person discloses any information or data collected for the report unless the
28 information or data has been transformed into a statistical or aggregate form that does not
29 allow the identification of the person who supplied particular information; and

30 (3) procedures are established to require the withholding of any information or data
31 collected for the report if the Secretary determines that withholding is necessary to protect
32 proprietary information, including any trade secrets or other confidential information.

33 SEC. 107. EDUCATION AND WORKFORCE.

34 (a) Workforce Assessment.—Not later than 300 days after the date of enactment of this Act,
35 the Secretary of Labor (in consultation with the Secretary of the Interior, the Director of the
36 National Science Foundation, and employers in the critical minerals sector) shall submit to
37 Congress an assessment of the domestic availability of technically trained personnel necessary
38 for critical mineral assessment, production, manufacturing, recycling, analysis, forecasting,
39 education, and research, including an analysis of—

- 1 (1) skills that are in the shortest supply as of the date of the assessment;
- 2 (2) skills that are projected to be in short supply in the future;
- 3 (3) the demographics of the critical minerals industry and how the demographics will
- 4 evolve under the influence of factors such as an aging workforce;
- 5 (4) the effectiveness of training and education programs in addressing skills shortages;
- 6 (5) opportunities to hire locally for new and existing critical mineral activities;
- 7 (6) the sufficiency of personnel within relevant areas of the Federal Government for
- 8 achieving the purposes of this title; and
- 9 (7) the potential need for new training programs to have a measurable effect on the
- 10 supply of trained workers in the critical minerals industry.

11 (b) Curriculum Study.—

12 (1) IN GENERAL.—The Secretary and the Secretary of Labor shall jointly enter into an
13 arrangement with the National Academy of Sciences and the National Academy of
14 Engineering under which the Academies shall coordinate with the National Science
15 Foundation on conducting a study—

16 (A) to design an interdisciplinary program on critical minerals that will support the
17 critical mineral supply chain and improve the ability of the United States to increase
18 domestic, critical mineral exploration, development, and manufacturing;

19 (B) to address undergraduate and graduate education, especially to assist in the
20 development of graduate level programs of research and instruction that lead to
21 advanced degrees with an emphasis on the critical mineral supply chain or other
22 positions that will increase domestic, critical mineral exploration, development, and
23 manufacturing;

24 (C) to develop guidelines for proposals from institutions of higher education with
25 substantial capabilities in the required disciplines to improve the critical mineral
26 supply chain and advance the capacity of the United States to increase domestic,
27 critical mineral exploration, development, and manufacturing; and

28 (D) to outline criteria for evaluating performance and recommendations for the
29 amount of funding that will be necessary to establish and carry out the grant program
30 described in subsection (c).

31 (2) REPORT.—Not later than 2 years after the date of enactment of this Act, the Secretary
32 shall submit to Congress a description of the results of the study required under paragraph
33 (1).

34 (c) Grant Program.—

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

38 (A) startup costs for newly designated faculty positions in integrated critical mineral
39 education, research, innovation, training, and workforce development programs
40 consistent with subsection (b);

1 (B) internships, scholarships, and fellowships for students enrolled in critical
2 mineral programs; and

3 (C) equipment necessary for integrated critical mineral innovation, training, and
4 workforce development programs.

5 (2) RENEWAL.—A grant under this subsection shall be renewable for up to 2 additional 3-
6 year terms based on performance criteria outlined under subsection (b)(1)(D).

7 SEC. 108. INTERNATIONAL COOPERATION.

8 (a) Establishment.—The Secretary of State, in coordination with the Secretary, shall carry out
9 a program to promote international cooperation on critical mineral supply chain issues with allies
10 of the United States.

11 (b) Activities.—Under the program, the Secretary of State may work with allies of the United
12 States—

13 (1) to increase the global, responsible production of critical minerals, if a determination is
14 made by the Secretary of State that there is no viable production capacity for the critical
15 minerals within the United States;

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

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

18 (4) to assist in the development and transfer of critical mineral extraction, processing, and
19 manufacturing technologies that would have a beneficial impact on world commodity
20 markets and the environment;

21 (5) to strengthen and maintain intellectual property protections; and

22 (6) to facilitate the collection of information necessary for analyses and forecasts
23 conducted pursuant to section 106.

24 TITLE II—MINERAL-SPECIFIC ACTIONS

25 SEC. 201. ADMINISTRATION.

26 Nothing in this title or an amendment made by this title affects the methodology or
27 designations established under section 101.

28 SEC. 202. COBALT.

29 (a) Authorization.—The Secretary shall support research programs that focus on novel uses
30 for cobalt (including energy technologies and super-alloys), including—

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

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

35 (3) use as coal-to-gas and coal-to-liquid catalysts.

36 (b) Categories.—Research under this section shall be conducted in—

- 1 (1) a fundamental category, including laboratory and literature research; and
2 (2) an applied category, including plant and field research.

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

- 5 (1) the research programs carried out under this section;
6 (2) the findings of the programs; and
7 (3) future research efforts planned.

8 SEC. 203. LEAD.

9 (a) In General.—The Secretary shall support research programs that focus on advanced lead
10 manufacturing processes, including programs that—

- 11 (1) contribute to the establishment of a secure, domestic supply of lead;
12 (2) produce technologies that represent an environmental improvement compared to
13 conventional production processes; or
14 (3) produce technologies that attain a higher efficiency level compared to conventional
15 production processes.

16 (b) Coordination.—In carrying out the programs under subsection (a), the Secretary shall
17 coordinate with other entities to promote the development of environmentally responsible lead
18 manufacturing, including—

- 19 (1) other Federal agencies;
20 (2) States with affected interests;
21 (3) manufacturers;
22 (4) clean energy technology manufacturers, including producers of batteries and other
23 energy storage technologies; and
24 (5) any others considered appropriate by the Secretary.

25 SEC. 204. LITHIUM.

26 Subtitle E of title VI of the Energy Independence and Security Act of 2007 (42 U.S.C. 17241
27 et seq.) is amended by adding at the end the following:

28 “SEC. 657. GRANTS FOR LITHIUM PRODUCTION 29 RESEARCH AND DEVELOPMENT.

30 “(a) Definition of Eligible Entity.—In this section, the term ‘eligible entity’ means—

- 31 “(1) a private partnership or other entity that is—
32 “(A) organized in accordance with Federal law; and
33 “(B) engaged in lithium production for use in advanced battery technologies;
34 “(2) a public entity, such as a State, tribal, or local governmental entity; or

1 “(3) a consortium of entities described in paragraphs (1) and (2).

2 “(b) Grants.—The Secretary shall provide grants to eligible entities for research, development,
3 demonstration, and commercial application of domestic industrial processes that are designed to
4 enhance domestic lithium production for use in advanced battery technologies, as determined by
5 the Secretary.

6 “(c) Use.—An eligible entity shall use a grant provided under this section to develop or
7 enhance—

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

10 “(2) industrial processes associated with new formulations of lithium feedstock for use in
11 advanced lithium batteries.”.

12 SEC. 205. LOW BTU-GAS.

13 (a) Definition of Low-Btu Gas.—In this section, the term “low-Btu gas” means a fuel gas with
14 a heating value of less than 250 Btu per cubic foot measured as the higher heating value resulting
15 from the inclusion of noncombustible gases, including nitrogen, helium, argon, and carbon
16 dioxide.

17 (b) Authorization.—The Secretary shall support programs of research, development,
18 commercial application, and conservation to expand the domestic production of low-Btu gas and
19 helium resources, including the programs described in subsection (c).

20 (c) Programs.—

21 (1) MEMBRANE TECHNOLOGY RESEARCH.—The Secretary, in consultation with
22 appropriate agencies, shall support a civilian research program to develop advanced
23 membrane technology that is used in the separation of gases from applications, including
24 technologies that—

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

26 (B) remove gases from landfills and separate out methane.

27 (2) HELIUM SEPARATION TECHNOLOGY.—The Secretary shall support a research program
28 to develop technologies for separating, gathering, and processing helium in low
29 concentrations that occur naturally in geologic reservoirs or formations, including low-Btu
30 gas production streams.

31 (3) INDUSTRIAL HELIUM PROGRAM.—The Secretary, working through the Industrial
32 Technologies Program of the Department of Energy, shall support a research program—

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

34 (B) to develop industrial gathering technologies to capture helium from other
35 chemical processing, including ammonia processing.

36 SEC. 206. THORIUM.

37 (a) Study.—The Secretary, in consultation with the Nuclear Regulatory Commission, shall
38 conduct a study on the technical, economic, and policy issues (including nonproliferation)

1 associated with establishing a licensing pathway for the complete thorium nuclear fuel cycle
2 (including mining, milling, processing, fabrication, reactors, disposal, and decommissioning)
3 that—

4 (1) identifies the gaps in the technical knowledge that could lead to a licensing pathway;
5 and

6 (2) considers technologies and applications for any thorium byproducts of critical mineral
7 production or processing.

8 (b) Cooperation.—In conducting the study under subsection (a), the Secretary shall cooperate
9 with appropriate—

10 (1) trade associations;

11 (2) equipment manufacturers;

12 (3) National Laboratories;

13 (4) institutions of higher education; and

14 (5) other applicable entities.

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

17 SEC. 207. UPDATED RESOURCE INFORMATION.

18 (a) Resources.—Not later than 1 year after the date of enactment of this Act, the Secretary of
19 the Interior shall complete an update of existing resource information for phosphate, potash, and
20 rare earth elements.

21 (b) Consultation.—In updating resource information under this section, the Secretary of the
22 Interior shall consult with—

23 (1) the heads of appropriate State geological surveys;

24 (2) mineral producers;

25 (3) mineral processors;

26 (4) trade associations;

27 (5) academic institutions; and

28 (6) such other entities or individuals as the Secretary of the Interior considers appropriate.

29 (c) Limitation.—

30 (1) IN GENERAL.—Resource information updates carried out pursuant to this section shall
31 be limited to collection of existing information.

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

34 (d) Report.—Not later than 2 years after the date of enactment of this Act, the Secretary of the
35 Interior shall submit to Congress written notification certifying that the resource information for
36 phosphate and rare earth elements is up-to-date.

1 TITLE III—MISCELLANEOUS

2 SEC. 301. REPEAL.

3 (a) In General.—The following Acts are repealed:

4 (1) The National Materials and Minerals Policy, Research and Development Act of 1980
5 (30 U.S.C. 1601 et seq.), other than subsection (f) of section 5 of that Act (30 U.S.C. 1604)
6 and section 8 of that Act (94 Stat. 2310).

7 (2) The National Critical Materials Act of 1984 (30 U.S.C. 1801 et seq.).

8 (b) Conforming Amendment.—Section 3(d) of the National Superconductivity and
9 Competitiveness Act of 1988 (15 U.S.C. 5202(d)) is amended in the first sentence by striking “,
10 with the assistance of the National Critical Materials Council as specified in the National Critical
11 Materials Act of 1984 (30 U.S.C. 1801 et seq.),”.

12 SEC. 302. ADMINISTRATION.

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

16 SEC. 303. AUTHORIZATION OF APPROPRIATIONS.

17 There is authorized to be appropriated to carry out this Act and the amendments made by this
18 Act \$53,250,000, of which—

19 (1) \$500,000 may be used to carry out section 101, to remain available until expended;

20 (2) \$20,000,000 may be used to carry out section 103, to remain available until expended;

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

22 (4) \$1,000,000 for each of fiscal years 2012 through 2016 may be used to carry out
23 section 105, to remain available until expended;

24 (5)(A) \$1,500,000 for each of fiscal years 2012 and 2013 may be used to carry out
25 section 106, to remain available until expended; and

26 (B) \$750,000 for each of fiscal years 2014 through 2016 may be used to carry out section
27 106;

28 (6) \$1,000,000 for each of fiscal years 2012 through 2016 may be used to carry out
29 section 107, to remain available until expended;

30 (7) \$500,000 for each of fiscal years 2012 through 2016 may be used to carry out section
31 108, to remain available until expended;

32 (8) \$1,000,000 for each of fiscal years 2012 through 2014 may be used to carry out
33 sections 202 through 206 and the amendment made by those sections; and

34 (9) \$1,000,000 may be used to carry out section 207, to remain available until expended.