

AMENDMENT NO. \_\_\_\_\_ Calendar No. \_\_\_\_\_

Purpose: In the nature of a substitute.

**IN THE SENATE OF THE UNITED STATES—116th Cong., 2d Sess.**

**S. 2657**

To support innovation in advanced geothermal research and development, 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 “American Energy Innovation Act of 2020”.

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

Sec. 1. Short title; table of contents.

Sec. 2. Definitions.

TITLE I—INNOVATION

Subtitle A—Efficiency

PART I—ENERGY SAVINGS AND INDUSTRIAL COMPETITIVENESS

SUBPART A—BUILDINGS

## 2

## CHAPTER 1—BUILDING EFFICIENCY

- Sec. 1001. Commercial building energy consumption information sharing.
- Sec. 1002. Energy efficiency materials pilot program.
- Sec. 1003. Coordination of energy retrofitting assistance for schools.
- Sec. 1004. Grants for energy efficiency improvements and renewable energy improvements at public school facilities.
- Sec. 1005. Smart Building Acceleration.

## CHAPTER 2—WORKER TRAINING AND CAPACITY BUILDING

- Sec. 1011. Building training and assessment centers.
- Sec. 1012. Career skills training.

## SUBPART B—INDUSTRIAL EFFICIENCY AND COMPETITIVENESS

- Sec. 1021. Purposes.
- Sec. 1022. Future of Industry program and industrial research and assessment centers.
- Sec. 1023. CHP Technical Assistance Partnership Program.
- Sec. 1024. Sustainable manufacturing initiative.
- Sec. 1025. Conforming amendments.

## SUBPART C—FEDERAL AGENCY ENERGY EFFICIENCY

- Sec. 1031. Energy and water performance requirements for Federal buildings.
- Sec. 1032. Federal Energy Management Program.
- Sec. 1033. Use of energy and water efficiency measures in Federal buildings.
- Sec. 1034. Federal building energy efficiency performance standards; certification system and level for green buildings.
- Sec. 1035. Energy-efficient and energy-saving information technologies.
- Sec. 1036. High-performance green Federal buildings.
- Sec. 1037. Energy efficient data centers.

## SUBPART D—REBATES AND CERTIFICATIONS

- Sec. 1041. Third-Party Certification Under Energy Star Program.
- Sec. 1042. Extended Product System Rebate Program.
- Sec. 1043. Energy Efficient Transformer Rebate Program.

## SUBPART E—MISCELLANEOUS

- Sec. 1051. Advance appropriations required.

## PART II—WEATHERIZATION

- Sec. 1101. Weatherization Assistance Program.

## Subtitle B—Renewable Energy

- Sec. 1201. Hydroelectric production incentives and efficiency improvements.
- Sec. 1202. Marine energy research and development.
- Sec. 1203. Advanced geothermal innovation leadership.
- Sec. 1204. Wind energy research and development.
- Sec. 1205. Solar energy research and development.

## Subtitle C—Energy Storage

- Sec. 1301. Better energy storage technology.

## 3

Sec. 1302. Bureau of Reclamation pumped storage hydropower development.

Subtitle D—Carbon Capture, Utilization, and Storage

Sec. 1401. Fossil energy.

Sec. 1402. Establishment of coal and natural gas technology program.

Sec. 1403. Carbon storage validation and testing.

Sec. 1404. Carbon utilization program.

Sec. 1405. Carbon removal.

Subtitle E—Nuclear

Sec. 1501. Light water reactor sustainability program.

Sec. 1502. Nuclear energy research, development, and demonstration.

Sec. 1503. Advanced fuels development.

Sec. 1504. Nuclear science and engineering support.

Sec. 1505. University Nuclear Leadership Program.

Sec. 1506. Versatile, reactor-based fast neutron source.

Sec. 1507. Advanced nuclear reactor research and development goals.

Sec. 1508. Nuclear energy strategic plan.

Sec. 1509. Advanced nuclear fuel security program.

Sec. 1510. International nuclear energy cooperation.

Sec. 1511. Integrated Energy Systems Program.

Subtitle F—Industrial Technologies

PART I—INNOVATION

Sec. 1601. Purpose.

Sec. 1602. Coordination of research and development of energy efficient technologies for industry.

Sec. 1603. Industrial emissions reduction technology development program.

Sec. 1604. Industrial Technology Innovation Advisory Committee.

Sec. 1605. Technical assistance program to implement industrial emissions reduction.

PART II—SMART MANUFACTURING

Sec. 1611. Definitions.

Sec. 1612. Development of national smart manufacturing plan.

Sec. 1613. Leveraging existing agency programs to assist small and medium manufacturers.

Sec. 1614. Leveraging smart manufacturing infrastructure at National Laboratories.

Sec. 1615. State manufacturing leadership.

Sec. 1616. Report.

Subtitle G—Vehicles

Sec. 1701. Objectives.

Sec. 1702. Coordination and nonduplication.

Sec. 1703. Authorization of appropriations.

Sec. 1704. Reporting.

Sec. 1705. Vehicle research and development.

Sec. 1706. Medium- and heavy-duty commercial and transit vehicles program.

Sec. 1707. Class 8 truck and trailer systems demonstration.

Sec. 1708. Technology testing and metrics.

Sec. 1709. Nonroad systems pilot program.

## 4

Sec. 1710. Repeal of existing authorities.

Subtitle H—Department of Energy

- Sec. 1801. Veterans' health initiative.
- Sec. 1802. Small scale LNG access.
- Sec. 1803. Appalachian energy for national security.
- Sec. 1804. Energy and water for sustainability.
- Sec. 1805. Technology transitions.
- Sec. 1806. Energy Technology Commercialization Fund cost-sharing.
- Sec. 1807. State loan eligibility.
- Sec. 1808. ARPA-E reauthorization.
- Sec. 1809. Adjusting strategic petroleum reserve mandated drawdowns.

TITLE II—SUPPLY CHAIN SECURITY

Subtitle A—Mineral Security

- Sec. 2101. Mineral security.
- Sec. 2102. Rare earth element advanced coal technologies.

Subtitle B—Cybersecurity and Grid Security and Modernization

PART I—CYBERSECURITY AND GRID SECURITY

- Sec. 2201. Incentives for advanced cybersecurity technology investment.
- Sec. 2202. Rural and municipal utility advanced cybersecurity grant and technical assistance program.
- Sec. 2203. State energy security plans.
- Sec. 2204. Enhancing grid security through public-private partnerships.
- Sec. 2205. Enhanced grid security.

PART II—GRID MODERNIZATION

- Sec. 2210. Grid storage program.
- Sec. 2211. Technology demonstration on the distribution system.
- Sec. 2212. Micro-grid and hybrid micro-grid systems program.
- Sec. 2213. Electric grid architecture, scenario development, and modeling.
- Sec. 2214. Voluntary model pathways.
- Sec. 2215. Performance metrics for electricity infrastructure providers.
- Sec. 2216. Voluntary State, regional, and local electricity distribution planning.
- Sec. 2217. Authorization of appropriations.

Subtitle C—Workforce Development

- Sec. 2301. Definitions.
- Sec. 2302. Addressing insufficient compensation of employees and other personnel of the Federal Energy Regulatory Commission.
- Sec. 2303. Report on the authority of the Secretary to implement flexible compensation models.
- Sec. 2304. 21st Century Energy Workforce Advisory Board.
- Sec. 2305. National Laboratory jobs access pilot program.
- Sec. 2306. Clean energy workforce pilot program.

TITLE III—CODE MAINTENANCE

- Sec. 3001. Repeal of off-highway motor vehicles study.
- Sec. 3002. Repeal of methanol study.

- Sec. 3003. Repeal of state utility regulatory assistance.
- Sec. 3004. Repeal of authorization of appropriations provision.
- Sec. 3005. Repeal of residential energy efficiency standards study.
- Sec. 3006. Repeal of weatherization study.
- Sec. 3007. Repeal of report to Congress.
- Sec. 3008. Repeal of survey of energy saving potential.
- Sec. 3009. Repeal of report by General Services Administration.
- Sec. 3010. Repeal of intergovernmental energy management planning and coordination workshops.
- Sec. 3011. Repeal of Inspector General audit survey and President's Council on Integrity and Efficiency report to Congress.
- Sec. 3012. Repeal of procurement and identification of energy efficient products program.
- Sec. 3013. Repeal of photovoltaic energy program.
- Sec. 3014. Repeal of national action plan for demand response.
- Sec. 3015. Repeal of energy auditor training and certification.
- Sec. 3016. Repeal of national coal policy study.
- Sec. 3017. Repeal of study on compliance problem of small electric utility systems.
- Sec. 3018. Repeal of study of socioeconomic impacts of increased coal production and other energy development.
- Sec. 3019. Repeal of study of the use of petroleum and natural gas in combustors.
- Sec. 3020. Repeal of authorization of appropriations.
- Sec. 3021. Repeal of submission of reports.
- Sec. 3022. Repeal of electric utility conservation plan.
- Sec. 3023. Emergency Energy Conservation repeals.
- Sec. 3024. Energy Security Act repeals.
- Sec. 3025. Nuclear Safety Research, Development, and Demonstration Act of 1980 repeals.
- Sec. 3026. Repeal of Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989.
- Sec. 3027. Repeal of hydrogen research, development, and demonstration program.
- Sec. 3028. Repeal of study on alternative fuel use in nonroad vehicles and engines.
- Sec. 3029. Repeal of low interest loan program for small business fleet purchases.
- Sec. 3030. Repeal of technical and policy analysis for replacement fuel demand and supply information.
- Sec. 3031. Repeal of 1992 Report on Climate Change.
- Sec. 3032. Repeal of Director of Climate Protector establishment.
- Sec. 3033. Repeal of 1994 report on global climate change emissions.
- Sec. 3034. Repeal of telecommuting study.
- Sec. 3035. Repeal of advanced buildings for 2005 program.
- Sec. 3036. Repeal of Energy Research, Development, Demonstration, and Commercial Application Advisory Board.
- Sec. 3037. Repeal of study on use of energy futures for fuel purchase.
- Sec. 3038. Repeal of energy subsidy study.
- Sec. 3039. Elimination and consolidation of certain America COMPETES programs.
- Sec. 3040. Repeal of prior limitation on compensation of the Secretary of the Interior.

1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) DEPARTMENT.—The term “Department”  
4 means the Department of Energy.

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

9 (3) SECRETARY.—Unless otherwise specified,  
10 the term “Secretary” means the Secretary of En-  
11 ergy.

12 **TITLE I—INNOVATION**

13 **Subtitle A—Efficiency**

14 **PART I—ENERGY SAVINGS AND INDUSTRIAL**

15 **COMPETITIVENESS**

16 **Subpart A—Buildings**

17 **CHAPTER 1—BUILDING EFFICIENCY**

18 **SEC. 1001. COMMERCIAL BUILDING ENERGY CONSUMPTION**  
19 **INFORMATION SHARING.**

20 (a) IN GENERAL.—Not later than 120 days after the  
21 date of enactment of this Act, the Administrator of the  
22 Energy Information Administration (referred to in this  
23 section as the “Administrator”) and the Administrator of  
24 the Environmental Protection Agency shall sign, and sub-  
25 mit to Congress, an information sharing agreement (re-

1 ferred to in this section as the “agreement”) relating to  
2 commercial building energy consumption data.

3 (b) CONTENT OF AGREEMENT.—The agreement  
4 shall—

5 (1) provide that the Administrator shall have  
6 access to building-specific data in the Portfolio Man-  
7 ager database of the Environmental Protection  
8 Agency;

9 (2) describe the manner in which the Adminis-  
10 trator shall incorporate appropriate data (including  
11 the data described in subsection (c)) into any Com-  
12 mercial Buildings Energy Consumption Survey (re-  
13 ferred to in this section as “CBECS”) published  
14 after the date of enactment of this Act for the pur-  
15 pose of analyzing and estimating building popu-  
16 lation, size, location, activity, energy usage, and any  
17 other relevant building characteristic; and

18 (3) describe and compare—

19 (A) the methodologies that the Energy In-  
20 formation Administration, the Environmental  
21 Protection Agency, and State and local govern-  
22 ment managers use to maximize the quality, re-  
23 liability, and integrity of data collected through  
24 CBECS, the Portfolio Manager database of the  
25 Environmental Protection Agency, and State

1 and local building energy disclosure laws (in-  
2 cluding regulations), respectively, and the man-  
3 ner in which those methodologies can be im-  
4 proved; and

5 (B) consistencies and variations in data for  
6 buildings that were captured in the 2012  
7 CBECS cycle and in the Portfolio Manager  
8 database of the Environmental Protection  
9 Agency.

10 (c) DATA.—The data referred in subsection (b)(2) in-  
11 cludes data that—

12 (1) is collected through the Portfolio Manager  
13 database of the Environmental Protection Agency;

14 (2) is required to be publicly available on the  
15 internet under State and local government building  
16 energy disclosure laws (including regulations); and

17 (3) includes information on private sector build-  
18 ings that are not less than 250,000 square feet.

19 (d) PROTECTION OF INFORMATION.—In carrying out  
20 the agreement, the Administrator and the Administrator  
21 of the Environmental Protection Agency shall protect in-  
22 formation in accordance with—

23 (1) section 552(b)(4) of title 5, United States  
24 Code (commonly known as the ‘Freedom of Informa-  
25 tion Act’);



1           (2) subchapter III of chapter 35 of title 44,  
2           United States Code; and

3           (3) any other applicable law (including regula-  
4           tions).

5 **SEC. 1002. ENERGY EFFICIENCY MATERIALS PILOT PRO-**  
6           **GRAM.**

7           (a) DEFINITIONS.—In this section:

8           (1) APPLICANT.—The term “applicant” means  
9           a nonprofit organization that applies for a grant  
10          under this section.

11          (2) ENERGY-EFFICIENCY MATERIAL.—

12           (A) IN GENERAL.—The term “energy-effi-  
13           ciency material” means a material (including a  
14           product, equipment, or system) the installation  
15           of which results in a reduction in use by a non-  
16           profit organization of energy or fuel.

17           (B) INCLUSIONS.—The term “energy-effi-  
18           ciency material” includes—

19           (i) a roof or lighting system or compo-  
20           nent of the system;

21           (ii) a window;

22           (iii) a door, including a security door;

23           (iv) a heating, ventilation, or air con-  
24           ditioning system or component of the sys-  
25           tem (including insulation and wiring and

1 plumbing improvements needed to serve a  
2 more efficient system); and

3 (v) a renewable energy generation or  
4 heating system, including a solar, photo-  
5 voltaic, wind, geothermal, or biomass (in-  
6 cluding wood pellet) system or component  
7 of the system.

8 (3) NONPROFIT BUILDING.—

9 (A) IN GENERAL.—The term “nonprofit  
10 building” means a building operated and owned  
11 by an organization that is described in section  
12 501(c)(3) of the Internal Revenue Code of 1986  
13 and exempt from tax under section 501(a) of  
14 such Code.

15 (B) INCLUSIONS.—The term “nonprofit  
16 building” includes a building described in sub-  
17 paragraph (A) that is—

18 (i) a hospital;

19 (ii) a youth center;

20 (iii) a school;

21 (iv) a social-welfare program facility;

22 (v) a faith-based organization; or

23 (vi) any other nonresidential and non-  
24 commercial structure.



1           (4) LIMITATION ON INDIVIDUAL GRANT  
2           AMOUNT.—Each grant awarded under this section  
3           shall not exceed \$200,000.

4           (d) REPORT.—Not later than January 1, 2023, the  
5           Secretary shall submit to Congress a report on the pilot  
6           program established under subsection (b) that describes—

7                 (1) the net reduction in energy use and energy  
8                 costs under the pilot program; and

9                 (2) for each recipient of a grant under the pilot  
10            program—

11                         (A) the geographic location of the recipi-  
12                         ent; and

13                         (B) the size of the organization of the re-  
14                         cipient.

15           (e) AUTHORIZATION OF APPROPRIATIONS.—There is  
16           authorized to be appropriated to carry out this section  
17           \$10,000,000 for each of fiscal years 2021 through 2025,  
18           to remain available until expended.

19           **SEC. 1003. COORDINATION OF ENERGY RETROFITTING AS-**  
20                                 **SISTANCE FOR SCHOOLS.**

21           (a) DEFINITION OF SCHOOL.—In this section, the  
22           term “school” means—

23                 (1) an elementary school or secondary school  
24                 (as defined in section 8101 of the Elementary and

1 Secondary Education Act of 1965 (20 U.S.C.  
2 7801));

3 (2) an institution of higher education (as de-  
4 fined in section 102(a) of the Higher Education Act  
5 of 1965 (20 U.S.C. 1002(a)));

6 (3) a school of the defense dependents' edu-  
7 cation system under the Defense Dependents' Edu-  
8 cation Act of 1978 (20 U.S.C. 921 et seq.) or estab-  
9 lished under section 2164 of title 10, United States  
10 Code;

11 (4) a school operated by the Bureau of Indian  
12 Education;

13 (5) a tribally controlled school (as defined in  
14 section 5212 of the Tribally Controlled Schools Act  
15 of 1988 (25 U.S.C. 2511)); and

16 (6) a Tribal College or University (as defined in  
17 section 316(b) of the Higher Education Act of 1965  
18 (20 U.S.C. 1059c(b))).

19 (b) DESIGNATION OF LEAD AGENCY.—The Sec-  
20 retary, acting through the Office of Energy Efficiency and  
21 Renewable Energy, shall act as the lead Federal agency  
22 for coordinating and disseminating information on exist-  
23 ing Federal programs and assistance that may be used  
24 to help initiate, develop, and finance energy efficiency, re-

1 newable energy, and energy retrofitting projects for  
2 schools.

3 (c) REQUIREMENTS.—In carrying out coordination  
4 and outreach under subsection (b), the Secretary shall—

5 (1) in consultation and coordination with the  
6 appropriate Federal agencies, carry out a review of  
7 existing programs and financing mechanisms (in-  
8 cluding revolving loan funds and loan guarantees)  
9 available in or from the Department of Agriculture,  
10 the Department, the Department of Education, the  
11 Department of the Treasury, the Internal Revenue  
12 Service, the Environmental Protection Agency, and  
13 other appropriate Federal agencies with jurisdiction  
14 over energy financing and facilitation that are cur-  
15 rently used or may be used to help initiate, develop,  
16 and finance energy efficiency, renewable energy, and  
17 energy retrofitting projects for schools;

18 (2) establish a Federal cross-departmental col-  
19 laborative coordination, education, and outreach ef-  
20 fort to streamline communication and promote avail-  
21 able Federal opportunities and assistance described  
22 in paragraph (1), for energy efficiency, renewable  
23 energy, and energy retrofitting projects that enables  
24 States, local educational agencies, and schools—

1 (A) to use existing Federal opportunities  
2 more effectively; and

3 (B) to form partnerships with Governors,  
4 State energy programs, local educational, finan-  
5 cial, and energy officials, State and local gov-  
6 ernment officials, nonprofit organizations, and  
7 other appropriate entities, to support the initi-  
8 ation of the projects;

9 (3) provide technical assistance for States, local  
10 educational agencies, and schools to help develop  
11 and finance energy efficiency, renewable energy, and  
12 energy retrofitting projects—

13 (A) to increase the energy efficiency of  
14 buildings or facilities;

15 (B) to install systems that individually  
16 generate energy from renewable energy re-  
17 sources;

18 (C) to establish partnerships to leverage  
19 economies of scale and additional financing  
20 mechanisms available to larger clean energy ini-  
21 tiatives; or

22 (D) to promote—

23 (i) the maintenance of health, environ-  
24 mental quality, and safety in schools, in-  
25 cluding the ambient air quality, through

1 energy efficiency, renewable energy, and  
2 energy retrofit projects; and

3 (ii) the achievement of expected en-  
4 ergy savings and renewable energy produc-  
5 tion through proper operations and main-  
6 tenance practices;

7 (4) develop and maintain a single online re-  
8 source website with contact information for relevant  
9 technical assistance and support staff in the Office  
10 of Energy Efficiency and Renewable Energy for  
11 States, local educational agencies, and schools to ef-  
12 fectively access and use Federal opportunities and  
13 assistance described in paragraph (1) to develop en-  
14 ergy efficiency, renewable energy, and energy retro-  
15 fitting projects; and

16 (5) establish a process for recognition of schools  
17 that—

18 (A) have successfully implemented energy  
19 efficiency, renewable energy, and energy retro-  
20 fitting projects; and

21 (B) are willing to serve as resources for  
22 other local educational agencies and schools to  
23 assist initiation of similar efforts.

24 (d) REPORT.—Not later than 180 days after the date  
25 of enactment of this Act, the Secretary shall submit to



1 Congress a report describing the implementation of this  
2 section.

3 **SEC. 1004. GRANTS FOR ENERGY EFFICIENCY IMPROVE-**  
4 **MENTS AND RENEWABLE ENERGY IMPROVE-**  
5 **MENTS AT PUBLIC SCHOOL FACILITIES.**

6 (a) DEFINITIONS.—In this section:

7 (1) ELIGIBLE ENTITY.—The term “eligible enti-  
8 ty” means a consortium of—

9 (A) 1 local educational agency; and

10 (B) 1 or more—

11 (i) schools;

12 (ii) nonprofit organizations;

13 (iii) for-profit organizations; or

14 (iv) community partners that have the  
15 knowledge and capacity to partner and as-  
16 sist with energy improvements.

17 (2) ENERGY IMPROVEMENT.—The term “en-  
18 ergy improvement” means—

19 (A) any improvement, repair, renovation,  
20 or installation to a school, including school  
21 grounds, that will result in a direct reduction in  
22 school energy costs, including improvements to  
23 building envelope, air conditioning, ventilation,  
24 heating system, domestic hot water heating,

1 compressed air systems, distribution systems,  
2 lighting, power systems, and controls;

3 (B) any improvement, repair, renovation,  
4 or installation that—

5 (i) leads to an improvement in teacher  
6 and student health, including indoor air  
7 quality, daylighting, ventilation, electrical  
8 lighting, green roofs, outdoor gardens, and  
9 acoustics; and

10 (ii) results in a reduction in school en-  
11 ergy costs as described in subparagraph  
12 (A);

13 (C) the installation of renewable energy  
14 technologies (such as wind power, photovoltaics,  
15 solar thermal systems, geothermal energy, hy-  
16 drogen-fueled systems, biomass-based systems,  
17 biofuels, anaerobic digesters, and hydropower)  
18 that provide power to a school;

19 (D) the installation of zero-emissions vehi-  
20 cle infrastructure on school grounds for exclu-  
21 sive use of school buses, school fleets, or stu-  
22 dents, or for the general public; and

23 (E) the purchase or lease of zero-emissions  
24 vehicles, including school buses, fleet vehicles,  
25 and other operational vehicles.

1           (3) LOCAL EDUCATIONAL AGENCY.—The term  
2           “local educational agency” has the meaning given  
3           the term in section 8101 of the Elementary and Sec-  
4           ondary Education Act of 1965 (20 U.S.C. 7801).

5           (4) PARTNERING LOCAL EDUCATIONAL AGEN-  
6           CY.—The term “partnering local educational agen-  
7           cy”, when used with respect to an eligible entity,  
8           means the local educational agency participating in  
9           the eligible entity.

10          (5) ZERO-EMISSIONS VEHICLE INFRASTRUC-  
11          TURE.—The term “zero-emissions vehicle infrastruc-  
12          ture” means infrastructure used to charge or fuel—

13                (A) a zero-emission vehicle (as defined in  
14                section 88.102–94 of title 40, Code of Federal  
15                Regulations (or successor regulation)); or

16                (B) a vehicle that does not produce ex-  
17                haust emissions of any criteria pollutant (or  
18                precursor pollutant) or greenhouse gas under  
19                any possible operational modes or conditions.

20          (b) AUTHORITY.—From amounts made available for  
21          grants under this section, the Secretary shall award com-  
22          petitive grants to eligible entities to make energy improve-  
23          ments authorized by this section.

24          (c) APPLICATIONS.—

1           (1) IN GENERAL.—An eligible entity desiring a  
2           grant under this section shall submit to the Sec-  
3           retary an application at such time, in such manner,  
4           and containing such information as the Secretary  
5           may require.

6           (2) CONTENTS.—The application submitted  
7           under paragraph (1) shall include each of the fol-  
8           lowing:

9                   (A) A needs assessment of the current con-  
10                  dition of the school and facilities that are to re-  
11                  ceive the energy improvements.

12                  (B) A draft work plan of what the eligible  
13                  entity proposes to achieve at the school and a  
14                  description of the energy improvements to be  
15                  carried out.

16                  (C) A description of the capacity of the eli-  
17                  gible entity to provide services and comprehen-  
18                  sive support to make the energy improvements.

19                  (D) An assessment of the applicant's ex-  
20                  pected needs of the eligible entity for operation  
21                  and maintenance training funds, and a plan for  
22                  use of those funds, if any.

23                  (E) An assessment of the expected energy,  
24                  safety, and health benefits of the energy im-  
25                  provements.

1 (F) A lifecycle cost estimate of the pro-  
2 posed energy improvements.

3 (G) An identification of other resources  
4 that are available to carry out the activities for  
5 which funds are requested under this section,  
6 including the availability of utility programs  
7 and public benefit funds.

8 (d) PRIORITY.—In awarding grants under this sec-  
9 tion, the Secretary shall give a priority to eligible enti-  
10 ties—

11 (1) that have renovation, repair, and improve-  
12 ment funding needs; and

13 (2)(A) that serve a high percentage, as deter-  
14 mined by the Secretary, of students who are eligible  
15 for a free or reduced price lunch under the Richard  
16 B. Russell National School Lunch Act (42 U.S.C.  
17 1751 et seq.) (which may be calculated for students  
18 in a high school (as defined by section 8101 of the  
19 Elementary and Secondary Education Act of 1965  
20 (20 U.S.C. 7801)) using data from the schools that  
21 feed into the high school); or

22 (B) with a participating local educational agen-  
23 cy designated with a school district locale code of 41,  
24 42, or 43, as determined by the National Center for

1 Education Statistics in consultation with the Bureau  
2 of the Census.

3 (e) COMPETITIVE CRITERIA.—The competitive cri-  
4 teria used by the Secretary to award grants under this  
5 section shall include the following:

6 (1) The difference between the fiscal capacity of  
7 the eligible entity to carry out, and the needs of the  
8 partnering local educational agency for, energy im-  
9 provements at school facilities, including—

10 (A) the current and historic ability of the  
11 partnering local educational agency to raise  
12 funds for construction, renovation, moderniza-  
13 tion, and major repair projects for schools;

14 (B) whether the partnering local edu-  
15 cational agency has been able to issue bonds or  
16 receive other funds to support current infra-  
17 structure needs of the partnering local edu-  
18 cational agency; and

19 (C) the bond rating of the partnering local  
20 educational agency.

21 (2) The likelihood that the partnering local edu-  
22 cational agency or eligible entity will maintain in  
23 good condition, and operate, the energy improve-  
24 ments at any facility the improvement of which is  
25 assisted.

1           (3) The potential energy, health, and safety  
2 benefits from the proposed energy improvements,  
3 considering factors including the degree of efficiency,  
4 energy savings, and renewable energy generation in  
5 proportion to school facility size and usage.

6           (f) USE OF GRANT AMOUNTS.—

7           (1) IN GENERAL.—An eligible entity receiving a  
8 grant under this section shall use the grant amounts  
9 only to make the energy improvements described in  
10 the application, subject to the other provisions of  
11 this subsection.

12           (2) OPERATION AND MAINTENANCE TRAIN-  
13 ING.—An eligible entity receiving a grant under this  
14 section may use not more than 5 percent of the  
15 grant amounts for operation and maintenance train-  
16 ing for energy efficiency and renewable energy im-  
17 provements (such as maintenance staff and teacher  
18 training, education, and preventative maintenance  
19 training).

20           (3) AUDIT.—An eligible entity receiving a grant  
21 under this section may use funds under the grant  
22 for a third-party investigation and analysis for en-  
23 ergy improvements (such as energy audits and exist-  
24 ing building commissioning).

1           (4) CONTINUING EDUCATION.—An eligible enti-  
2           ty receiving a grant under this section may use not  
3           more than 3 percent of the grant amounts to develop  
4           a continuing education curriculum relating to energy  
5           improvements.

6           (g) CONTRACTING REQUIREMENTS.—

7           (1) DAVIS-BACON.—Any laborer or mechanic  
8           employed by any contractor or subcontractor in the  
9           performance of work on any energy improvements  
10          funded by a grant under this section shall be paid  
11          wages at rates not less than those prevailing on  
12          similar construction in the locality as determined by  
13          the Secretary of Labor under subchapter IV of chap-  
14          ter 31 of title 40, United States Code (commonly re-  
15          ferred to as the “Davis-Bacon Act”).

16          (2) COMPETITION.—Each eligible entity receiv-  
17          ing a grant under this section shall ensure that, if  
18          the eligible entity uses grant funds to carry out re-  
19          pair or renovation through a contract, any such con-  
20          tract process—

21                 (A) ensures the maximum number of quali-  
22                 fied bidders, including small, minority, and  
23                 women-owned businesses, through full and open  
24                 competition; and



1           (B) gives priority to businesses located in,  
2           or resources common to, the State or the geo-  
3           graphical area in which the project is carried  
4           out.

5           (h) REPORTING.—Each eligible entity receiving a  
6           grant under this section shall submit to the Secretary, at  
7           such time as the Secretary may require, a report describ-  
8           ing the use of such funds for energy improvements, the  
9           estimated cost savings realized by those energy improve-  
10          ments, the results of any audit, the use of any utility pro-  
11          grams and public benefit funds, and the use of perform-  
12          ance tracking for energy improvements.

13          (i) BEST PRACTICES.—

14           (1) IN GENERAL.—The Secretary shall develop  
15           and publish guidelines and best practices for activi-  
16           ties carried out under this section.

17           (2) DEVELOPMENT.—In carrying out para-  
18           graph (1), the Secretary shall—

19           (A) establish minimum technical require-  
20           ments for the conduct of energy audits and in-  
21           door environmental quality assessments; and

22           (B) make publicly accessible on the website  
23           of the Department a brief annual report on the  
24           implementation of this section.

1           (3) TECHNICAL ASSISTANCE.—The Secretary  
2           may provide technical assistance to eligible entities  
3           to implement the guidelines and best practices devel-  
4           oped under paragraph (1).

5           (j) AUTHORIZATION OF APPROPRIATIONS.—There  
6           are authorized to be appropriated to carry out this section  
7           \$100,000,000 for each of fiscal years 2021 through 2025.

8   **SEC. 1005. SMART BUILDING ACCELERATION.**

9           (a) DEFINITIONS.—In this section:

10           (1) PROGRAM.—The term “program” means  
11           the Federal Smart Building Program established  
12           under subsection (b)(1).

13           (2) SMART BUILDING.—The term “smart build-  
14           ing” means a building, or collection of buildings,  
15           with an energy system that—

16                   (A) is flexible and automated;

17                   (B) has extensive operational monitoring  
18                   and communication connectivity, allowing re-  
19                   mote monitoring and analysis of all building  
20                   functions;

21                   (C) takes a systems-based approach in in-  
22                   tegrating the overall building operations for  
23                   control of energy generation, consumption, and  
24                   storage;

1 (D) communicates with utilities and other  
2 third-party commercial entities, if appropriate;

3 (E) protects the health and safety of occu-  
4 pants and workers; and

5 (F) is cybersecure.

6 (3) SMART BUILDING ACCELERATOR.—The  
7 term “smart building accelerator” means an initia-  
8 tive that is designed to demonstrate specific innova-  
9 tive policies and approaches—

10 (A) with clear goals and a clear timeline;  
11 and

12 (B) that, on successful demonstration,  
13 would accelerate investment in energy effi-  
14 ciency.

15 (b) FEDERAL SMART BUILDING PROGRAM.—

16 (1) ESTABLISHMENT.—Not later than 1 year  
17 after the date of enactment of this Act, the Sec-  
18 retary shall, in consultation with the Administrator  
19 of General Services, establish a program to be  
20 known as the “Federal Smart Building Program”—

21 (A) to implement smart building tech-  
22 nology; and

23 (B) to demonstrate the costs and benefits  
24 of smart buildings.

25 (2) SELECTION.—

1           (A) IN GENERAL.—The Secretary shall co-  
2           ordinate the selection of not fewer than 1 build-  
3           ing from among each of several key Federal  
4           agencies, as described in paragraph (4), to com-  
5           pose an appropriately diverse set of smart  
6           buildings based on size, type, and geographic lo-  
7           cation.

8           (B) INCLUSION OF COMMERCIALY OPER-  
9           ATED BUILDINGS.—In making selections under  
10          subparagraph (A), the Secretary may include  
11          buildings that are owned by the Federal Gov-  
12          ernment but are commercially operated.

13          (3) TARGETS.—Not later than 18 months after  
14          the date of enactment of this Act, the Secretary  
15          shall establish targets for the number of smart  
16          buildings to be commissioned and evaluated by key  
17          Federal agencies by 3 years and 6 years after the  
18          date of enactment of this Act.

19          (4) FEDERAL AGENCY DESCRIBED.—The key  
20          Federal agencies referred to in paragraph (2)(A)  
21          shall include buildings operated by—

22                 (A) the Department of the Army;

23                 (B) the Department of the Navy;

24                 (C) the Department of the Air Force;

25                 (D) the Department;

- 1 (E) the Department of the Interior;  
2 (F) the Department of Veterans Affairs;  
3 and  
4 (G) the General Services Administration.

5 (5) REQUIREMENT.—In implementing the pro-  
6 gram, the Secretary shall leverage existing financing  
7 mechanisms including energy savings performance  
8 contracts, utility energy service contracts, and an-  
9 nual appropriations.

10 (6) EVALUATION.—Using the guidelines of the  
11 Federal Energy Management Program relating to  
12 whole-building evaluation, measurement, and  
13 verification, the Secretary shall evaluate the costs  
14 and benefits of the buildings selected under para-  
15 graph (2), including an identification of—

16 (A) which advanced building tech-  
17 nologies—

18 (i) are most cost-effective; and

19 (ii) show the most promise for—

20 (I) increasing building energy  
21 savings;

22 (II) increasing service perform-  
23 ance to building occupants;

24 (III) reducing environmental im-  
25 pacts; and

1 (IV) establishing cybersecurity;

2 and

3 (B) any other information the Secretary  
4 determines to be appropriate.

5 (7) AWARDS.—The Secretary may expand  
6 awards made under the Federal Energy Manage-  
7 ment Program and the Better Building Challenge to  
8 recognize specific agency achievements in accel-  
9 erating the adoption of smart building technologies.

10 (c) SURVEY OF PRIVATE SECTOR SMART BUILD-  
11 INGS.—

12 (1) SURVEY.—The Secretary shall conduct a  
13 survey of privately owned smart buildings through-  
14 out the United States, including commercial build-  
15 ings, laboratory facilities, hospitals, multifamily resi-  
16 dential buildings, and buildings owned by nonprofit  
17 organizations and institutions of higher education.

18 (2) SELECTION.—From among the smart build-  
19 ings surveyed under paragraph (1), the Secretary  
20 shall select not fewer than 1 building each from an  
21 appropriate range of building sizes, types, and geo-  
22 graphic locations.

23 (3) EVALUATION.—Using the guidelines of the  
24 Federal Energy Management Program relating to  
25 whole-building evaluation, measurement, and

1 verification, the Secretary shall evaluate the costs  
2 and benefits of the buildings selected under para-  
3 graph (1), including an identification of—

4 (A) which advanced building technologies  
5 and systems—

6 (i) are most cost-effective; and

7 (ii) show the most promise for—

8 (I) increasing building energy  
9 savings;

10 (II) increasing service perform-  
11 ance to building occupants;

12 (III) reducing environmental im-  
13 pacts; and

14 (IV) establishing cybersecurity;  
15 and

16 (B) any other information the Secretary  
17 determines to be appropriate.

18 (d) LEVERAGING EXISTING PROGRAMS.—

19 (1) BETTER BUILDING CHALLENGE.—As part  
20 of the Better Building Challenge of the Department,  
21 the Secretary, in consultation with major private  
22 sector property owners, shall develop smart building  
23 accelerators to demonstrate innovative policies and  
24 approaches that will accelerate the transition to

1 smart buildings in the public, institutional, and com-  
2 mercial buildings sectors.

3 (2) RESEARCH AND DEVELOPMENT.—

4 (A) IN GENERAL.—The Secretary shall  
5 conduct research and development to address  
6 key barriers to the integration of advanced  
7 building technologies and to accelerate the tran-  
8 sition to smart buildings.

9 (B) INCLUSION.—The research and devel-  
10 opment conducted under subparagraph (A)  
11 shall include research and development on—

12 (i) achieving whole-building, systems-  
13 level efficiency through smart system and  
14 component integration;

15 (ii) improving physical components,  
16 such as sensors and controls, to be adapt-  
17 ive, anticipatory, and networked;

18 (iii) reducing the cost of key compo-  
19 nents to accelerate the adoption of smart  
20 building technologies;

21 (iv) data management, including the  
22 capture and analysis of data and the inter-  
23 operability of the energy systems;

24 (v) protecting against cybersecurity  
25 threats and addressing security



1 vulnerabilities of building systems or  
2 equipment;

3 (vi) business models, including how  
4 business models may limit the adoption of  
5 smart building technologies and how to  
6 support transactive energy;

7 (vii) integration and application of  
8 combined heat and power systems and en-  
9 ergy storage for resiliency;

10 (viii) characterization of buildings and  
11 components;

12 (ix) consumer and utility protections;

13 (x) continuous management, including  
14 the challenges of managing multiple energy  
15 systems and optimizing systems for dis-  
16 parate stakeholders; and

17 (xi) other areas of research and devel-  
18 opment, as determined appropriate by the  
19 Secretary.

20 (e) REPORT.—Not later than 2 years after the date  
21 of enactment of this Act, and every 2 years thereafter until  
22 a total of 3 reports have been made, the Secretary shall  
23 submit to the Committee on Energy and Natural Re-  
24 sources of the Senate and the Committee on Energy and

1 Commerce and the Committee on Science, Space, and  
2 Technology of the House of Representatives a report on—

3 (1) the establishment of the Federal Smart  
4 Building Program and the evaluation of Federal  
5 smart buildings under subsection (b);

6 (2) the survey and evaluation of private sector  
7 smart buildings under subsection (c); and

8 (3) any recommendations of the Secretary to  
9 further accelerate the transition to smart buildings.

10 **CHAPTER 2—WORKER TRAINING AND**  
11 **CAPACITY BUILDING**

12 **SEC. 1011. BUILDING TRAINING AND ASSESSMENT CEN-**  
13 **TERS.**

14 (a) IN GENERAL.—The Secretary shall provide  
15 grants to institutions of higher education (as defined in  
16 section 101 of the Higher Education Act of 1965 (20  
17 U.S.C. 1001)) and Tribal Colleges or Universities (as de-  
18 fined in section 316(b) of that Act (20 U.S.C. 1059c(b)))  
19 to establish building training and assessment centers—

20 (1) to identify opportunities for optimizing en-  
21 ergy efficiency and environmental performance in  
22 buildings;

23 (2) to promote the application of emerging con-  
24 cepts and technologies in commercial and institu-  
25 tional buildings;

1           (3) to train engineers, architects, building sci-  
2           entists, building energy permitting and enforcement  
3           officials, and building technicians in energy-efficient  
4           design and operation;

5           (4) to assist institutions of higher education  
6           and Tribal Colleges or Universities in training build-  
7           ing technicians;

8           (5) to promote research and development for  
9           the use of alternative energy sources and distributed  
10          generation to supply heat and power for buildings,  
11          particularly energy-intensive buildings; and

12          (6) to coordinate with and assist State-accred-  
13          ited technical training centers, community colleges,  
14          Tribal Colleges or Universities, and local offices of  
15          the National Institute of Food and Agriculture and  
16          ensure appropriate services are provided under this  
17          section to each region of the United States.

18          (b) COORDINATION AND NONDUPLICATION.—

19           (1) IN GENERAL.—The Secretary shall coordi-  
20           nate the program with the industrial research and  
21           assessment centers program and with other Federal  
22           programs to avoid duplication of effort.

23           (2) COLLOCATION.—To the maximum extent  
24           practicable, building, training, and assessment cen-

1       ters established under this section shall be collocated  
2       with Industrial Assessment Centers.

3       (c) AUTHORIZATION OF APPROPRIATIONS.—There is  
4       authorized to be appropriated to carry out this section  
5       \$10,000,000, to remain available until expended.

6       **SEC. 1012. CAREER SKILLS TRAINING.**

7       (a) DEFINITION OF ELIGIBLE ENTITY.—In this sec-  
8       tion, the term “eligible entity” means a nonprofit partner-  
9       ship that—

10           (1) includes the equal participation of industry,  
11           including public or private employers, and labor or-  
12           ganizations, including joint labor-management train-  
13           ing programs;

14           (2) may include workforce investment boards,  
15           community-based organizations, qualified service and  
16           conservation corps, educational institutions, small  
17           businesses, cooperatives, State and local veterans  
18           agencies, and veterans service organizations; and

19           (3) demonstrates—

20                   (A) experience in implementing and oper-  
21                   ating worker skills training and education pro-  
22                   grams;

23                   (B) the ability to identify and involve in  
24                   training programs carried out under this sec-  
25                   tion, target populations of individuals who

1 would benefit from training and be actively in-  
2 volved in activities relating to energy efficiency  
3 and renewable energy industries; and

4 (C) the ability to help individuals achieve  
5 economic self-sufficiency.

6 (b) ESTABLISHMENT.—The Secretary shall award  
7 grants to eligible entities to pay the Federal share of asso-  
8 ciated career skills training programs under which stu-  
9 dents concurrently receive classroom instruction and on-  
10 the-job training for the purpose of obtaining an industry-  
11 related certification to install energy efficient buildings  
12 technologies.

13 (c) FEDERAL SHARE.—The Federal share of the cost  
14 of carrying out a career skills training program described  
15 in subsection (a) shall be 50 percent.

16 (d) AUTHORIZATION OF APPROPRIATIONS.—There is  
17 authorized to be appropriated to carry out this section  
18 \$10,000,000, to remain available until expended.

19 **Subpart B—Industrial Efficiency and**  
20 **Competitiveness**

21 **SEC. 1021. PURPOSES.**

22 The purposes of this subpart are—

23 (1) to establish a clear and consistent authority  
24 for industrial efficiency programs of the Depart-  
25 ment;

1           (2) to accelerate the deployment of technologies  
2           and practices that will increase industrial energy ef-  
3           ficiency and improve productivity;

4           (3) to accelerate the development and dem-  
5           onstration of technologies that will assist the deploy-  
6           ment goals of the industrial efficiency programs of  
7           the Department and increase manufacturing effi-  
8           ciency;

9           (4) to stimulate domestic economic growth and  
10          improve industrial productivity and competitiveness;

11          (5) to meet the future workforce needs of in-  
12          dustry; and

13          (6) to strengthen partnerships between Federal  
14          and State governmental agencies and the private  
15          and academic sectors.

16 **SEC. 1022. FUTURE OF INDUSTRY PROGRAM AND INDUS-**  
17 **TRIAL RESEARCH AND ASSESSMENT CEN-**  
18 **TERS.**

19          (a) FUTURE OF INDUSTRY PROGRAM.—Section 452  
20 of the Energy Independence and Security Act of 2007 (42  
21 U.S.C. 17111) is amended—

22           (1) by striking the section heading and insert-  
23           ing the following: “**FUTURE OF INDUSTRY PRO-**  
24           **GRAM**”;

25           (2) in subsection (a)(2)—

1 (A) by redesignating subparagraph (E) as  
2 subparagraph (F); and

3 (B) by inserting after subparagraph (D)  
4 the following:

5 “(E) water and wastewater treatment fa-  
6 cilities, including systems that treat municipal,  
7 industrial, and agricultural waste; and”;

8 (3) by striking subsection (e); and

9 (4) by redesignating subsection (f) as sub-  
10 section (e).

11 (b) INDUSTRIAL RESEARCH AND ASSESSMENT CEN-  
12 TERS.—Subtitle D of title IV of the Energy Independence  
13 and Security Act of 2007 (42 U.S.C. 17111 et seq.) is  
14 amended by adding at the end the following:

15 **“SEC. 454. INDUSTRIAL RESEARCH AND ASSESSMENT CEN-**  
16 **TERS.**

17 “(a) DEFINITIONS.—In this section:

18 “(1) ENERGY SERVICE PROVIDER.—The term  
19 ‘energy service provider’ means—

20 “(A) any business providing technology or  
21 services to improve the energy efficiency, water  
22 efficiency, power factor, or load management of  
23 a manufacturing site or other industrial process  
24 in an energy-intensive industry (as defined in  
25 section 452(a)); and

1           “(B) any utility operating under a utility  
2 energy service project.

3           “(2) INDUSTRIAL RESEARCH AND ASSESSMENT  
4 CENTER.—The term ‘industrial research and assess-  
5 ment center’ means—

6           “(A) an institution of higher education-  
7 based industrial research and assessment center  
8 that is funded by the Secretary under sub-  
9 section (b); and

10           “(B) an industrial research and assess-  
11 ment center at a trade school, community col-  
12 lege, or union training program that is funded  
13 by the Secretary under subsection (f).

14           “(b) INSTITUTION OF HIGHER EDUCATION-BASED  
15 INDUSTRIAL RESEARCH AND ASSESSMENT CENTERS.—

16           “(1) IN GENERAL.—The Secretary shall provide  
17 funding to institution of higher education-based in-  
18 dustrial research and assessment centers.

19           “(2) PURPOSE.—The purpose of each institu-  
20 tion of higher education-based industrial research  
21 and assessment center shall be—

22           “(A) to identify opportunities for opti-  
23 mizing energy efficiency and environmental per-  
24 formance, including implementation of—

25           “(i) smart manufacturing;



1 “(ii) energy management systems;

2 “(iii) sustainable manufacturing; and

3 “(iv) information technology advance-  
4 ments for supply chain analysis, logistics,  
5 system monitoring, industrial and manu-  
6 facturing processes, and other purposes;

7 “(B) to promote applications of emerging  
8 concepts and technologies in small- and me-  
9 dium-sized manufacturers (including water and  
10 wastewater treatment facilities and federally  
11 owned manufacturing facilities);

12 “(C) to promote research and development  
13 for the use of alternative energy sources to sup-  
14 ply heat, power, and new feedstocks for energy-  
15 intensive industries;

16 “(D) to coordinate with appropriate Fed-  
17 eral and State research offices;

18 “(E) to provide a clearinghouse for indus-  
19 trial process and energy efficiency technical as-  
20 sistance resources; and

21 “(F) to coordinate with State-accredited  
22 technical training centers and community col-  
23 leges, while ensuring appropriate services to all  
24 regions of the United States.

1           “(c) COORDINATION.—To increase the value and ca-  
2 pabilities of the industrial research and assessment cen-  
3 ters, the centers shall—

4           “(1) coordinate with Manufacturing Extension  
5 Partnership Centers of the National Institute of  
6 Standards and Technology;

7           “(2) coordinate with the Federal Energy Man-  
8 agement Program and the Building Technologies  
9 Program of the Department of Energy to provide  
10 building assessment services to manufacturers;

11           “(3) increase partnerships with the National  
12 Laboratories of the Department of Energy to lever-  
13 age the expertise, technologies, and research and de-  
14 velopment capabilities of the National Laboratories  
15 for national industrial and manufacturing needs;

16           “(4) increase partnerships with energy service  
17 providers and technology providers to leverage pri-  
18 vate sector expertise and accelerate deployment of  
19 new and existing technologies and processes for en-  
20 ergy efficiency, power factor, and load management;

21           “(5) identify opportunities for reducing green-  
22 house gas emissions and other air emissions; and

23           “(6) promote sustainable manufacturing prac-  
24 tices for small- and medium-sized manufacturers.

1       “(d) OUTREACH.—The Secretary shall provide fund-  
2 ing for—

3               “(1) outreach activities by the industrial re-  
4 search and assessment centers to inform small- and  
5 medium-sized manufacturers of the information,  
6 technologies, and services available; and

7               “(2) coordination activities by each industrial  
8 research and assessment center to leverage efforts  
9 with—

10                       “(A) Federal and State efforts;

11                       “(B) the efforts of utilities and energy  
12 service providers;

13                       “(C) the efforts of regional energy effi-  
14 ciency organizations; and

15                       “(D) the efforts of other industrial re-  
16 search and assessment centers.

17       “(e) CENTERS OF EXCELLENCE.—

18               “(1) ESTABLISHMENT.—The Secretary shall es-  
19 tablish a Center of Excellence at not more than 5  
20 of the highest-performing industrial research and as-  
21 sessment centers, as determined by the Secretary.

22               “(2) DUTIES.—A Center of Excellence shall co-  
23 ordinate with and advise the industrial research and  
24 assessment centers located in the region of the Cen-  
25 ter of Excellence, including—

1           “(A) by mentoring new directors and staff  
2 of the industrial research and assessment cen-  
3 ters with respect to—

4                   “(i) the availability of resources; and

5                   “(ii) best practices for carrying out  
6 assessments, including through the partici-  
7 pation of the staff of the Center of Excel-  
8 lence in assessments carried out by new in-  
9 dustrial research and assessment centers;

10           “(B) by providing training to staff and  
11 students at the industrial research and assess-  
12 ment centers on new technologies, practices,  
13 and tools to expand the scope and impact of the  
14 assessments carried out by the centers;

15           “(C) by assisting the industrial research  
16 and assessment centers with specialized tech-  
17 nical opportunities, including by providing a  
18 clearinghouse of available expertise and tools to  
19 assist the centers and clients of the centers in  
20 assessing and implementing those opportunities;

21           “(D) by identifying and coordinating with  
22 regional, State, local, and utility energy effi-  
23 ciency programs for the purpose of facilitating  
24 efforts by industrial research and assessment  
25 centers to connect industrial facilities receiving

1 assessments from those centers with regional,  
2 State, local, and utility energy efficiency pro-  
3 grams that could aid the industrial facilities in  
4 implementing any recommendations resulting  
5 from the assessments;

6 “(E) by facilitating coordination between  
7 the industrial research and assessment centers  
8 and other Federal programs described in para-  
9 graphs (1) through (3) of subsection (c); and

10 “(F) by coordinating the outreach activi-  
11 ties of the industrial research and assessment  
12 centers under subsection (d)(1).

13 “(3) FUNDING.—Subject to the availability of  
14 appropriations, for each fiscal year, out of any  
15 amounts made available to carry out this section  
16 under subsection (i), the Secretary shall use not less  
17 than \$500,000 to support each Center of Excellence.

18 “(f) EXPANSION OF INDUSTRIAL RESEARCH AND AS-  
19 SESSMENT CENTERS.—

20 “(1) IN GENERAL.—The Secretary shall provide  
21 funding to establish additional industrial research  
22 and assessment centers at trade schools, community  
23 colleges, and union training programs.

24 “(2) PURPOSE.—

1           “(A) IN GENERAL.—Subject to subpara-  
2 graph (B), to the maximum extent practicable,  
3 an industrial research and assessment center  
4 established under paragraph (1) shall have the  
5 same purpose as an institution of higher edu-  
6 cation-based industrial research center that is  
7 funded by the Secretary under subsection  
8 (b)(1).

9           “(B) CONSIDERATION OF CAPABILITIES.—  
10 In evaluating or establishing the purpose of an  
11 industrial research and assessment center es-  
12 tablished under paragraph (1), the Secretary  
13 shall take into consideration the varying capa-  
14 bilities of trade schools, community colleges,  
15 and union training programs.

16       “(g) WORKFORCE TRAINING.—

17           “(1) INTERNSHIPS.—The Secretary shall pay  
18 the Federal share of associated internship programs  
19 under which students work with or for industries,  
20 manufacturers, and energy service providers to im-  
21 plement the recommendations of industrial research  
22 and assessment centers.

23           “(2) APPRENTICESHIPS.—The Secretary shall  
24 pay the Federal share of associated apprenticeship  
25 programs under which—

1           “(A) students work with or for industries,  
2           manufacturers, and energy service providers to  
3           implement the recommendations of industrial  
4           research and assessment centers; and

5           “(B) employees of facilities that have re-  
6           ceived an assessment from an industrial re-  
7           search and assessment center work with or for  
8           an industrial research and assessment center to  
9           gain knowledge on engineering practices and  
10          processes to improve productivity and energy  
11          savings.

12          “(3) FEDERAL SHARE.—The Federal share of  
13          the cost of carrying out internship programs de-  
14          scribed in paragraph (1) and apprenticeship pro-  
15          grams described in paragraph (2) shall be 50 per-  
16          cent.

17          “(h) SMALL BUSINESS LOANS.—The Administrator  
18          of the Small Business Administration shall, to the max-  
19          imum extent practicable, expedite consideration of applica-  
20          tions from eligible small business concerns for loans under  
21          the Small Business Act (15 U.S.C. 631 et seq.) to imple-  
22          ment recommendations developed by the industrial re-  
23          search and assessment centers.

24          “(i) FUNDING.—There is authorized to be appro-  
25          priated to the Secretary to carry out this section

1 \$30,000,000 for each fiscal year, to remain available until  
2 expended.”.

3 (c) CLERICAL AMENDMENT.—The table of contents  
4 of the Energy Independence and Security Act of 2007 (42  
5 U.S.C. prec. 17001) is amended by adding at the end of  
6 the items relating to subtitle D of title IV the following:

“Sec. 454. Industrial research and assessment centers.”.

7 **SEC. 1023. CHP TECHNICAL ASSISTANCE PARTNERSHIP**  
8 **PROGRAM.**

9 (a) IN GENERAL.—Section 375 of the Energy Policy  
10 and Conservation Act (42 U.S.C. 6345) is amended to  
11 read as follows:

12 **“SEC. 375. CHP TECHNICAL ASSISTANCE PARTNERSHIP**  
13 **PROGRAM.**

14 “(a) RENAMING.—

15 “(1) IN GENERAL.—The Clean Energy Applica-  
16 tion Centers of the Department of Energy are reded-  
17 icated as the CHP Technical Assistance Partner-  
18 ship Program (referred to in this section as the  
19 ‘Program’).

20 “(2) PROGRAM DESCRIPTION.—The Program  
21 shall consist of—

22 “(A) the 10 regional CHP Technical As-  
23 sistance Partnerships in existence on the date  
24 of enactment of the American Energy Innova-  
25 tion Act of 2020;



1           “(B) any other regional CHP Technical  
2 Assistance Partnerships as the Secretary may  
3 establish; and

4           “(C) any supporting technical activities  
5 under the Technical Partnership Program of  
6 the Advanced Manufacturing Office of the De-  
7 partment of Energy.

8           “(3) REFERENCES.—Any reference in any law,  
9 rule, regulation, or publication to a Combined Heat  
10 and Power Application Center or a Clean Energy  
11 Application Center shall be deemed to be a reference  
12 to the Program.

13           “(b) CHP TECHNICAL ASSISTANCE PARTNERSHIP  
14 PROGRAM.—

15           “(1) IN GENERAL.—The Program shall—

16           “(A) operate programs to encourage de-  
17 ployment of combined heat and power, waste  
18 heat to power, and efficient district energy (col-  
19 lectively referred to in this subsection as ‘CHP’)  
20 technologies by providing education and out-  
21 reach—

22           “(i) to building, industrial, and elec-  
23 tric and natural gas utility professionals;

24           “(ii) to State and local policymakers;  
25 and

1                   “(iii) to other individuals and organi-  
2                   zations with an interest in efficient energy  
3                   use, local or opportunity fuel use, resil-  
4                   iency, energy security, microgrids, and dis-  
5                   trict energy; and

6                   “(B) provide project-specific support to  
7                   building and industrial professionals through  
8                   economic and engineering assessments and ad-  
9                   visory activities.

10                  “(2) FUNDING FOR CERTAIN ACTIVITIES.—

11                   “(A) IN GENERAL.—The Program shall  
12                   make funds available to institutions of higher  
13                   education, research centers, and other appro-  
14                   priate institutions to ensure the continued oper-  
15                   ation and effectiveness of regional CHP Tech-  
16                   nical Assistance Partnerships.

17                   “(B) USE OF FUNDS.—Funds made avail-  
18                   able under subparagraph (A) may be used—

19                   “(i) to research, develop, and dis-  
20                   tribute informational materials relevant to  
21                   manufacturers, commercial buildings, insti-  
22                   tutional facilities, and Federal sites;

23                   “(ii) to support the mission goals of  
24                   the Department of Defense relating to  
25                   CHP and microgrid technologies;

1                   “(iii) to continuously maintain and  
2                   update—

3                   “(I) the CHP installation data-  
4                   base;

5                   “(II) CHP technology potential  
6                   analyses;

7                   “(III) State CHP resource  
8                   websites; and

9                   “(IV) CHP Technical Assistance  
10                  Partnerships websites;

11                  “(iv) to research, develop, and con-  
12                  duct workshops, reports, seminars, internet  
13                  programs, CHP resiliency resources, and  
14                  other activities to provide education to end  
15                  users, regulators, and stakeholders in a  
16                  manner that leads to the deployment of  
17                  CHP technologies;

18                  “(v) to provide or coordinate onsite  
19                  assessments for sites and enterprises that  
20                  may consider deployment of CHP tech-  
21                  nology;

22                  “(vi) to identify candidates for deploy-  
23                  ment of CHP technologies, hybrid renew-  
24                  able-CHP technologies, microgrids, and  
25                  clean energy;

1                   “(vii) to provide nonbiased engineer-  
2                   ing support to sites considering deployment  
3                   of CHP technologies;

4                   “(viii) to assist organizations devel-  
5                   oping clean energy technologies and poli-  
6                   cies in overcoming barriers to deployment;  
7                   and

8                   “(ix) to assist with field validation  
9                   and performance evaluations of CHP and  
10                  other clean energy technologies imple-  
11                  mented.

12                  “(C) DURATION.—The Program shall  
13                  make funds available under subparagraph (A)  
14                  for a period of 5 years.

15                  “(c) AUTHORIZATION OF APPROPRIATIONS.—There  
16                  is authorized to be appropriated to carry out this section  
17                  \$12,000,000 for each of fiscal years 2021 through 2025.”.

18                  (b) CONFORMING AMENDMENT.—Section 372(g) of  
19                  the Energy Policy and Conservation Act (42 U.S.C.  
20                  6342(g)) is amended by striking “Clean Energy Applica-  
21                  tions Center operated by the Secretary of Energy” and  
22                  inserting “regional CHP Technical Assistance Partner-  
23                  ships”.

24                  (c) CLERICAL AMENDMENT.—The table of contents  
25                  of the Energy Policy and Conservation Act (Public Law

1 94–163; 89 Stat. 872; 92 Stat. 3272) is amended by strik-  
2 ing the item relating to section 375 and inserting the fol-  
3 lowing:

“Sec. 375. CHP Technical Assistance Partnership Program.”.

4 **SEC. 1024. SUSTAINABLE MANUFACTURING INITIATIVE.**

5 (a) IN GENERAL.—Part E of title III of the Energy  
6 Policy and Conservation Act (42 U.S.C. 6341 et seq.) is  
7 amended by adding at the end the following:

8 **“SEC. 376. SUSTAINABLE MANUFACTURING INITIATIVE.**

9 “(a) IN GENERAL.—As part of the Office of Energy  
10 Efficiency and Renewable Energy of the Department of  
11 Energy, the Secretary, on the request of a manufacturer,  
12 shall carry out onsite technical assessments to identify op-  
13 portunities for—

14 “(1) maximizing the energy efficiency of indus-  
15 trial processes and cross-cutting systems;

16 “(2) preventing pollution and minimizing waste;

17 “(3) improving efficient use of water in manu-  
18 facturing processes;

19 “(4) conserving natural resources; and

20 “(5) achieving such other goals as the Secretary  
21 determines to be appropriate.

22 “(b) COORDINATION.—To implement any rec-  
23 ommendations resulting from an onsite technical assess-  
24 ment carried out under subsection (a) and to accelerate  
25 the adoption of new and existing technologies and proc-

1 esses that improve energy efficiency, the Secretary shall  
2 coordinate with—

3 “(1) the Advanced Manufacturing Office of the  
4 Department of Energy;

5 “(2) the Building Technologies Office of the  
6 Department of Energy;

7 “(3) the Federal Energy Management Program  
8 of the Department of Energy; and

9 “(4) the private sector and other appropriate  
10 agencies, including the National Institute of Stand-  
11 ards and Technology.

12 “(c) RESEARCH AND DEVELOPMENT PROGRAM FOR  
13 SUSTAINABLE MANUFACTURING AND INDUSTRIAL TECH-  
14 NOLOGIES AND PROCESSES.—As part of the industrial ef-  
15 ficiency programs of the Department of Energy, the Sec-  
16 retary shall carry out a joint industry-government partner-  
17 ship program to research, develop, and demonstrate new  
18 sustainable manufacturing and industrial technologies and  
19 processes that maximize the energy efficiency of industrial  
20 plants, reduce pollution, and conserve natural resources.”.

21 (b) CLERICAL AMENDMENT.—The table of contents  
22 of the Energy Policy and Conservation Act (42 U.S.C.  
23 prec. 6201) is amended by adding at the end of the items  
24 relating to part E of title III the following:

“Sec. 376. Sustainable manufacturing initiative.”.

1 **SEC. 1025. CONFORMING AMENDMENTS.**

2 (a) Section 106 of the Energy Policy Act of 2005 (42  
3 U.S.C. 15811) is repealed.

4 (b) Sections 131, 132, 133, 2103, and 2107 of the  
5 Energy Policy Act of 1992 (42 U.S.C. 6348, 6349, 6350,  
6 13453, 13456) are repealed.

7 (c) Section 2101(a) of the Energy Policy Act of 1992  
8 (42 U.S.C. 13451(a)) is amended in the third sentence  
9 by striking “sections 2102, 2103, 2104, 2105, 2106,  
10 2107, and 2108” and inserting “sections 2102, 2104,  
11 2105, 2106, and 2108 of this Act and section 376 of the  
12 Energy Policy and Conservation Act,”.

13 **Subpart C—Federal Agency Energy Efficiency**

14 **SEC. 1031. ENERGY AND WATER PERFORMANCE REQUIRE-**  
15 **MENTS FOR FEDERAL BUILDINGS.**

16 (a) IN GENERAL.—Section 543 of the National En-  
17 ergy Conservation Policy Act (42 U.S.C. 8253) is amend-  
18 ed—

19 (1) in the section heading, by inserting “**AND**  
20 **WATER**” after “**ENERGY**”;

21 (2) by striking subsection (a) and inserting the  
22 following:

23 “(a) ENERGY AND WATER PERFORMANCE REQUIRE-  
24 MENTS FOR FEDERAL BUILDINGS.—

25 “(1) ENERGY REQUIREMENTS.—Subject to  
26 paragraph (3), to the maximum extent life cycle

1 cost-effective (as defined in subsection (f)(1)), each  
 2 agency shall apply energy conservation measures to,  
 3 and shall improve the design for the construction of,  
 4 the Federal buildings of the agency (including each  
 5 industrial or laboratory facility) so that the energy  
 6 consumption per gross square foot of the Federal  
 7 buildings of the agency in fiscal years 2021 through  
 8 2028 is reduced, as compared with the energy con-  
 9 sumption per gross square foot of the Federal build-  
 10 ings of the agency in fiscal year 2018, by the per-  
 11 centage specified in the following table:

<b>“Fiscal Year</b>	<b>Percentage Reduction</b>
2021 .....	2.5
2022 .....	5
2023 .....	7.5
2024 .....	10
2025 .....	12.5
2026 .....	15
2027 .....	17.5
2028 .....	20.

12 “(2) WATER REQUIREMENTS.—Subject to para-  
 13 graph (3), the head of each Federal agency shall, for  
 14 each of fiscal years 2021 through 2030, improve  
 15 water use efficiency and management, including  
 16 stormwater management, at facilities of the agency  
 17 by reducing agency potable water consumption in-  
 18 tensity—

19 “(A) by reducing potable water consump-  
 20 tion by 54 percent by fiscal year 2030, relative



1 to the potable water consumption of the agency  
2 in fiscal year 2007, through reductions of 2  
3 percent each fiscal year (as measured in gallons  
4 per gross square foot);

5 “(B) by reducing the industrial, land-  
6 scaping, and agricultural water consumption of  
7 the agency, as compared to a baseline of that  
8 consumption by the agency in fiscal year 2010,  
9 through reductions of 2 percent each fiscal year  
10 (as measured in gallons); and

11 “(C) by installing appropriate infrastruc-  
12 ture features on federally owned property to im-  
13 prove stormwater and wastewater management.

14 “(3) ENERGY AND WATER INTENSIVE BUILDING  
15 EXCLUSION.—

16 “(A) IN GENERAL.—An agency may ex-  
17 clude from the requirements of paragraphs (1)  
18 and (2) any building (including the associated  
19 energy consumption and gross square footage of  
20 the building) in which energy and water inten-  
21 sive activities are carried out.

22 “(B) REPORTS.—Each agency shall iden-  
23 tify and include in each report under section  
24 548(a) each building designated by the agency

1 for exclusion under subparagraph (A) during  
2 the period covered by the report.

3 “(4) RECOMMENDATIONS.—Not later than De-  
4 cember 31, 2026, the Secretary shall—

5 “(A) review the results of the implementa-  
6 tion of the energy and water performance re-  
7 quirements established under paragraph (1);

8 “(B) submit to Congress recommendations  
9 concerning energy performance requirements  
10 for fiscal years 2029 through 2038; and

11 “(C) submit to Congress recommendations  
12 concerning water performance requirements for  
13 fiscal years 2031 through 2040.”;

14 (3) in subsection (b)—

15 (A) in the subsection heading, by inserting  
16 “AND WATER” after “ENERGY”; and

17 (B) by striking paragraphs (1) and (2) and  
18 inserting the following:

19 “(1) IN GENERAL.—Each agency shall—

20 “(A) not later than October 1, 2022, to  
21 the maximum extent practicable, begin install-  
22 ing in Federal buildings owned by the United  
23 States all energy and water conservation meas-  
24 ures determined by the Secretary to be life cycle

1 cost-effective (as defined in subsection (f)(1));  
2 and

3 “(B) complete the installation described in  
4 subparagraph (A) as soon as practicable after  
5 the date referred to in that subparagraph.

6 “(2) EXPLANATION OF NONCOMPLIANCE.—

7 “(A) IN GENERAL.—If an agency fails to  
8 comply with paragraph (1), the agency shall  
9 submit to the Secretary, using guidelines devel-  
10 oped by the Secretary, an explanation of the  
11 reasons for the failure.

12 “(B) REPORT TO CONGRESS.—Not later  
13 than October 1, 2021, and every 2 years there-  
14 after, the Secretary shall submit to Congress a  
15 report that describes any noncompliance by an  
16 agency with the requirements of paragraph  
17 (1).”;

18 (4) in subsection (c)(1)—

19 (A) in subparagraph (A)—

20 (i) in the matter preceding clause (i),  
21 by striking “An agency” and inserting  
22 “The head of each agency”; and

23 (ii) by inserting “or water” after “en-  
24 ergy” each place it appears; and

1 (B) in subparagraph (B)(i), by inserting

2 “or water” after “energy”;

3 (5) in subsection (d)(2), by inserting “and

4 water” after “energy”;

5 (6) in subsection (e)—

6 (A) in the subsection heading, by inserting

7 “and Water” after “Energy”;

8 (B) in paragraph (1)—

9 (i) in the first sentence—

10 (I) by striking “October 1, 2012”

11 and inserting “October 1, 2022”;

12 (II) by inserting “and water”

13 after “energy”; and

14 (III) by inserting “and water”

15 after “electricity”;

16 (ii) in the second sentence, by insert-

17 ing “and water” after “electricity”; and

18 (iii) in the fourth sentence, by insert-

19 ing “and water” after “energy”;

20 (C) in paragraph (2)—

21 (i) in subparagraph (A)—

22 (I) by striking “and” before

23 “Federal”; and

1 (II) by inserting “and any other  
2 person the Secretary deems nec-  
3 essary,” before “shall”;

4 (ii) in subparagraph (B)—

5 (I) in clause (i)(II), by inserting  
6 “and water” after “energy” each  
7 place it appears;

8 (II) in clause (ii), by inserting  
9 “and water” after “energy”; and

10 (III) in clause (iv), by inserting  
11 “and water” after “energy”; and

12 (iii) by adding at the end the fol-  
13 lowing:

14 “(C) UPDATE.—Not later than 180 days  
15 after the date of enactment of this subpara-  
16 graph, the Secretary shall update the guidelines  
17 established under subparagraph (A) to take into  
18 account water efficiency requirements under  
19 this section.”;

20 (D) in paragraph (3), in the matter pre-  
21 ceding subparagraph (A), by striking “estab-  
22 lished under paragraph (2)” and inserting “up-  
23 dated under paragraph (2)(C)”; and

24 (E) in paragraph (4)—

25 (i) in subparagraph (A)—

1 (I) by striking “this paragraph”  
2 and inserting “the American Energy  
3 Innovation Act of 2020”; and

4 (II) by inserting “and water” be-  
5 fore “use in”; and

6 (ii) in subparagraph (B)(ii), in the  
7 matter preceding clause (I), by inserting  
8 “and water” after “energy”; and

9 (7) in subsection (f)—

10 (A) in paragraph (1)—

11 (i) by redesignating subparagraphs  
12 (E), (F), and (G) as subparagraphs (F),  
13 (G), and (H), respectively; and

14 (ii) by inserting after subparagraph  
15 (D) the following:

16 “(E) ONGOING COMMISSIONING.—The  
17 term ‘ongoing commissioning’ means an ongo-  
18 ing process of commissioning using monitored  
19 data, the primary goal of which is to ensure  
20 continuous optimum performance of a facility,  
21 in accordance with design or operating needs,  
22 over the useful life of the facility, while meeting  
23 facility occupancy requirements.”;

24 (B) in paragraph (2)—

1 (i) in subparagraph (A), by inserting  
2 “and water” before “use”;

3 (ii) in subparagraph (B)—

4 (I) by striking “energy” before  
5 “efficiency”; and

6 (II) by inserting “or water” be-  
7 fore “use”; and

8 (iii) by adding at the end the fol-  
9 lowing:

10 “(C) ENERGY MANAGEMENT SYSTEM.—An  
11 energy manager designated for a facility under  
12 subparagraph (A) shall take into consider-  
13 ation—

14 “(i) the use of a system to manage  
15 energy and water use at the facility; and

16 “(ii) the applicability of the certifi-  
17 cation of the facility in accordance with the  
18 International Organization for Standard-  
19 ization standard numbered 50001 and en-  
20 titled ‘Energy Management Systems’.”;

21 (C) by striking paragraphs (3) and (4) and  
22 inserting the following:

23 “(3) ENERGY AND WATER EVALUATIONS AND  
24 COMMISSIONING.—

1           “(A) EVALUATIONS.—Except as provided  
2           in subparagraph (B), not later than the date  
3           that is 180 days after the date of enactment of  
4           the American Energy Innovation Act of 2020,  
5           and annually thereafter, each energy manager  
6           shall complete, for the preceding calendar year,  
7           a comprehensive energy and water evaluation  
8           and recommissioning or retrocommissioning for  
9           approximately 25 percent of the facilities of the  
10          applicable agency that meet the criteria under  
11          paragraph (2)(B) in a manner that ensures  
12          that an evaluation of each facility is completed  
13          not less frequently than once every 4 years.

14          “(B) EXCEPTIONS.—An evaluation and re-  
15          commissioning or retrocommissioning shall not  
16          be required under subparagraph (A) with re-  
17          spect to a facility that, as of the date on which  
18          the evaluation and recommissioning or  
19          retrocommissioning would occur—

20                  “(i) has had a comprehensive energy  
21                  and water evaluation during the preceding  
22                  8-year period;

23                  “(ii)(I) has been commissioned, re-  
24                  commissioned, or retrocommissioned dur-  
25                  ing the preceding 10-year period; or



1 “(II) is under ongoing commissioning,  
2 recommissioning, or retrocommissioning;

3 “(iii) has not had a major change in  
4 function or use since the previous evalua-  
5 tion and recommissioning or  
6 retrocommissioning;

7 “(iv) has been benchmarked with pub-  
8 lic disclosure under paragraph (8) during  
9 the preceding calendar year; and

10 “(v)(I) based on the benchmarking de-  
11 scribed in clause (iv), has achieved at a fa-  
12 cility level the most recent cumulative en-  
13 ergy savings target under subsection (a)  
14 compared to the earlier of—

15 “(aa) the date of the most recent  
16 evaluation; or

17 “(bb) the date—

18 “(AA) of the most recent  
19 commissioning, recommissioning,  
20 or retrocommissioning; or

21 “(BB) on which ongoing  
22 commissioning began; or

23 “(II) has a long-term contract in  
24 place guaranteeing energy savings at least

1 as great as the energy savings target under  
2 subclause (I).

3 “(4) IMPLEMENTATION OF IDENTIFIED ENERGY  
4 AND WATER EFFICIENCY MEASURES.—

5 “(A) IN GENERAL.—Not later than 2 years  
6 after the date of completion of each evaluation  
7 under paragraph (3), each energy manager  
8 shall implement any energy- or water-saving  
9 measure that—

10 “(i) the Federal agency identified in  
11 the evaluation; and

12 “(ii) is life cycle cost-effective, as de-  
13 termined by evaluating an individual meas-  
14 ure or a bundle of measures with varying  
15 paybacks.

16 “(B) PERFORMANCE CONTRACTING.—Each  
17 Federal agency shall use performance con-  
18 tracting to address at least 50 percent of the  
19 measures identified under subparagraph  
20 (A)(i).”;

21 (D) in paragraph (7)(B)(ii)(II), by insert-  
22 ing “and water” after “energy”; and

23 (E) in paragraph (9)(A), in the matter  
24 preceding clause (i), by inserting “and water”  
25 after “energy”.

1 (b) CONFORMING AMENDMENT.—The table of con-  
2 tents for the National Energy Conservation Policy Act  
3 (Public Law 95–619; 92 Stat. 3206) is amended by strik-  
4 ing the item relating to section 543 and inserting the fol-  
5 lowing:

“Sec. 543. Energy and water management requirements.”.

6 **SEC. 1032. FEDERAL ENERGY MANAGEMENT PROGRAM.**

7 Section 543 of the National Energy Conservation  
8 Policy Act (42 U.S.C. 8253) is amended by adding at the  
9 end the following:

10 “(h) FEDERAL ENERGY MANAGEMENT PROGRAM.—

11 “(1) IN GENERAL.—The Secretary shall carry  
12 out a program, to be known as the ‘Federal Energy  
13 Management Program’ (referred to in this sub-  
14 section as the ‘Program’), to facilitate the implemen-  
15 tation by the Federal Government of cost-effective  
16 energy and water management and energy-related  
17 investment practices—

18 “(A) to coordinate and strengthen Federal  
19 energy and water resilience; and

20 “(B) to promote environmental steward-  
21 ship.

22 “(2) PROGRAM ACTIVITIES.—

23 “(A) STRATEGIC PLANNING AND TECH-  
24 NICAL ASSISTANCE.—Under the Program, the  
25 Federal Director appointed under paragraph

1 (3)(A) (referred to in this subsection as the  
2 ‘Federal Director’) shall—

3 “(i) provide technical assistance and  
4 project implementation support and guid-  
5 ance to Federal agencies to identify, imple-  
6 ment, procure, and track energy and water  
7 conservation measures required under this  
8 Act and under other provisions of law (in-  
9 cluding regulations);

10 “(ii) in coordination with the Admin-  
11 istrator of the General Services Adminis-  
12 tration, establish appropriate procedures,  
13 methods, and best practices for use by  
14 Federal agencies to select, monitor, and  
15 terminate contracts entered into under sec-  
16 tion 546 with utilities;

17 “(iii) in coordination with the Federal  
18 Acquisition Regulatory Council, establish  
19 appropriate procedures, methods, and best  
20 practices for use by Federal agencies to se-  
21 lect, monitor, and terminate contracts en-  
22 tered into under section 801 with energy  
23 service contractors and utilities;

24 “(iv) establish and maintain internet-  
25 based information resources and project

1 tracking systems and tools for energy and  
2 water management;

3 “(v) coordinate comprehensive and  
4 strategic approaches to energy and water  
5 resilience planning for Federal agencies;  
6 and

7 “(vi) establish a recognition program  
8 for Federal achievement in energy and  
9 water management, energy-related invest-  
10 ment practices, environmental stewardship,  
11 and other relevant areas, through events  
12 such as individual recognition award cere-  
13 monies and public announcements.

14 “(B) ENERGY AND WATER MANAGEMENT  
15 AND REPORTING.—Under the Program, the  
16 Federal Director shall—

17 “(i) track and report on the progress  
18 of Federal agencies in meeting the require-  
19 ments of the agency under this section;

20 “(ii) make publicly available annual  
21 Federal agency performance data required  
22 under—

23 “(I) this section and sections 544  
24 through 548; and

1                   “(II) section 203 of the Energy  
2                   Policy Act of 2005 (42 U.S.C.  
3                   15852);

4                   “(iii)(I) collect energy and water use  
5                   and consumption data from each Federal  
6                   agency; and

7                   “(II) based on that data, submit to  
8                   each Federal agency a report that will fa-  
9                   cilitate the energy and water management,  
10                  energy-related investment practices, and  
11                  environmental stewardship of the agency in  
12                  support of Federal goals under this Act  
13                  and under other provisions of law (includ-  
14                  ing regulations);

15                  “(iv)(I) establish new Federal building  
16                  energy efficiency standards; and

17                  “(II) in consultation with the Admin-  
18                  istrator of the General Services Adminis-  
19                  tration, acting through the head of the Of-  
20                  fice of High-Performance Green Buildings,  
21                  establish and implement Federal building  
22                  sustainable design principles for Federal  
23                  facilities;

24                  “(v) manage the implementation of  
25                  Federal building energy efficiency stand-

1           ards established under section 305 of the  
2           Energy Conservation and Production Act  
3           (42 U.S.C. 6834); and

4                   “(vi) designate products that meet the  
5           highest energy conservation standards for  
6           categories not covered under the Energy  
7           Star program established under section  
8           324A of the Energy Policy and Conserva-  
9           tion Act (42 U.S.C. 6294a).

10           “(C) FEDERAL POLICY COORDINATION.—

11           Under the Program, the Federal Director  
12           shall—

13                   “(i) develop and implement accredited  
14           training consistent with existing Federal  
15           programs and activities—

16                           “(I) relating to energy and water  
17           use, management, and resilience in  
18           Federal buildings, energy-related in-  
19           vestment practices, and environmental  
20           stewardship; and

21                           “(II) that includes in-person  
22           training, internet-based programs,  
23           and national in-person training  
24           events;

1                   “(ii) coordinate and facilitate energy  
2                   and water management, energy-related in-  
3                   vestment practices, and environmental  
4                   stewardship through the Interagency En-  
5                   ergy Management Task Force established  
6                   under section 547; and

7                   “(iii) report on the implementation of  
8                   the priorities of the President, including  
9                   Executive orders, relating to energy and  
10                  water use in Federal buildings, in coordi-  
11                  nation with—

12                   “(I) the Office of Management  
13                   and Budget;

14                   “(II) the Council on Environ-  
15                   mental Quality; and

16                   “(III) any other entity, as consid-  
17                   ered necessary by the Federal Direc-  
18                   tor.

19                   “(D) FACILITY AND FLEET OPTIMIZA-  
20                  TION.—Under the Program, the Federal Direc-  
21                  tor shall develop guidance, supply assistance to,  
22                  and track the progress of Federal agencies—

23                   “(i) in conducting portfolio-wide facil-  
24                   ity energy and water resilience planning  
25                   and project integration;





1           ment practices, and environmental stew-  
2           ardship through coordination with Federal  
3           agencies and other appropriate entities;  
4           and

5           “(iii) establish a management council  
6           to advise the Federal Director that shall—

7                   “(I) convene not less frequently  
8                   than once every quarter; and

9                   “(II) consist of representatives  
10                  from—

11                           “(aa) the Council on Envi-  
12                           ronmental Quality;

13                           “(bb) the Office of Manage-  
14                           ment and Budget; and

15                           “(cc) the Office of Federal  
16                           High-Performance Green Build-  
17                           ings in the General Services Ad-  
18                           ministration.

19           “(4) SAVINGS CLAUSE.—Nothing in this sub-  
20           section impedes, supersedes, or alters the authority  
21           of the Secretary to carry out the remainder of this  
22           section or section 305 of the Energy Conservation  
23           and Production Act (42 U.S.C. 6834).

24           “(5) AUTHORIZATION OF APPROPRIATIONS.—  
25           There is authorized to be appropriated to the Sec-

1       retary to carry out this subsection \$36,000,000 for  
2       each of fiscal years 2021 through 2031.”.

3   **SEC. 1033. USE OF ENERGY AND WATER EFFICIENCY MEAS-**  
4                   **URES IN FEDERAL BUILDINGS.**

5       (a) REPORTS.—Section 548(b) of the National En-  
6   ergy Conservation Policy Act (42 U.S.C. 8258(b)) is  
7   amended—

8           (1) in paragraph (3), by striking “and” at the  
9   end;

10          (2) in paragraph (4), by striking the period at  
11   the end and inserting “; and”; and

12          (3) by adding at the end the following:

13           “(5)(A) the status of the energy savings per-  
14   formance contracts and utility energy service con-  
15   tracts of each agency, to the extent that the infor-  
16   mation is not duplicative of information provided to  
17   the Secretary under a separate authority;

18           “(B) the quantity and investment value of the  
19   contracts for the previous year;

20           “(C) the guaranteed energy savings, or for con-  
21   tracts without a guarantee, the estimated energy  
22   savings, for the previous year, as compared to the  
23   measured energy savings for the previous year;

1           “(D) a forecast of the estimated quantity and  
2 investment value of contracts anticipated in the fol-  
3 lowing year for each agency; and

4           “(E)(i) a comparison of the information de-  
5 scribed in subparagraph (B) and the forecast de-  
6 scribed in subparagraph (D) in the report of the  
7 previous year; and

8           “(ii) if applicable, the reasons for any dif-  
9 ferences in the data compared under clause (i).”.

10       (b) DEFINITION OF ENERGY CONSERVATION MEAS-  
11 URES.—Section 551(4) of the National Energy Conserva-  
12 tion Policy Act (42 U.S.C. 8259(4)) is amended by strik-  
13 ing “or retrofit activities” and inserting “retrofit activi-  
14 ties, or energy consuming devices and required support  
15 structures”.

16       (c) AUTHORITY TO ENTER INTO CONTRACTS.—Sec-  
17 tion 801(a)(2)(F) of the National Energy Conservation  
18 Policy Act (42 U.S.C. 8287(a)(2)(F)) is amended—

19           (1) in clause (i), by striking “or” at the end;

20           (2) in clause (ii), by striking the period at the  
21 end and inserting “; or”; and

22           (3) by adding at the end the following:

23                   “(iii) limit the recognition of oper-  
24 ation and maintenance savings associated  
25 with systems modernized or replaced with

1           the implementation of energy conservation  
2           measures, water conservation measures, or  
3           any combination of energy conservation  
4           measures and water conservation meas-  
5           ures.”.

6           (d) MISCELLANEOUS AUTHORITY; EXCLUDED CON-  
7 TRACTS.—Section 801(a)(2) of the National Energy Con-  
8 servation Policy Act (42 U.S.C. 8287(a)(2)) is amended  
9 by adding at the end the following:

10           “(H) MISCELLANEOUS AUTHORITY.—Not-  
11 withstanding subtitle I of title 40, United  
12 States Code, a Federal agency may accept, re-  
13 tain, sell, or transfer, and apply the proceeds of  
14 the sale or transfer of, any energy and water  
15 incentive, rebate, grid services revenue, or cred-  
16 it (including a renewable energy certificate) to  
17 fund a contract under this title.

18           “(I) EXCLUDED CONTRACTS.—A contract  
19 entered into under this title may not be for  
20 work performed—

21           “(i) at a Federal hydroelectric facility  
22 that provides power marketed by a Power  
23 Marketing Administration; or

24           “(ii) at a hydroelectric facility owned  
25 and operated by the Tennessee Valley Au-

1                   thority established under the Tennessee  
2                   Valley Authority Act of 1933 (16 U.S.C.  
3                   831 et seq.).”.

4           (e) PAYMENT OF COSTS.—Section 802 of the Na-  
5   tional Energy Conservation Policy Act (42 U.S.C. 8287a)  
6   is amended by striking “(and related operation and main-  
7   tenance expenses)” and inserting “, including related op-  
8   erations and maintenance expenses”.

9           (f) DEFINITION OF ENERGY SAVINGS.—Section  
10   804(2) of the National Energy Conservation Policy Act  
11   (42 U.S.C. 8287c(2)) is amended—

12           (1) in subparagraph (A), by striking “federally  
13           owned building or buildings or other federally owned  
14           facilities” and inserting “Federal building (as de-  
15           fined in section 551)” each place it appears;

16           (2) in subparagraph (C), by striking “; and”  
17           and inserting a semicolon;

18           (3) in subparagraph (D), by striking the period  
19           at the end and inserting a semicolon; and

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

21                   “(E) the use, sale, or transfer of any en-  
22                   ergy and water incentive, rebate, grid services  
23                   revenue, or credit (including a renewable energy  
24                   certificate); and

1                   “(F) any revenue generated from a reduc-  
2                   tion in energy or water use, more efficient  
3                   waste recycling, or additional energy generated  
4                   from more efficient equipment.”.

5 **SEC. 1034. FEDERAL BUILDING ENERGY EFFICIENCY PER-**  
6                   **FORMANCE STANDARDS; CERTIFICATION**  
7                   **SYSTEM AND LEVEL FOR GREEN BUILDINGS.**

8           (a) DEFINITIONS.—Section 303 of the Energy Con-  
9           servation and Production Act (42 U.S.C. 6832) is amend-  
10          ed—

11                   (1) in each of paragraphs (1) through (16), by  
12                   inserting a paragraph heading, the text of which is  
13                   comprised of the term defined in that paragraph;

14                   (2) by redesignating paragraphs (2) through  
15                   (16) as paragraphs (3), (4), (6), (7), (8), (10), (12),  
16                   (13), (14), (15), (16), (9), (17), (5), and (2), respec-  
17                   tively, and moving the paragraphs so as to appear  
18                   in numerical order; and

19                   (3) by inserting after paragraph (10) (as so re-  
20                   designated) the following:

21                   “(11) MAJOR RENOVATION.—The term ‘major  
22                   renovation’ means a modification of the energy sys-  
23                   tems of a building that is sufficiently extensive to  
24                   ensure that the entire building can achieve compli-

1           ance with applicable energy standards for new build-  
2           ings, as established by the Secretary.”.

3           (b) FEDERAL BUILDING EFFICIENCY STANDARDS.—

4 Section 305 of the Energy Conservation and Production  
5 Act (42 U.S.C. 6834) is amended—

6           (1) in subsection (a)—

7                   (A) in paragraph (2)(A), by striking “the  
8                   2004 International Energy Conservation Code  
9                   (in the case of residential buildings) or  
10                   ASHRAE Standard 90.1–2004 (in the case of  
11                   commercial buildings)” and inserting “the most  
12                   recently published edition of the International  
13                   Energy Conservation Code (in the case of resi-  
14                   dential buildings) or ASHRAE Standard 90.1  
15                   (in the case of commercial buildings) on the  
16                   date of enactment of the American Energy In-  
17                   novation Act of 2020”; and

18                   (B) in paragraph (3)—

19                           (i) by striking “(3)(A) Not later  
20                           than” and all that follows through sub-  
21                           paragraph (B) and inserting the following:

22                           “(3) REVISED FEDERAL BUILDING ENERGY EF-  
23                           FICIENCY PERFORMANCE STANDARDS; CERTIFI-  
24                           CATION FOR GREEN BUILDINGS.—



1                   “(A) REVISED FEDERAL BUILDING EN-  
2                   ERGY EFFICIENCY PERFORMANCE STAND-  
3                   ARDS.—

4                   “(i) IN GENERAL.—Not later than 1  
5                   year after the date of enactment of the  
6                   American Energy Innovation Act of 2020,  
7                   the Secretary shall establish, by regulation,  
8                   revised Federal building energy efficiency  
9                   performance standards that require that—

10                   “(I) subject to clause (ii), new  
11                   Federal buildings and Federal build-  
12                   ings with major renovations—

13                   “(aa) meet or exceed the  
14                   most recently published version  
15                   of the International Energy Con-  
16                   servation Code (in the case of  
17                   residential buildings) or  
18                   ASHRAE Standard 90.1 (in the  
19                   case of commercial buildings) as  
20                   of the date of enactment of the  
21                   American Energy Innovation Act  
22                   of 2020; and

23                   “(bb) meet or exceed the en-  
24                   ergy provisions of the State and  
25                   local building codes applicable to

1 the building if the codes are more  
2 stringent than the most recently  
3 published version of the Inter-  
4 national Energy Conservation  
5 Code or ASHRAE Standard 90.1  
6 as of the date of enactment of  
7 the American Energy Innovation  
8 Act of 2020, as applicable;

9 “(II) unless demonstrated not to  
10 be life cycle cost-effective for new  
11 Federal buildings and Federal build-  
12 ings with major renovations—

13 “(aa) the buildings shall be  
14 designed to achieve energy con-  
15 sumption levels that are not less  
16 than 30 percent below the levels  
17 established in the most recently  
18 published version of the Inter-  
19 national Energy Conservation  
20 Code or the ASHRAE Standard,  
21 as of the date of enactment of  
22 the American Energy Innovation  
23 Act of 2020, as appropriate, un-  
24 less the Secretary determines,  
25 pursuant to subparagraph (B),

1 that a subsequent version of such  
2 a standard or code shall apply;  
3 and

4 “(bb) sustainable design  
5 principles are applied to the loca-  
6 tion, siting, design, and construc-  
7 tion of all new Federal buildings  
8 and replacement Federal build-  
9 ings;

10 “(III) if water is used to achieve  
11 energy efficiency, water conservation  
12 technologies shall be applied to the ex-  
13 tent that the technologies are life-  
14 cycle cost effective; and

15 “(IV) if life-cycle cost effective,  
16 as compared to other reasonably avail-  
17 able technologies, not less than 30  
18 percent of the hot water demand for  
19 each new Federal building or Federal  
20 building undergoing a major renova-  
21 tion be met through the installation  
22 and use of solar hot water heaters.

23 “(ii) EXCEPTION.—Clause (i)(I) shall  
24 not apply to the unaltered portions of Fed-

1           eral buildings and systems that have un-  
2           dergone major renovations.

3           “(B) UPDATES.—Not later than 1 year  
4           after the date of approval of each subsequent  
5           revision of the ASHRAE Standard or the Inter-  
6           national Energy Conservation Code, as appro-  
7           priate, the Secretary shall determine whether  
8           the revised standards established under sub-  
9           clauses (I) and (II) of subparagraph (A)(i)  
10          should be updated to reflect the revisions, based  
11          on the energy savings and life cycle cost-effec-  
12          tiveness of the revisions.”;

13                   (ii) in subparagraph (C)—

14                           (I) by striking “(C) In the budg-  
15                           et request” and inserting the fol-  
16                           lowing:

17                           “(C) BUDGET REQUEST.—In the budget  
18                           request”; and

19                           (II) by indenting clauses (i) and

20                           (ii) appropriately; and

21                           (iii) by striking subparagraph (D) and  
22                           inserting the following:

23                           “(D) CERTIFICATION FOR GREEN BUILD-  
24                           INGS.—

1                   “(i) SUSTAINABLE DESIGN PRIN-  
2                   CIPLES.—Sustainable design principles  
3                   shall be applied to the siting, design, and  
4                   construction of buildings covered by this  
5                   subparagraph.

6                   “(ii) SELECTION OF CERTIFICATION  
7                   SYSTEMS.—The Secretary, after reviewing  
8                   the findings of the Federal Director under  
9                   section 436(h) of the Energy Independence  
10                  and Security Act of 2007 (42 U.S.C.  
11                  17092(h)), in consultation with the Admin-  
12                  istrator of General Services, and in con-  
13                  sultation with the Secretary of Defense re-  
14                  lating to those facilities under the custody  
15                  and control of the Department of Defense,  
16                  shall determine those certification systems  
17                  for green commercial and residential build-  
18                  ings that the Secretary determines to be  
19                  the most likely to encourage a comprehen-  
20                  sive and environmentally sound approach  
21                  to certification of green buildings.

22                  “(iii) BASIS FOR SELECTION.—The  
23                  determination of the certification systems  
24                  under clause (ii) shall be based on ongoing  
25                  review of the findings of the Federal Direc-



1                   “(cc) as practicable, give  
2 preference to performance stand-  
3 ards instead of prescriptive meas-  
4 ures; and

5                   “(dd) reward continual im-  
6 provements in the lifecycle man-  
7 agement of health, safety, and  
8 environmental risks and impacts.

9                   “(v) CONSIDERATIONS.—In deter-  
10 mining the green building certification sys-  
11 tems under this subparagraph, the Sec-  
12 retary shall take into consideration—

13                   “(I) the ability and availability of  
14 assessors and auditors to independ-  
15 ently verify the criteria and measure-  
16 ment of metrics at the scale necessary  
17 to implement this subparagraph;

18                   “(II) the ability of the applicable  
19 certification organization to collect  
20 and reflect public comment;

21                   “(III) the ability of the standard  
22 to be developed and revised through a  
23 consensus-based process;

24                   “(IV) an evaluation of the  
25 robustness of the criteria for a high-

1 performance green building, which  
2 shall give credit for promoting—

3 “(aa) efficient and sustain-  
4 able use of water, energy, and  
5 other natural resources;

6 “(bb) use of renewable en-  
7 ergy sources;

8 “(cc) improved indoor envi-  
9 ronmental quality through en-  
10 hanced indoor air quality, ther-  
11 mal comfort, acoustics, day light-  
12 ing, pollutant source control, and  
13 use of low-emission materials and  
14 building system controls;

15 “(dd)(AA) the sourcing of  
16 grown, harvested, or mined mate-  
17 rials; and

18 “(BB) certifications of re-  
19 sponsible sourcing, such as cer-  
20 tifications provided by the Forest  
21 Stewardship Council, the Sus-  
22 tainable Forestry Initiative, the  
23 American Tree Farm System, or  
24 the Programme for the Endorse-  
25 ment of Forest Certification; and



1                   “(ee) such other criteria as  
2                   the Secretary determines to be  
3                   appropriate; and

4                   “(V) national recognition within  
5                   the building industry.

6                   “(vi) REVIEW.—The Secretary, in  
7                   consultation with the Administrator of  
8                   General Services and the Secretary of De-  
9                   fense, shall conduct an ongoing review to  
10                  evaluate and compare private sector green  
11                  building certification systems, taking into  
12                  account—

13                  “(I) the criteria described in  
14                  clause (v); and

15                  “(II) the identification made by  
16                  the Federal Director under section  
17                  436(h) of the Energy Independence  
18                  and Security Act of 2007 (42 U.S.C.  
19                  17092(h)).

20                  “(vii) EXCLUSIONS.—

21                  “(I) IN GENERAL.—Subject to  
22                  subclause (II), if a certification sys-  
23                  tem fails to meet the review require-  
24                  ments of clause (v), the Secretary  
25                  shall—

1                   “(aa) identify the portions  
2 of the system, whether pre-  
3 requisites, credits, points, or oth-  
4 erwise, that meet the review cri-  
5 teria of clause (v);

6                   “(bb) determine the portions  
7 of the system that are suitable  
8 for use; and

9                   “(cc) exclude all other por-  
10 tions of the system from identi-  
11 fication and use.

12                   “(II) ENTIRE SYSTEMS.—The  
13 Secretary shall exclude an entire sys-  
14 tem from use if an exclusion under  
15 subclause (I)—

16                   “(aa) impedes the integrated  
17 use of the system;

18                   “(bb) creates disparate re-  
19 view criteria or unequal point ac-  
20 cess for competing materials; or

21                   “(cc) increases agency costs  
22 of the use.

23                   “(viii) INTERNAL CERTIFICATION  
24 PROCESSES.—The Secretary may by rule  
25 allow Federal agencies to develop internal

1 certification processes, using certified pro-  
2 fessionals, in lieu of certification by certifi-  
3 cation entities identified under clause (ii).

4 “(ix) PRIVATIZED MILITARY HOUS-  
5 ING.—With respect to privatized military  
6 housing, the Secretary of Defense, after  
7 consultation with the Secretary may,  
8 through rulemaking, develop alternative  
9 certification systems and levels than the  
10 systems and levels identified under clause  
11 (ii) that achieve an equivalent result in  
12 terms of energy savings, sustainable de-  
13 sign, and green building performance.

14 “(x) WATER CONSERVATION TECH-  
15 NOLOGIES.—In addition to any use of  
16 water conservation technologies otherwise  
17 required by this section, water conservation  
18 technologies shall be applied to the extent  
19 that the technologies are life-cycle cost-ef-  
20 fective.

21 “(xi) EFFECTIVE DATE.—

22 “(I) DETERMINATIONS MADE  
23 AFTER DECEMBER 31, 2020.—This  
24 subparagraph shall apply to any de-

1 termination made by a Federal agency  
2 after December 31, 2020.

3 “(II) DETERMINATIONS MADE ON  
4 OR BEFORE DECEMBER 31, 2020.—  
5 This subparagraph (as in effect on the  
6 day before the date of enactment of  
7 the American Energy Innovation Act  
8 of 2020) shall apply to any use of a  
9 certification system for green commer-  
10 cial and residential buildings by a  
11 Federal agency on or before December  
12 31, 2020.”; and

13 (2) by striking subsections (c) and (d) and in-  
14 serting the following:

15 “(c) PERIODIC REVIEW.—The Secretary shall—

16 “(1) once every 5 years, review the Federal  
17 building energy standards established under this sec-  
18 tion; and

19 “(2) on completion of a review under paragraph  
20 (1), if the Secretary determines that significant en-  
21 ergy savings would result, upgrade the standards to  
22 include all new energy efficiency and renewable en-  
23 ergy measures that are technologically feasible and  
24 economically justified.”.

1           (c) FEDERAL COMPLIANCE.—Section 306 of the En-  
2   ergy Conservation and Production Act (42 U.S.C. 6835)  
3   is amended—

4           (1) in subsection (a)—

5           (A) in paragraph (1)—

6           (i) by striking “(1) The head” and in-  
7           serting the following:

8           “(1) IN GENERAL.—The head”; and

9           (ii) by striking “assure that new Fed-  
10          eral buildings” and inserting “ensure that  
11          new Federal buildings and Federal build-  
12          ings with major renovations”; and

13          (B) in paragraph (2)—

14          (i) by striking the second sentence  
15          and inserting the following:

16          “(B) PROCEDURES.—The Architect of the  
17          Capitol shall adopt procedures necessary to en-  
18          sure that the buildings referred to in subpara-  
19          graph (A) meet or exceed the standards de-  
20          scribed in that subparagraph.”; and

21          (ii) in the first sentence—

22               (I) by inserting “and Federal  
23               buildings with major renovations”  
24               after “new buildings”; and

1 (II) by striking “(2) The Fed-  
2 eral” and inserting the following:

3 “(2) APPLICABILITY.—

4 “(A) IN GENERAL.—The Federal”; and  
5 (2) in subsection (b)—

6 (A) by striking the subsection heading and  
7 inserting “EXPENDITURES”; and

8 (B) by striking “new Federal building”  
9 and all that follows through the period at the  
10 end and inserting “new Federal building or a  
11 Federal building with major renovations.”.

12 **SEC. 1035. ENERGY-EFFICIENT AND ENERGY-SAVING IN-**  
13 **FORMATION TECHNOLOGIES.**

14 Section 543 of the National Energy Conservation  
15 Policy Act (42 U.S.C. 8253) (as amended by section 1032)  
16 is amended by adding at the end the following:

17 “(i) FEDERAL IMPLEMENTATION STRATEGY FOR EN-  
18 ERGY-EFFICIENT AND ENERGY-SAVING INFORMATION  
19 TECHNOLOGIES.—

20 “(1) DEFINITIONS.—In this subsection:

21 “(A) DIRECTOR.—The term ‘Director’  
22 means the Director of the Office of Manage-  
23 ment and Budget.

24 “(B) INFORMATION TECHNOLOGY.—The  
25 term ‘information technology’ has the meaning

1           given that term in section 11101 of title 40,  
2           United States Code.

3           “(2) DEVELOPMENT OF IMPLEMENTATION  
4 STRATEGY.—Not later than 1 year after the date of  
5 enactment of the American Energy Innovation Act  
6 of 2020, each Federal agency shall coordinate with  
7 the Director, the Secretary, and the Administrator  
8 of the Environmental Protection Agency to develop  
9 an implementation strategy (including best-practices  
10 and measurement and verification techniques) for  
11 the maintenance, purchase, and use by the Federal  
12 agency of energy-efficient and energy-saving infor-  
13 mation technologies at or for facilities owned and  
14 operated by the Federal agency, taking into consid-  
15 eration the performance goals established under  
16 paragraph (4).

17           “(3) ADMINISTRATION.—In developing an im-  
18 plementation strategy under paragraph (2), each  
19 Federal agency shall consider—

20                   “(A) advanced metering infrastructure;

21                   “(B) energy efficient data center strategies  
22 and methods of increasing asset and infrastruc-  
23 ture utilization;

24                   “(C) advanced power management tools;

1           “(D) building information modeling, in-  
2           cluding building energy management;

3           “(E) secure telework and travel substi-  
4           tution tools; and

5           “(F) mechanisms to ensure that the agen-  
6           cy realizes the energy cost savings of increased  
7           efficiency and utilization.

8           “(4) PERFORMANCE GOALS.—

9           “(A) IN GENERAL.—Not later than 180  
10          days after the date of enactment of the Amer-  
11          ican Energy Innovation Act of 2020, the Direc-  
12          tor, in consultation with the Secretary, shall es-  
13          tablish performance goals for evaluating the ef-  
14          forts of Federal agencies in improving the  
15          maintenance, purchase, and use of energy-effi-  
16          cient and energy-saving information technology  
17          at or for facilities owned and operated by the  
18          Federal agencies.

19          “(B) BEST PRACTICES.—The Chief Infor-  
20          mation Officers Council established under sec-  
21          tion 3603 of title 44, United States Code, shall  
22          recommend best practices for the attainment of  
23          the performance goals established under sub-  
24          paragraph (A), which shall include, to the ex-



1 tent applicable by law, consideration by a Fed-  
2 eral agency of the use of—

3 “(i) energy savings performance con-  
4 tracting; and

5 “(ii) utility energy services con-  
6 tracting.

7 “(5) REPORTS.—

8 “(A) AGENCY REPORTS.—Each Federal  
9 agency shall include in the report of the agency  
10 under section 527 of the Energy Independence  
11 and Security Act of 2007 (42 U.S.C. 17143) a  
12 description of the efforts and results of the  
13 agency under this subsection.

14 “(B) OMB GOVERNMENT EFFICIENCY RE-  
15 PORTS AND SCORECARDS.—Effective beginning  
16 not later than October 1, 2022, the Director  
17 shall include in the annual report and scorecard  
18 of the Director required under section 528 of  
19 the Energy Independence and Security Act of  
20 2007 (42 U.S.C. 17144) a description of the ef-  
21 forts and results of Federal agencies under this  
22 subsection.

23 “(C) USE OF EXISTING REPORTING STRUC-  
24 TURES.—The Director may require Federal  
25 agencies to submit any information required to

1 be submitted under this subsection though re-  
2 porting structures in use as of the date of en-  
3 actment of the American Energy Innovation  
4 Act of 2020.”.

5 **SEC. 1036. HIGH-PERFORMANCE GREEN FEDERAL BUILD-**  
6 **INGS.**

7 Section 436(h) of the Energy Independence and Se-  
8 curity Act of 2007 (42 U.S.C. 17092(h)) is amended—

9 (1) in the subsection heading, by striking “SYS-  
10 TEM” and inserting “SYSTEMS”;

11 (2) by striking paragraph (1) and inserting the  
12 following:

13 “(1) IN GENERAL.—Based on an ongoing re-  
14 view, the Federal Director shall identify and shall  
15 provide to the Secretary pursuant to section  
16 305(a)(3)(D) of the Energy Conservation and Pro-  
17 duction Act (42 U.S.C. 6834(a)(3)(D)) a list of  
18 those certification systems that the Director identi-  
19 fies as the most likely to encourage a comprehensive  
20 and environmentally sound approach to certification  
21 of green buildings.”; and

22 (3) in paragraph (2)—

23 (A) in the matter preceding subparagraph  
24 (A), by striking “system” and inserting “sys-  
25 tems”;

1 (B) by striking subparagraph (A) and in-  
2 serting the following:

3 “(A) an ongoing review provided to the  
4 Secretary pursuant to section 305(a)(3)(D) of  
5 the Energy Conservation and Production Act  
6 (42 U.S.C. 6834(a)(3)(D)), which shall—

7 “(i) be carried out by the Federal Di-  
8 rector to compare and evaluate standards;  
9 and

10 “(ii) allow any developer or adminis-  
11 trator of a rating system or certification  
12 system to be included in the review;”;

13 (C) in subparagraph (E)(v), by striking  
14 “and” after the semicolon at the end;

15 (D) in subparagraph (F), by striking the  
16 period at the end and inserting a semicolon;  
17 and

18 (E) by adding at the end the following:

19 “(G) a finding that, for all credits address-  
20 ing the sourcing of grown, harvested, or mined  
21 materials, the system rewards the use of prod-  
22 ucts that have obtained certifications of respon-  
23 sible sourcing, such as certifications provided by  
24 the Sustainable Forestry Initiative, the Forest  
25 Stewardship Council, the American Tree Farm

1 System, or the Programme for the Endorse-  
2 ment of Forest Certification; and

3 “(H) a finding that the system incor-  
4 porates life-cycle assessment as a credit path-  
5 way.”.

6 **SEC. 1037. ENERGY EFFICIENT DATA CENTERS.**

7 Section 453 of the Energy Independence and Security  
8 Act of 2007 (42 U.S.C. 17112) is amended—

9 (1) in subsection (b)—

10 (A) in paragraph (2)(D)(iv), by striking  
11 “determined by the organization” and inserting  
12 “proposed by the stakeholders”; and

13 (B) by striking paragraph (3); and

14 (2) by striking subsections (e) through (g) and  
15 inserting the following:

16 “(c) STAKEHOLDER INVOLVEMENT.—

17 “(1) IN GENERAL.—The Secretary and the Ad-  
18 ministrator shall carry out subsection (b) in collabo-  
19 ration with the information technology industry and  
20 other key stakeholders, with the goal of producing  
21 results that accurately reflect the most relevant and  
22 useful information.

23 “(2) CONSIDERATIONS.—In carrying out the  
24 collaboration described in paragraph (1), the Sec-

1       retary and the Administrator shall pay particular at-  
2       tention to organizations that—

3               “(A) have members with expertise in en-  
4               ergy efficiency and in the development, oper-  
5               ation, and functionality of data centers, infor-  
6               mation technology equipment, and software, in-  
7               cluding representatives of hardware manufac-  
8               turers, data center operators, and facility man-  
9               agers;

10              “(B) obtain and address input from the  
11              National Laboratories (as that term is defined  
12              in section 2 of the Energy Policy Act of 2005  
13              (42 U.S.C. 15801)) or any institution of higher  
14              education, research institution, industry asso-  
15              ciation, company, or public interest group with  
16              applicable expertise;

17              “(C) follow—

18                      “(i) commonly accepted procedures  
19                      for the development of specifications; and

20                      “(ii) accredited standards development  
21                      processes; or

22              “(D) have a mission to promote energy ef-  
23              ficiency for data centers and information tech-  
24              nology.

1       “(d) MEASUREMENTS AND SPECIFICATIONS.—The  
2 Secretary and the Administrator shall consider and assess  
3 the adequacy of the specifications, measurements, best  
4 practices, and benchmarks described in subsection (b) for  
5 use by the Federal Energy Management Program, the En-  
6 ergy Star Program, and other efficiency programs of the  
7 Department of Energy or the Environmental Protection  
8 Agency.

9       “(e) STUDY.—

10           “(1) DEFINITION OF REPORT.—In this sub-  
11 section, the term ‘report’ means the report of the  
12 Lawrence Berkeley National Laboratory entitled  
13 ‘United States Data Center Energy Usage Report’  
14 and dated June 2016, which was prepared as an up-  
15 date to the ‘Report to Congress on Server and Data  
16 Center Energy Efficiency’, published on August 2,  
17 2007, pursuant to section 1 of Public Law 109–431  
18 (120 Stat. 2920).

19           “(2) STUDY.—Not later than 4 years after the  
20 date of enactment of the American Energy Innova-  
21 tion Act of 2020, the Secretary, in collaboration with  
22 the Administrator, shall make available to the public  
23 an update to the report that provides—

24                   “(A) a comparison and gap analysis of the  
25 estimates and projections contained in the re-

1 port with new data regarding the period from  
2 2015 through 2019;

3 “(B) an analysis considering the impact of  
4 information technologies, including  
5 virtualization and cloud computing, in the pub-  
6 lic and private sectors;

7 “(C) an evaluation of the impact of the  
8 combination of cloud platforms, mobile devices,  
9 social media, and big data on data center en-  
10 ergy usage;

11 “(D) an evaluation of water usage in data  
12 centers and recommendations for reductions in  
13 that water usage; and

14 “(E) updated projections and recommenda-  
15 tions for best practices through fiscal year  
16 2025.

17 “(f) DATA CENTER ENERGY PRACTITIONER PRO-  
18 GRAM.—

19 “(1) IN GENERAL.—The Secretary, in collabo-  
20 ration with key stakeholders and the Director of the  
21 Office of Management and Budget, shall maintain a  
22 data center energy practitioner program that pro-  
23 vides for the certification of energy practitioners  
24 qualified to evaluate the energy usage and efficiency

1 opportunities in federally owned and operated data  
2 centers.

3 “(2) EVALUATIONS.—Each Federal agency  
4 shall consider having the data centers of the agency  
5 evaluated once every 4 years by energy practitioners  
6 certified pursuant to the program, whenever prac-  
7 ticable using certified practitioners employed by the  
8 agency.

9 “(g) OPEN DATA INITIATIVE.—

10 “(1) IN GENERAL.—The Secretary, in collabo-  
11 ration with key stakeholders and the Director of the  
12 Office of Management and Budget, shall establish  
13 an open data initiative relating to energy usage at  
14 federally owned and operated data centers, with the  
15 purpose of making the data available and accessible  
16 in a manner that encourages further data center in-  
17 novation, optimization, and consolidation.

18 “(2) CONSIDERATION.—In establishing the ini-  
19 tiative under paragraph (1), the Secretary shall con-  
20 sider using the online Data Center Maturity Model.

21 “(h) INTERNATIONAL SPECIFICATIONS AND  
22 METRICS.—The Secretary, in collaboration with key  
23 stakeholders, shall actively participate in efforts to har-  
24 monize global specifications and metrics for data center  
25 energy and water efficiency.



1       “(i) DATA CENTER UTILIZATION METRIC.—The Sec-  
2 retary, in collaboration with key stakeholders, shall facili-  
3 tate in the development of an efficiency metric that meas-  
4 ures the energy efficiency of a data center (including  
5 equipment and facilities).

6       “(j) PROTECTION OF PROPRIETARY INFORMATION.—  
7 The Secretary and the Administrator shall not disclose  
8 any proprietary information or trade secrets provided by  
9 any individual or company for the purposes of carrying  
10 out this section or the programs and initiatives established  
11 under this section.”.

12                   **Subpart D—Rebates and Certifications**

13 **SEC. 1041. THIRD-PARTY CERTIFICATION UNDER ENERGY**  
14                   **STAR PROGRAM.**

15       Section 324A of the Energy Policy and Conservation  
16 Act (42 U.S.C. 6294a) is amended by adding at the end  
17 the following:

18       “(e) THIRD-PARTY CERTIFICATION.—

19               “(1) IN GENERAL.—Subject to paragraph (2),  
20 not later than 180 days after the date of enactment  
21 of this subsection, the Administrator shall revise the  
22 certification requirements for the labeling of con-  
23 sumer, home, and office electronic products for pro-  
24 gram partners that have complied with all require-

1       ments of the Energy Star program for a period of  
2       at least 18 months.

3               “(2) ADMINISTRATION.—In the case of a pro-  
4       gram partner described in paragraph (1), the new  
5       requirements under paragraph (1)—

6                       “(A) shall not require third-party certifi-  
7       cation for a product to be listed; but

8                       “(B) may require that test data and other  
9       product information be submitted to facilitate  
10      product listing and performance verification for  
11      a sample of products.

12               “(3) THIRD PARTIES.—Nothing in this sub-  
13      section prevents the Administrator from using third  
14      parties in the course of the administration of the  
15      Energy Star program.

16               “(4) TERMINATION.—

17                       “(A) IN GENERAL.—Subject to subpara-  
18      graph (B), an exemption from third-party cer-  
19      tification provided to a program partner under  
20      paragraph (1) shall terminate if the program  
21      partner is found to have violated program re-  
22      quirements with respect to at least 2 separate  
23      models during a 2-year period.

24                       “(B) RESUMPTION.—A termination for a  
25      program partner under subparagraph (A) shall

1           cease if the program partner complies with all  
2           Energy Star program requirements for a period  
3           of at least 3 years.”.

4 **SEC. 1042. EXTENDED PRODUCT SYSTEM REBATE PRO-**  
5 **GRAM.**

6           (a) DEFINITIONS.—In this section:

7           (1) ELECTRIC MOTOR.—The term “electric  
8           motor” has the meaning given the term in section  
9           431.12 of title 10, Code of Federal Regulations (as  
10          in effect on the date of enactment of this Act).

11          (2) ELECTRONIC CONTROL.—The term “elec-  
12          tronic control” means—

13                  (A) a power converter; or

14                  (B) a combination of a power circuit and  
15          control circuit included on 1 chassis.

16          (3) EXTENDED PRODUCT SYSTEM.—The term  
17          “extended product system” means an electric motor  
18          and any required associated electronic control and  
19          driven load that—

20                  (A) offers variable speed or multispeed op-  
21          eration;

22                  (B) offers partial load control that reduces  
23          input energy requirements (as measured in kilo-  
24          watt-hours) as compared to identified base lev-  
25          els set by the Secretary; and

1 (C)(i) has greater than 1 horsepower; and

2 (ii) uses an extended product system tech-

3 nology, as determined by the Secretary.

4 (4) QUALIFIED EXTENDED PRODUCT SYS-

5 TEM.—

6 (A) IN GENERAL.—The term “qualified ex-

7 tended product system” means an extended

8 product system that—

9 (i) includes an electric motor and an

10 electronic control; and

11 (ii) reduces the input energy (as

12 measured in kilowatt-hours) required to

13 operate the extended product system by

14 not less than 5 percent, as compared to

15 identified base levels set by the Secretary.

16 (B) INCLUSIONS.—The term “qualified ex-

17 tended product system” includes commercial or

18 industrial machinery or equipment that—

19 (i)(I) did not previously make use of

20 the extended product system prior to the

21 redesign described in subclause (II); and

22 (II) incorporates an extended product

23 system that has greater than 1 horsepower

24 into redesigned machinery or equipment;

25 and

1                   (ii) was previously used prior to, and  
2                   was placed back into service during, cal-  
3                   endar year 2021 or 2022.

4           (b) ESTABLISHMENT.—Not later than 180 days after  
5 the date of enactment of this Act, the Secretary shall es-  
6 tablish a program to provide rebates for expenditures  
7 made by qualified entities for the purchase or installation  
8 of a qualified extended product system.

9           (c) QUALIFIED ENTITIES.—

10           (1) ELIGIBILITY REQUIREMENTS.—A qualified  
11 entity under this section shall be—

12                   (A) in the case of a qualified extended  
13 product system described in subsection  
14 (a)(4)(A), the purchaser of the qualified ex-  
15 tended product that is installed; and

16                   (B) in the case of a qualified extended  
17 product system described in subsection  
18 (a)(4)(B), the manufacturer of the commercial  
19 or industrial machinery or equipment that in-  
20 corporated the extended product system into  
21 that machinery or equipment.

22           (2) APPLICATION.—To be eligible to receive a  
23 rebate under this section, a qualified entity shall  
24 submit to the Secretary—

1 (A) an application in such form, at such  
2 time, and containing such information as the  
3 Secretary may require; and

4 (B) a certification that includes dem-  
5 onstrated evidence—

6 (i) that the entity is a qualified entity;

7 and

8 (ii)(I) in the case of a qualified entity  
9 described in paragraph (1)(A)—

10 (aa) that the qualified entity in-  
11 stalled the qualified extended product  
12 system during the 2 fiscal years fol-  
13 lowing the date of enactment of this  
14 Act;

15 (bb) that the qualified extended  
16 product system meets the require-  
17 ments of subsection (a)(4)(A); and

18 (cc) showing the serial number,  
19 manufacturer, and model number  
20 from the nameplate of the installed  
21 motor of the qualified entity on which  
22 the qualified extended product system  
23 was installed; or

1 (II) in the case of a qualified entity  
2 described in paragraph (1)(B), dem-  
3 onstrated evidence—

4 (aa) that the qualified extended  
5 product system meets the require-  
6 ments of subsection (a)(4)(B); and

7 (bb) showing the serial number,  
8 manufacturer, and model number  
9 from the nameplate of the installed  
10 motor of the qualified entity with  
11 which the extended product system is  
12 integrated.

13 (d) AUTHORIZED AMOUNT OF REBATE.—

14 (1) IN GENERAL.—The Secretary may provide  
15 to a qualified entity a rebate in an amount equal to  
16 the product obtained by multiplying—

17 (A) an amount equal to the sum of the  
18 nameplate rated horsepower of—

19 (i) the electric motor to which the  
20 qualified extended product system is at-  
21 tached; and

22 (ii) the electronic control; and

23 (B) \$25.

24 (2) MAXIMUM AGGREGATE AMOUNT.—A quali-  
25 fied entity shall not be entitled to aggregate rebates

1 under this section in excess of \$25,000 per calendar  
2 year.

3 (e) AUTHORIZATION OF APPROPRIATIONS.—There is  
4 authorized to be appropriated to carry out this section  
5 \$5,000,000 for each of the first 2 full fiscal years following  
6 the date of enactment of this Act, to remain available until  
7 expended.

8 **SEC. 1043. ENERGY EFFICIENT TRANSFORMER REBATE**  
9 **PROGRAM.**

10 (a) DEFINITIONS.—In this section:

11 (1) QUALIFIED ENERGY EFFICIENT TRANS-  
12 FORMER.—The term “qualified energy efficient  
13 transformer” means a transformer that meets or ex-  
14 ceeds the applicable energy conservation standards  
15 described in the tables in subsection (b)(2) and  
16 paragraphs (1) and (2) of subsection (c) of section  
17 431.196 of title 10, Code of Federal Regulations (as  
18 in effect on the date of enactment of this Act).

19 (2) QUALIFIED ENERGY INEFFICIENT TRANS-  
20 FORMER.—The term “qualified energy inefficient  
21 transformer” means a transformer with an equal  
22 number of phases and capacity to a transformer de-  
23 scribed in any of the tables in subsection (b)(2) and  
24 paragraphs (1) and (2) of subsection (c) of section  
25 431.196 of title 10, Code of Federal Regulations (as



1 in effect on the date of enactment of this Act)  
2 that—

3 (A) does not meet or exceed the applicable  
4 energy conservation standards described in  
5 paragraph (1); and

6 (B)(i) was manufactured between January  
7 1, 1987, and December 31, 2008, for a trans-  
8 former with an equal number of phases and ca-  
9 pacity as a transformer described in the table  
10 in subsection (b)(2) of section 431.196 of title  
11 10, Code of Federal Regulations (as in effect on  
12 the date of enactment of this Act); or

13 (ii) was manufactured between January 1,  
14 1992, and December 31, 2011, for a trans-  
15 former with an equal number of phases and ca-  
16 pacity as a transformer described in the table  
17 in paragraph (1) or (2) of subsection (c) of that  
18 section (as in effect on the date of enactment  
19 of this Act).

20 (3) QUALIFIED ENTITY.—The term “qualified  
21 entity” means an owner of industrial or manufac-  
22 turing facilities, commercial buildings, or multifamily  
23 residential buildings, a utility, or an energy service  
24 company that fulfills the requirements of subsection  
25 (d).

1           (b) ESTABLISHMENT.—Not later than 90 days after  
2 the date of enactment of this Act, the Secretary shall es-  
3 tablish a program to provide rebates to qualified entities  
4 for expenditures made by the qualified entity for the re-  
5 placement of a qualified energy inefficient transformer  
6 with a qualified energy efficient transformer.

7           (c) REQUIREMENTS.—To be eligible to receive a re-  
8 bate under this section, an entity shall submit to the Sec-  
9 retary an application in such form, at such time, and con-  
10 taining such information as the Secretary may require, in-  
11 cluding demonstrated evidence—

12                   (1) that the entity purchased a qualified energy  
13 efficient transformer;

14                   (2) of the core loss value of the qualified energy  
15 efficient transformer;

16                   (3) of the age of the qualified energy inefficient  
17 transformer being replaced;

18                   (4) of the core loss value of the qualified energy  
19 inefficient transformer being replaced—

20                           (A) as measured by a qualified professional  
21 or verified by the equipment manufacturer, as  
22 applicable; or

23                           (B) for transformers described in sub-  
24 section (a)(2)(B)(i), as selected from a table of

1           default values as determined by the Secretary  
2           in consultation with applicable industry; and

3           (5) that the qualified energy inefficient trans-  
4           former has been permanently decommissioned and  
5           scrapped.

6           (d) AUTHORIZED AMOUNT OF REBATE.—The  
7           amount of a rebate provided under this section shall be—

8           (1) for a 3-phase or single-phase transformer  
9           with a capacity of not less than 10 and not greater  
10          than 2,500 kilovolt-amperes, twice the amount equal  
11          to the difference in Watts between the core loss  
12          value (as measured in accordance with paragraphs  
13          (2) and (4) of subsection (c)) of—

14                 (A) the qualified energy inefficient trans-  
15                 former; and

16                 (B) the qualified energy efficient trans-  
17                 former; or

18           (2) for a transformer described in subsection  
19           (a)(2)(B)(i), the amount determined using a table of  
20           default rebate values by rated transformer output,  
21           as measured in kilovolt-amperes, as determined by  
22           the Secretary in consultation with applicable indus-  
23           try.

24           (e) AUTHORIZATION OF APPROPRIATIONS.—There is  
25           authorized to be appropriated to carry out this section

1 \$5,000,000 for each of fiscal years 2021 and 2022, to re-  
2 main available until expended.

3 (f) TERMINATION OF EFFECTIVENESS.—The author-  
4 ity provided by this section terminates on December 31,  
5 2022.

6 **Subpart E—Miscellaneous**

7 **SEC. 1051. ADVANCE APPROPRIATIONS REQUIRED.**

8 The authorization of amounts under this part and the  
9 amendments made by this part shall be effective for any  
10 fiscal year only to the extent and in the amount provided  
11 in advance in appropriations Acts.

12 **PART II—WEATHERIZATION**

13 **SEC. 1101. WEATHERIZATION ASSISTANCE PROGRAM.**

14 (a) DEFINITION OF WEATHERIZATION MATE-  
15 RIALS.—Section 412(9)(J) of the Energy Conservation  
16 and Production Act (42 U.S.C. 6862(9)(J)) is amended—

17 (1) by inserting “, including renewable energy  
18 technologies and other advanced technologies,” after  
19 “technologies”; and

20 (2) by striking “Development,” and all that fol-  
21 lows through the period at the end and inserting  
22 “Development and the Secretary of Agriculture.”.

23 (b) ALLOWANCE FOR HEALTH AND SAFETY BENE-  
24 FITS.—Section 413(b) of the Energy Conservation and  
25 Production Act (42 U.S.C. 6863(b)) is amended—

1 (1) in paragraph (2)(B), by striking “para-  
2 graph (5)” and inserting “paragraph (6)”;

3 (2) in paragraph (3)—

4 (A) in the first sentence, by striking “and  
5 with the Director of the Community Services  
6 Administration”; and

7 (B) in the first sentence of the undesig-  
8 nated matter following subparagraph (C)—

9 (i) by striking “part,” and inserting  
10 “part and by”; and

11 (ii) by striking “, and the Director”  
12 and all that follows through “1964”;

13 (3) by redesignating paragraphs (5) and (6) as  
14 paragraphs (6) and (7), respectively; and

15 (4) by inserting after paragraph (4) the fol-  
16 lowing:

17 “(5) In carrying out paragraph (3), the Sec-  
18 retary may take into consideration evidence-based  
19 values for improvements in the health and safety of  
20 occupants of weatherized homes, and other non-en-  
21 ergy benefits, as determined by the Secretary.”.

22 (c) CONTRACTOR OPTIMIZATION.—

23 (1) TECHNICAL TRANSFER GRANTS.—Section  
24 414B(a)(4) of the Energy Conservation and Produc-  
25 tion Act (42 U.S.C. 6864b(a)(4)) is amended—

1 (A) by striking “for persons” and inserting  
2 the following: “for—

3 “(A) persons”; and

4 (B) in subparagraph (A) (as so des-  
5 ignated), by striking the period at the end and  
6 inserting the following: “; and

7 “(B) private entities that are contracted to  
8 provide weatherization assistance under this  
9 part, in accordance with rules determined by  
10 the Secretary.”.

11 (2) CONTRACTOR OPTIMIZATION.—The Energy  
12 Conservation and Production Act is amended by in-  
13 serting after section 414B (42 U.S.C. 6864b) the  
14 following:

15 **“SEC. 414C. CONTRACTOR OPTIMIZATION.**

16 “The Secretary may request that entities receiving  
17 funding from the Federal Government or from a State  
18 through a weatherization assistance program under sec-  
19 tion 413 or 414—

20 “(1) perform periodic reviews of the use of pri-  
21 vate contractors in the provision of weatherization  
22 assistance, if applicable; and

23 “(2) encourage an increased use and expanded  
24 role of contractors as appropriate.”.

1           (3) TABLE OF CONTENTS AMENDMENT.—The  
2 table of contents for the Energy Conservation and  
3 Production Act (Public Law 94–385; 90 Stat. 1125)  
4 is amended by inserting after the item relating to  
5 section 414B the following:

“Sec. 414C. Contractor optimization.”.

6           (d) FINANCIAL ASSISTANCE FOR WAP ENHANCE-  
7 MENT AND INNOVATION.—

8           (1) IN GENERAL.—The Energy Conservation  
9 and Production Act (Public Law 94–385; 90 Stat.  
10 1125) is amended by inserting after section 414C  
11 (as added by subsection (c)(2)) the following:

12 **“SEC. 414D. FINANCIAL ASSISTANCE FOR WAP ENHANCE-**  
13 **MENT AND INNOVATION.**

14           “(a) PURPOSES.—The purposes of this section are—

15           “(1) to expand the number of dwelling units  
16 that are occupied by low-income persons that receive  
17 weatherization assistance under this section by mak-  
18 ing those dwelling units weatherization-ready;

19           “(2) to promote the deployment of renewable  
20 energy in dwelling units that are occupied by low-in-  
21 come persons;

22           “(3) to ensure healthy indoor environments by  
23 enhancing or expanding health and safety measures  
24 and resources available to dwellings that are occu-  
25 pied by low-income persons;

1           “(4) to disseminate new methods and best prac-  
2           tices among eligible entities providing weatherization  
3           assistance under this section; and

4           “(5) to encourage eligible entities providing  
5           weatherization assistance to hire and retain employ-  
6           ees who are individuals—

7                   “(A) from the community in which the as-  
8                   sistance is provided; and

9                   “(B) from communities or groups under-  
10                  represented in the home energy performance  
11                  workforce.

12          “(b) DEFINITION OF ELIGIBLE ENTITY.—In this sec-  
13          tion, the term ‘eligible entity’ means—

14                  “(1) an entity receiving funding from the Fed-  
15                  eral Government or from a State, Tribal, or local  
16                  government through a weatherization assistance pro-  
17                  gram under section 413 or 414; and

18                  “(2) a nonprofit organization.

19          “(c) FINANCIAL ASSISTANCE AWARDS.—The Sec-  
20          retary shall, to the extent funds are made available, award  
21          financial assistance on an annual basis through a competi-  
22          tive process to an eligible entity—

23                  “(1) with respect to dwelling units that are oc-  
24                  cupied by low-income persons—



1           “(A) to implement measures to make those  
2 dwelling units weatherization-ready, including  
3 by addressing structural, plumbing, roofing,  
4 and electrical issues, environmental hazards,  
5 and other issues that the Secretary determines  
6 to be appropriate;

7           “(B) to install energy efficiency tech-  
8 nologies, including home energy management  
9 systems, smart devices, and other technologies  
10 the Secretary determines to be appropriate;

11           “(C) to install renewable energy systems  
12 (as defined in section 415(c)(6)(A)); and

13           “(D) to implement measures to ensure  
14 healthy indoor environments by improving in-  
15 door air quality, accessibility, and other healthy  
16 home measures, as determined by the Sec-  
17 retary;

18           “(2) to improve the capability of the eligible en-  
19 tity—

20           “(A) to significantly increase the number  
21 of energy retrofits performed by the eligible en-  
22 tity;

23           “(B) to replicate best practices for work  
24 performed under this section on a larger scale;

1           “(C) to leverage additional funds to sus-  
2           tain the provision of weatherization assistance  
3           and other work performed under this section  
4           after the financial assistance awarded under  
5           this section is expended; and

6           “(D) to hire and retain employees de-  
7           scribed in subsection (a)(5);

8           “(3) for innovative outreach and education re-  
9           garding the benefits and availability of weatheriza-  
10          tion assistance and other assistance available under  
11          this section;

12          “(4) for quality control of work performed  
13          under this section;

14          “(5) for data collection, measurement, and  
15          verification with respect to that work;

16          “(6) for program monitoring, oversight, evalua-  
17          tion, and reporting of that work;

18          “(7) for labor, training, and technical assist-  
19          ance relating to that work;

20          “(8) subject to subsection (g)(2), for planning,  
21          management, and administration of that work; and

22          “(9) for any other appropriate activity, as de-  
23          termined by the Secretary.

24          “(d) APPLICATIONS.—To be eligible for an award of  
25          financial assistance under this section, an eligible entity

1 shall submit to the Secretary an application in such man-  
2 ner and containing such information as the Secretary may  
3 require.

4 “(e) AWARD FACTORS.—In awarding financial assist-  
5 ance under this section, the Secretary shall consider—

6 “(1) the record of the eligible entity, using the  
7 most recent year for which data are available, in  
8 constructing, renovating, repairing, and making en-  
9 ergy efficient single-family, multifamily, or manufac-  
10 tured homes that are occupied by low-income per-  
11 sons, either directly or through affiliates, chapters,  
12 or other partners;

13 “(2) the number of dwelling units occupied by  
14 low-income persons that the eligible entity has built,  
15 renovated, repaired, weatherized, and made more en-  
16 ergy efficient in the 5 years immediately preceding  
17 the date on which the eligible entity submits an ap-  
18 plication under subsection (d);

19 “(3) the qualifications, experience, and past  
20 performance of the eligible entity, including experi-  
21 ence successfully managing and administering Fed-  
22 eral funds;

23 “(4) the strength of the proposal of the eligible  
24 entity to achieve one or more of the purposes de-  
25 scribed in subsection (a);

1           “(5) the extent to which the eligible entity will  
2 use partnerships and regional coordination to  
3 achieve one or more of the purposes described in  
4 subsection (a);

5           “(6) regional and climate zone diversity;

6           “(7) urban, suburban, and rural localities; and

7           “(8) any other appropriate factor, as deter-  
8 mined by the Secretary.

9           “(f) FIRST AWARD.—Subject to the availability of ap-  
10 propriations, not later than 270 days after the date of en-  
11 actment of this section, the Secretary shall make a first  
12 award of financial assistance under this section.

13          “(g) AMOUNT AND TERM.—

14           “(1) MAXIMUM AMOUNT.—The total amount of  
15 financial assistance awarded to an eligible entity  
16 under this section shall not exceed \$2,000,000.

17           “(2) PLANNING, MANAGEMENT, AND ADMINIS-  
18 TRATION.—Of the amount awarded to an eligible en-  
19 tity under this section, not more than 15 percent  
20 may be used by the eligible entity for the purpose  
21 described in subsection (c)(8).

22           “(3) TECHNICAL AND TRAINING ASSISTANCE.—  
23 The total amount of financial assistance awarded to  
24 an entity under this section shall be reduced by the  
25 cost of any technical and training assistance pro-

1 vided by the Secretary under this section that relates  
2 to that financial assistance.

3 “(4) TERM.—The term of an award of financial  
4 assistance under this section shall not exceed 3  
5 years.

6 “(5) RELATIONSHIP TO FORMULA GRANTS.—An  
7 eligible entity may use financial assistance awarded  
8 under this section in conjunction with other financial  
9 assistance provided to the eligible entity under this  
10 part.

11 “(h) GUIDANCE.—Not later than 90 days after the  
12 date of enactment of this section, the Secretary shall issue  
13 guidance on implementing this section, which shall in-  
14 clude, with respect to eligible entities awarded financial  
15 assistance under this section—

16 “(1) standards for allowable expenditures;

17 “(2) a minimum saving-to-investment ratio; and

18 “(3) standards for—

19 “(A) training programs;

20 “(B) energy audits;

21 “(C) the provision of technical assistance;

22 “(D) monitoring activities carried out  
23 using the financial assistance;

24 “(E) verification of energy and cost sav-  
25 ings;

1 “(F) liability insurance requirements; and

2 “(G) recordkeeping and reporting require-

3 ments, which shall include reporting to the Of-

4 fice of Weatherization and Intergovernmental

5 Programs of the Department of Energy applica-

6 ble data on each dwelling unit retrofitted or

7 otherwise assisted by the eligible entity using

8 the financial assistance.

9 “(i) COMPLIANCE WITH STATE AND LOCAL LAW.—

10 Nothing in this section supersedes or modifies any State

11 or local law to the extent that the State or local law is

12 more stringent than this section.

13 “(j) REVIEW AND EVALUATION.—The Secretary shall

14 review and evaluate the performance of each eligible entity

15 that receives an award of financial assistance under this

16 section, which may include an audit.

17 “(k) ANNUAL REPORT.—The Secretary shall submit

18 to the relevant committees of Congress an annual report

19 that describes—

20 “(1) the actions taken by the Secretary and eli-

21 gible entities awarded financial assistance under this

22 section to achieve the purposes of this section during

23 the year covered by the report; and

1           “(2) the energy and cost savings, and any other  
2           accomplishments, achieved under this section during  
3           the year covered by the report.

4           “(1) FUNDING.—

5           “(1) IN GENERAL.—Subject to paragraphs (2)  
6           and (3), for each of fiscal years 2021 through 2025,  
7           of the amount appropriated under section 422—

8           “(A) if the amount is not more than  
9           \$225,000,000, no funds shall be used to carry  
10          out this section;

11          “(B) if the amount is not more than  
12          \$260,000,000, not more than 2 percent of that  
13          amount may be used to carry out this section;

14          “(C) if the amount is not more than  
15          \$300,000,000, not more than 4 percent of that  
16          amount may be used to carry out this section;  
17          and

18          “(D) if the amount is more than  
19          \$300,000,000, not more than 6 percent of that  
20          amount may be used to carry out this section.

21          “(2) AMOUNTS EXCLUDED.—Each amount de-  
22          scribed in paragraph (1) shall not include the  
23          amount made available for Department of Energy  
24          headquarters training or technical assistance.

1           “(3) MAXIMUM AMOUNT.—The maximum  
2           amount used to carry out this section in each fiscal  
3           year shall not exceed \$25,000,000.”.

4           (2) TABLE OF CONTENTS.—The table of con-  
5           tents for the Energy Conservation and Production  
6           Act (Public Law 94–385; 90 Stat. 1125) is amended  
7           by inserting after the item relating to section 414C  
8           (as added by subsection (c)(3)) the following:

          “Sec. 414D. Financial assistance for WAP enhancement and innovation.”.

9           (e) INCREASE IN ADMINISTRATIVE FUNDS.—Section  
10          415(a)(1) of the Energy Conservation and Production Act  
11          (42 U.S.C. 6865(a)(1)) is amended by striking “10 per-  
12          cent” and inserting “15 percent”.

13          (f) REWEATHERIZATION DATE.—Section 415(c) of  
14          the Energy Conservation and Production Act (42 U.S.C.  
15          6865(c)) is amended by striking paragraph (2) and insert-  
16          ing the following:

17                 “(2) FURTHER ASSISTANCE.—

18                         “(A) DEFINITION OF INTERIM SERVICE.—

19                                 “(i) IN GENERAL.—In this paragraph,  
20                                 the term ‘interim service’ means an energy  
21                                 service that takes place between instances  
22                                 of weatherization or partial weatherization  
23                                 of a dwelling unit, as determined by the  
24                                 Secretary.



1                   “(ii) INCLUSION.—In this paragraph,  
2                   the term ‘interim service’ includes—

3                   “(I) the provision of energy infor-  
4                   mation and education to assist with  
5                   energy management;

6                   “(II) an evaluation of the effec-  
7                   tiveness of installed weatherization  
8                   measures; and

9                   “(III) the provision of services,  
10                  equipment, or other measures funded  
11                  by non-Federal funds, as determined  
12                  by the Secretary.

13                  “(B) FURTHER ASSISTANCE.—Dwelling  
14                  units weatherized or partially weatherized under  
15                  this part, or under other Federal programs—

16                  “(i) may not receive further financial  
17                  assistance for weatherization under this  
18                  part until the date that is 15 years after  
19                  the date on which the previous weatheriza-  
20                  tion was completed; and

21                  “(ii) may receive further financial as-  
22                  sistance for weatherization under this part  
23                  for the purpose of providing an interim  
24                  service.”.

1 (g) ANNUAL REPORT.—Section 421 of the Energy  
2 Conservation and Production Act (42 U.S.C. 6871) is  
3 amended in the second sentence by inserting “the number  
4 of multifamily buildings in which individual dwelling units  
5 were weatherized during the previous year, the number of  
6 individual dwelling units in multifamily buildings weather-  
7 ized during the previous year,” after “the average size of  
8 the dwellings being weatherized,”.

9 (h) REAUTHORIZATION OF WAP.—Section 422 of the  
10 Energy Conservation and Production Act (42 U.S.C.  
11 6872) is amended in the matter preceding paragraph (1)  
12 by striking “appropriated” and all that follows through  
13 “2012..” in paragraph (5) and inserting “appropriated  
14 \$350,000,000 for each of fiscal years 2021 through  
15 2025.”.

16 (i) WAIVER STUDY.—

17 (1) IN GENERAL.—It is the sense of Congress  
18 that, to the maximum extent practicable, the Sec-  
19 retary should coordinate with the Director of the Of-  
20 fice of Management and Budget to grant waivers of  
21 requirements under section 200.313 of title 2, Code  
22 of Federal Regulations (or successor regulations), to  
23 better leverage private sector funds for the purposes  
24 of using funding awarded under the Weatherization  
25 Assistance Program for Low-Income Persons estab-

1 lished under part A of title IV of the Energy Con-  
2 servation and Production Act (42 U.S.C. 6861 et  
3 seq.).

4 (2) STUDY.—Not more than 180 days after the  
5 date of enactment of this Act, the Secretary shall  
6 submit to the relevant committees of Congress a re-  
7 port that describes—

8 (A) each waiver that has been requested  
9 under paragraph (1) after September 30, 2010;  
10 and

11 (B) the determination of the Secretary and  
12 the Director of the Office of Management and  
13 Budget regarding each waiver described in sub-  
14 paragraph (A).

## 15 **Subtitle B—Renewable Energy**

### 16 **SEC. 1201. HYDROELECTRIC PRODUCTION INCENTIVES** 17 **AND EFFICIENCY IMPROVEMENTS.**

18 (a) HYDROELECTRIC PRODUCTION INCENTIVES.—  
19 Section 242 of the Energy Policy Act of 2005 (42 U.S.C.  
20 15881) is amended—

21 (1) in subsection (b), by striking paragraph (1)  
22 and inserting the following:

23 “(1) QUALIFIED HYDROELECTRIC FACILITY.—  
24 The term ‘qualified hydroelectric facility’ means a

1 turbine or other generating device owned or solely  
2 operated by a non-Federal entity—

3 “(A) that generates hydroelectric energy  
4 for sale; and

5 “(B)(i) that is added to an existing dam or  
6 conduit; or

7 “(ii)(I) that has a generating capacity of  
8 not more than 20 megawatts;

9 “(II) for which the non-Federal entity has  
10 received a construction authorization from the  
11 Federal Energy Regulatory Commission, if ap-  
12 plicable; and

13 “(III) that is constructed in an area in  
14 which there is inadequate electric service, as de-  
15 termined by the Secretary, including by taking  
16 into consideration—

17 “(aa) access to the electric grid;

18 “(bb) the frequency of electric out-  
19 ages; or

20 “(cc) the affordability of electricity.”;

21 (2) in subsection (c), by striking “10” and in-  
22 serting “22”;

23 (3) in subsection (e)(2), by striking “section  
24 29(d)(2)(B)” and inserting “section 45K(d)(2)(B)”;

1 (4) in subsection (f), by striking “20” and in-  
2 serting “32”; and

3 (5) in subsection (g), by striking “each of the  
4 fiscal years 2006 through 2015” and inserting “each  
5 of fiscal years 2021 through 2036”.

6 (b) **HYDROELECTRIC EFFICIENCY IMPROVEMENT.**—  
7 Section 243(c) of the Energy Policy Act of 2005 (42  
8 U.S.C. 15882(c)) is amended by striking “each of the fis-  
9 cal years 2006 through 2015” and inserting “each of fis-  
10 cal years 2021 through 2036”.

11 **SEC. 1202. MARINE ENERGY RESEARCH AND DEVELOP-**  
12 **MENT.**

13 (a) **PURPOSE.**—The purpose of this section is to sup-  
14 port marine energy programs that—

15 (1) promote research on, and the development  
16 of, increased energy generation and capacity at re-  
17 duced costs;

18 (2) promote research and development activities  
19 that improve environmental outcomes of marine en-  
20 ergy technologies;

21 (3) provide grid stability and create new market  
22 opportunities; and

23 (4) promote job creation in the energy sector.

24 (b) **DEFINITION OF MARINE ENERGY.**—

1           (1) IN GENERAL.—Section 632 of the Energy  
2           Independence and Security Act of 2007 (42 U.S.C.  
3           17211) is amended to read as follows:

4           **“SEC. 632. DEFINITION OF MARINE ENERGY.**

5           “In this subtitle, the term ‘marine energy’ means en-  
6           ergy from—

7           “(1) waves, tides, and currents in oceans, estu-  
8           aries, and tidal areas;

9           “(2) free-flowing hydrokinetic water in rivers,  
10          lakes, and streams;

11          “(3) free-flowing hydrokinetic water in man-  
12          made channels; and

13          “(4) differentials in ocean temperature or ocean  
14          thermal energy conversion.”.

15          (2) CONFORMING EDITS.—

16                (A) The subtitle heading for subtitle C of  
17                title VI of the Energy Independence and Secu-  
18                rity Act of 2007 (Public Law 110–440; 121  
19                Stat. 1686) is amended by striking “**and**  
20                **Hydrokinetic Renewable**”.

21                (B) Section 631 of the Energy Independ-  
22                ence and Security Act of 2007 (42 U.S.C.  
23                17001 note; 121 Stat. 1686) is amended by  
24                striking “and Hydrokinetic Renewable”.

1 (c) MARINE ENERGY RESEARCH AND DEVELOP-  
2 MENT.—Section 633 of the Energy Independence and Se-  
3 curity Act of 2007 (42 U.S.C. 17212) is amended to read  
4 as follows:

5 **“SEC. 633. MARINE ENERGY RESEARCH AND DEVELOP-**  
6 **MENT.**

7 “(a) IN GENERAL.—The Secretary, acting through  
8 the Director of the Water Power Technologies Office, in  
9 consultation with the Secretary of the Interior, the Sec-  
10 retary of Commerce, and the Federal Energy Regulatory  
11 Commission, shall carry out a program to accelerate the  
12 introduction of marine energy production into the United  
13 States energy supply, giving priority to technologies most  
14 likely to lead to commercial utilization, while fostering ac-  
15 celerated research, development, demonstration, and com-  
16 mercial application of technology, including programs—

17 “(1) to assist technology development on a vari-  
18 ety of scales, including full-scale prototypes, to im-  
19 prove the components, processes, and systems used  
20 for power generation from marine energy resources;

21 “(2) to establish and expand critical testing in-  
22 frastructure and facilities necessary—

23 “(A) to cost-effectively and efficiently test  
24 and prove marine energy devices; and

1           “(B) to accelerate the technological readi-  
2           ness and commercialization of those devices;

3           “(3) to support efforts to increase the efficiency  
4           of energy conversion, lower the cost, increase the  
5           use, improve the reliability, and demonstrate the ap-  
6           plicability of marine energy technologies by partici-  
7           pating in demonstration projects;

8           “(4) to investigate variability issues and the ef-  
9           ficient and reliable integration of marine energy with  
10          the utility grid;

11          “(5) to identify and study critical short- and  
12          long-term needs to create a sustainable marine en-  
13          ergy supply chain based in the United States;

14          “(6) to increase the reliability and survivability  
15          of marine energy technologies;

16          “(7) to verify the performance, reliability, main-  
17          tainability, and cost of new marine energy device de-  
18          signs and system components in an operating envi-  
19          ronment;

20          “(8) to consider the protection of critical infra-  
21          structure, such as adequate separation between ma-  
22          rine energy devices and projects and submarine tele-  
23          communications cables, including consideration of  
24          established industry standards;



1           “(9)(A) to coordinate the programs carried out  
2           under this section with, and avoid duplication of ac-  
3           tivities across, programs of the Department and  
4           other applicable Federal agencies, including National  
5           Laboratories; and

6           “(B) to coordinate public-private collaboration  
7           in carrying out the programs under this section;

8           “(10) to identify opportunities for joint re-  
9           search and development programs and the develop-  
10          ment of economies of scale between—

11                   “(A) marine energy technologies; and

12                   “(B) other renewable energy and fossil en-  
13           ergy programs, offshore oil and gas production  
14           activities, and activities of the Department of  
15           Defense;

16           “(11) to identify, in conjunction with the Sec-  
17           retary of Commerce, acting through the Under Sec-  
18           retary of Commerce for Oceans and Atmosphere,  
19           and other relevant Federal agencies as appropriate,  
20           the potential environmental impacts, including po-  
21           tential impacts on fisheries and other marine re-  
22           sources, of marine energy technologies, measures to  
23           prevent adverse impacts, and technologies and other  
24           means available for monitoring and determining en-  
25           vironmental impacts;

1           “(12) to identify, in conjunction with the Sec-  
2           retary of the Department in which the United States  
3           Coast Guard is operating, acting through the Com-  
4           mandant of the United States Coast Guard, the po-  
5           tential navigational impacts of marine energy tech-  
6           nologies and measures to prevent adverse impacts on  
7           navigation;

8           “(13) to support in-water technology develop-  
9           ment with international partners using existing co-  
10          operative procedures (including memoranda of un-  
11          derstanding)—

12                 “(A) to allow cooperative funding and  
13                 other support of value to be exchanged and le-  
14                 veraged; and

15                 “(B) to encourage international research  
16                 centers and international companies to partici-  
17                 pate in the development of marine energy tech-  
18                 nology in the United States and to encourage  
19                 United States research centers and companies  
20                 to participate in marine energy projects abroad;  
21                 and

22           “(14) to assist in the development of technology  
23          necessary to support the use of marine energy—

1           “(A) for the generation and storage of  
2 power at sea, including in applications relating  
3 to—

4                   “(i) ocean observation and navigation;

5                   “(ii) underwater vehicle charging;

6                   “(iii) marine aquaculture;

7                   “(iv) production of marine algae; and

8                   “(v) extraction of critical minerals  
9 and gasses from seawater;

10           “(B) for the generation and storage of  
11 power to promote the resilience of coastal com-  
12 munities, including in applications relating to—

13                   “(i) desalination;

14                   “(ii) disaster recovery and resilience;

15           and

16                   “(iii) community microgrids in iso-  
17 lated power systems; and

18           “(C) in any other applications, as deter-  
19 mined by the Secretary.

20           “(b) COST SHARING AND MERIT REVIEW.—The Sec-  
21 retary shall carry out the program under this section in  
22 accordance with sections 988 and 989 of the Energy Pol-  
23 icy Act of 2005 (42 U.S.C. 16352, 16353).”.

1 (d) NATIONAL MARINE ENERGY CENTERS.—Section  
2 634 of the Energy Independence and Security Act of 2007  
3 (42 U.S.C. 17213) is amended—

4 (1) in the section heading, by striking “**RE-**  
5 **NEWABLE ENERGY RESEARCH, DEVELOPMENT,**  
6 **AND DEMONSTRATION**” and inserting “**ENERGY**”;

7 (2) by redesignating subsection (c) as sub-  
8 section (d); and

9 (3) by striking subsections (a) and (b) and in-  
10 sserting the following:

11 “(a) CENTERS.—

12 “(1) IN GENERAL.—The Secretary shall award  
13 grants to institutions of higher education for—

14 “(A) the continuation and expansion of re-  
15 search, development, and testing activities at  
16 National Marine Energy Centers established as  
17 of January 1, 2019; and

18 “(B) the establishment of new National  
19 Marine Energy Centers.

20 “(2) CRITERIA.—In selecting locations for new  
21 National Marine Energy Centers to be established  
22 under paragraph (1)(B), the Secretary shall consider  
23 sites that meet one of the following criteria:

24 “(A) The new Center hosts an existing ma-  
25 rine energy research and development program

1 in coordination with an engineering program at  
2 an institution of higher education.

3 “(B) The new Center has proven expertise  
4 to support environmental and policy-related  
5 issues associated with the harnessing of energy  
6 in the marine environment.

7 “(C) The new Center has access to and  
8 uses marine resources.

9 “(b) PURPOSES.—The National Marine Energy Cen-  
10 ters shall coordinate with other National Marine Energy  
11 Centers, the Department, and the National Labora-  
12 tories—

13 “(1) to advance research, development, and  
14 demonstration of marine energy technologies;

15 “(2) to support in-water testing and demonstra-  
16 tion of marine energy technologies, including facili-  
17 ties capable of testing—

18 “(A) marine energy systems of various  
19 technology readiness levels and scales;

20 “(B) a variety of technologies in multiple  
21 test berths at a single location; and

22 “(C) arrays of technology devices; and

23 “(3) to serve as information clearinghouses for  
24 the marine energy industry by collecting and dis-  
25 seminating information on best practices in all areas

1 relating to developing and managing marine energy  
2 resources and energy systems.

3 “(c) COST SHARING.—The Secretary shall carry out  
4 the program under this section in accordance with section  
5 988(b)(4) of the Energy Policy Act of 2005 (42 U.S.C.  
6 16352(b)(4)).”.

7 (e) AUTHORIZATION OF APPROPRIATIONS.—Section  
8 636 of the Energy Independence and Security Act of 2007  
9 (42 U.S.C. 17215) is amended by striking “\$50,000,000  
10 for each of the fiscal years 2008 through 2012” and in-  
11 serting “\$160,000,000 for each of fiscal years 2021 and  
12 2022”.

13 (f) STUDY OF ENERGY INNOVATION IN MARINE  
14 TRANSPORTATION AND INFRASTRUCTURE RESILIENCE.—

15 (1) IN GENERAL.—The Secretary, in consulta-  
16 tion with the Secretary of Transportation and the  
17 Secretary of Commerce, shall conduct a study to ex-  
18 amine opportunities for research and development in  
19 advanced marine energy technologies—

20 (A) to support the maritime transportation  
21 sector to enhance job creation, economic devel-  
22 opment, and competitiveness;

23 (B) to support associated maritime energy  
24 infrastructure, including infrastructure that

1 serves ports, to improve system resilience and  
2 disaster recovery; and

3 (C) to enable scientific missions at sea and  
4 in extreme environments, including the Arctic.

5 (2) REPORT.—Not later than 1 year after the  
6 date of enactment of this Act, the Secretary shall  
7 submit to the Committee on Energy and Natural  
8 Resources of the Senate and the Committee on  
9 Science, Space, and Technology of the House of  
10 Representatives a report that describes the results of  
11 the study conducted under paragraph (1).

12 (g) CLERICAL AMENDMENTS.—The table of contents  
13 in section 1(b) of the Energy Independence and Security  
14 Act of 2007 (Public Law 110–140; 121 Stat. 1495) is  
15 amended—

16 (1) by striking the item relating to subtitle C  
17 of title VI and inserting the following:

“Subtitle C—Marine Renewable Energy Technologies”; and

18 (2) by striking the items relating to sections  
19 632, 633, and 634 and inserting the following:

“Sec. 632. Definition of marine energy.

“Sec. 633. Marine energy research and development.

“Sec. 634. National Marine Energy Centers.”.

1 **SEC. 1203. ADVANCED GEOTHERMAL INNOVATION LEADER-**  
2 **SHIP.**

3 (a) UPDATE TO GEOTHERMAL RESOURCE ASSESS-  
4 MENT.—Section 2501 of the Energy Policy Act of 1992  
5 (30 U.S.C. 1028) is amended—

6 (1) by redesignating subsections (a) and (b) as  
7 subsections (b) and (d), respectively;

8 (2) by inserting before subsection (b) (as so re-  
9 designated) the following:

10 “(a) DEFINITION OF ENHANCED GEOTHERMAL SYS-  
11 TEMS.—In this section, the term ‘enhanced geothermal  
12 systems’ has the meaning given the term in section 612  
13 of the Energy Independence and Security Act of 2007 (42  
14 U.S.C. 17191).”;

15 (3) by inserting after subsection (b) (as so re-  
16 designated) the following:

17 “(c) UPDATE TO GEOTHERMAL RESOURCE ASSESS-  
18 MENT.—The Secretary of the Interior, acting through the  
19 United States Geological Survey, and in consultation with  
20 the Secretary of Energy, shall update the 2008 United  
21 States geothermal resource assessment carried out by the  
22 United States Geological Survey, including—

23 “(1) with respect to areas previously identified  
24 by the Department of Energy or the United States  
25 Geological Survey as having significant potential for



1 hydrothermal energy or enhanced geothermal sys-  
2 tems energy, by focusing on—

3 “(A) improving the resolution of resource  
4 potential at systematic temperatures and  
5 depths, including temperatures and depths ap-  
6 propriate for power generation and direct use  
7 applications;

8 “(B) quantifying the total potential to co-  
9 produce geothermal energy and minerals;

10 “(C) incorporating data relevant to under-  
11 ground thermal energy storage and exchange,  
12 such as aquifer and soil properties; and

13 “(D) producing high resolution maps, in-  
14 cluding—

15 “(i) maps that indicate key subsurface  
16 parameters for electric and direct use re-  
17 sources; and

18 “(ii) risk maps for induced seismicity  
19 based on geologic, geographic, and oper-  
20 ational parameters; and

21 “(2) to the maximum extent practicable, by co-  
22 ordinating with relevant State officials and institu-  
23 tions of higher education to expand geothermal as-  
24 sessments, including enhanced geothermal systems  
25 assessments, to include assessments for the Com-

1 monwealth of Puerto Rico and the States of Alaska  
2 and Hawaii.”; and

3 (4) in subsection (d) (as so redesignated), by  
4 striking “necessary” and inserting “necessary”.

5 (b) GENERAL GEOTHERMAL RESEARCH AND DEVEL-  
6 OPMENT PROGRAMS.—Section 614 of the Energy Inde-  
7 pendence and Security Act of 2007 (42 U.S.C. 17193) is  
8 amended by adding at the end the following:

9 “(d) OIL AND GAS TECHNOLOGY TRANSFER INITIA-  
10 TIVE.—

11 “(1) IN GENERAL.—The Secretary shall sup-  
12 port an initiative among the Office of Fossil Energy,  
13 the Office of Energy Efficiency and Renewable En-  
14 ergy, and the private sector to modify, improve, and  
15 demonstrate the use in geothermal energy develop-  
16 ment of relevant advanced technologies and oper-  
17 ation techniques used in the oil and gas sector.

18 “(2) PRIORITIES.—In carrying out paragraph  
19 (1), the Secretary shall prioritize technologies with  
20 the greatest potential to significantly increase the  
21 use and lower the cost of geothermal energy in the  
22 United States, including the cost and speed of small-  
23 and large-scale geothermal drilling.

24 “(e) COPRODUCTION OF GEOTHERMAL ENERGY AND  
25 MINERALS PRODUCTION PRIZE COMPETITION.—

1           “(1) IN GENERAL.—The Secretary shall carry  
2 out a prize competition under which the Secretary  
3 shall award prizes to demonstrate the coproduction  
4 of critical minerals (as defined by the Secretary of  
5 the Interior on the date of enactment of the Amer-  
6 ican Energy Innovation Act of 2020) from geo-  
7 thermal resources.

8           “(2) REQUIREMENTS.—A demonstration award-  
9 ed a prize under paragraph (1) shall—

10                   “(A) improve the cost-effectiveness of re-  
11 moving minerals from geothermal brines as part  
12 of the coproduction process;

13                   “(B) increase recovery rates of the tar-  
14 geted mineral commodity;

15                   “(C) decrease water use and other environ-  
16 mental impacts, as determined by the Sec-  
17 retary; and

18                   “(D) demonstrate a path to commercial vi-  
19 ability.

20           “(3) MAXIMUM PRIZE AMOUNT.—The max-  
21 imum amount of a prize awarded under paragraph  
22 (1) shall be \$10,000,000.

23           “(f) DRILLING DATA REPOSITORY.—

24           “(1) IN GENERAL.—The Secretary shall, in co-  
25 ordination with the Secretary of the Interior, estab-

1       lish and operate a voluntary, industry-wide reposi-  
2       tory of geothermal drilling information to lower the  
3       cost of future geothermal drilling.

4               “(2) REPOSITORY.—

5                       “(A) IN GENERAL.—In carrying out para-  
6                       graph (1), the Secretary shall collaborate with  
7                       geothermally significant countries, such as Ice-  
8                       land, Switzerland, Kenya, Australia, the Phil-  
9                       ippines, and any other relevant country, as de-  
10                      termined by the Secretary.

11                     “(B) DATA SYSTEM.—The repository es-  
12                     tablished under paragraph (1) shall be inte-  
13                     grated with the National Geothermal Data Sys-  
14                     tem.”.

15       (c) ENHANCED GEOTHERMAL RESEARCH AND DE-  
16       VELOPMENT.—

17               (1) DEFINITION OF ENGINEERED.—Section  
18       612(1) of the Energy Independence and Security  
19       Act of 2007 (42 U.S.C. 17191(1)) is amended in the  
20       matter preceding subparagraph (A) by striking  
21       “subjected to intervention, including intervention”  
22       and inserting “designed to access subsurface heat,  
23       including nonstimulation technologies,”.

1           (2) PROGRAMS.—Section 615(b) of the Energy  
2 Independence and Security Act of 2007 (42 U.S.C.  
3 17194(b)) is amended—

4           (A) in paragraph (1)—

5           (i) in subparagraph (C), by striking  
6 “mapping” and inserting “and fracture  
7 mapping, including real-time modeling”;

8           (ii) in subparagraph (E), by striking  
9 “and” at the end;

10          (iii) by redesignating subparagraph  
11 (F) as subparagraph (K); and

12          (iv) by inserting after subparagraph  
13 (E) the following:

14          “(F) well placement and orientation;

15          “(G) long-term reservoir management;

16          “(H) drilling technologies, methods, and  
17 tools;

18          “(I) improved exploration tools;

19          “(J) zonal isolation; and”;

20          (B) by striking paragraph (2) and insert-  
21 ing the following:

22          “(2) FRONTIER OBSERVATORIES FOR RE-  
23 SEARCH IN GEOTHERMAL ENERGY.—

24          “(A) PROGRAM.—The Secretary shall sup-  
25 port 2 field research sites, which shall each be

1 known as a ‘Frontier Observatory for Research  
2 in Geothermal Energy’ or ‘FORGE’ site, to de-  
3 velop, test, and enhance techniques and tools  
4 for enhanced geothermal energy.

5 “(B) SITE SELECTION.—Of the FORGE  
6 sites referred to in subparagraph (A)—

7 “(i) 1 shall be the existing research  
8 site in Milford, Utah; and

9 “(ii) 1 shall be—

10 “(I) selected by the Secretary  
11 through a competitive selection proc-  
12 ess; and

13 “(II) located in a different geo-  
14 logic type than the existing research  
15 site described in clause (i).

16 “(C) SITE OPERATION.—

17 “(i) INITIAL DURATION.—The  
18 FORGE site selected under subparagraph  
19 (B)(ii) shall operate for an initial term of  
20 not more than 7 years after the date on  
21 which site preparation is complete.

22 “(ii) PERFORMANCE METRICS.—The  
23 Secretary shall establish performance  
24 metrics for each FORGE site supported  
25 under this paragraph, which may be used

1 by the Secretary to determine whether a  
2 FORGE site should continue to receive  
3 funding.

4 “(D) ADDITIONAL TERMS.—

5 “(i) IN GENERAL.—At the end of an  
6 operational term described in clause (ii), a  
7 FORGE site may—

8 “(I) be transferred to other pub-  
9 lic or private entities for further en-  
10 hanced geothermal testing; or

11 “(II) subject to appropriations  
12 and a merit review by the Secretary,  
13 operate for an additional term of not  
14 more than 7 years.

15 “(ii) OPERATIONAL TERM DE-  
16 SCRIBED.—An operational term referred to  
17 in clause (i)—

18 “(I) in the case of the FORGE  
19 site designated under subparagraph  
20 (B)(i), is the existing operational  
21 term; and

22 “(II) in the case of the FORGE  
23 site selected under subparagraph  
24 (B)(ii), is the initial term under sub-

1 paragraph (C) or an additional term  
2 under clause (i)(II).

3 “(3) ENHANCED GEOTHERMAL SYSTEMS DEM-  
4 ONSTRATIONS.—

5 “(A) IN GENERAL.—Beginning on the date  
6 of enactment of the American Energy Innova-  
7 tion Act of 2020, the Secretary, in collaboration  
8 with industry partners and institutions of high-  
9 er education, shall support an initiative for  
10 demonstration of enhanced geothermal systems  
11 for power production or direct use.

12 “(B) PROJECTS.—

13 “(i) IN GENERAL.—Under the initia-  
14 tive described in subparagraph (A), not  
15 less than 4 demonstration projects shall be  
16 carried out in locations that are potentially  
17 commercially viable for enhanced geo-  
18 thermal systems development, as deter-  
19 mined by the Secretary.

20 “(ii) REQUIREMENTS.—Demonstra-  
21 tion projects under clause (i) shall—

22 “(I) collectively demonstrate—

23 “(aa) different geologic set-  
24 tings, such as hot sedimentary  
25 aquifers, layered geologic sys-



1                   tems, supercritical systems, and  
2                   basement rock systems; and

3                   “ (bb) a variety of develop-  
4                   ment techniques, including open  
5                   hole and cased hole completions,  
6                   differing well orientations, and  
7                   stimulation mechanisms;

8                   “(II) to the extent practicable,  
9                   use existing sites where subsurface  
10                  characterization or geothermal energy  
11                  integration analysis has been con-  
12                  ducted; and

13                  “(III) each be carried out in ac-  
14                  cordance with section 988 of the En-  
15                  ergy Policy Act of 2005 (42 U.S.C.  
16                  16352).

17                  “(iii) EASTERN DEMONSTRATION.—  
18                  Not less than 1 demonstration project  
19                  under clause (i) shall be located in an area  
20                  east of the Mississippi River that is suit-  
21                  able for enhanced geothermal demonstra-  
22                  tion for power, heat, or a combination of  
23                  power and heat.

24                  “(C) OPTIONAL PROGRAM STRUCTURE.—

1           “(i) IN GENERAL.—The Secretary  
2           may, pursuant to section 646(g) of the De-  
3           partment of Energy Organization Act (42  
4           U.S.C. 7256(g)), structure the initiative  
5           described in subparagraph (A) as a public-  
6           private cost-shared demonstration initiative  
7           with specific design milestones required to  
8           be met by a participant before costs are re-  
9           imbursed by the Secretary.

10           “(ii) REQUIREMENTS.—If the Sec-  
11           retary elects to carry out clause (i) for a  
12           demonstration project, the Secretary  
13           shall—

14                   “(I) request proposals from eligi-  
15                   ble entities, as determined by the Sec-  
16                   retary, that include—

17                           “(aa) a business plan;

18                           “(bb) technical details; and

19                           “(cc) proposed milestones  
20                   and associated payments; and

21                   “(II) select projects—

22                           “(aa) based on the dem-  
23                   onstrated ability of the eligible  
24                   entity to meet the milestones and  
25                   associated payments described in

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1 the proposal of that eligible enti-  
2 ty; and

3 “(bb) that have the greatest  
4 potential commercial applica-  
5 bility.

6 “(iii) **AUTHORITY.**—Notwithstanding  
7 section 646(g)(10) of the Department of  
8 Energy Organization Act (42 U.S.C.  
9 7256(g)(10)), the Secretary shall have the  
10 authority to carry out clause (i) until the  
11 completion of the initiative described in  
12 subparagraph (A).”.

13 (d) **GEOTHERMAL HEAT PUMPS AND DIRECT USE.**—

14 (1) **IN GENERAL.**—Title VI of the Energy Inde-  
15 pendence and Security Act of 2007 is amended by  
16 inserting after section 616 (42 U.S.C. 17195) the  
17 following:

18 **“SEC. 616A. GEOTHERMAL HEAT PUMPS AND DIRECT USE**

19 **RESEARCH AND DEVELOPMENT.**

20 “(a) **PURPOSES.**—The purposes of this section are—

21 “(1) to improve the components, processes, and  
22 systems used for geothermal heat pumps and the di-  
23 rect use of geothermal energy; and

24 “(2) to increase the energy efficiency, lower the  
25 cost, increase the use, and improve and demonstrate

1 the applicability of geothermal heat pumps to, and  
2 the direct use of geothermal energy in, large build-  
3 ings, commercial districts, residential communities,  
4 and large municipal, agricultural, or industrial  
5 projects.

6 “(b) DEFINITIONS.—In this section:

7 “(1) DIRECT USE OF GEOTHERMAL ENERGY.—  
8 The term ‘direct use of geothermal energy’ means  
9 geothermal systems that use water directly or  
10 through a heat exchanger to provide—

11 “(A) heating to buildings; or

12 “(B) heat required for industrial processes,  
13 agriculture, aquaculture, and other facilities.

14 “(2) ECONOMICALLY DISTRESSED AREA.—The  
15 term ‘economically distressed area’ means an area  
16 described in section 301(a) of the Public Works and  
17 Economic Development Act of 1965 (42 U.S.C.  
18 3161(a)).

19 “(3) GEOTHERMAL HEAT PUMP.—The term  
20 ‘geothermal heat pump’ means a system that pro-  
21 vides heating and cooling by exchanging heat from  
22 shallow ground or surface water using—

23 “(A) a closed loop system, which transfers  
24 heat by way of buried or immersed pipes that  
25 contain a mix of water and working fluid; or

1           “(B) an open loop system, which circulates  
2           ground or surface water directly into the build-  
3           ing and returns the water to the same aquifer  
4           or surface water source.

5           “(c) PROGRAM.—

6           “(1) IN GENERAL.—The Secretary shall sup-  
7           port within the Geothermal Technologies Office a  
8           program of research, development, and demonstra-  
9           tion for geothermal heat pumps and the direct use  
10          of geothermal energy.

11          “(2) AREAS.—The program under paragraph  
12          (1) may include research, development, demonstra-  
13          tion, and commercial application of—

14               “(A) geothermal ground loop efficiency im-  
15               provements, cost reductions, and improved in-  
16               stallation and operations methods;

17               “(B) the use of geothermal energy for  
18               building-scale energy storage;

19               “(C) the use of geothermal energy as a  
20               grid management resource or seasonal energy  
21               storage;

22               “(D) geothermal heat pump efficiency im-  
23               provements;

24               “(E) the use of alternative fluids as a heat  
25               exchange medium, such as hot water found in

1 mines and mine shafts, graywater, or other  
2 fluids that may improve the economics of geo-  
3 thermal heat pumps;

4 “(F) heating of districts, neighborhoods,  
5 communities, large commercial or public build-  
6 ings, and industrial and manufacturing facili-  
7 ties;

8 “(G) the use of water sources at a tem-  
9 perature of less than 150 degrees Celsius for di-  
10 rect use; and

11 “(H) system integration of direct use with  
12 geothermal electricity production.

13 “(3) ENVIRONMENTAL IMPACTS.—In carrying  
14 out the program, the Secretary shall identify and  
15 mitigate potential environmental impacts in accord-  
16 ance with section 614(c).

17 “(d) FINANCIAL ASSISTANCE.—

18 “(1) IN GENERAL.—The Secretary shall make  
19 financial assistance available to State, local, and  
20 Tribal governments, institutions of higher education,  
21 nonprofit entities, National Laboratories, utilities,  
22 and for-profit companies to promote the development  
23 of geothermal heat pumps and the direct use of geo-  
24 thermal energy.

1           “(2) PRIORITY.—In providing financial assist-  
2           ance under this subsection, the Secretary shall give  
3           priority to proposals that apply to large buildings,  
4           commercial districts, and residential communities  
5           that are located in economically distressed areas.”.

6           (2) CLERICAL AMENDMENT.—The table of con-  
7           tents in section 1(b) of the Energy Independence  
8           and Security Act of 2007 (Public Law 110–140; 121  
9           Stat. 1495) is amended by inserting after the item  
10          relating to section 616 the following:

        “Sec. 616A. Geothermal heat pumps and direct use research and develop-  
        ment.”.

11          (e) MODIFYING THE DEFINITION OF RENEWABLE  
12          ENERGY TO INCLUDE THERMAL ENERGY.—

13                 (1) IN GENERAL.—Section 203 of the Energy  
14          Policy Act of 2005 (42 U.S.C. 15852) is amended—

15                         (A) in subsection (b)(2), by striking “gen-  
16                         erated” and inserting “produced”; and

17                         (B) in subsection (c)—

18                                 (i) by redesignating paragraphs (1)  
19                                 through (3) as subparagraphs (A) through  
20                                 (C), respectively, and indenting appro-  
21                                 priately;

22                                 (ii) in the matter preceding subpara-  
23                                 graph (A) (as so redesignated), by striking

1           “For purposes” and inserting the fol-  
2           lowing:

3           “(1) IN GENERAL.—For purposes”; and

4                   (iii) by adding at the end the fol-  
5           lowing:

6           “(2) SEPARATE CALCULATION.—

7                   “(A) IN GENERAL.—For purposes of deter-  
8           mining compliance with the requirement of this  
9           section, any energy consumption that is avoided  
10          through the use of geothermal energy shall be  
11          considered to be renewable energy produced.

12                   “(B) EFFICIENCY ACCOUNTING.—Energy  
13          consumption that is avoided through the use of  
14          geothermal energy that is considered to be re-  
15          newable energy under this section shall not be  
16          considered energy efficiency for the purpose of  
17          compliance with Federal energy efficiency goals,  
18          targets, and incentives.”.

19          (2) CONFORMING AMENDMENT.—Section  
20          2410q(a) of title 10, United States Code, is amend-  
21          ed by striking “section 203(b)(2) of the Energy Pol-  
22          icy Act of 2005 (42 U.S.C. 15852(b)(2))” and in-  
23          serting “section 203(b) of the Energy Policy Act of  
24          2005 (42 U.S.C. 15852(b))”.



1 (f) AUTHORIZATION OF APPROPRIATIONS.—Section  
2 623 of the Energy Independence and Security Act of 2007  
3 (42 U.S.C. 17202) is amended by striking “\$90,000,000”  
4 in the first sentence and all that follows through the pe-  
5 riod at the end of the second sentence and inserting the  
6 following: “\$165,000,000 for each of fiscal years 2021  
7 through 2025, of which—

8 “(1) \$5,000,000 each fiscal year shall be for  
9 the prize competition under section 614(e); and

10 “(2) \$1,000,000 each fiscal year shall be for  
11 the drilling data repository under section 614(f).”.

12 (g) REAUTHORIZATION OF HIGH COST REGION GEO-  
13 THERMAL ENERGY GRANT PROGRAM.—Section 625 of the  
14 Energy Independence and Security Act of 2007 (42  
15 U.S.C. 17204) is amended—

16 (1) in subsection (a)(2), by inserting “or heat”  
17 after “electrical power”; and

18 (2) by striking subsection (e) and inserting the  
19 following:

20 “(e) AUTHORIZATION OF APPROPRIATIONS.—There  
21 is authorized to be appropriated to carry out this section  
22 \$5,000,000 for each of fiscal years 2021 through 2025.”.

23 (h) NATIONAL GOALS FOR PRODUCTION ON FED-  
24 ERAL LAND.—

1           (1) IN GENERAL.—Not later than September 1,  
2           2022, the Secretary of the Interior shall, in con-  
3           sultation with the Secretary, the Secretary of Agri-  
4           culture, and other heads of relevant Federal agen-  
5           cies, establish national goals for geothermal energy  
6           capacity on public land.

7           (2) GEOTHERMAL ENERGY DEVELOPMENT.—  
8           The Director of the Bureau of Land Management,  
9           in consultation with other appropriate Federal offi-  
10          cials, shall take any actions that the Director of the  
11          Bureau of Land Management determines necessary  
12          to facilitate geothermal energy development, con-  
13          sistent with applicable laws.

14          (i) FACILITATION OF COPRODUCTION OF GEO-  
15          THERMAL ENERGY ON OIL AND GAS LEASES.—Section  
16          4(b) of the Geothermal Steam Act of 1970 (30 U.S.C.  
17          1003(b)) is amended by adding at the end the following:

18                 “(4) LAND SUBJECT TO OIL AND GAS LEASE.—  
19                 Land under an oil and gas lease issued pursuant to  
20                 the Mineral Leasing Act (30 U.S.C. 181 et seq.) or  
21                 the Mineral Leasing Act for Acquired Lands (30  
22                 U.S.C. 351 et seq.) that is subject to an approved  
23                 application for permit to drill and from which oil  
24                 and gas production is occurring may be available for

1 noncompetitive leasing under this section to the  
2 holder of the oil and gas lease—

3 “(A) on a determination that—

4 “(i) geothermal energy will be pro-  
5 duced from a well producing or capable of  
6 producing oil and gas; and

7 “(ii) national energy security will be  
8 improved by the issuance of such a lease;  
9 and

10 “(B) to provide for the coproduction of  
11 geothermal energy with oil and gas.”.

12 (j) GEOTHERMAL RESOURCE CONFIRMATION TEST  
13 PROJECTS.—

14 (1) IN GENERAL.—The Geothermal Steam Act  
15 of 1970 (30 U.S.C. 1001 et seq.) is amended by  
16 adding at the end the following:

17 **“SEC. 30. GEOTHERMAL RESOURCE CONFIRMATION TEST**  
18 **PROJECTS.**

19 “(a) DEFINITIONS.—In this section:

20 “(1) EXTRAORDINARY CIRCUMSTANCES.—The  
21 term ‘extraordinary circumstances’ has the same  
22 meaning given the term in the Department of the  
23 Interior Departmental Manual, 516 DM 2.3A(3)  
24 and 516 DM 2, Appendix 2 (or successor provi-  
25 sions).

1           “(2) GEOTHERMAL RESOURCE CONFIRMATION  
2 TEST PROJECT.—The term ‘geothermal resource  
3 confirmation test project’ means a project of drilling  
4 not more than 3 wells into a reservoir to test or ex-  
5 plore for geothermal resources—

6           “(A) on land for which the Secretary has  
7 issued a lease under this Act; and

8           “(B) that—

9           “(i) is carried out by the holder of the  
10 lease;

11           “(ii) allows for well testing, such as to  
12 confirm temperature, pressure, chemistry,  
13 flow rate, and near-wellbore and overall  
14 reservoir permeability;

15           “(iii) causes—

16           “(I) less than 2.5 acres of soil or  
17 vegetation disruption at the location  
18 of each geothermal exploration well;  
19 and

20           “(II) not more than an additional  
21 5 acres of soil or vegetation disruption  
22 during access to or egress from the  
23 test site;

24           “(iv) is less than 9 inches in bottom-  
25 hole diameter;

1 “(v) is developed—

2 “(I) in a manner that does not  
3 require off-road motorized access  
4 other than to and from the well site  
5 along an identified off-road route; and

6 “(II) without the use of high-  
7 pressure well stimulation;

8 “(vi) includes the removal of any sur-  
9 face infrastructure other than the wellhead  
10 from the site not later than 90 days after  
11 the project is completed; and

12 “(vii) requires, not later than 42  
13 months after the date on which the first  
14 exploration drilling began, the restoration  
15 of the project site to approximately the  
16 condition that existed at the time the  
17 project begins, unless the site is subse-  
18 quently used as part of an energy develop-  
19 ment under the lease.

20 “(b) CATEGORICAL EXCLUSION.—Unless extraor-  
21 dinary circumstances exist, a project that the Secretary  
22 determines under subsection (c) is a geothermal resource  
23 confirmation test project shall be categorically excluded  
24 from the requirements for an environmental assessment  
25 or an environmental impact statement under the National

1 Environmental Policy Act of 1969 (42 U.S.C. 4321 et  
2 seq.) or section 1508.4 of title 40, Code of Federal Regula-  
3 tions (or a successor regulation).

4 “(c) PROCESS.—

5 “(1) REQUIREMENT TO PROVIDE NOTICE.—A  
6 leaseholder shall provide notice to the Secretary of  
7 the intent of the leaseholder to carry out a geo-  
8 thermal resource confirmation test project at least  
9 30 days before the start of drilling under the  
10 project.

11 “(2) REVIEW AND DETERMINATION.—Not later  
12 than 30 days after receipt of a notice of intent  
13 under paragraph (1), the Secretary shall, with re-  
14 spect to the project described in the notice of in-  
15 tent—

16 “(A) determine if the project is a geo-  
17 thermal resource confirmation test project;

18 “(B) notify the leaseholder of such deter-  
19 mination; and

20 “(C) provide public notice of the deter-  
21 mination.

22 “(3) OPPORTUNITY TO REMEDY.—If the Sec-  
23 retary determines under paragraph (2)(A) that the  
24 project is not a geothermal resource confirmation  
25 test project, the Secretary shall—

1           “(A) include in such notice clear and de-  
2           tailed findings on any deficiencies in the project  
3           that resulted in such determination; and

4           “(B) allow the leaseholder to remedy any  
5           such deficiencies and resubmit the notice of in-  
6           tent under paragraph (1).”.

7           (2) REPEAL.—The Geothermal Energy Re-  
8           search, Development, and Demonstration Act of  
9           1974 (30 U.S.C. 1101 et seq.) is repealed.

10          (k) PROGRAM TO IMPROVE FEDERAL GEOTHERMAL  
11 PERMIT COORDINATION.—

12           (1) DEFINITIONS.—In this subsection:

13           (A) PROGRAM.—The term “Program”  
14           means the Geothermal Energy Permitting Co-  
15           ordination Program established under para-  
16           graph (2).

17           (B) SECRETARY.—The term “Secretary”  
18           means the Secretary of the Interior.

19           (2) ESTABLISHMENT OF PROGRAM.—Not later  
20           than 90 days after the date of enactment of this  
21           Act, the Secretary shall establish a program, to be  
22           known as the “Geothermal Energy Permitting Co-  
23           ordination Program”, to improve Federal permit co-  
24           ordination and reduce regulatory timelines with re-  
25           spect to geothermal energy projects on Federal land

1 by increasing the expertise of officials administering  
2 and approving permits.

3 (3) ESTABLISHMENT OF PROGRAM OFFICES.—

4 To carry out the Program, the Secretary shall estab-  
5 lish 1 or more Program offices at State or district  
6 offices of the Department of the Interior.

7 (4) MEMORANDUM OF UNDERSTANDING.—

8 (A) IN GENERAL.—Not later than 90 days  
9 after the date of enactment of this Act, the Sec-  
10 retary shall enter into a memorandum of under-  
11 standing for purposes of this subsection with—

- 12 (i) the Secretary of Agriculture;  
13 (ii) the Administrator of the Environ-  
14 mental Protection Agency; and  
15 (iii) the Secretary of Defense.

16 (B) STATE PARTICIPATION.—The Sec-  
17 retary may request that the Governor of any  
18 State be a signatory to the memorandum of un-  
19 derstanding under subparagraph (A).

20 (5) DESIGNATION OF QUALIFIED STAFF.—

21 (A) IN GENERAL.—Not later than 30 days  
22 after the date on which the memorandum of un-  
23 derstanding under paragraph (4) is executed,  
24 all Federal signatories, as appropriate, shall as-  
25 sign to each Program office established under



1 paragraph (3) 1 or more employees who have  
2 expertise in the regulatory issues relating to the  
3 office or agency in which the employee is em-  
4 ployed, including, as applicable, particular ex-  
5 pertise in—

6 (i) consultation regarding, and prepa-  
7 ration of, biological opinions under section  
8 7 of the Endangered Species Act of 1973  
9 (16 U.S.C. 1536);

10 (ii) permits under section 404 of the  
11 Federal Water Pollution Control Act (33  
12 U.S.C. 1344);

13 (iii) regulatory matters under the  
14 Clean Air Act (42 U.S.C. 7401 et seq.);

15 (iv) the Federal Land Policy and  
16 Management Act of 1976 (43 U.S.C. 1701  
17 et seq.);

18 (v) planning under section 14 of the  
19 National Forest Management Act of 1976  
20 (16 U.S.C. 472a);

21 (vi) developing geothermal resources  
22 under the Geothermal Steam Act of 1970  
23 (30 U.S.C. 1001 et seq.); and

1 (vii) the preparation of analyses under  
2 the National Environmental Policy Act of  
3 1969 (42 U.S.C. 4321 et seq.).

4 (B) DUTIES.—Each employee assigned  
5 under subparagraph (A) shall—

6 (i) not later than 90 days after the  
7 date on which the employee is assigned, re-  
8 port to the State Director of the Bureau of  
9 Land Management for the State in which  
10 the office to which the employee is as-  
11 signed is located;

12 (ii) be responsible for all issues relat-  
13 ing to the jurisdiction of the home office or  
14 agency of the employee; and

15 (iii) participate as part of the team of  
16 personnel working on proposed energy  
17 projects, planning, and environmental anal-  
18 yses.

19 (6) ADDITIONAL PERSONNEL.—The Secretary  
20 shall assign to each Program office any additional  
21 personnel that are necessary to ensure the effective  
22 implementation of—

23 (A) the Program; and

24 (B) any program administered by the Pro-  
25 gram office, including inspection and enforce-

1           ment relating to energy development on Federal  
2           land, in accordance with the multiple use man-  
3           date of the Federal Land Policy and Manage-  
4           ment Act of 1976 (43 U.S.C. 1701 et seq.).

5           (7) TRANSFER OF FUNDS.—To facilitate the co-  
6           ordination and processing of geothermal permits on  
7           Federal land under the administration of a Program  
8           office, the Secretary may authorize the expenditure  
9           or transfer of any funds that are necessary to—

10                   (A) the United States Fish and Wildlife  
11           Service;

12                   (B) the Bureau of Indian Affairs;

13                   (C) the Forest Service;

14                   (D) the Environmental Protection Agency;

15                   (E) the Corps of Engineers;

16                   (F) the Department of Defense; or

17                   (G) any State in which a geothermal  
18           project is located.

19           (8) REPORTS.—Not later than 3 years after the  
20           date of enactment of this Act, the Secretary shall  
21           submit to Congress a report that describes—

22                   (A) the progress of the Program; and

23                   (B) any problems relating to leasing, per-  
24           mitting, or siting with respect to geothermal en-  
25           ergy development on Federal land.

1           (9) SAVINGS CLAUSE.—Nothing in this sub-  
2 section affects—

3           (A) the operation of any Federal or State  
4 law; or

5           (B) any delegation of authority made by  
6 the head of a Federal agency any employee of  
7 which is participating in the Program.

8 **SEC. 1204. WIND ENERGY RESEARCH AND DEVELOPMENT.**

9           (a) DEFINITIONS.—In this section:

10           (1) ECONOMICALLY DISTRESSED AREA.—The  
11 term “economically distressed area” means an area  
12 described in section 301(a) of the Public Works and  
13 Economic Development Act of 1965 (42 U.S.C.  
14 3161(a)).

15           (2) ELIGIBLE ENTITY.—The term “eligible enti-  
16 ty” means—

17           (A) an institution of higher education;

18           (B) a National Laboratory;

19           (C) a Federal research agency;

20           (D) a State research agency;

21           (E) a research agency associated with a  
22 territory or freely associated state;

23           (F) a tribal energy development organiza-  
24 tion;

25           (G) an Indian tribe;

1 (H) a tribal organization;

2 (I) a Native Hawaiian community-based  
3 organization;

4 (J) a nonprofit research organization;

5 (K) an industrial entity;

6 (L) any other entity, as determined by the  
7 Secretary; and

8 (M) a consortium of 2 or more entities de-  
9 scribed in subparagraphs (A) through (L).

10 (3) 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. 5304).

14 (4) INSTITUTION OF HIGHER EDUCATION.—The  
15 term “institution of higher education” has the  
16 meaning given the term in section 101 of the Higher  
17 Education Act of 1965 (20 U.S.C. 1001).

18 (5) NATIVE HAWAIIAN COMMUNITY-BASED OR-  
19 GANIZATION.—The term “Native Hawaiian commu-  
20 nity-based organization” has the meaning given the  
21 term in section 6207 of the Elementary and Sec-  
22 ondary Education Act of 1965 (20 U.S.C. 7517).

23 (6) PROGRAM.—The term “program” means  
24 the program established under subsection (b)(1).

1           (7) TERRITORY OR FREELY ASSOCIATED  
2 STATE.—The term “territory or freely associated  
3 state” has the meaning given the term “insular  
4 area” in section 1404 of the Food and Agriculture  
5 Act of 1977 (7 U.S.C. 3103).

6           (8) TRIBAL ENERGY DEVELOPMENT ORGANIZA-  
7 TION.—The term “tribal energy development organi-  
8 zation” has the meaning given the term in section  
9 2601 of the Energy Policy Act of 1992 (25 U.S.C.  
10 3501).

11           (9) TRIBAL ORGANIZATION.—The term “tribal  
12 organization” has the meaning given the term in  
13 section 4 of the Indian Self-Determination and Edu-  
14 cation Assistance Act (25 U.S.C. 5304).

15 (b) WIND ENERGY TECHNOLOGY PROGRAM.—

16           (1) ESTABLISHMENT.—

17           (A) IN GENERAL.—The Secretary shall es-  
18 tablish a program to conduct research, develop-  
19 ment, testing, evaluation, demonstration, and  
20 commercialization of wind energy technologies  
21 in accordance with this subsection.

22           (B) PURPOSES.—The purposes of the pro-  
23 gram are the following:

24           (i) To improve the energy efficiency,  
25 cost effectiveness, reliability, resilience, se-

1                   curity, integration, manufacturability, and  
2                   recyclability of wind energy technologies.

3                   (ii) To optimize the performance and  
4                   operation of wind energy components, tur-  
5                   bines, and systems, including through the  
6                   development of new materials, hardware,  
7                   and software.

8                   (iii) To optimize the design and  
9                   adaptability of wind energy technologies to  
10                  the broadest practical range of geographic,  
11                  atmospheric, offshore, and other site condi-  
12                  tions, including—

13                               (I) at varying hub heights; and

14                               (II) through the use of computer  
15                               modeling.

16                   (iv) To support the integration of  
17                  wind energy technologies with—

18                               (I) the electric grid, including  
19                               transmission, distribution, microgrids,  
20                               and distributed energy systems; and

21                               (II) other energy technologies  
22                               and systems, such as—

23                                       (aa) other generation  
24                                       sources;

1 (bb) demand response tech-  
2 nologies;

3 (cc) energy storage tech-  
4 nologies; and

5 (dd) hybrid systems.

6 (v) To reduce the cost and risk across  
7 the lifespan of wind energy technologies,  
8 including—

9 (I) manufacturing, permitting,  
10 construction, operations, maintenance,  
11 and recycling; and

12 (II) through the development of  
13 solutions to transportation barriers to  
14 wind components.

15 (vi) To reduce and mitigate any po-  
16 tential negative impacts of wind energy  
17 technologies on—

18 (I) human communities;

19 (II) military operations;

20 (III) aviation;

21 (IV) radar; and

22 (V) wildlife and wildlife habitats.

23 (vii) To address barriers to the com-  
24 mercialization and export of wind energy  
25 technologies.



1 (viii) To support the domestic wind  
2 industry, workforce, and supply chain.

3 (C) TARGETS.—Not later than 180 days  
4 after the date of enactment of this Act, the Sec-  
5 retary shall establish targets for the program  
6 relating to near-term (up to 2 years), mid-term  
7 (up to 7 years), and long-term (up to 15 years)  
8 challenges to the advancement of wind energy  
9 technologies, including onshore, offshore, dis-  
10 tributed, and off-grid technologies.

11 (2) ACTIVITIES.—

12 (A) TYPES OF ACTIVITIES.—In carrying  
13 out the program, the Secretary shall carry out  
14 research, development, demonstration, and com-  
15 mercialization activities, including—

16 (i) awarding grants and awards, on a  
17 competitive, merit-reviewed basis;

18 (ii) performing precompetitive re-  
19 search and development;

20 (iii) establishing or maintaining dem-  
21 onstration facilities and projects, including  
22 through stewardship of existing facilities  
23 such as the National Wind Test Center;

24 (iv) providing technical assistance;

- 1 (v) entering into contracts and cooper-  
2 ative agreements;  
3 (vi) providing small business vouchers;  
4 (vii) conducting education and out-  
5 reach activities;  
6 (viii) conducting workforce develop-  
7 ment activities; and  
8 (ix) conducting analyses, studies, and  
9 reports.

10 (B) SUBJECT AREAS.—The Secretary shall  
11 carry out research, development, testing, eval-  
12 uation, demonstration, and commercialization  
13 activities in the following subject areas:

14 (i) Wind power plant performance, op-  
15 erations, and security.

16 (ii) New materials and designs relat-  
17 ing to all hardware, software, and compo-  
18 nents of wind energy technologies, includ-  
19 ing alternatives to minerals and other com-  
20 modities from foreign sources that are de-  
21 termined to be vulnerable to disruption.

22 (iii) Advanced wind energy manufac-  
23 turing technologies and practices, including  
24 materials, processes, and design.

1 (iv) Offshore wind-specific projects  
2 and plants, including—

3 (I) the deep water floating sys-  
4 tems, materials, components, and op-  
5 eration of offshore facilities; and

6 (II) the monitoring and analysis  
7 of site and environmental consider-  
8 ations unique to offshore sites.

9 (v) Integration of wind energy tech-  
10 nologies with—

11 (I) the electric grid, including  
12 transmission, distribution, microgrids,  
13 and distributed energy systems; and

14 (II) other energy technologies, in-  
15 cluding—

16 (aa) other generation  
17 sources;

18 (bb) demand response tech-  
19 nologies; and

20 (cc) energy storage tech-  
21 nologies.

22 (vi) Methods to improve the lifetime,  
23 maintenance, recycling, and reuse of wind  
24 energy components and systems.

1 (vii) Wind power forecasting and at-  
2 mospheric measurement systems, including  
3 for turbines and plant systems of varying  
4 height.

5 (viii) Hybrid wind energy systems,  
6 grid-connected and off-grid, that incor-  
7 porate diverse—

8 (I) generation sources;

9 (II) loads; and

10 (III) storage technologies.

11 (ix) Reducing, including through edu-  
12 cation and outreach activities, market bar-  
13 riers to the adoption of wind energy tech-  
14 nologies, such as impacts on, or challenges  
15 relating to—

16 (I) distributed wind technologies,  
17 including the development of best  
18 practices, models, and voluntary  
19 streamlined processes for local permit-  
20 ting of distributed wind energy sys-  
21 tems to reduce costs;

22 (II) airspace;

23 (III) military uses;

24 (IV) radar;

25 (V) local communities;

1 (VI) wildlife and wildlife habitats;

2 and

3 (VII) any other appropriate mat-  
4 ter, as determined by the Secretary.

5 (x) Advanced physics-based and data  
6 analysis computational tools, in coordina-  
7 tion with the high-performance computing  
8 programs of the Department.

9 (xi) Technologies for distributed wind,  
10 including micro, small, and medium tur-  
11 bines and the components of those tur-  
12 bines.

13 (xii) Transformational technologies  
14 for harnessing wind energy.

15 (xiii) Other research areas that ad-  
16 vance the purposes of the program, as de-  
17 termined by the Secretary.

18 (C) PRIORITIZATION.—In carrying out ac-  
19 tivities under the program, the Secretary shall  
20 give priority to projects that—

21 (i) are located in geographically di-  
22 verse regions of the United States;

23 (ii) support the development or dem-  
24 onstration of projects—

1 (I) in collaboration with tribal  
2 energy development organizations, In-  
3 dian tribes, tribal organizations, Na-  
4 tive Hawaiian community-based orga-  
5 nizations, or territories or freely asso-  
6 ciated states; or

7 (II) in economically distressed  
8 areas;

9 (iii) can be replicated in a variety of  
10 regions and climates; and

11 (iv) include business commercializa-  
12 tion plans that have the potential for—

13 (I) domestic manufacturing and  
14 production of wind energy tech-  
15 nologies; or

16 (II) exports of wind energy tech-  
17 nologies.

18 (D) COORDINATION.—To the maximum ex-  
19 tent practicable, the Secretary shall coordinate  
20 activities under the program with other relevant  
21 programs and capabilities of the Department  
22 and other Federal research programs.

23 (3) WIND TECHNICIAN TRAINING GRANT PRO-  
24 GRAM.—The Secretary may award grants, on a com-  
25 petitive basis, to eligible entities to purchase large

1 pieces of wind component equipment, such as nacelles,  
2 celles, towers, and blades, for use in training wind  
3 technician students in onshore or offshore wind ap-  
4 plications.

5 (4) WAGES.—Notwithstanding any other provi-  
6 sion of law, all laborers and mechanics employed by  
7 contractors or subcontractors on projects funded by  
8 grants under this subsection shall be paid wages at  
9 rates not less than those prevailing on projects of a  
10 similar character in the locality, as determined by  
11 the Secretary of Labor, in accordance with sub-  
12 chapter IV of chapter 31 of title 40, United States  
13 Code.

14 (5) WIND ENERGY PROGRAM STRATEGIC VI-  
15 SION.—

16 (A) IN GENERAL.—Not later than Sep-  
17 tember 1, 2022, and every 6 years thereafter,  
18 the Secretary shall submit to Congress a report  
19 on the strategic vision, progress, goals, and tar-  
20 gets of the program, including assessments of  
21 wind energy markets and manufacturing.

22 (B) PREPARATION.—The Secretary shall  
23 coordinate the preparation of the report under  
24 subparagraph (A) with—

25 (i) existing peer review processes;

1 (ii) studies conducted by the National  
2 Laboratories; and

3 (iii) the multiyear program planning  
4 required under section 994 of the Energy  
5 Policy Act of 2005 (42 U.S.C. 16358).

6 (6) AUTHORIZATION OF APPROPRIATIONS.—

7 There is authorized to be appropriated to the Sec-  
8 retary to carry out the program \$120,000,000 for  
9 each of fiscal years 2021 through 2025.

10 (c) CONFORMING AMENDMENTS.—

11 (1) Section 4 of the Renewable Energy and En-  
12 ergy Efficiency Technology Competitiveness Act of  
13 1989 (42 U.S.C. 12003) is amended—

14 (A) in the section heading by striking  
15 “**WIND,**”;

16 (B) in subsection (a)—

17 (i) in the matter preceding paragraph  
18 (1), by striking “wind,”;

19 (ii) by striking paragraph (1); and

20 (iii) by redesignating paragraphs (2)  
21 through (5) as paragraphs (1) through (4),  
22 respectively; and

23 (C) in subsection (c), in the matter pre-  
24 ceding paragraph (1), by striking “the Wind  
25 Energy Research Program,”.



1           (2) Section 931(a)(2) of the Energy Policy Act  
2 of 2005 (42 U.S.C. 16231(a)(2)) is amended—

3                   (A) by striking subparagraph (B); and

4                   (B) by redesignating subparagraphs (C)  
5 through (E) as subparagraphs (B) through (D),  
6 respectively.

7           (3) Section 636 of the Energy Independence  
8 and Security Act of 2007 (42 U.S.C. 17215) is  
9 amended by striking “section 931(a)(2)(E)(i)” and  
10 all that follows through the period at the end and  
11 inserting “subparagraph (D)(i) of section 931(a)(2)  
12 of the Energy Policy Act of 2005 (42 U.S.C.  
13 16231(a)(2)).”.

14 **SEC. 1205. SOLAR ENERGY RESEARCH AND DEVELOPMENT.**

15 (a) DEFINITIONS.—In this section:

16           (1) ECONOMICALLY DISTRESSED AREA.—The  
17 term “economically distressed area” means an area  
18 described in section 301(a) of the Public Works and  
19 Economic Development Act of 1965 (42 U.S.C.  
20 3161(a)).

21           (2) ELIGIBLE ENTITY.—The term “eligible enti-  
22 ty” means—

23                   (A) an institution of higher education;

24                   (B) a National Laboratory;

25                   (C) a Federal research agency;

- 1 (D) a State research agency;
- 2 (E) a research agency associated with a  
3 territory or freely associated state;
- 4 (F) a tribal energy development organiza-  
5 tion;
- 6 (G) an Indian tribe;
- 7 (H) a tribal organization;
- 8 (I) a Native Hawaiian community-based  
9 organization;
- 10 (J) a nonprofit research organization;
- 11 (K) an industrial entity;
- 12 (L) any other entity, as determined by the  
13 Secretary; and
- 14 (M) a consortium of 2 or more entities de-  
15 scribed in subparagraphs (A) through (L).

16 (3) INDIAN TRIBE.—The term “Indian tribe”  
17 has the meaning given the term in section 4 of the  
18 Indian Self-Determination and Education Assistance  
19 Act (25 U.S.C. 5304).

20 (4) INSTITUTION OF HIGHER EDUCATION.—The  
21 term “institution of higher education” has the  
22 meaning given the term in section 101 of the Higher  
23 Education Act of 1965 (20 U.S.C. 1001).

24 (5) NATIVE HAWAIIAN COMMUNITY-BASED OR-  
25 GANIZATION.—The term “Native Hawaiian commu-

1 nity-based organization” has the meaning given the  
2 term in section 6207 of the Elementary and Sec-  
3 ondary Education Act of 1965 (20 U.S.C. 7517).

4 (6) PHOTOVOLTAIC DEVICE.—The term “photo-  
5 voltaic device” means—

6 (A) a device that converts light directly  
7 into electricity through a solid-state, semicon-  
8 ductor process;

9 (B) the photovoltaic cells of a device de-  
10 scribed in subparagraph (A); and

11 (C) the electronic and electrical compo-  
12 nents of a device described in subparagraph  
13 (A).

14 (7) PROGRAM.—The term “program” means  
15 the program established under subsection (b)(1)(A).

16 (8) SOLAR ENERGY.—The term “solar energy”  
17 means—

18 (A) thermal or electric energy derived from  
19 radiation from the Sun; or

20 (B) energy resulting from a chemical reac-  
21 tion caused by radiation recently originated in  
22 the Sun.

23 (9) TERRITORY OR FREELY ASSOCIATED  
24 STATE.—The term “territory or freely associated  
25 state” has the meaning given the term “insular

1 area” in section 1404 of the Food and Agriculture  
2 Act of 1977 (7 U.S.C. 3103).

3 (10) TRIBAL ENERGY DEVELOPMENT ORGANI-  
4 ZATION.—The term “tribal energy development or-  
5 ganization” has the meaning given the term in sec-  
6 tion 2601 of the Energy Policy Act of 1992 (25  
7 U.S.C. 3501).

8 (11) TRIBAL ORGANIZATION.—The term “tribal  
9 organization” has the meaning given the term in  
10 section 4 of the Indian Self-Determination and Edu-  
11 cation Assistance Act (25 U.S.C. 5304).

12 (b) SOLAR ENERGY TECHNOLOGY PROGRAM.—

13 (1) ESTABLISHMENT.—

14 (A) IN GENERAL.—The Secretary shall es-  
15 tablish a program to conduct research, develop-  
16 ment, testing, evaluation, demonstration, and  
17 commercialization of solar energy technologies  
18 in accordance with this subsection.

19 (B) PURPOSES.—The purposes of the pro-  
20 gram are the following:

21 (i) To improve the energy efficiency,  
22 cost effectiveness, reliability, resilience, se-  
23 curity, integration, manufacturability, and  
24 recyclability of solar energy technologies.

1                   (ii) To optimize the performance and  
2                   operation of solar energy components,  
3                   cells, and systems, and enabling tech-  
4                   nologies, including through the develop-  
5                   ment of new materials, hardware, and soft-  
6                   ware.

7                   (iii) To optimize the design and  
8                   adaptability of solar energy systems to the  
9                   broadest practical range of geographic and  
10                  atmospheric conditions.

11                  (iv) To support the integration of  
12                  solar energy technologies with the electric  
13                  grid and complementary energy tech-  
14                  nologies.

15                  (v) To create and improve the conver-  
16                  sion of solar energy to other useful forms  
17                  of energy or other products.

18                  (vi) To reduce and mitigate any po-  
19                  tential negative impacts of solar energy  
20                  technologies on humans, wildlife, and wild-  
21                  life habitats.

22                  (vii) To address barriers to the com-  
23                  mercialization and export of solar energy  
24                  technologies.

1 (viii) To support the domestic solar  
2 industry, workforce, and supply chain.

3 (C) TARGETS.—Not later than 180 days  
4 after the date of enactment of this Act, the Sec-  
5 retary shall establish targets for the program to  
6 address near-term (up to 2 years), mid-term  
7 (up to 7 years), and long-term (up to 15 years)  
8 challenges to the advancement of solar energy  
9 systems.

10 (2) ACTIVITIES.—

11 (A) TYPES OF ACTIVITIES.—In carrying  
12 out the program, the Secretary shall carry out  
13 research, development, demonstration, and com-  
14 mercialization activities, including—

15 (i) awarding grants and awards, on a  
16 competitive, merit-reviewed basis;

17 (ii) performing precompetitive re-  
18 search and development;

19 (iii) establishing or maintaining dem-  
20 onstration facilities and projects, including  
21 through stewardship of existing facilities;

22 (iv) providing technical assistance;

23 (v) entering into contracts and cooper-  
24 ative agreements;

25 (vi) providing small business vouchers;

- 1 (vii) establishing prize competitions;  
2 (viii) conducting education and out-  
3 reach activities; and  
4 (ix) conducting analyses, studies, and  
5 reports.

6 (B) SUBJECT AREAS.—The Secretary shall  
7 carry out research, development, testing, eval-  
8 uation, demonstration, and commercialization  
9 activities in the following subject areas:

10 (i) Advanced solar energy tech-  
11 nologies, including—

12 (I) new materials, components,  
13 designs, and systems, including  
14 perovskites;

15 (II) advanced photovoltaic and  
16 thin-film devices;

17 (III) concentrated solar power;

18 (IV) solar heating and cooling;

19 and

20 (V) enabling technologies for  
21 solar energy systems, including hard-  
22 ware and software.

23 (ii) Solar energy technology perform-  
24 ance, operations, and security.

1 (iii) Integration of solar energy tech-  
2 nologies with—

3 (I) the electric grid, including  
4 transmission, distribution, microgrids,  
5 and distributed energy systems;

6 (II) other energy technologies, in-  
7 cluding—

8 (aa) other generation  
9 sources;

10 (bb) demand response tech-  
11 nologies; and

12 (cc) energy storage tech-  
13 nologies; and

14 (III) other nonelectric applica-  
15 tions, such as in the agriculture,  
16 transportation, industrial, and fuels  
17 sectors.

18 (iv) Advanced solar energy manufac-  
19 turing technologies and practices, including  
20 materials, processes, and design.

21 (v) Methods to improve the lifetime,  
22 maintenance, recycling, and reuse of solar  
23 energy components and systems.

24 (vi) Solar energy forecasting, mod-  
25 eling, and atmospheric measurement sys-



1                   tems, including for small-scale, large-scale,  
2                   and aggregated systems.

3                   (vii) Hybrid solar energy systems that  
4                   incorporate diverse—

5                                   (I) generation sources;

6                                   (II) loads; and

7                                   (III) storage technologies.

8                   (viii) Reducing market barriers to the  
9                   adoption of solar energy technologies, in-  
10                  cluding impacts on, or challenges relating  
11                  to—

12                                   (I) distributed solar technologies,  
13                   including the development of best  
14                   practices, models, and voluntary  
15                   streamlined processes for local permit-  
16                   ting of distributed solar energy sys-  
17                   tems to reduce costs;

18                                   (II) local communities;

19                                   (III) wildlife and wildlife habi-  
20                   tats; and

21                                   (IV) any other appropriate mat-  
22                   ter, as determined by the Secretary.

23                   (ix) Transformational technologies for  
24                   harnessing solar energy.

1 (x) Other research areas that advance  
2 the purposes of the program, as deter-  
3 mined by the Secretary.

4 (C) PRIORITIZATION.—In carrying out ac-  
5 tivities under the program, the Secretary shall  
6 give priority to projects that—

7 (i) are located in a geographically di-  
8 verse range of eligible entities;

9 (ii) support the development or dem-  
10 onstration of projects—

11 (I) in collaboration with tribal  
12 energy development organizations, In-  
13 dian tribes, tribal organizations, Na-  
14 tive Hawaiian community-based orga-  
15 nizations, or territories or freely asso-  
16 ciated states; or

17 (II) in economically distressed  
18 areas;

19 (iii) can be replicated in a variety of  
20 regions and climates; and

21 (iv) include business commercializa-  
22 tion plans that have the potential for—

23 (I) domestic manufacturing and  
24 production of solar energy tech-  
25 nologies; or

1 (II) exports of solar energy tech-  
2 nologies.

3 (D) COORDINATION.—To the maximum ex-  
4 tent practicable, the Secretary shall coordinate  
5 activities under the program with other relevant  
6 programs and capabilities of the Department  
7 and other Federal research programs.

8 (E) USE OF FUNDS.—To the extent that  
9 funding is not otherwise available through other  
10 Federal programs or power purchase agree-  
11 ments, funding awarded under this paragraph  
12 may be used for additional nontechnology costs,  
13 as determined to be appropriate by the Sec-  
14 retary, such as engineering or feasibility stud-  
15 ies.

16 (3) ADVANCED SOLAR ENERGY MANUFAC-  
17 TURING INITIATIVE.—

18 (A) GRANTS.—In addition to the program  
19 activities described in paragraph (2), in car-  
20 rying out the program, the Secretary shall  
21 award multiyear grants to eligible entities for  
22 research, development, and demonstration  
23 projects to advance new solar energy manufac-  
24 turing technologies and techniques.

1 (B) PRIORITY.—In awarding grants under  
2 subparagraph (A), to the extent practicable, the  
3 Secretary shall give priority to solar energy  
4 manufacturing projects that—

5 (i) increase efficiency and cost effec-  
6 tiveness in—

7 (I) the manufacturing process;

8 and

9 (II) the use of resources.

10 (ii) support domestic supply chains for  
11 materials and components;

12 (iii) identify and incorporate nonhaz-  
13 ardous alternative materials for compo-  
14 nents and devices;

15 (iv) operate in partnership with tribal  
16 energy development organizations, Indian  
17 tribes, tribal organizations, Native Hawai-  
18 ian community-based organizations, or ter-  
19 ritories or freely associated states; or

20 (v) are located in economically dis-  
21 tressed areas.

22 (C) EVALUATION.—Not later than 3 years  
23 after the date of enactment of this Act, and  
24 every 4 years thereafter, the Secretary shall  
25 conduct, and make available to the public and

1 the relevant committees of Congress, an inde-  
2 pendent review of the progress of the grants  
3 awarded under subparagraph (A).

4 (4) SOLAR ENERGY TECHNOLOGY RECYCLING  
5 RESEARCH, DEVELOPMENT, AND DEMONSTRATION  
6 PROGRAM.—

7 (A) IN GENERAL.—In addition to the pro-  
8 gram activities described in paragraph (2), in  
9 carrying out the program, the Secretary shall  
10 award multiyear grants to eligible entities for  
11 research, development, and demonstration  
12 projects to create innovative and practical ap-  
13 proaches to increase the reuse and recycling of  
14 solar energy technologies, including—

15 (i) by increasing the efficiency and  
16 cost effectiveness of the recovery of raw  
17 materials from solar energy technology  
18 components and systems, including ena-  
19 bling technologies such as inverters;

20 (ii) by minimizing environmental im-  
21 pacts from the recovery and disposal proc-  
22 esses;

23 (iii) by addressing any barriers to the  
24 research, development, demonstration, and  
25 commercialization of technologies and

1 processes for the disassembly and recycling  
2 of solar energy devices;

3 (iv) by developing alternative mate-  
4 rials, designs, manufacturing processes,  
5 and other aspects of solar energy tech-  
6 nologies and the disassembly and resource  
7 recovery process that enable efficient, cost  
8 effective, and environmentally responsible  
9 disassembly of, and resource recovery  
10 from, solar energy technologies; and

11 (v) strategies to increase consumer ac-  
12 ceptance of, and participation in, the recy-  
13 cling of photovoltaic devices.

14 (B) DISSEMINATION OF RESULTS.—The  
15 Secretary shall make available to the public and  
16 the relevant committees of Congress the results  
17 of the projects carried out through grants  
18 awarded under subparagraph (A), including any  
19 educational and outreach materials.

20 (5) SOLAR ENERGY TECHNOLOGY MATERIALS  
21 PHYSICAL PROPERTY DATABASE.—

22 (A) IN GENERAL.—Not later than Sep-  
23 tember 1, 2022, the Secretary shall establish a  
24 comprehensive physical property database of  
25 materials for use in solar energy technologies,

1           which shall identify the type, quantity, country  
2           of origin, source, significant uses, and physical  
3           properties of materials used in solar energy  
4           technologies.

5           (B) COORDINATION.—In establishing the  
6           database described in subparagraph (A), the  
7           Secretary shall coordinate with—

8                   (i) the Director of the National Insti-  
9                   tute of Standards and Technology;

10                   (ii) the Administrator of the Environ-  
11                   mental Protection Agency;

12                   (iii) the Secretary of the Interior; and

13                   (iv) relevant industry stakeholders, as  
14                   determined by the Secretary.

15           (6) SOLAR ENERGY TECHNOLOGY PROGRAM  
16           STRATEGIC VISION.—

17           (A) IN GENERAL.—Not later than Sep-  
18           tember 1, 2022, and every 6 years thereafter,  
19           the Secretary shall submit to Congress a report  
20           on the strategic vision, progress, goals, and tar-  
21           gets of the program, including assessments of  
22           solar energy markets and manufacturing.

23           (B) PREPARATION.—The Secretary shall  
24           coordinate the preparation of the report under  
25           subparagraph (A) with—

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- 1 (i) existing peer review processes;
- 2 (ii) studies conducted by the National
- 3 Laboratories; and
- 4 (iii) the multiyear program planning
- 5 required under section 994 of the Energy
- 6 Policy Act of 2005 (42 U.S.C. 16358).

7 (7) AUTHORIZATION OF APPROPRIATIONS.—

8 There is authorized to be appropriated to the Sec-

9 retary to carry out the program \$270,000,000 for

10 each of fiscal years 2021 through 2025.

11 (c) CONFORMING AMENDMENTS.—

12 (1) The Solar Energy Research, Development,

13 and Demonstration Act of 1974 (42 U.S.C. 5551 et

14 seq.) is repealed.

15 (2) Section 6(b)(3) of the Federal Nonnuclear

16 Energy Research and Development Act of 1974 (42

17 U.S.C. 5905(b)(3)) is amended—

18 (A) by striking subparagraph (L); and

19 (B) by redesignating subparagraphs (M)

20 through (S) as subparagraphs (L) through (R),

21 respectively.

22 (3) The Solar Photovoltaic Energy Research,

23 Development, and Demonstration Act of 1978 (42

24 U.S.C. 5581 et seq.) is repealed.



1           (4) Section 4 of the Renewable Energy and En-  
2           ergy Efficiency Technology Competitiveness Act of  
3           1989 (42 U.S.C. 12003) is amended—

4           (A) in the section heading, by striking  
5           **“PHOTOVOLTAICS, AND SOLAR THERMAL”**  
6           and inserting **“ALCOHOL FROM BIOMASS**  
7           **AND OTHER TECHNOLOGY”**;

8           (B) in subsection (a)—

9           (i) in the matter preceding paragraph

10           (1) (as redesignated by section  
11           1204(c)(1)(B)(iii)), by striking  
12           “photovoltaics, and solar thermal energy”  
13           and inserting “alcohol from biomass and  
14           other energy technology”;

15           (ii) by striking paragraphs (1) and (2)  
16           (as redesignated by section  
17           1204(c)(1)(B)(iii)); and

18           (iii) by redesignating paragraphs (3)  
19           and (4) (as redesignated by section  
20           1204(c)(1)(B)(iii)) as paragraphs (1) and  
21           (2), respectively; and

22           (C) in subsection (c)—

23           (i) in the matter preceding paragraph  
24           (1), by striking “the Photovoltaic Energy

1 Systems Program, the Solar Thermal En-  
2 ergy Systems Program,”;

3 (ii) in paragraph (1)—

4 (I) by striking subparagraph (A);

5 and

6 (II) by redesignating subpara-  
7 graphs (B) and (C) as subparagraphs  
8 (A) and (B), respectively; and

9 (iii) in paragraph (2)—

10 (I) by striking subparagraph (A);

11 and

12 (II) by redesignating subpara-  
13 graphs (B) and (C) as subparagraphs  
14 (A) and (B), respectively.

15 (5) Section 931 of the Energy Policy Act of  
16 2005 (42 U.S.C. 16231) is amended—

17 (A) in subsection (a)(2)—

18 (i) by striking subparagraph (A); and

19 (ii) by redesignating subparagraphs  
20 (B) through (D) (as redesignated by sec-  
21 tion 1204(c)(2)(B)) as subparagraphs (A)  
22 through (C), respectively;

23 (B) by striking subsection (d); and

1 (C) by redesignating subsections (e)  
2 through (g) as subsections (d) through (f), re-  
3 spectively.

4 (6)(A) Sections 606 and 607 of the Energy  
5 Independence and Security Act of 2007 (42 U.S.C.  
6 17174, 17175) are repealed.

7 (B) The table of contents in section 1(b) of the  
8 Energy Independence and Security Act of 2007  
9 (Public Law 110–140; 121 Stat. 1495) is amended  
10 by striking the items relating to sections 606 and  
11 607.

12 (d) SAVINGS PROVISION.—The repeal of the Solar  
13 Energy Research, Development, and Demonstration Act  
14 of 1974 (42 U.S.C. 5551 et seq.) under subsection (c)(1)  
15 shall not affect the authority of the Secretary to conduct  
16 research and development on solar energy.

## 17 **Subtitle C—Energy Storage**

### 18 **SEC. 1301. BETTER ENERGY STORAGE TECHNOLOGY.**

19 (a) DEFINITIONS.—In this section:

20 (1) ENERGY STORAGE SYSTEM.—The term “en-  
21 ergy storage system” means any system, equipment,  
22 facility, or technology that—

23 (A) is capable of absorbing or converting  
24 energy, storing the energy for a period of time,  
25 and dispatching the energy; and

1           (B)(i) uses mechanical, electrochemical,  
2           thermal, electrolysis, or other processes to con-  
3           vert and store electric energy that was gen-  
4           erated at an earlier time for use at a later time;  
5           or

6           (ii) stores energy in an electric, thermal, or  
7           gaseous state for direct use for heating or cool-  
8           ing at a later time in a manner that avoids the  
9           need to use electricity or other fuel sources at  
10          that later time, such as a grid-enabled water  
11          heater.

12          (2) PROGRAM.—The term “program” means  
13          the Energy Storage System Research, Development,  
14          and Deployment Program established under sub-  
15          section (b)(1).

16          (b) ENERGY STORAGE SYSTEM RESEARCH,  
17          DEVELOPMENT, AND DEPLOYMENT PROGRAM.—

18               (1) ESTABLISHMENT.—Not later than 180 days  
19               after the date of enactment of this Act, the Sec-  
20               retary shall establish a program, to be known as the  
21               “Energy Storage System Research, Development,  
22               and Deployment Program”.

23               (2) INITIAL PROGRAM OBJECTIVES.—The pro-  
24               gram shall focus on research, development, and de-  
25               ployment of—

1 (A) energy storage systems designed to  
2 further the development of technologies—

3 (i) for large-scale commercial deploy-  
4 ment;

5 (ii) for deployment at cost targets es-  
6 tablished by the Secretary;

7 (iii) for hourly and subhourly dura-  
8 tions required to provide reliability services  
9 to the grid;

10 (iv) for daily durations, which have—

11 (I) the capacity to discharge en-  
12 ergy for a minimum of 6 hours; and

13 (II) a system lifetime of at least  
14 20 years under regular operation;

15 (v) for weekly or monthly durations,  
16 which have—

17 (I) the capacity to discharge en-  
18 ergy for 10 to 100 hours, at a min-  
19 imum; and

20 (II) a system lifetime of at least  
21 20 years under regular operation; and

22 (vi) for seasonal durations, which  
23 have—

1 (I) the capability to address sea-  
2 sonal variations in supply and de-  
3 mand; and

4 (II) a system lifetime of at least  
5 20 years under regular operation;

6 (B) distributed energy storage technologies  
7 and applications, including building-grid inte-  
8 gration;

9 (C) transportation energy storage tech-  
10 nologies and applications, including vehicle-grid  
11 integration;

12 (D) cost-effective systems and methods  
13 for—

14 (i) the reclamation, recycling, and dis-  
15 posal of energy storage materials, includ-  
16 ing lithium, cobalt, nickel, and graphite;  
17 and

18 (ii) the reuse and repurposing of en-  
19 ergy storage system technologies;

20 (E) advanced control methods for energy  
21 storage systems;

22 (F) pumped hydroelectric energy storage  
23 systems to advance—

24 (i) adoption of innovative technologies,  
25 including—

- 1 (I) adjustable-speed, ternary, and  
2 other new pumping and generating  
3 equipment designs;
- 4 (II) modular systems;
- 5 (III) closed-loop systems, includ-  
6 ing mines and quarries; and
- 7 (IV) other critical equipment and  
8 materials for pumped hydroelectric  
9 energy storage, as determined by the  
10 Secretary; and
- 11 (ii) reductions of equipment costs,  
12 civil works costs, and construction times  
13 for pumped hydroelectric energy storage  
14 projects, with the goal of reducing those  
15 costs by 50 percent;
- 16 (G) models and tools to demonstrate the  
17 benefits of energy storage to—
- 18 (i) power and water supply systems;
- 19 (ii) electric generation portfolio opti-  
20 mization; and
- 21 (iii) expanded deployment of other re-  
22 newable energy technologies, including in  
23 hybrid energy storage systems; and
- 24 (H) energy storage use cases from indi-  
25 vidual and combination technology applications,

1 including value from various-use cases and en-  
2 ergy storage services.

3 (3) TESTING AND VALIDATION.—In coordina-  
4 tion with 1 or more National Laboratories, the Sec-  
5 retary shall accelerate the development, standardized  
6 testing, and validation of energy storage systems  
7 under the program by developing testing and evalua-  
8 tion methodologies for—

9 (A) storage technologies, controls, and  
10 power electronics for energy storage systems  
11 under a variety of operating conditions;

12 (B) standardized and grid performance  
13 testing for energy storage systems, materials,  
14 and technologies during each stage of develop-  
15 ment, beginning with the research stage and  
16 ending with the deployment stage;

17 (C) reliability, safety, and durability test-  
18 ing under standard and evolving duty cycles;  
19 and

20 (D) accelerated life testing protocols to  
21 predict estimated lifetime metrics with accu-  
22 racy.

23 (4) PERIODIC EVALUATION OF PROGRAM OB-  
24 JECTIVES.—Not less frequently than once every cal-  
25 endar year, the Secretary shall evaluate and, if nec-





1 (II)(aa) do not support the ac-  
2 tivities or projects described in sub-  
3 clause (I); but

4 (bb) are important to the devel-  
5 opment of energy storage systems and  
6 the mission of the Department, as de-  
7 termined by the Secretary;

8 (iv) include expected timelines for—

9 (I) the accomplishment of rel-  
10 evant objectives under current pro-  
11 grams of the Department relating to  
12 energy storage systems; and

13 (II) the commencement of any  
14 new initiatives within the Department  
15 relating to energy storage systems to  
16 accomplish those objectives; and

17 (v) incorporate relevant activities de-  
18 scribed in the Grid Modernization Initia-  
19 tive Multi-Year Program Plan.

20 (C) SUBMISSION TO CONGRESS.—Not later  
21 than 180 days after the date of enactment of  
22 this Act, the Secretary shall submit to the Com-  
23 mittee on Energy and Natural Resources of the  
24 Senate and the Committees on Energy and  
25 Commerce and Science, Space, and Technology

1 of the House of Representatives the strategic  
2 plan developed under subparagraph (A).

3 (D) UPDATES TO PLAN.—The Secretary—

4 (i) shall annually review the strategic  
5 plan developed under subparagraph (A);  
6 and

7 (ii) may periodically revise the stra-  
8 tegic plan as appropriate.

9 (6) LEVERAGING OF RESOURCES.—The pro-  
10 gram may be led by a specific office of the Depart-  
11 ment, but shall be cross-cutting in nature, so that in  
12 carrying out activities under the program, the Sec-  
13 retary (or a designee of the Secretary charged with  
14 leading the program) shall leverage existing Federal  
15 resources, including, at a minimum, the expertise  
16 and resources of—

17 (A) the Office of Electricity Delivery and  
18 Energy Reliability;

19 (B) the Office of Energy Efficiency and  
20 Renewable Energy, including the Water Power  
21 Technologies Office; and

22 (C) the Office of Science, including—

23 (i) the Basic Energy Sciences Pro-  
24 gram;

1 (ii) the Advanced Scientific Com-  
2 puting Research Program;

3 (iii) the Biological and Environmental  
4 Research Program; and

5 (D) the Electricity Storage Research Ini-  
6 tiative established under section 975 of the En-  
7 ergy Policy Act of 2005 (42 U.S.C. 16315).

8 (7) PROTECTING PRIVACY AND SECURITY.—In  
9 carrying out this subsection, the Secretary shall  
10 identify, incorporate, and follow best practices for  
11 protecting the privacy of individuals and businesses  
12 and the respective sensitive data of the individuals  
13 and businesses, including by managing privacy risk  
14 and implementing the Fair Information Practice  
15 Principles of the Federal Trade Commission for the  
16 collection, use, disclosure, and retention of individual  
17 electric consumer information in accordance with the  
18 Office of Management and Budget Circular A–130  
19 (or successor circulars).

20 (c) ENERGY STORAGE DEMONSTRATION PROJECTS;  
21 PILOT GRANT PROGRAM.—

22 (1) DEMONSTRATION PROJECTS.—Not later  
23 than September 30, 2023, the Secretary shall, to the  
24 maximum extent practicable, enter into agreements  
25 to carry out not fewer than 5 energy storage system

1 demonstration projects, including at least 1 energy  
2 storage system demonstration project designed to  
3 further the development of technologies described in  
4 clause (v) or (vi) of subsection (b)(2)(A).

5 (2) ENERGY STORAGE PILOT GRANT PRO-  
6 GRAM.—

7 (A) DEFINITION OF ELIGIBLE ENTITY.—In  
8 this paragraph, the term “eligible entity”  
9 means—

10 (i) a State energy office (as defined in  
11 section 124(a) of the Energy Policy Act of  
12 2005 (42 U.S.C. 15821(a)));

13 (ii) an Indian tribe (as defined in sec-  
14 tion 4 of the Native American Housing As-  
15 sistance and Self-Determination Act of  
16 1996 (25 U.S.C. 4103);

17 (iii) a tribal organization (as defined  
18 in section 3765 of title 38, United States  
19 Code);

20 (iv) an institution of higher education  
21 (as defined in section 101 of the Higher  
22 Education Act of 1965 (20 U.S.C. 1001));

23 (v) an electric utility, including—

24 (I) an electric cooperative;

1 (II) a political subdivision of a  
2 State, such as a municipally owned  
3 electric utility, or any agency, author-  
4 ity, corporation, or instrumentality of  
5 a State political subdivision; and

6 (III) an investor-owned utility;  
7 and

8 (vi) a private energy storage company.

9 (B) ESTABLISHMENT.—The Secretary  
10 shall establish a competitive grant program  
11 under which the Secretary shall award grants  
12 to eligible entities to carry out demonstration  
13 projects for pilot energy storage systems.

14 (C) SELECTION REQUIREMENTS.—In se-  
15 lecting eligible entities to receive a grant under  
16 subparagraph (B), the Secretary shall, to the  
17 maximum extent practicable—

18 (i) ensure regional diversity among el-  
19 igible entities awarded grants, including  
20 ensuring participation of eligible entities  
21 that are rural States and States with high  
22 energy costs;

23 (ii) ensure that grants are awarded  
24 for demonstration projects that—

1 (I) expand on the existing tech-  
2 nology demonstration programs of the  
3 Department;

4 (II) are designed to achieve 1 or  
5 more of the objectives described in  
6 subparagraph (D); and

7 (III) inject or withdraw energy  
8 from the bulk power system, electric  
9 distribution system, building energy  
10 system, or microgrid (grid-connected  
11 or islanded mode) where the project is  
12 located; and

13 (iii) give consideration to proposals  
14 from eligible entities for securing energy  
15 storage through competitive procurement  
16 or contract for service.

17 (D) OBJECTIVES.—Each demonstration  
18 project carried out by a grant awarded under  
19 subparagraph (B) shall have 1 or more of the  
20 following objectives:

21 (i) To improve the security of critical  
22 infrastructure and emergency response sys-  
23 tems.

24 (ii) To improve the reliability of trans-  
25 mission and distribution systems, particu-

1 larly in rural areas, including high-energy-  
2 cost rural areas.

3 (iii) To optimize transmission or dis-  
4 tribution system operation and power qual-  
5 ity to defer or avoid costs of replacing or  
6 upgrading electric grid infrastructure, in-  
7 cluding transformers and substations.

8 (iv) To supply energy at peak periods  
9 of demand on the electric grid or during  
10 periods of significant variation of electric  
11 grid supply.

12 (v) To reduce peak loads of homes  
13 and businesses.

14 (vi) To improve and advance power  
15 conversion systems.

16 (vii) To provide ancillary services for  
17 grid stability and management.

18 (viii) To integrate renewable energy  
19 resource production.

20 (ix) To increase the feasibility of  
21 microgrids (grid-connected or islanded  
22 mode).

23 (x) To enable the use of stored energy  
24 in forms other than electricity to support



1 the natural gas system and other industrial  
2 processes.

3 (xi) To integrate fast charging of elec-  
4 tric vehicles.

5 (xii) To improve energy efficiency.

6 (3) REPORTS.—Not less frequently than once  
7 every 2 years for the duration of the programs  
8 under paragraphs (1) and (2), the Secretary shall  
9 submit to Congress and make publicly available a re-  
10 port describing the performance of those programs.

11 (4) NO PROJECT OWNERSHIP INTEREST.—The  
12 Federal Government shall not hold any equity or  
13 other ownership interest in any energy storage sys-  
14 tem that is part of a project under this subsection  
15 unless the holding is agreed to by each participant  
16 of the project.

17 (d) LONG-DURATION DEMONSTRATION INITIATIVE  
18 AND JOINT PROGRAM.—

19 (1) DEFINITIONS.—In this subsection:

20 (A) DIRECTOR OF ARPA-E.—The term  
21 “Director of ARPA-E” has the meaning given  
22 the term in section 5012(a) of the America  
23 COMPETES Act (42 U.S.C. 16538(a)).

24 (B) DIRECTOR OF ESTCP.—The term “Di-  
25 rector of ESTCP” means the Secretary of De-

1           fense, acting through the Director of the Envi-  
2           ronmental Security Technology Certification  
3           Program of the Department of Defense.

4           (C) INITIATIVE.—The term “Initiative”  
5           means the demonstration initiative established  
6           under paragraph (2).

7           (D) JOINT PROGRAM.—The term “Joint  
8           Program” means the joint program established  
9           under paragraph (4).

10          (E) SECRETARY.—The term “Secretary”  
11          means the Secretary, acting through the Direc-  
12          tor of ARPA-E.

13          (2) ESTABLISHMENT OF INITIATIVE.—Not later  
14          than 180 days after the date of enactment of this  
15          Act, the Secretary shall establish a demonstration  
16          initiative composed of demonstration projects fo-  
17          cused on the development of long-duration energy  
18          storage technologies.

19          (3) SELECTION OF PROJECTS.—To the max-  
20          imum extent practicable, in selecting demonstration  
21          projects to participate in the Initiative, the Secretary  
22          shall—

23                  (A) ensure a range of technology types;

24                  (B) ensure regional diversity among  
25          projects; and

1 (C) consider bulk power level, distribution  
2 power level, behind-the-meter, microgrid (grid-  
3 connected or islanded mode), and off-grid appli-  
4 cations.

5 (4) JOINT PROGRAM.—

6 (A) ESTABLISHMENT.—As part of the Ini-  
7 tiative, the Secretary, in consultation with the  
8 Director of ESTCP, shall establish within the  
9 Department a joint program to carry out  
10 projects—

11 (i) to demonstrate promising long-du-  
12 ration energy storage technologies at dif-  
13 ferent scales; and

14 (ii) to help new, innovative long-dura-  
15 tion energy storage technologies become  
16 commercially viable.

17 (B) MEMORANDUM OF UNDERSTANDING.—

18 Not later than 200 days after the date of enact-  
19 ment of this Act, the Secretary shall enter into  
20 a memorandum of understanding with the Di-  
21 rector of ESTCP to administer the Joint Pro-  
22 gram.

23 (C) INFRASTRUCTURE.—In carrying out  
24 the Joint Program, the Secretary and the Di-  
25 rector of ESTCP shall—

1 (i) use existing test-bed infrastructure

2 at—

3 (I) Department facilities; and

4 (II) Department of Defense in-  
5 stallations; and

6 (ii) develop new infrastructure for  
7 identified projects, if appropriate.

8 (D) GOALS AND METRICS.—The Secretary  
9 and the Director of ESTCP shall develop goals  
10 and metrics for technological progress under  
11 the Joint Program consistent with energy resil-  
12 ience and energy security policies.

13 (E) SELECTION OF PROJECTS.—

14 (i) IN GENERAL.—To the maximum  
15 extent practicable, in selecting projects to  
16 participate in the Joint Program, the Sec-  
17 retary and the Director of ESTCP shall—

18 (I) ensure that projects are car-  
19 ried out under conditions that rep-  
20 resent a variety of environments with  
21 different physical conditions and mar-  
22 ket constraints; and

23 (II) ensure an appropriate bal-  
24 ance of—

1 (aa) larger, higher-cost  
2 projects; and

3 (bb) smaller, lower-cost  
4 projects.

5 (ii) PRIORITY.—In carrying out the  
6 Joint Program, the Secretary and the Di-  
7 rector of ESTCP shall give priority to  
8 demonstration projects that—

9 (I) make available to the public  
10 project information that will accel-  
11 erate deployment of long-duration en-  
12 ergy storage technologies; and

13 (II) will be carried out in the  
14 field.

15 (e) TECHNICAL AND PLANNING ASSISTANCE PRO-  
16 GRAM.—

17 (1) DEFINITIONS.—In this subsection:

18 (A) ELIGIBLE ENTITY.—The term “eligible  
19 entity” means—

20 (i) an electric cooperative;

21 (ii) a political subdivision of a State,  
22 such as a municipally owned electric util-  
23 ity, or any agency, authority, corporation,  
24 or instrumentality of a State political sub-  
25 division;

1 (iii) a not-for-profit entity that is in a  
2 partnership with not less than 6 entities  
3 described in clause (i) or (ii); and

4 (iv) an investor-owned utility.

5 (B) PROGRAM.—The term “program”  
6 means the technical and planning assistance  
7 program established under paragraph (2)(A).

8 (2) ESTABLISHMENT.—

9 (A) IN GENERAL.—The Secretary shall es-  
10 tablish a technical and planning assistance pro-  
11 gram to assist eligible entities in identifying,  
12 evaluating, planning, designing, and developing  
13 processes to procure energy storage systems.

14 (B) ASSISTANCE AND GRANTS.—Under the  
15 program, the Secretary shall—

16 (i) provide technical and planning as-  
17 sistance, including disseminating informa-  
18 tion, directly to eligible entities; and

19 (ii) award grants to eligible entities to  
20 contract to obtain technical and planning  
21 assistance from outside experts.

22 (C) FOCUS.—In carrying out the program,  
23 the Secretary shall focus on energy storage sys-  
24 tem projects that have the greatest potential  
25 for—

- 1 (i) strengthening the reliability and  
2 resiliency of energy infrastructure;
- 3 (ii) reducing the cost of energy stor-  
4 age systems;
- 5 (iii) improving the feasibility of  
6 microgrids (grid-connected or islanded  
7 mode), particularly in rural areas, includ-  
8 ing high energy cost rural areas;
- 9 (iv) reducing consumer electricity  
10 costs; or
- 11 (v) maximizing local job creation.

12 (3) TECHNICAL AND PLANNING ASSISTANCE.—

13 (A) IN GENERAL.—Technical and planning  
14 assistance provided under the program shall in-  
15 clude assistance with 1 or more of the following  
16 activities relating to energy storage systems:

- 17 (i) Identification of opportunities to  
18 use energy storage systems.
- 19 (ii) Feasibility studies to assess the  
20 potential for development of new energy  
21 storage systems or improvement of existing  
22 energy storage systems.
- 23 (iii) Assessment of technical and eco-  
24 nomic characteristics, including a cost-ben-  
25 efit analysis.

- 1 (iv) Utility interconnection.
- 2 (v) Permitting and siting issues.
- 3 (vi) Business planning and financial
- 4 analysis.
- 5 (vii) Engineering design.
- 6 (viii) Resource adequacy planning.
- 7 (ix) Resilience planning and valuation.

8 (B) EXCLUSION.—Technical and planning

9 assistance provided under the program shall not

10 be used to pay any person for influencing or at-

11 tempting to influence an officer or employee of

12 any Federal, State, or local agency, a Member

13 of Congress, an employee of a Member of Con-

14 gress, a State or local legislative body, or an

15 employee of a State or local legislative body.

16 (4) INFORMATION DISSEMINATION.—The infor-

17 mation disseminated under paragraph (2)(B)(i) shall

18 include—

19 (A) information relating to the topics de-

20 scribed in paragraph (3)(A), including case

21 studies of successful examples;

22 (B) computational tools or software for as-

23 sessment, design, and operation and mainte-

24 nance of energy storage systems;



1 (C) public databases that track existing  
2 and planned energy storage systems;

3 (D) best practices for the utility and grid  
4 operator business processes associated with the  
5 topics described in paragraph (3)(A); and

6 (E) relevant State policies or regulations  
7 associated with the topics described in para-  
8 graph (3)(A).

9 (5) APPLICATIONS.—

10 (A) IN GENERAL.—The Secretary shall  
11 seek applications for the program—

12 (i) on a competitive, merit-reviewed  
13 basis; and

14 (ii) on a periodic basis, but not less  
15 frequently than once every 12 months.

16 (B) APPLICATION.—An eligible entity de-  
17 siring to apply for the program shall submit to  
18 the Secretary an application at such time, in  
19 such manner, and containing such information  
20 as the Secretary may require, including whether  
21 the eligible entity is applying for—

22 (i) direct technical or planning assist-  
23 ance under paragraph (2)(B)(i); or

24 (ii) a grant under paragraph  
25 (2)(B)(ii).

1           (C) PRIORITIES.—In selecting eligi-  
2           ties for technical and planning assistance under  
3           the program, the Secretary shall give priority to  
4           eligible entities described in clauses (i) and (ii)  
5           of paragraph (1)(A).

6           (6) REPORTS.—The Secretary shall submit to  
7           Congress and make available to the public—

8           (A) not less frequently than once every 2  
9           years, a report describing the performance of  
10          the program, including a synthesis and analysis  
11          of any information the Secretary requires grant  
12          recipients to provide to the Secretary as a con-  
13          dition of receiving a grant; and

14          (B) on termination of the program, an as-  
15          sessment of the success of, and education pro-  
16          vided by, the measures carried out by eligible  
17          entities under the program.

18          (7) COST-SHARING.—Activities under this sub-  
19          section shall be subject to the cost-sharing require-  
20          ments under section 988 of the Energy Policy Act  
21          of 2005 (42 U.S.C. 16352).

22          (f) ENERGY STORAGE MATERIALS RECYCLING PRIZE  
23          COMPETITION.—Section 1008 of the Energy Policy Act of  
24          2005 (42 U.S.C. 16396) is amended by adding at the end  
25          the following:

1       “(g) ENERGY STORAGE MATERIALS RECYCLING  
2 PRIZE COMPETITION.—

3               “(1) DEFINITION OF CRITICAL ENERGY STOR-  
4 AGE MATERIALS.—In this subsection, the term ‘crit-  
5 ical energy storage materials’ includes—

6               “(A) lithium;

7               “(B) cobalt;

8               “(C) nickel;

9               “(D) graphite; and

10              “(E) any other material determined by the  
11 Secretary to be critical to the continued grow-  
12 ing supply of energy storage resources.

13              “(2) PRIZE AUTHORITY.—

14              “(A) IN GENERAL.—As part of the pro-  
15 gram established under subsection (a), the Sec-  
16 retary shall establish an award program, to be  
17 known as the ‘Energy Storage Materials Recy-  
18 cling Prize Competition’ (referred to in this  
19 subsection as the ‘program’), under which the  
20 Secretary shall carry out prize competitions and  
21 make awards to advance the recycling of critical  
22 energy storage materials.

23              “(B) FREQUENCY.—To the maximum ex-  
24 tent practicable, the Secretary shall carry out a

1 competition under the program not less fre-  
2 quently than once every calendar year.

3 “(3) ELIGIBILITY.—

4 “(A) IN GENERAL.—To be eligible to win  
5 a prize under the program, an individual or en-  
6 tity—

7 “(i) shall have complied with the re-  
8 quirements of the competition as described  
9 in the announcement for that competition  
10 published in the Federal Register by the  
11 Secretary under paragraph (6);

12 “(ii) in the case of a private entity,  
13 shall be incorporated in the United States  
14 and maintain a primary place of business  
15 in the United States;

16 “(iii) in the case of an individual,  
17 whether participating singly or in a group,  
18 shall be a citizen of, or an alien lawfully  
19 admitted for permanent residence in, the  
20 United States.

21 “(B) EXCLUSIONS.—The following entities  
22 and individuals shall not be eligible to win a  
23 prize under the program:

24 “(i) A Federal entity.

1                   “(ii) A Federal employee (including  
2                   an employee of a National Laboratory)  
3                   acting within the scope of employment.

4                   “(4) AWARDS.—In carrying out the program,  
5                   the Secretary shall award cash prizes, in amounts to  
6                   be determined by the Secretary, to each individual or  
7                   entity selected through a competitive process to de-  
8                   velop advanced methods or technologies to recycle  
9                   critical energy storage materials from energy storage  
10                  systems.

11                  “(5) CRITERIA.—

12                   “(A) IN GENERAL.—The Secretary shall  
13                   establish objective, merit-based criteria for  
14                   awarding the prizes in each competition carried  
15                   out under the program.

16                   “(B) REQUIREMENTS.—The criteria estab-  
17                   lished under subparagraph (A) shall prioritize  
18                   advancements in methods or technologies that  
19                   present the greatest potential for large-scale  
20                   commercial deployment.

21                   “(C) CONSULTATION.—In establishing cri-  
22                   teria under subparagraph (A), the Secretary  
23                   shall consult with appropriate members of pri-  
24                   vate industry involved in the commercial deploy-  
25                   ment of energy storage systems.

1           “(6) ADVERTISING AND SOLICITATION OF COM-  
2           PETITORS.—

3           “(A) IN GENERAL.—The Secretary shall  
4           announce each prize competition under the pro-  
5           gram by publishing a notice in the Federal Reg-  
6           ister.

7           “(B) REQUIREMENTS.—Each notice pub-  
8           lished under subparagraph (A) shall describe  
9           the essential elements of the competition, such  
10          as—

11                   “(i) the subject of the competition;

12                   “(ii) the duration of the competition;

13                   “(iii) the eligibility requirements for  
14           participation in the competition;

15                   “(iv) the process for participants to  
16           register for the competition;

17                   “(v) the amount of the prize; and

18                   “(vi) the criteria for awarding the  
19           prize.

20          “(7) JUDGES.—

21           “(A) IN GENERAL.—For each prize com-  
22           petition under the program, the Secretary shall  
23           assemble a panel of qualified judges to select  
24           the winner or winners of the competition on the

1 basis of the criteria established under para-  
2 graph (5).

3 “(B) SELECTION.—The judges for each  
4 competition shall include appropriate members  
5 of private industry involved in the commercial  
6 deployment of energy storage systems.

7 “(C) CONFLICTS.—An individual may not  
8 serve as a judge in a prize competition under  
9 the program if the individual, the spouse of the  
10 individual, any child of the individual, or any  
11 other member of the household of the indi-  
12 vidual—

13 “(i) has a personal or financial inter-  
14 est in, or is an employee, officer, director,  
15 or agent of, any entity that is a registered  
16 participant in the prize competition for  
17 which the individual will serve as a judge;  
18 or

19 “(ii) has a familial or financial rela-  
20 tionship with a registered participant in  
21 the prize competition for which the indi-  
22 vidual will serve as a judge.

23 “(8) REPORT TO CONGRESS.—Not later than  
24 60 days after the date on which the first prize is  
25 awarded under the program, and annually there-

1 after, the Secretary shall submit to Congress a re-  
2 port that—

3 “(A) identifies each award recipient;

4 “(B) describes the advanced methods or  
5 technologies developed by each award recipient;  
6 and

7 “(C) specifies actions being taken by the  
8 Department toward commercial application of  
9 all methods or technologies with respect to  
10 which a prize has been awarded under the pro-  
11 gram.

12 “(9) ANTI-DEFICIENCY ACT.—The Secretary  
13 shall carry out the program in accordance with sec-  
14 tion 1341 of title 31, United States Code (commonly  
15 referred to as the ‘Anti-Deficiency Act’).

16 “(10) AUTHORIZATION OF APPROPRIATIONS.—  
17 There is authorized to be appropriated to carry out  
18 this subsection \$10,000,000 for each of fiscal years  
19 2020 through 2024, to remain available until ex-  
20 pended.”.

21 (g) REGULATORY ACTIONS TO ENCOURAGE ENERGY  
22 STORAGE DEPLOYMENT.—

23 (1) DEFINITIONS.—In this subsection:



1           (A) COMMISSION.—The term “Commis-  
2           sion” means the Federal Energy Regulatory  
3           Commission.

4           (B) ELECTRIC STORAGE RESOURCE.—The  
5           term “electric storage resource” means a re-  
6           source capable of receiving electric energy from  
7           the grid and storing that electric energy for  
8           later injection back into the grid.

9           (2) REGULATORY ACTION.—

10          (A) IN GENERAL.—Not later than 1 year  
11          after the date of enactment of this Act, the  
12          Commission shall issue a regulation to identify  
13          the eligibility of, and process for, electric stor-  
14          age resources—

15               (i) to receive cost recovery through  
16               Commission-regulated rates for the trans-  
17               mission of electric energy in interstate  
18               commerce; and

19               (ii) that receive cost recovery under  
20               clause (i) to receive compensation for other  
21               services (such as the sale of energy, capac-  
22               ity, or ancillary services) without regard to  
23               whether those services are provided concur-  
24               rently with the transmission service de-  
25               scribed in clause (i).

1                   (B) PROHIBITION OF DUPLICATE RECOV-  
2                   ERY.—Any regulation issued under subpara-  
3                   graph (A) shall preclude the receipt of unjust  
4                   and unreasonable double recovery for electric  
5                   storage resources providing services described in  
6                   clauses (i) and (ii) of that subparagraph.

7                   (3) ELECTRIC STORAGE RESOURCES TECHNICAL  
8                   CONFERENCE.—

9                   (A) IN GENERAL.—Not later than 180  
10                  days after the date of enactment of this Act,  
11                  the Commission shall convene a technical con-  
12                  ference on the potential for electric storage re-  
13                  sources to improve the operation of electric sys-  
14                  tems.

15                  (B) REQUIREMENTS.—The technical con-  
16                  ference under subparagraph (A) shall—

17                         (i) identify opportunities for further  
18                         consideration of electric storage resources  
19                         in regional and interregional transmission  
20                         planning processes within the jurisdiction  
21                         of the Commission;

22                         (ii) identify all energy, capacity, and  
23                         ancillary service products, market designs,  
24                         or rules that—

1 (I) are within the jurisdiction of  
2 the Commission; and

3 (II) enable and compensate for  
4 the use of electric storage resources  
5 that improve the operation of electric  
6 systems;

7 (iii) examine additional products, mar-  
8 ket designs, or rules that would enable and  
9 compensate for the use of electric storage  
10 resources for improving the operation of  
11 electric systems; and

12 (iv) examine the functional value of  
13 electric storage resources at the trans-  
14 mission and distribution system interface  
15 for purposes of providing electric system  
16 reliability.

17 (h) COORDINATION.—To the maximum extent prac-  
18 ticable, the Secretary shall coordinate the activities under  
19 this section (including activities conducted pursuant to the  
20 amendments made by this section) among the offices and  
21 employees of the Department, other Federal agencies, and  
22 other relevant entities—

23 (1) to ensure appropriate collaboration; and

24 (2) to avoid unnecessary duplication of those  
25 activities.

1 (i) AUTHORIZATION OF APPROPRIATIONS.—There  
2 are authorized to be appropriated—

3 (1) to carry out subsection (b), \$100,000,000  
4 for each of fiscal years 2021 through 2025, to re-  
5 main available until expended;

6 (2) to carry out subsection (c), \$100,000,000  
7 for each of fiscal years 2021 through 2025, to re-  
8 main available until expended;

9 (3) to carry out subsection (d), \$50,000,000 for  
10 each of fiscal years 2021 through 2025, to remain  
11 available until expended; and

12 (4) to carry out subsection (e), \$20,000,000 for  
13 each of fiscal years 2021 through 2025, to remain  
14 available until expended.

15 **SEC. 1302. BUREAU OF RECLAMATION PUMPED STORAGE**

16 **HYDROPOWER DEVELOPMENT.**

17 (a) AUTHORITY FOR PUMPED STORAGE HYDRO-  
18 POWER DEVELOPMENT USING MULTIPLE BUREAU OF  
19 RECLAMATION RESERVOIRS.—Section 9(c) of the Rec-  
20 lamation Project Act of 1939 (43 U.S.C. 485h(e)) is  
21 amended—

22 (1) in paragraph (1), in the fourth sentence, by  
23 striking “, including small conduit hydropower devel-  
24 opment” and inserting “and reserve to the Secretary  
25 the exclusive authority to develop small conduit hy-

1 dropower using Bureau of Reclamation facilities and  
2 pumped storage hydropower exclusively using Bu-  
3 reau of Reclamation reservoirs”; and

4 (2) in paragraph (8), by striking “has been  
5 filed with the Federal Energy Regulatory Commis-  
6 sion as of the date of the enactment of the Bureau  
7 of Reclamation Small Conduit Hydropower Develop-  
8 ment and Rural Jobs Act” and inserting “was filed  
9 with the Federal Energy Regulatory Commission be-  
10 fore August 9, 2013, and is still pending”.

11 (b) LIMITATIONS ON ISSUANCE OF CERTAIN LEASES  
12 OF POWER PRIVILEGE.—

13 (1) DEFINITIONS.—In this subsection:

14 (A) COMMISSION.—The term “Commis-  
15 sion” means the Federal Energy Regulatory  
16 Commission.

17 (B) DIRECTOR.—The term “Director”  
18 means the Director of the Office of Hearings  
19 and Appeals.

20 (C) OFFICE OF HEARINGS AND AP-  
21 PEALS.—The term “Office of Hearings and Ap-  
22 peals” means the Office of Hearings and Ap-  
23 peals of the Department of the Interior.

24 (D) PARTY.—The term “party”, with re-  
25 spect to a study plan agreement, means each of

1 the following parties to the study plan agree-  
2 ment:

3 (i) The proposed lessee.

4 (ii) The Tribes.

5 (E) PROJECT.—The term “project” means  
6 a proposed pumped storage facility that—

7 (i) would use multiple Bureau of Rec-  
8 lamation reservoirs; and

9 (ii) as of June 1, 2017, was subject to  
10 a preliminary permit issued by the Com-  
11 mission pursuant to section 4(f) of the  
12 Federal Power Act (16 U.S.C. 797(f)).

13 (F) PROPOSED LESSEE.—The term “pro-  
14 posed lessee” means the proposed lessee of a  
15 project.

16 (G) SECRETARY.—The term “Secretary”  
17 means the Secretary of the Interior.

18 (H) STUDY PLAN.—The term “study plan”  
19 means the plan described in paragraph (4)(A).

20 (I) STUDY PLAN AGREEMENT.—The term  
21 “study plan agreement” means an agreement  
22 entered into under paragraph (2)(A) and de-  
23 scribed in paragraph (3).

24 (J) TRIBES.—The term “Tribes” means—

- 1 (i) the Confederated Tribes of the  
2 Colville Reservation; and  
3 (ii) the Spokane Tribe of Indians of  
4 the Spokane Reservation.

5 (2) REQUIREMENT FOR ISSUANCE OF LEASES  
6 OF POWER PRIVILEGE.—The Secretary shall not  
7 issue a lease of power privilege pursuant to section  
8 9(c)(1) of the Reclamation Project Act of 1939 (43  
9 U.S.C. 485h(c)(1)) (as amended by subsection (a))  
10 for a project unless—

11 (A) the proposed lessee and the Tribes  
12 have entered into a study plan agreement; or

13 (B) the Secretary or the Director, as appli-  
14 cable, makes a final determination for—

15 (i) a study plan agreement under  
16 paragraph (3)(B); or

17 (ii) a study plan under paragraph (4).

18 (3) STUDY PLAN AGREEMENT REQUIRE-  
19 MENTS.—

20 (A) IN GENERAL.—A study plan agree-  
21 ment shall—

22 (i) establish the deadlines for the pro-  
23 posed lessee to formally respond in writing  
24 to comments and study requests about the

1 project previously submitted to the Com-  
2 mission;

3 (ii) allow for the parties to submit ad-  
4 ditional comments and study requests if  
5 any aspect of the project, as proposed, dif-  
6 fers from an aspect of the project, as de-  
7 scribed in a preapplication document pro-  
8 vided to the Commission;

9 (iii) except as expressly agreed to by  
10 the parties or as provided in subparagraph  
11 (B) or paragraph (4), require that the pro-  
12 posed lessee conduct each study described  
13 in—

14 (I) a study request about the  
15 project previously submitted to the  
16 Commission; or

17 (II) any additional study request  
18 submitted in accordance with the  
19 study plan agreement;

20 (iv) require that the proposed lessee  
21 study any potential adverse economic ef-  
22 fects of the project on the Tribes, including  
23 effects on—

24 (I) annual payments to the Con-  
25 federated Tribes of the Colville Res-



1           ervation under section 5(b) of the  
2           Confederated Tribes of the Colville  
3           Reservation Grand Coulee Dam Set-  
4           tlement Act (Public Law 103–436;  
5           108 Stat. 4579); and

6                   (II) annual payments to the Spo-  
7           kane Tribe of Indians of the Spokane  
8           Reservation authorized after the date  
9           of enactment of this Act, the amount  
10          of which derives from the annual pay-  
11          ments described in subclause (I);

12                   (v) establish a protocol for commu-  
13          nication and consultation between the par-  
14          ties;

15                   (vi) provide mechanisms for resolving  
16          disputes between the parties regarding im-  
17          plementation and enforcement of the study  
18          plan agreement; and

19                   (vii) contain other provisions deter-  
20          mined to be appropriate by the parties.

21          (B) DISPUTES.—

22                   (i) IN GENERAL.—If the parties can-  
23          not agree to the terms of a study plan  
24          agreement or implementation of those  
25          terms, the parties shall submit to the Di-

1 rector, for final determination on the terms  
2 or implementation of the study plan agree-  
3 ment, notice of the dispute, consistent with  
4 subparagraph (A)(vi), to the extent the  
5 parties have agreed to a study plan agree-  
6 ment.

7 (ii) INCLUSION.—A dispute covered by  
8 clause (i) may include the view of a pro-  
9 posed lessee that an additional study re-  
10 quest submitted in accordance with sub-  
11 paragraph (A)(ii) is not reasonably cal-  
12 culated to assist the Secretary in evalu-  
13 ating the potential impacts of the project.

14 (iii) TIMING.—The Director shall  
15 issue a determination regarding a dispute  
16 under clause (i) not later than 120 days  
17 after the date on which the Director re-  
18 ceives notice of the dispute under that  
19 clause.

20 (4) STUDY PLAN.—

21 (A) IN GENERAL.—The proposed lessee  
22 shall submit to the Secretary for approval a  
23 study plan that details the proposed method-  
24 ology for performing each of the studies—

1 (i) identified in the study plan agree-  
2 ment of the proposed lessee; or

3 (ii) determined by the Director in a  
4 final determination regarding a dispute  
5 under paragraph (3)(B).

6 (B) INITIAL DETERMINATION.—Not later  
7 than 60 days after the date on which the Sec-  
8 retary receives the study plan under subpara-  
9 graph (A), the Secretary shall make an initial  
10 determination that—

11 (i) approves the study plan;

12 (ii) rejects the study plan on the  
13 grounds that the study plan—

14 (I) lacks sufficient detail on a  
15 proposed methodology for a study  
16 identified in the study plan agree-  
17 ment; or

18 (II) is inconsistent with the study  
19 plan agreement; or

20 (iii) imposes additional study plan re-  
21 quirements that the Secretary determines  
22 are necessary to adequately define the po-  
23 tential effects of the project on—

24 (I) the exercise of the paramount  
25 hunting, fishing, and boating rights of

1 the Tribes reserved pursuant to the  
2 Act of June 29, 1940 (54 Stat. 703,  
3 chapter 460; 16 U.S.C. 835d et seq.);

4 (II) the annual payments de-  
5 scribed in subclauses (I) and (II) of  
6 paragraph (3)(A)(iv);

7 (III) the Columbia Basin project  
8 (as defined in section 1 of the Act of  
9 May 27, 1937 (50 Stat. 208, chapter  
10 269; 57 Stat. 14, chapter 14; 16  
11 U.S.C. 835));

12 (IV) historic properties and cul-  
13 tural or spiritually significant re-  
14 sources; and

15 (V) the environment.

16 (C) OBJECTIONS.—

17 (i) IN GENERAL.—Not later than 30  
18 days after the date on which the Secretary  
19 makes an initial determination under sub-  
20 paragraph (B), the Tribes or the proposed  
21 lessee may submit to the Director an ob-  
22 jection to the initial determination.

23 (ii) FINAL DETERMINATION.—Not  
24 later than 120 days after the date on



1 the Tribes reserved pursuant to the  
2 Act of June 29, 1940 (54 Stat. 703,  
3 chapter 460; 16 U.S.C. 835d et seq.);  
4 and

5 (II) to adequately and equitably  
6 protect, mitigate damages to, and en-  
7 hance fish and wildlife, including re-  
8 lated spawning grounds and habitat,  
9 affected by the development, oper-  
10 ation, and management of the project.

11 (ii) RECOMMENDATIONS OF THE  
12 TRIBES.—The conditions required under  
13 clause (i) shall be based on joint rec-  
14 ommendations of the Tribes.

15 (iii) RESOLVING INCONSISTENCIES.—

16 (I) IN GENERAL.—If the Sec-  
17 retary determines that any rec-  
18 ommendation of the Tribes under  
19 clause (ii) is not reasonably calculated  
20 to ensure the project is consistent  
21 with clause (i) or is inconsistent with  
22 the requirements of the Reclamation  
23 Project Act of 1939 (43 U.S.C. 485 et  
24 seq.), the Secretary shall attempt to  
25 resolve any such inconsistency with

1 the Tribes, giving due weight to the  
2 recommendations and expertise of the  
3 Tribes.

4 (II) PUBLICATION OF FIND-  
5 INGS.—If, after an attempt to resolve  
6 an inconsistency under subclause (I),  
7 the Secretary does not adopt in whole  
8 or in part a recommendation of the  
9 Tribes under clause (ii), the Secretary  
10 shall issue each of the following find-  
11 ings, including a statement of the  
12 basis for each of the findings:

13 (aa) A finding that adoption  
14 of the recommendation is incon-  
15 sistent with the requirements of  
16 the Reclamation Project Act of  
17 1939 (43 U.S.C. 485 et seq.).

18 (bb) A finding that the con-  
19 ditions selected by the Secretary  
20 to be contained in the lease of  
21 power privilege under clause (i)  
22 comply with the requirements of  
23 subclauses (I) and (II) of that  
24 clause.

1 (B) ANNUAL CHARGES PAYABLE BY LI-  
2 CENSEE.—

3 (i) IN GENERAL.—Subject to clause  
4 (ii), any lease of power privilege issued by  
5 the Secretary for a project under para-  
6 graph (2) shall contain conditions that re-  
7 quire the lessee of the project to make di-  
8 rect payments to the Tribes through rea-  
9 sonable annual charges in an amount that  
10 recompenses the Tribes for any adverse  
11 economic effect of the project identified in  
12 a study performed pursuant to the study  
13 plan agreement for the project.

14 (ii) AGREEMENT.—

15 (I) IN GENERAL.—The amount  
16 of the annual charges described in  
17 clause (i) shall be established through  
18 agreement between the proposed les-  
19 see and the Tribes.

20 (II) CONDITION.—The agreement  
21 under subclause (I), including any  
22 modification of the agreement, shall  
23 be deemed to be a condition to the  
24 lease of power privilege issued by the



1 Secretary for a project under para-  
2 graph (2).

3 (iii) DISPUTE RESOLUTION.—

4 (I) IN GENERAL.—If the pro-  
5 posed lessee and the Tribes cannot  
6 agree to the terms of an agreement  
7 under clause (ii)(I), the proposed les-  
8 see and the Tribes shall submit notice  
9 of the dispute to the Director.

10 (II) RESOLUTION.—The Director  
11 shall resolve the dispute described in  
12 subclause (I) not later than 180 days  
13 after the date on which the Director  
14 receives notice of the dispute under  
15 that subclause.

16 (C) ADDITIONAL CONDITIONS.—The Sec-  
17 retary may include in any lease of power privi-  
18 lege issued by the Secretary for a project under  
19 paragraph (2) other conditions determined ap-  
20 propriate by the Secretary, on the condition  
21 that the conditions shall be consistent with the  
22 Reclamation Project Act of 1939 (43 U.S.C.  
23 485 et seq.).

1 (D) CONSULTATION.—In establishing con-  
2 ditions under this paragraph, the Secretary  
3 shall consult with the Tribes.

4 (6) DEADLINES.—The Secretary or any officer  
5 of the Office of Hearing and Appeals before whom  
6 a proceeding is pending under this subsection may  
7 extend any deadline or enlarge any timeframe de-  
8 scribed in this subsection—

9 (A) at the discretion of the Secretary or  
10 the officer; or

11 (B) on a showing of good cause by any  
12 party.

13 (7) JUDICIAL REVIEW.—Any final action of the  
14 Secretary or the Director made pursuant to this sub-  
15 section shall be subject to judicial review in accord-  
16 ance with chapter 7 of title 5, United States Code.

17 (8) EFFECT ON OTHER PROJECTS.—Nothing in  
18 this subsection establishes any precedent or is bind-  
19 ing on any Bureau of Reclamation lease of power  
20 privilege, other than for a project.

21 **Subtitle D—Carbon Capture,**  
22 **Utilization, and Storage**

23 **SEC. 1401. FOSSIL ENERGY.**

24 Section 961(a) of the Energy Policy Act of 2005 (42  
25 U.S.C. 16291(a)) is amended—

1           (1) in paragraph (6), by inserting “, including  
2           technology development to reduce emissions of car-  
3           bon dioxide and associated emissions of heavy metals  
4           within coal combustion residues and gas streams re-  
5           sulting from fossil fuel use and production” before  
6           the period at the end; and

7           (2) by striking paragraph (7) and inserting the  
8           following:

9           “(7) Increasing the export of fossil energy-re-  
10          lated equipment, technology, including emissions  
11          control technologies, and services from the United  
12          States.

13          “(8) Developing carbon removal and utilization  
14          technologies, products, and methods that result in  
15          net reductions in greenhouse gas emissions, includ-  
16          ing direct air capture and storage, and carbon use  
17          and reuse for commercial application.

18          “(9) Improving the conversion, use, and storage  
19          of carbon dioxide produced from fossil fuels.”.

20 **SEC. 1402. ESTABLISHMENT OF COAL AND NATURAL GAS**  
21 **TECHNOLOGY PROGRAM.**

22          (a) IN GENERAL.—The Energy Policy Act of 2005  
23 is amended by striking section 962 (42 U.S.C. 16292) and  
24 inserting the following:

1 **“SEC. 962. COAL AND NATURAL GAS TECHNOLOGY PRO-**  
2 **GRAM.**

3 “(a) DEFINITIONS.—In this section:

4 “(1) LARGE-SCALE PILOT PROJECT.—The term  
5 ‘large-scale pilot project’ means a pilot project  
6 that—

7 “(A) represents the scale of technology de-  
8 velopment beyond laboratory development and  
9 bench scale testing, but not yet advanced to the  
10 point of being tested under real operational con-  
11 ditions at commercial scale;

12 “(B) represents the scale of technology  
13 necessary to gain the operational data needed  
14 to understand the technical and performance  
15 risks of the technology before the application of  
16 that technology at commercial scale or in com-  
17 mercial-scale demonstration; and

18 “(C) is large enough—

19 “(i) to validate scaling factors; and

20 “(ii) to demonstrate the interaction  
21 between major components so that control  
22 philosophies for a new process can be de-  
23 veloped and enable the technology to ad-  
24 vance from large-scale pilot plant applica-  
25 tion to commercial-scale demonstration or  
26 application.

1           “(2) NATURAL GAS.—The term ‘natural gas’  
2 means any fuel consisting in whole or in part of—

3           “(A) natural gas;

4           “(B) liquid petroleum gas;

5           “(C) synthetic gas derived from petroleum  
6 or natural gas liquids;

7           “(D) any mixture of natural gas and syn-  
8 thetic gas; or

9           “(E) biomethane.

10          “(3) NATURAL GAS ELECTRIC GENERATION FA-  
11 CILITY.—

12           “(A) IN GENERAL.—The term ‘natural gas  
13 electric generation facility’ means a facility that  
14 generates electric energy using natural gas as  
15 the fuel.

16           “(B) INCLUSIONS.—The term ‘natural gas  
17 electric generation facility’ includes a new or ex-  
18 isting—

19           “(i) simple cycle plant;

20           “(ii) combined cycle plant;

21           “(iii) combined heat and power plant;

22           or

23           “(iv) steam methane reformer that  
24 produces hydrogen from natural gas for  
25 use in the production of electric energy.

1           “(4) PROGRAM.—The term ‘program’ means  
2 the program established under subsection (b)(1).

3           “(5) TRANSFORMATIONAL TECHNOLOGY.—

4           “(A) IN GENERAL.—The term ‘trans-  
5 formational technology’ means a power genera-  
6 tion technology that represents a significant  
7 change in the methods used to convert energy  
8 that will enable a step change in performance,  
9 efficiency, and cost of electricity as compared to  
10 the technology in existence on the date of enact-  
11 ment of the American Energy Innovation Act of  
12 2020.

13           “(B) INCLUSIONS.—The term ‘trans-  
14 formational technology’ includes a broad range  
15 of technology improvements, including—

16           “(i) thermodynamic improvements in  
17 energy conversion and heat transfer, in-  
18 cluding—

19           “(I) advanced combustion sys-  
20 tems, including oxygen combustion  
21 systems and chemical looping; and

22           “(II) the replacement of steam  
23 cycles with supercritical carbon diox-  
24 ide cycles;

1                   “(ii) improvements in steam or carbon  
2                   dioxide turbine technology;

3                   “(iii) improvements in carbon capture,  
4                   utilization, and storage systems technology;

5                   “(iv) improvements in small-scale and  
6                   modular coal-fired technologies with re-  
7                   duced carbon output or carbon capture  
8                   that can support incremental power gen-  
9                   eration capacity additions;

10                  “(v) fuel cell technologies for low-cost,  
11                  high-efficiency modular power systems;

12                  “(vi) advanced gasification systems;

13                  “(vii) thermal cycling technologies;

14                  and

15                  “(viii) any other technology the Sec-  
16                  retary recognizes as transformational tech-  
17                  nology.

18                  “(b) COAL AND NATURAL GAS TECHNOLOGY PRO-

19                  GRAM.—

20                  “(1) IN GENERAL.—The Secretary shall estab-  
21                  lish a coal and natural gas technology program to  
22                  ensure the continued use of the abundant domestic  
23                  coal and natural gas resources of the United States  
24                  through the development of transformational tech-  
25                  nologies that will significantly improve the efficiency,

1 effectiveness, costs, and environmental performance  
2 of coal and natural gas use.

3 “(2) REQUIREMENTS.—The program shall in-  
4 clude—

5 “(A) a research and development program;

6 “(B) large-scale pilot projects;

7 “(C) demonstration projects, in accordance  
8 with paragraph (4); and

9 “(D) a front-end engineering and design  
10 program.

11 “(3) PROGRAM GOALS AND OBJECTIVES.—In  
12 consultation with the interested entities described in  
13 paragraph (6)(C), the Secretary shall develop goals  
14 and objectives for the program to be applied to the  
15 transformational technologies developed within the  
16 program, taking into consideration the following:

17 “(A) Increasing the performance of coal  
18 and natural gas electric generation facilities, in-  
19 cluding by—

20 “(i) ensuring reliable, low-cost power  
21 from new and existing coal and natural gas  
22 electric generation facilities;

23 “(ii) achieving high conversion effi-  
24 ciencies;



1                   “(iii) addressing emissions of carbon  
2                   dioxide through high-efficiency platforms;

3                   “(iv) developing small-scale and mod-  
4                   ular technologies to support incremental  
5                   capacity additions and load following gen-  
6                   eration, in addition to large-scale genera-  
7                   tion technologies;

8                   “(v) supporting dispatchable oper-  
9                   ations for new and existing applications of  
10                  coal and natural gas generation; and

11                  “(vi) accelerating the development of  
12                  technologies that have transformational en-  
13                  ergy conversion characteristics.

14                  “(B) Using carbon capture, utilization, and  
15                  sequestration technologies to decrease the car-  
16                  bon dioxide emissions, and the environmental  
17                  impact from carbon dioxide emissions, from new  
18                  and existing coal and natural gas electric gen-  
19                  eration facilities, including by—

20                  “(i) accelerating the development, de-  
21                  ployment, and commercialization of tech-  
22                  nologies to capture and sequester carbon  
23                  dioxide emissions from new and existing  
24                  coal and natural gas electric generation fa-  
25                  cilities;

1                   “(ii) supporting sites for safe geologi-  
2 cal storage of large volumes of anthropo-  
3 genic sources of carbon dioxide and the de-  
4 velopment of the infrastructure needed to  
5 support a carbon dioxide utilization and  
6 storage industry;

7                   “(iii) improving the conversion, utili-  
8 zation, and storage of carbon dioxide pro-  
9 duced from fossil fuels and other anthropo-  
10 genic sources of carbon dioxide;

11                   “(iv) lowering greenhouse gas emis-  
12 sions for all fossil fuel production, genera-  
13 tion, delivery, and use, to the maximum ex-  
14 tent practicable;

15                   “(v) developing carbon utilization  
16 technologies, products, and methods, in-  
17 cluding carbon use and reuse for commer-  
18 cial application;

19                   “(vi) developing net-negative carbon  
20 dioxide emissions technologies; and

21                   “(vii) developing technologies for the  
22 capture of carbon dioxide produced during  
23 the production of hydrogen from natural  
24 gas.

1           “(C) Decreasing the non-carbon dioxide  
2 relevant environmental impacts of coal and nat-  
3 ural gas production, including by—

4                   “(i) further reducing non-carbon diox-  
5 ide air emissions; and

6                   “(ii) reducing the use, and managing  
7 the discharge, of water in power plant op-  
8 erations.

9           “(D) Accelerating the development of tech-  
10 nologies to capture carbon dioxide emissions  
11 from industrial facilities, including—

12                   “(i) nontraditional fuel manufacturing  
13 facilities, including ethanol or other biofuel  
14 production plants or hydrogen production  
15 plants; and

16                   “(ii) energy-intensive manufacturing  
17 facilities that produce carbon dioxide as a  
18 byproduct of operations.

19           “(E) Examining methods of converting  
20 coal and natural gas to other valuable products  
21 and commodities in addition to electricity, in-  
22 cluding hydrogen.

23           “(F) Entering into cooperative agreements  
24 to carry out and expedite demonstration  
25 projects (including pilot projects) to dem-

1           onstrate the technical and commercial viability  
2           of technologies to reduce carbon dioxide emis-  
3           sions released from coal and natural gas electric  
4           generation facilities for commercial deployment;  
5           and

6           “(G) Identifying any barriers to the com-  
7           mercial deployment of any technologies under  
8           development for the capture of carbon dioxide  
9           produced by coal and natural gas electric gen-  
10          eration facilities.

11          “(4) DEMONSTRATION PROJECTS.—

12           “(A) IN GENERAL.—In carrying out the  
13           program, the Secretary shall establish a dem-  
14           onstration program under which the Secretary  
15           shall enter into agreements by not later than  
16           September 30, 2025, for demonstration projects  
17           to demonstrate the construction and operation  
18           of not fewer than 5 facilities to capture carbon  
19           dioxide from coal and natural gas electric gen-  
20           eration facilities.

21           “(B) REQUIREMENT.—Of the demonstra-  
22           tion projects carried out under subparagraph  
23           (A)—

1                   “(i) not fewer than 2 shall be de-  
2                   signed to capture carbon dioxide from a  
3                   natural gas electric generation facility; and

4                   “(ii) not fewer than 2 shall be de-  
5                   signed to capture carbon dioxide from a  
6                   coal electric generation facility.

7                   “(C) GOALS.—Each demonstration project  
8                   under the demonstration program shall be de-  
9                   signed to further the development, deployment,  
10                  and commercialization of technologies to cap-  
11                  ture and sequester carbon dioxide emissions  
12                  from new and existing coal and natural gas  
13                  electric generation facilities.

14                  “(D) APPLICATIONS.—

15                  “(i) IN GENERAL.—To be eligible to  
16                  enter into an agreement with the Secretary  
17                  for a demonstration project under subpara-  
18                  graph (A), an entity shall submit to the  
19                  Secretary an application at such time, in  
20                  such manner, and containing such infor-  
21                  mation as the Secretary may require.

22                  “(ii) REVIEW OF APPLICATIONS.—In  
23                  reviewing applications submitted under  
24                  clause (i), the Secretary, to the maximum  
25                  extent practicable, shall—

1                   “(I) ensure a broad geographic  
2                   distribution of project sites;

3                   “(II) ensure that a broad selec-  
4                   tion of electric generation facilities are  
5                   represented;

6                   “(III) ensure that a broad selec-  
7                   tion of technologies are represented;  
8                   and

9                   “(IV) leverage existing public-pri-  
10                  vate partnerships and Federal re-  
11                  sources.

12                  “(5) INTRAAGENCY COORDINATION FOR CAR-  
13                  BON CAPTURE, UTILIZATION, AND SEQUESTRATION  
14                  ACTIVITIES.—The carbon capture, utilization, and  
15                  sequestration activities described in paragraph  
16                  (3)(B) shall be carried out by the Assistant Sec-  
17                  retary for Fossil Energy, in coordination with the  
18                  heads of other relevant offices of the Department  
19                  and the National Laboratories.

20                  “(6) CONSULTATIONS REQUIRED.—In carrying  
21                  out the program, the Secretary shall—

22                         “(A) undertake international collabora-  
23                         tions, taking into consideration the rec-  
24                         ommendations of the National Coal Council and  
25                         the National Petroleum Council;

1           “(B) use existing authorities to encourage  
2 international cooperation; and

3           “(C) consult with interested entities, in-  
4 cluding—

5                 “(i) coal and natural gas producers;

6                 “(ii) industries that use coal and nat-  
7 ural gas;

8                 “(iii) organizations that promote coal,  
9 advanced coal, and natural gas tech-  
10 nologies;

11                 “(iv) environmental organizations;

12                 “(v) organizations representing work-  
13 ers; and

14                 “(vi) organizations representing con-  
15 sumers.

16           “(c) REPORT.—

17                 “(1) IN GENERAL.—Not later than 18 months  
18 after the date of enactment of the American Energy  
19 Innovation Act of 2020, the Secretary shall submit  
20 to Congress a report describing the program goals  
21 and objectives adopted under subsection (b)(3).

22                 “(2) UPDATE.—Not less frequently than once  
23 every 2 years after the initial report is submitted  
24 under paragraph (1), the Secretary shall submit to  
25 Congress a report describing the progress made to-

1       wards achieving the program goals and objectives  
2       adopted under subsection (b)(3).

3       “(d) FUNDING.—

4             “(1) AUTHORIZATION OF APPROPRIATIONS.—

5       There are authorized to be appropriated to the Sec-  
6       retary to carry out this section, to remain available  
7       until expended—

8             “(A) for activities under the research and  
9       development program component described in  
10       subsection (b)(2)(A)—

11             “(i) \$230,000,000 for each of fiscal  
12       years 2021 and 2022; and

13             “(ii) \$150,000,000 for each of fiscal  
14       years 2023 through 2025;

15             “(B) subject to paragraph (2), for activi-  
16       ties under the large-scale pilot projects program  
17       component described in subsection (b)(2)(B)—

18             “(i) \$347,000,000 for each of fiscal  
19       years 2021 and 2022;

20             “(ii) \$272,000,000 for each of fiscal  
21       years 2023 and 2024; and

22             “(iii) \$250,000,000 for fiscal year  
23       2025;



1           “(C) for activities under the demonstration  
2 projects program component described in sub-  
3 section (b)(2)(C)—

4                   “(i) \$100,000,000 for each of fiscal  
5 years 2021 and 2022; and

6                   “(ii) \$500,000,000 for each of fiscal  
7 years 2023 through 2025; and

8           “(D) for activities under the front-end en-  
9 gineering and design program described in sub-  
10 section (b)(2)(D), \$50,000,000 for each of fis-  
11 cal years 2021 through 2024.

12           “(2) COST SHARING FOR LARGE-SCALE PILOT  
13 PROJECTS.—Activities under subsection (b)(2)(B)  
14 shall be subject to the cost-sharing requirements of  
15 section 988(b).”.

16           (b) TECHNICAL AMENDMENT.—The table of contents  
17 for the Energy Policy Act of 2005 (Public Law 109–58;  
18 119 Stat. 600) is amended by striking the item relating  
19 to section 962 and inserting the following:

“Sec. 962. Coal and natural gas technology program.”.

20 **SEC. 1403. CARBON STORAGE VALIDATION AND TESTING.**

21           (a) IN GENERAL.—Section 963 of the Energy Policy  
22 Act of 2005 (42 U.S.C. 16293) is amended—

23                   (1) by striking subsection (d) and inserting the  
24 following:

1       “(g) AUTHORIZATION OF APPROPRIATIONS.—There  
2 are authorized to be appropriated to the Secretary to carry  
3 out this section—

4           “(1) \$105,000,000 for fiscal year 2021;

5           “(2) \$110,250,000 for fiscal year 2022;

6           “(3) \$115,763,000 for fiscal year 2023;

7           “(4) \$121,551,000 for fiscal year 2024; and

8           “(5) \$127,628,000 for fiscal year 2025.”;

9       (2) in subsection (c)—

10           (A) by striking paragraphs (5) and (6) and  
11 inserting the following:

12       “(f) COST SHARING.—Activities carried out under  
13 this section shall be subject to the cost-sharing require-  
14 ments of section 988.”; and

15           (B) by redesignating paragraph (4) as sub-  
16 section (e) and indenting appropriately;

17       (3) in subsection (e) (as so redesignated)—

18           (A) by redesignating subparagraphs (A)  
19 and (B) as paragraphs (1) and (2), respectively,  
20 and indenting appropriately; and

21           (B) by striking “subsection” each place it  
22 appears and inserting “section”; and

23       (4) by striking the section designation and  
24 heading and all that follows through the end of sub-  
25 section (c)(3) and inserting the following:

1 **“SEC. 963. CARBON STORAGE VALIDATION AND TESTING.**

2 “(a) DEFINITIONS.—In this section:

3 “(1) LARGE-SCALE CARBON SEQUESTRATION.—

4 The term ‘large-scale carbon sequestration’ means a  
5 scale that—

6 “(A) demonstrates the ability to inject into  
7 geologic formations and sequester carbon diox-  
8 ide; and

9 “(B) has a goal of sequestering not less  
10 than 50 million metric tons of carbon dioxide  
11 over a 10-year period.

12 “(2) PROGRAM.—The term ‘program’ means  
13 the program established under subsection (b)(1).

14 “(b) CARBON STORAGE PROGRAM.—

15 “(1) IN GENERAL.—The Secretary shall estab-  
16 lish a program of research, development, and dem-  
17 onstration for carbon storage.

18 “(2) PROGRAM ACTIVITIES.—Activities under  
19 the program shall include—

20 “(A) in coordination with relevant Federal  
21 agencies, developing and maintaining mapping  
22 tools and resources that assess the capacity of  
23 geologic storage formation in the United States;

24 “(B) developing monitoring tools, modeling  
25 of geologic formations, and analyses—

1                   “(i) to predict carbon dioxide contain-  
2                   ment; and

3                   “(ii) to account for sequestered car-  
4                   bon dioxide in geologic storage sites;

5                   “(C) researching—

6                   “(i) potential environmental, safety,  
7                   and health impacts in the event of a leak  
8                   into the atmosphere or to an aquifer; and

9                   “(ii) any corresponding mitigation ac-  
10                  tions or responses to limit harmful con-  
11                  sequences of such a leak;

12                  “(D) evaluating the interactions of carbon  
13                  dioxide with formation solids and fluids, includ-  
14                  ing the propensity of injections to induce seis-  
15                  mic activity;

16                  “(E) assessing and ensuring the safety of  
17                  operations relating to geologic sequestration of  
18                  carbon dioxide;

19                  “(F) determining the fate of carbon diox-  
20                  ide concurrent with and following injection into  
21                  geologic formations; and

22                  “(G) supporting cost and business model  
23                  assessments to examine the economic viability  
24                  of technologies and systems developed under the  
25                  program.

1           “(3) GEOLOGIC SETTINGS.—In carrying out re-  
2           search activities under this subsection, the Secretary  
3           shall consider a variety of candidate onshore and off-  
4           shore geologic settings, including—

5                   “(A) operating oil and gas fields;

6                   “(B) depleted oil and gas fields;

7                   “(C) residual oil zones;

8                   “(D) unconventional reservoirs and rock  
9           types;

10                  “(E) unmineable coal seams;

11                  “(F) saline formations in both sedimentary  
12           and basaltic geologies;

13                  “(G) geologic systems that may be used as  
14           engineered reservoirs to extract economical  
15           quantities of brine from geothermal resources of  
16           low permeability or porosity; and

17                  “(H) geologic systems containing in situ  
18           carbon dioxide mineralization formations.

19           “(c) LARGE-SCALE CARBON SEQUESTRATION DEM-  
20   ONSTRATION PROGRAM.—

21                  “(1) IN GENERAL.—The Secretary shall estab-  
22           lish a demonstration program under which the Sec-  
23           retary shall provide funding for demonstration  
24           projects to collect and validate information on the

1 cost and feasibility of commercial deployment of  
2 large-scale carbon sequestration technologies.

3 “(2) EXISTING REGIONAL CARBON SEQUESTRA-  
4 TION PARTNERSHIPS.—In carrying out paragraph  
5 (1), the Secretary may provide additional funding to  
6 regional carbon sequestration partnerships that are  
7 carrying out or have completed a large-scale carbon  
8 sequestration demonstration project under this sec-  
9 tion (as in effect on the day before the date of enact-  
10 ment of the American Energy Innovation Act of  
11 2020) for additional work on that project.

12 “(3) DEMONSTRATION COMPONENTS.—Each  
13 demonstration project carried out under this sub-  
14 section shall include longitudinal tests involving car-  
15 bon dioxide injection and monitoring, mitigation,  
16 and verification operations.

17 “(4) CLEARINGHOUSE.—The National Energy  
18 Technology Laboratory shall act as a clearinghouse  
19 of shared information and resources for—

20 “(A) existing or completed demonstration  
21 projects receiving additional funding under  
22 paragraph (2); and

23 “(B) any new demonstration projects fund-  
24 ed under this subsection.

1           “(5) REPORT.—Not later than 1 year after the  
2           date of enactment of the American Energy Innova-  
3           tion Act of 2020, the Secretary shall submit to the  
4           Committee on Energy and Natural Resources of the  
5           Senate and the Committee on Science, Space, and  
6           Technology of the House of Representatives a report  
7           that—

8                   “(A) assesses the progress of all regional  
9                   carbon sequestration partnerships carrying out  
10                  a demonstration project under this subsection;

11                  “(B) identifies the remaining challenges in  
12                  achieving large-scale carbon sequestration that  
13                  is reliable and safe for the environment and  
14                  public health; and

15                  “(C) creates a roadmap for carbon storage  
16                  research and development activities of the De-  
17                  partment through 2025, with the goal of reduc-  
18                  ing economic and policy barriers to commercial  
19                  carbon sequestration.

20           “(d) INTEGRATED STORAGE.—

21                  “(1) IN GENERAL.—The Secretary may transi-  
22                  tion large-scale carbon sequestration demonstration  
23                  projects under subsection (c) into integrated com-  
24                  mercial storage complexes.

1           “(2) GOALS AND OBJECTIVES.—The goals and  
2 objectives of the Secretary in seeking to transition  
3 large-scale carbon sequestration demonstration  
4 projects into integrated commercial storage com-  
5 plexes under paragraph (1) shall be—

6           “(A) to identify geologic storage sites that  
7 are able to accept large volumes of carbon diox-  
8 ide acceptable for commercial contracts;

9           “(B) to understand the technical and com-  
10 mercial viability of carbon dioxide geologic stor-  
11 age sites; and

12           “(C) to carry out any other activities nec-  
13 essary to transition the large-scale carbon se-  
14 questration demonstration projects under sub-  
15 section (c) into integrated commercial storage  
16 complexes.”.

17           (b) TECHNICAL AMENDMENT.—The table of contents  
18 for the Energy Policy Act of 2005 (Public Law 109–58;  
19 119 Stat. 600; 121 Stat. 1708) is amended by striking  
20 the item relating to section 963 and inserting the fol-  
21 lowing:

“Sec. 963. Carbon storage validation and testing.”.

22           (c) CONFORMING AMENDMENTS.—

23           (1) Section 703(a)(3) of the Department of En-  
24 ergy Carbon Capture and Sequestration Research,  
25 Development, and Demonstration Act of 2007 (42



1 U.S.C. 17251(a)(3)) is amended, in the first sen-  
2 tence of the matter preceding subparagraph (A), by  
3 striking “section 963(c)(3)” and inserting “section  
4 963(c)”.

5 (2) Section 704 of the Department of Energy  
6 Carbon Capture and Sequestration Research, Devel-  
7 opment, and Demonstration Act of 2007 (42 U.S.C.  
8 17252) is amended, in the first sentence, by striking  
9 “section 963(c)(3)” and inserting “section 963(c)”.

10 **SEC. 1404. CARBON UTILIZATION PROGRAM.**

11 (a) CARBON UTILIZATION PROGRAM.—

12 (1) IN GENERAL.—Subtitle F of title IX of the  
13 Energy Policy Act of 2005 (42 U.S.C. 16291 et  
14 seq.) is amended by adding at the end the following:

15 **“SEC. 969. CARBON UTILIZATION PROGRAM.**

16 “(a) IN GENERAL.—The Secretary shall establish a  
17 program of research, development, and demonstration for  
18 carbon utilization—

19 “(1) to assess and monitor—

20 “(A) potential changes in lifecycle carbon  
21 dioxide and other greenhouse gas emissions;  
22 and

23 “(B) other environmental safety indicators  
24 of new technologies, practices, processes, or  
25 methods used in enhanced hydrocarbon recovery

1 as part of the activities authorized under sec-  
2 tion 963;

3 “(2) to identify and assess novel uses for car-  
4 bon, including the conversion of carbon and carbon  
5 oxides for commercial and industrial products and  
6 other products with potential market value;

7 “(3) to identify and assess carbon capture tech-  
8 nologies for industrial systems; and

9 “(4) to identify and assess alternative uses for  
10 raw coal and processed coal products in all phases,  
11 including products derived from carbon engineering,  
12 carbon fiber, and coal conversion methods.

13 “(b) DEMONSTRATION PROGRAMS FOR THE PUR-  
14 POSE OF COMMERCIALIZATION.—

15 “(1) IN GENERAL.—Not later than 180 days  
16 after the date of enactment of this section, the Sec-  
17 retary shall establish a 2-year demonstration pro-  
18 gram in each of the 2 major coal-producing regions  
19 of the United States for the purpose of partnering  
20 with private institutions in coal mining regions to  
21 accelerate the commercial deployment of coal-carbon  
22 products.

23 “(2) COST SHARING.—Activities under para-  
24 graph (1) shall be subject to the cost-sharing re-  
25 quirements of section 988.

1       “(c) AUTHORIZATION OF APPROPRIATIONS.—There  
2 are authorized to be appropriated to the Secretary to carry  
3 out this section—

4             “(1) \$29,000,000 for fiscal year 2021;

5             “(2) \$30,250,000 for fiscal year 2022;

6             “(3) \$31,562,500 for fiscal year 2023;

7             “(4) \$32,940,625 for fiscal year 2024; and

8             “(5) \$34,387,656 for fiscal year 2025.”.

9       (2) TECHNICAL AMENDMENT.—The table of  
10 contents for the Energy Policy Act of 2005 (Public  
11 Law 109–58; 119 Stat. 600) is amended by adding  
12 at the end of the items relating to subtitle F of title  
13 IX the following:

“Sec. 969. Carbon utilization program.”.

14       (b) STUDY.—

15             (1) IN GENERAL.—The Secretary shall enter  
16 into an agreement with the National Academies of  
17 Sciences, Engineering, and Medicine under which  
18 the National Academies of Sciences, Engineering,  
19 and Medicine shall conduct a study to assess any  
20 barriers and opportunities relating to commer-  
21 cializing carbon, coal-derived carbon, and carbon di-  
22 oxide in the United States.

23             (2) REQUIREMENTS.—The study under para-  
24 graph (1) shall—

- 1 (A) analyze challenges to commercializing  
2 carbon dioxide, including—
- 3 (i) expanding carbon dioxide pipeline  
4 capacity;
  - 5 (ii) mitigating environmental impacts;
  - 6 (iii) access to capital;
  - 7 (iv) geographic barriers; and
  - 8 (v) regional economic challenges and  
9 opportunities;
- 10 (B) identify potential markets, industries,  
11 or sectors that may benefit from greater access  
12 to commercial carbon dioxide;
- 13 (C) determine the feasibility of, and oppor-  
14 tunities for, the commercialization of coal-de-  
15 rived carbon products, including for—
- 16 (i) commercial purposes;
  - 17 (ii) industrial purposes;
  - 18 (iii) defense and military purposes;
  - 19 (iv) agricultural purposes, including  
20 soil amendments and fertilizers;
  - 21 (v) medical and pharmaceutical appli-  
22 cations;
  - 23 (vi) construction and building applica-  
24 tions;
  - 25 (vii) energy applications; and

1 (viii) production of critical minerals;

2 (D) assess—

3 (i) the state of infrastructure as of  
4 the date of the study; and

5 (ii) any necessary updates to infra-  
6 structure to allow for the integration of  
7 safe and reliable carbon dioxide transpor-  
8 tation, use, and storage;

9 (E) describe the economic, climate, and en-  
10 vironmental impacts of any well-integrated na-  
11 tional carbon dioxide pipeline system, including  
12 suggestions for policies that could—

13 (i) improve the economic impact of  
14 the system; and

15 (ii) mitigate impacts of the system;

16 (F) assess the global status and progress  
17 of chemical and biological carbon utilization  
18 technologies in practice as of the date of the  
19 study that utilize anthropogenic carbon, includ-  
20 ing carbon dioxide, carbon monoxide, methane,  
21 and biogas, from power generation, biofuels  
22 production, and other industrial processes;

23 (G) identify emerging technologies and ap-  
24 proaches for carbon utilization that show prom-

1           ise for scale-up, demonstration, deployment,  
2           and commercialization;

3           (H) analyze the factors associated with  
4           making carbon utilization technologies viable at  
5           a commercial scale, including carbon waste  
6           stream availability, economics, market capacity,  
7           energy, and lifecycle requirements;

8           (I)(i) assess the major technical challenges  
9           associated with increasing the commercial via-  
10          bility of carbon reuse technologies; and

11          (ii) identify the research and development  
12          questions that will address the challenges de-  
13          scribed in clause (i);

14          (J)(i) assess research efforts being carried  
15          out as of the date of the study, including basic,  
16          applied, engineering, and computational re-  
17          search efforts, that are addressing the chal-  
18          lenges described in subparagraph (I)(i); and

19          (ii) identify gaps in the research efforts  
20          under clause (i);

21          (K) develop a comprehensive research  
22          agenda that addresses long- and short-term re-  
23          search needs and opportunities; and

1           (L)(i) identify appropriate Federal agen-  
2           cies with capabilities to support small business  
3           entities; and

4           (ii) determine what assistance the Federal  
5           agencies identified under clause (i) could pro-  
6           vide to small business entities to further the de-  
7           velopment and commercial deployment of car-  
8           bon dioxide-based products.

9           (3) DEADLINE.—Not later than 180 days after  
10          the date of enactment of this Act, the National  
11          Academies of Sciences, Engineering, and Medicine  
12          shall submit to the Secretary a report describing the  
13          results of the study under paragraph (1).

14   **SEC. 1405. CARBON REMOVAL.**

15          (a) IN GENERAL.—Subtitle F of title IX of the En-  
16          ergy Policy Act of 2005 (42 U.S.C. 16291 et seq.) (as  
17          amended by section 1404(a)(1)) is amended by adding at  
18          the end the following:

19    **“SEC. 969A. CARBON REMOVAL.**

20          “(a) ESTABLISHMENT.—The Secretary, in coordina-  
21          tion with the heads of appropriate Federal agencies, in-  
22          cluding the Secretary of Agriculture, shall establish a re-  
23          search, development, and demonstration program (re-  
24          ferred to in this section as the ‘program’) to test, validate,

1 or improve technologies and strategies to remove carbon  
2 dioxide from the atmosphere on a large scale.

3 “(b) INTRAAGENCY COORDINATION.—The Secretary  
4 shall ensure that the program includes the coordinated  
5 participation of the Office of Fossil Energy, the Office of  
6 Science, and the Office of Energy Efficiency and Renew-  
7 able Energy.

8 “(c) PROGRAM ACTIVITIES.—The program may in-  
9 clude research, development, and demonstration activities  
10 relating to—

11 “(1) direct air capture and storage technologies;

12 “(2) bioenergy with carbon capture and seques-  
13 tration;

14 “(3) enhanced geological weathering;

15 “(4) agricultural practices;

16 “(5) forest management and afforestation; and

17 “(6) planned or managed carbon sinks, includ-  
18 ing natural and artificial.

19 “(d) REQUIREMENTS.—In developing and identifying  
20 carbon removal technologies and strategies under the pro-  
21 gram, the Secretary shall consider—

22 “(1) land use changes, including impacts on  
23 natural and managed ecosystems;

24 “(2) ocean acidification;

25 “(3) net greenhouse gas emissions;



1 “(4) commercial viability;

2 “(5) potential for near-term impact;

3 “(6) potential for carbon reductions on a  
4 gigaton scale; and

5 “(7) economic cobenefits.

6 “(e) AIR CAPTURE TECHNOLOGY PRIZE COMPETI-  
7 TION.—

8 “(1) DEFINITIONS.—In this subsection:

9 “(A) DILUTE MEDIA.—The term ‘dilute  
10 media’ means media in which the concentration  
11 of carbon dioxide is less than 1 percent by vol-  
12 ume.

13 “(B) PRIZE COMPETITION.—The term  
14 ‘prize competition’ means the competitive tech-  
15 nology prize competition established under  
16 paragraph (2).

17 “(2) ESTABLISHMENT.—Not later than 2 years  
18 after the date of enactment of this section, the Sec-  
19 retary, in consultation with the Administrator of the  
20 Environmental Protection Agency, shall establish as  
21 part of the program a competitive technology prize  
22 competition to award prizes for carbon dioxide cap-  
23 ture from dilute media.

24 “(3) REQUIREMENTS.—In carrying out this  
25 subsection, the Secretary, in accordance with section

1       24 of the Stevenson-Wydler Technology Innovation  
2       Act of 1980 (15 U.S.C. 3719), shall develop require-  
3       ments for—

4               “(A) the prize competition process; and

5               “(B) monitoring and verification proce-  
6       dures for projects selected to receive a prize  
7       under the prize competition.

8       “(4) ELIGIBLE PROJECTS.—To be eligible to be  
9       awarded a prize under the prize competition, a  
10      project shall—

11              “(A) meet minimum performance stand-  
12      ards set by the Secretary;

13              “(B) meet minimum levels set by the Sec-  
14      retary for the capture of carbon dioxide from  
15      dilute media; and

16              “(C) demonstrate in the application of the  
17      project for a prize—

18                      “(i) a design for a promising carbon  
19      capture technology that will—

20                              “(I) be operated on a demonstra-  
21      tion scale; and

22                              “(II) have the potential to  
23      achieve significant reduction in the  
24      level of carbon dioxide in the atmos-  
25      phere;

1                   “(ii) a successful bench-scale dem-  
2                   onstration of a carbon capture technology;

3                   or

4                   “(iii) an operational carbon capture  
5                   technology on a commercial scale.

6           “(f) DIRECT AIR CAPTURE TEST CENTER.—

7                   “(1) IN GENERAL.—Not later than 2 years  
8                   after the date of enactment of this section, the Sec-  
9                   retary shall award grants to 1 or more entities for  
10                  the operation of 1 or more test centers (referred to  
11                  in this subsection as a ‘Center’) to provide unique  
12                  testing capabilities for innovative direct air capture  
13                  and storage technologies.

14                  “(2) PURPOSE.—Each Center shall—

15                          “(A) advance research, development, dem-  
16                          onstration, and commercial application of direct  
17                          air capture and storage technologies;

18                          “(B) support large-scale pilot and dem-  
19                          onstration projects and test direct air capture  
20                          and storage technologies;

21                          “(C) develop front-end engineering design  
22                          and economic analysis; and

23                          “(D) maintain a public record of pilot and  
24                          full-scale plant performance.

25                  “(3) SELECTION.—

1           “(A) IN GENERAL.—The Secretary shall  
2 select entities to receive grants under this sub-  
3 section according to such criteria as the Sec-  
4 retary may develop.

5           “(B) COMPETITIVE BASIS.—The Secretary  
6 shall select entities to receive grants under this  
7 subsection on a competitive basis.

8           “(C) PRIORITY CRITERIA.—In selecting en-  
9 tities to receive grants under this subsection,  
10 the Secretary shall prioritize applicants that—

11           “(i) have access to existing or planned  
12 research facilities for direct air capture  
13 and storage technologies;

14           “(ii) are institutions of higher edu-  
15 cation with established expertise in engi-  
16 neering for direct air capture and storage  
17 technologies, or partnerships with such in-  
18 stitutions of higher education; or

19           “(iii) have access to existing research  
20 and test facilities for bulk materials design  
21 and testing, component design and testing,  
22 or professional engineering design.

23           “(4) FORMULA FOR AWARDING GRANTS.—The  
24 Secretary may develop a formula for awarding  
25 grants under this subsection.

1 “(5) SCHEDULE.—

2 “(A) IN GENERAL.—Each grant awarded  
3 under this subsection shall be for a term of not  
4 more than 5 years, subject to the availability of  
5 appropriations.

6 “(B) RENEWAL.—The Secretary may  
7 renew a grant for 1 or more additional 5-year  
8 terms, subject to a competitive merit review and  
9 the availability of appropriations.

10 “(6) TERMINATION.—To the extent otherwise  
11 authorized by law, the Secretary may eliminate, and  
12 terminate grant funding under this subsection for, a  
13 Center during any 5-year term described in para-  
14 graph (5) if the Secretary determines that the Cen-  
15 ter is underperforming.

16 “(g) PILOT AND DEMONSTRATION PROJECTS.—In  
17 supporting the technology development activities under  
18 this section, the Secretary is encouraged to support carbon  
19 removal pilot and demonstration projects, including—

20 “(1) pilot projects that test direct air capture  
21 systems capable of capturing 10 to 100 tonnes of  
22 carbon oxides per year to provide data for dem-  
23 onstration-scale projects; and

1           “(2) direct air capture demonstration projects  
2           capable of capturing greater than 1,000 tonnes of  
3           carbon oxides per year.

4           “(h) INTRAAGENCY COORDINATION.—The direct air  
5           capture activities carried out under subsections (c)(1) and  
6           (e) shall be carried out in coordination with, and  
7           leveraging lessons learned from, the coal and natural gas  
8           technology program established under section 962(b)(1).

9           “(i) ACCOUNTING.—The Secretary shall collaborate  
10          with the Administrator of the Environmental Protection  
11          Agency and the heads of other relevant Federal agencies  
12          to develop and improve accounting frameworks and tools  
13          to accurately measure carbon removal and sequestration  
14          methods and technologies across the Federal Government.

15          “(j) AUTHORIZATION OF APPROPRIATIONS.—There  
16          are authorized to be appropriated to the Secretary to carry  
17          out this section—

18                 “(1) \$75,000,000 for fiscal year 2021, of which  
19                 \$15,000,000 shall be used to carry out subsection  
20                 (e);

21                 “(2) \$63,500,000 for fiscal year 2022;

22                 “(3) \$66,150,000 for fiscal year 2023;

23                 “(4) \$69,458,000 for fiscal year 2024; and

24                 “(5) \$72,930,000 for fiscal year 2025.”.

1 (b) TECHNICAL AMENDMENT.—The table of contents  
2 for the Energy Policy Act of 2005 (Public Law 109–58;  
3 119 Stat. 600) (as amended by section 1404(a)(2)) is  
4 amended by adding at the end of the items relating to  
5 subtitle F of title IX the following:

“Sec. 969A. Carbon removal.”.

6 **Subtitle E—Nuclear**

7 **SEC. 1501. LIGHT WATER REACTOR SUSTAINABILITY PRO-**  
8 **GRAM.**

9 Section 952 of the Energy Policy Act of 2005 (42  
10 U.S.C. 16272) is amended by striking subsection (b) and  
11 inserting the following:

12 “(b) LIGHT WATER REACTOR SUSTAINABILITY PRO-  
13 GRAM.—The Secretary shall carry out a light water reac-  
14 tor sustainability program—

15 “(1) to ensure the achievement of maximum  
16 benefits from existing nuclear generation;

17 “(2) to accommodate the increase in applica-  
18 tions for nuclear power plant license renewals ex-  
19 pected as of the date of enactment of this sub-  
20 section;

21 “(3) to enable the continued operation of exist-  
22 ing nuclear power plants through technology devel-  
23 opment;

1           “(4) to improve the performance and reduce the  
2           operation and maintenance costs of nuclear power  
3           plants;

4           “(5) to promote the use of high-performance  
5           computing to simulate nuclear reactor processes;

6           “(6) to coordinate with other research and de-  
7           velopment programs of the Office of Nuclear Energy  
8           to ensure that developed technologies and capabili-  
9           ties are part of an integrated investment strategy,  
10          the overall focus of which is improving the safety,  
11          security, reliability, and economics of operating nu-  
12          clear power plants; and

13          “(7) to focus on—

14               “(A) new capabilities relating to nuclear  
15               energy research and development;

16               “(B) enabling technologies beyond indi-  
17               vidual programs;

18               “(C) coordinating capabilities among the  
19               research and development programs of the Of-  
20               fice of Nuclear Energy;

21               “(D) examining new classes of materials  
22               not considered for nuclear applications;

23               “(E) high-risk research, which could poten-  
24               tially overcome technological limitations; and



1           “(F) the potential for industry partner-  
2           ships to develop technologies relating to stor-  
3           age, hydrogen production, high-temperature  
4           process heat, and other relevant areas.”.

5 **SEC. 1502. NUCLEAR ENERGY RESEARCH, DEVELOPMENT,**  
6 **AND DEMONSTRATION.**

7           Section 952 of the Energy Policy Act of 2005 (42  
8 U.S.C. 16272) is amended by adding at the end the fol-  
9           lowing:

10          “(e) **ADVANCED REACTOR TECHNOLOGIES DEVEL-**  
11 **OPMENT PROGRAM.—**

12           “(1) **IN GENERAL.—**The Secretary shall carry  
13           out a program under which the Secretary shall con-  
14           duct research relating to the development of innova-  
15           tive nuclear reactor technologies that may offer im-  
16           proved safety, functionality, and affordability.

17           “(2) **REQUIREMENTS.—**The program under this  
18           subsection shall—

19           “(A) support efforts to reduce long-term  
20           technical barriers for advanced nuclear energy  
21           systems; and

22           “(B) be carried out in consultation with  
23           the Nuclear Regulatory Commission to ensure  
24           identification of any relevant concerns.”.

1 **SEC. 1503. ADVANCED FUELS DEVELOPMENT.**

2 Section 953 of the Energy Policy Act of 2005 (42  
3 U.S.C. 16273) is amended—

4 (1) by redesignating subsections (a) through (d)  
5 as paragraphs (1), (3), (4), and (5), respectively,  
6 and indenting appropriately;

7 (2) in paragraph (1) (as so redesignated)—

8 (A) by striking “this section” and inserting  
9 “this subsection”;

10 (B) by striking “minimize environmental”  
11 and inserting “improve fuel cycle performance  
12 while minimizing the cost and complexity of  
13 processing, environmental impacts,”; and

14 (C) by striking “the Generation IV”;

15 (3) by inserting after paragraph (1) (as so re-  
16 designated) the following:

17 “(2) CONSIDERATIONS.—In carrying out activi-  
18 ties under the program, the Secretary shall consider  
19 the potential benefits of those activities for civilian  
20 nuclear applications, environmental remediation, and  
21 national security.”;

22 (4) by inserting after paragraph (5) (as so re-  
23 designated) the following:

24 “(6) AUTHORIZATION OF APPROPRIATIONS.—  
25 There is authorized to be appropriated to the Sec-

1       retary to carry out the program \$40,000,000 for  
2       each of fiscal years 2021 through 2025.”;

3               (5) by inserting before paragraph (1) (as so re-  
4       designated) the following:

5       “(a) MATERIAL RECOVERY AND WASTE FORM DE-  
6       VELOPMENT.—”; and

7               (6) by adding at the end the following:

8       “(b) ADVANCED FUELS.—

9               “(1) IN GENERAL.—The Secretary shall carry  
10       out a program to conduct research relating to—

11               “(A) next-generation light water reactor  
12       fuels that demonstrate improved—

13               “(i) performance; and

14               “(ii) accident tolerance; and

15               “(B) advanced reactor fuels that dem-  
16       onstrate improved—

17               “(i) proliferation resistance; and

18               “(ii) use of resources.

19               “(2) REQUIREMENTS.—In carrying out the pro-  
20       gram under this subsection, the Secretary shall—

21               “(A) focus on the development of accident-  
22       tolerant fuel and cladding concepts that are ca-  
23       pable of achieving initial commercialization by  
24       December 31, 2025;

1           “(B) conduct studies regarding the means  
2           by which those concepts would impact reactor  
3           economics, the fuel cycle, operations, safety,  
4           and the environment;

5           “(C) subject to paragraph (3), publish the  
6           results of the studies conducted under subpara-  
7           graph (B); and

8           “(D) cooperate with institutions of higher  
9           education through the Nuclear Energy Univer-  
10          sity and Integrated Research Projects programs  
11          of the Department.

12          “(3) SENSITIVE INFORMATION.—The Secretary  
13          shall not publish any information under paragraph  
14          (2)(C) that is detrimental to national security, as de-  
15          termined by the Secretary.

16          “(4) AUTHORIZATION OF APPROPRIATIONS.—  
17          There is authorized to be appropriated to the Sec-  
18          retary to carry out the program under this sub-  
19          section \$120,000,000 for each of fiscal years 2021  
20          through 2025.”.

21 **SEC. 1504. NUCLEAR SCIENCE AND ENGINEERING SUP-**  
22 **PORT.**

23          (a) IN GENERAL.—Section 954 of the Energy Policy  
24          Act of 2005 (42 U.S.C. 16274) is amended—

1           (1) in the section heading, by striking  
2           “**UNIVERSITY NUCLEAR**” and inserting  
3           “**NUCLEAR**”;

4           (2) in subsection (b)—

5                 (A) in the matter preceding paragraph (1),  
6                 by striking “this section” and inserting “this  
7                 subsection”; and

8                 (B) by redesignating paragraphs (1)  
9                 through (5) as subparagraphs (A) through (E),  
10                 respectively, and indenting appropriately;

11           (3) in subsection (c), by redesignating para-  
12           graphs (1) and (2) as subparagraphs (A) and (B),  
13           respectively, and indenting appropriately;

14           (4) in subsection (d)—

15                 (A) in the matter preceding paragraph (1),  
16                 by striking “this section” and inserting “this  
17                 subsection”; and

18                 (B) by redesignating paragraphs (1)  
19                 through (4) as subparagraphs (A) through (D),  
20                 respectively, and indenting appropriately;

21           (5) in subsection (e), by striking “this section”  
22           and inserting “this subsection”;

23           (6) in subsection (f)—

24                 (A) by striking “this section” and inserting  
25                 “this subsection”; and

1 (B) by striking “subsection (b)(2)” and in-  
2 serting “paragraph (2)(B)”;

3 (7) by redesignating subsections (a) through (f)  
4 as paragraphs (1), (2), (3), (4), (6), and (7), respec-  
5 tively, and indenting appropriately;

6 (8) by inserting after paragraph (4) (as so re-  
7 designated) the following:

8 “(5) RADIOLOGICAL FACILITIES MANAGE-  
9 MENT.—

10 “(A) IN GENERAL.—The Secretary shall  
11 carry out a program under which the Secretary  
12 shall provide project management, technical  
13 support, quality engineering and inspection, and  
14 nuclear material support to research reactors  
15 located at universities.

16 “(B) AUTHORIZATION OF APPROPRIA-  
17 TIONS.—In addition to any amounts appro-  
18 priated to carry out the program under this  
19 subsection, there is authorized to be appro-  
20 priated to the Secretary to carry out the pro-  
21 gram under this paragraph \$15,000,000 for  
22 each of fiscal years 2021 through 2025.”;

23 (9) by inserting before paragraph (1) (as so re-  
24 designated) the following:

1       “(a) UNIVERSITY NUCLEAR SCIENCE AND ENGI-  
2 NEERING SUPPORT.—”; and

3               (10) by adding at the end the following:

4       “(b) NUCLEAR ENERGY APPRENTICESHIP SUBPRO-  
5 GRAM.—

6               “(1) ESTABLISHMENT.—In carrying out the  
7 program under subsection (a), the Secretary shall  
8 establish a nuclear energy apprenticeship subpro-  
9 gram under which the Secretary shall establish com-  
10 petitively awarded traineeships and apprenticeships  
11 in industries that are represented by skilled labor  
12 unions and with universities to provide focused,  
13 graduate-level training to meet highly focused needs  
14 through a tailored academic graduate program that  
15 delivers a curriculum with a rigorous thesis or dis-  
16 sertation research requirement aligned with the crit-  
17 ical needs of the Department with respect to mis-  
18 sion-driven workforce.

19               “(2) REQUIREMENTS.—In carrying out the sub-  
20 program under this subsection, the Secretary shall—

21                       “(A) encourage appropriate partnerships  
22 among National Laboratories, affected univer-  
23 sities, and industry; and

24                       “(B) on an annual basis, evaluate the  
25 needs of the nuclear energy community to im-

1           plement traineeships for focused topical areas  
2           addressing mission-specific workforce needs.

3           “(3) AUTHORIZATION OF APPROPRIATIONS.—

4           There is authorized to be appropriated to the Sec-  
5           retary to carry out the subprogram under this sub-  
6           section \$5,000,000 for each of fiscal years 2021  
7           through 2025.”.

8           (b) CONFORMING AMENDMENT.—The table of con-  
9           tents of the Energy Policy Act of 2005 (Public Law 109–  
10          58; 119 Stat. 600) is amended by striking the item relat-  
11          ing to section 954 and inserting the following:

          “Sec. 954. Nuclear science and engineering support.”.

12       **SEC. 1505. UNIVERSITY NUCLEAR LEADERSHIP PROGRAM.**

13           Section 313 of the Energy and Water Development  
14          and Related Agencies Appropriations Act, 2009 (42  
15          U.S.C. 16274a), is amended to read as follows:

16       **“SEC. 313. UNIVERSITY NUCLEAR LEADERSHIP PROGRAM.**

17           “(a) DEFINITIONS.—In this section:

18           “(1) ADVANCED NUCLEAR REACTOR.—The  
19          term ‘advanced nuclear reactor’ means—

20                   “(A) a nuclear fission reactor, including a  
21                   prototype plant (as defined in sections 50.2 and  
22                   52.1 of title 10, Code of Federal Regulations  
23                   (or successor regulations)), with significant im-  
24                   provements compared to the most recent gen-



1           eration of fission reactors, including improve-  
2           ments such as—

3                   “(i) additional inherent safety fea-  
4           tures;

5                   “(ii) lower waste yields;

6                   “(iii) improved fuel performance;

7                   “(iv) increased tolerance to loss of  
8           fuel cooling;

9                   “(v) enhanced reliability;

10                  “(vi) increased proliferation resist-  
11           ance;

12                  “(vii) increased thermal efficiency;

13                  “(viii) reduced consumption of cooling  
14           water;

15                  “(ix) the ability to integrate into elec-  
16           tric applications and nonelectric applica-  
17           tions;

18                  “(x) modular sizes to allow for deploy-  
19           ment that corresponds with the demand  
20           for electricity; or

21                  “(xi) operational flexibility to respond  
22           to changes in demand for electricity and to  
23           complement integration with intermittent  
24           renewable energy; and

25                  “(B) a fusion reactor.

1           “(2) INSTITUTION OF HIGHER EDUCATION.—

2           The term ‘institution of higher education’ has the  
3           meaning given the term in section 101(a) of the  
4           Higher Education Act of 1965 (20 U.S.C. 1001(a)).

5           “(3) PROGRAM.—The term ‘Program’ means  
6           the University Nuclear Leadership Program estab-  
7           lished under subsection (b).

8           “(b) ESTABLISHMENT.—The Secretary of Energy,  
9           the Administrator of the National Nuclear Security Ad-  
10          ministration, and the Chairman of the Nuclear Regulatory  
11          Commission shall jointly establish a program, to be known  
12          as the ‘University Nuclear Leadership Program’.

13          “(c) USE OF FUNDS.—

14                 “(1) IN GENERAL.—Except as provided in para-  
15                 graph (2), amounts made available to carry out the  
16                 Program shall be used to provide financial assistance  
17                 for scholarships, fellowships, and research and devel-  
18                 opment projects at institutions of higher education  
19                 in areas relevant to the programmatic mission of the  
20                 applicable Federal agency providing the financial as-  
21                 sistance with respect to research, development, dem-  
22                 onstration, and deployment activities for technologies  
23                 relevant to advanced nuclear reactors, including rel-  
24                 evant fuel cycle technologies.

1           “(2) EXCEPTION.—Notwithstanding paragraph  
2           (1), amounts made available to carry out the Pro-  
3           gram may be used to provide financial assistance for  
4           a scholarship, fellowship, or multiyear research and  
5           development project that does not align directly with  
6           a programmatic mission of the applicable Federal  
7           agency providing the financial assistance, if the ac-  
8           tivity for which assistance is provided would facili-  
9           tate the maintenance of the discipline of nuclear  
10          science or nuclear engineering.

11          “(d) AUTHORIZATION OF APPROPRIATIONS.—There  
12          are authorized to be appropriated to carry out the Pro-  
13          gram for fiscal year 2021 and each fiscal year thereafter—

14                 “(1) \$30,000,000 to the Secretary of Energy,  
15                 of which \$15,000,000 shall be for use by the Admin-  
16                 istrator of the National Nuclear Security Adminis-  
17                 tration; and

18                 “(2) \$15,000,000 to the Nuclear Regulatory  
19                 Commission.”.

20          **SEC. 1506. VERSATILE, REACTOR-BASED FAST NEUTRON**  
21                                 **SOURCE.**

22          Section 955(c)(1) of the Energy Policy Act of 2005  
23          (42 U.S.C. 16275(c)(1)) is amended—

24                 (1) in the paragraph heading, by striking “MIS-  
25                 SION NEED” and inserting “AUTHORIZATION”; and

1           (2) in subparagraph (A), by striking “determine  
2           the mission need” and inserting “provide”.

3   **SEC. 1507. ADVANCED NUCLEAR REACTOR RESEARCH AND**  
4                                   **DEVELOPMENT GOALS.**

5           (a) IN GENERAL.—Subtitle E of title IX of the En-  
6   ergy Policy Act of 2005 (42 U.S.C. 16271 et seq.) is  
7   amended by adding at the end the following:

8   **“SEC. 959A. ADVANCED NUCLEAR REACTOR RESEARCH**  
9                                   **AND DEVELOPMENT GOALS.**

10          “(a) DEFINITIONS.—In this section:

11               “(1) ADVANCED NUCLEAR REACTOR.—The  
12          term ‘advanced nuclear reactor’ means—

13                       “(A) a nuclear fission reactor, including a  
14                       prototype plant (as defined in sections 50.2 and  
15                       52.1 of title 10, Code of Federal Regulations  
16                       (or successor regulations)), with significant im-  
17                       provements compared to the most recent gen-  
18                       eration of fission reactors, including improve-  
19                       ments such as—

20                               “(i) additional inherent safety fea-  
21                               tures;

22                               “(ii) lower waste yields;

23                               “(iii) improved fuel performance;

24                               “(iv) increased tolerance to loss of  
25                               fuel cooling;

- 1 “(v) enhanced reliability;
- 2 “(vi) increased proliferation resist-
- 3 ance;
- 4 “(vii) increased thermal efficiency;
- 5 “(viii) reduced consumption of cooling
- 6 water;
- 7 “(ix) the ability to integrate into elec-
- 8 tric applications and nonelectric applica-
- 9 tions;
- 10 “(x) modular sizes to allow for deploy-
- 11 ment that corresponds with the demand
- 12 for electricity; or
- 13 “(xi) operational flexibility to respond
- 14 to changes in demand for electricity and to
- 15 complement integration with intermittent
- 16 renewable energy; and
- 17 “(B) a fusion reactor.

18 “(2) DEMONSTRATION PROJECT.—The term

19 ‘demonstration project’ means an advanced nuclear

20 reactor operated in any manner, including as part of

21 the power generation facilities of an electric utility

22 system, for the purpose of demonstrating the suit-

23 ability for commercial application of the advanced

24 nuclear reactor.

1       “(b) PURPOSE.—The purpose of this section is to di-  
2 rect the Secretary, as soon as practicable after the date  
3 of enactment of this section, to advance the research and  
4 development of domestic advanced, affordable, and clean  
5 nuclear energy by—

6               “(1) demonstrating different advanced nuclear  
7 reactor technologies that could be used by the pri-  
8 vate sector to produce—

9                       “(A) emission-free power at a levelized cost  
10 of electricity of \$60 per megawatt-hour or less;

11                      “(B) heat for community heating, indus-  
12 trial purposes, or synthetic fuel production;

13                      “(C) remote or off-grid energy supply; or

14                      “(D) backup or mission-critical power sup-  
15 plies;

16               “(2) developing subgoals for nuclear energy re-  
17 search programs that would accomplish the goals of  
18 the demonstration projects carried out under sub-  
19 section (c);

20               “(3) identifying research areas that the private  
21 sector is unable or unwilling to undertake due to the  
22 cost of, or risks associated with, the research; and

23               “(4) facilitating the access of the private sec-  
24 tor—

1           “(A) to Federal research facilities and per-  
2           sonnel; and

3           “(B) to the results of research relating to  
4           civil nuclear technology funded by the Federal  
5           Government.

6           “(c) DEMONSTRATION PROJECTS.—

7           “(1) IN GENERAL.—The Secretary shall, to the  
8           maximum extent practicable—

9           “(A) enter into agreements to complete not  
10          fewer than 2 demonstration projects by not  
11          later than December 31, 2025; and

12          “(B) establish a program to enter into  
13          agreements to complete 1 additional operational  
14          demonstration project by not later than Decem-  
15          ber 31, 2035.

16          “(2) REQUIREMENTS.—In carrying out dem-  
17          onstration projects under paragraph (1), the Sec-  
18          retary shall—

19          “(A) include diversity in designs for the  
20          advanced nuclear reactors demonstrated under  
21          this section, including designs using various—

22                  “(i) primary coolants;

23                  “(ii) fuel types and compositions; and

24                  “(iii) neutron spectra;

25          “(B) seek to ensure that—

1                   “(i) the long-term cost of electricity or  
2                   heat for each design to be demonstrated  
3                   under this subsection is cost-competitive in  
4                   the applicable market;

5                   “(ii) the selected projects can meet  
6                   the deadline established in paragraph (1)  
7                   to demonstrate first-of-a-kind advanced  
8                   nuclear reactor technologies, for which ad-  
9                   ditional information shall be considered, in-  
10                  cluding—

11                   “(I) the technology readiness  
12                   level of a proposed advanced nuclear  
13                   reactor technology;

14                   “(II) the technical abilities and  
15                   qualifications of teams desiring to  
16                   demonstrate a proposed advanced nu-  
17                   clear reactor technology; and

18                   “(III) the capacity to meet cost-  
19                   share requirements of the Depart-  
20                   ment;

21                   “(C) ensure that each evaluation of can-  
22                   didate technologies for the demonstration  
23                   projects is completed through an external re-  
24                   view of proposed designs, which review shall—



1                   “(i) be conducted by a panel that in-  
2                   cludes not fewer than 1 representative of  
3                   each of—

4                               “(I) an electric utility; and

5                               “(II) an entity that uses high-  
6                   temperature process heat for manu-  
7                   facturing or industrial processing,  
8                   such as a petrochemical company, a  
9                   manufacturer of metals, or a manu-  
10                  facturer of concrete;

11                   “(ii) include a review of cost-competi-  
12                  tiveness and other value streams, together  
13                  with the technology readiness level, of each  
14                  design to be demonstrated under this sub-  
15                  section; and

16                   “(iii) not be required for a demonstra-  
17                  tion project that receives no financial as-  
18                  sistance from the Department for con-  
19                  struction costs;

20                   “(D) for federally funded demonstration  
21                  projects, enter into cost-sharing agreements  
22                  with private sector partners in accordance with  
23                  section 988 for the conduct of activities relating  
24                  to the research, development, and demonstra-

1           tion of private-sector advanced nuclear reactor  
2           designs under the program;

3           “(E) work with private sector partners to  
4           identify potential sites, including Department-  
5           owned sites, for demonstrations, as appropriate;

6           “(F) align specific activities carried out  
7           under demonstration projects carried out under  
8           this subsection with priorities identified through  
9           direct consultations between—

10                   “(i) the Department;

11                   “(ii) National Laboratories;

12                   “(iii) institutions of higher education;

13                   “(iv) traditional end-users (such as  
14                   electric utilities);

15                   “(v) potential end-users of new tech-  
16                   nologies (such as users of high-tempera-  
17                   ture process heat for manufacturing proc-  
18                   essing, including petrochemical companies,  
19                   manufacturers of metals, or manufacturers  
20                   of concrete); and

21                   “(vi) developers of advanced nuclear  
22                   reactor technology; and

23           “(G) seek to ensure that the demonstration  
24           projects carried out under paragraph (1) do not  
25           cause any delay in a deployment of an advanced

1 reactor by private industry and the Department  
2 that is underway as of the date of enactment of  
3 this section.

4 “(3) ADDITIONAL REQUIREMENTS.—In car-  
5 rying out demonstration projects under paragraph  
6 (1), the Secretary shall—

7 “(A) identify candidate technologies that—

8 “(i) are not developed sufficiently for  
9 demonstration within the initial required  
10 timeframe described in paragraph (1)(A);  
11 but

12 “(ii) could be demonstrated within the  
13 timeframe described in paragraph (1)(B);

14 “(B) identify technical challenges to the  
15 candidate technologies identified in subpara-  
16 graph (A);

17 “(C) support near-term research and devel-  
18 opment to address the highest-risk technical  
19 challenges to the successful demonstration of a  
20 selected advanced reactor technology, in accord-  
21 ance with—

22 “(i) subparagraph (B); and

23 “(ii) the research and development ac-  
24 tivities under sections 952 and 958;

1           “(D) establish such technology advisory  
2 working groups as the Secretary determines to  
3 be appropriate to advise the Secretary regard-  
4 ing the technical challenges identified under  
5 subparagraph (B) and the scope of research  
6 and development programs to address the chal-  
7 lenges, in accordance with subparagraph (C), to  
8 be comprised of—

9                   “(i) private-sector advanced nuclear  
10 reactor technology developers;

11                   “(ii) technical experts with respect to  
12 the relevant technologies at institutions of  
13 higher education; and

14                   “(iii) technical experts at the National  
15 Laboratories.

16           “(d) GOALS.—

17                   “(1) IN GENERAL.—The Secretary shall estab-  
18 lish goals for research relating to advanced nuclear  
19 reactors facilitated by the Department that support  
20 the objectives of the program for demonstration  
21 projects established under subsection (c).

22                   “(2) COORDINATION.—In developing the goals  
23 under paragraph (1), the Secretary shall coordinate,  
24 on an ongoing basis, with members of private indus-

1 try to advance the demonstration of various designs  
2 of advanced nuclear reactors.

3 “(3) REQUIREMENTS.—In developing the goals  
4 under paragraph (1), the Secretary shall ensure  
5 that—

6 “(A) research activities facilitated by the  
7 Department to meet the goals developed under  
8 this subsection are focused on key areas of nu-  
9 clear research and deployment ranging from  
10 basic science to full-design development, safety  
11 evaluation, and licensing;

12 “(B) research programs designed to meet  
13 the goals emphasize—

14 “(i) resolving materials challenges re-  
15 lating to extreme environments, including  
16 extremely high levels of—

17 “(I) radiation fluence;

18 “(II) temperature;

19 “(III) pressure; and

20 “(IV) corrosion; and

21 “(ii) qualification of advanced fuels;

22 “(C) activities are carried out that address  
23 near-term challenges in modeling and simula-  
24 tion to enable accelerated design and licensing;

1           “(D) related technologies, such as tech-  
2           nologies to manage, reduce, or reuse nuclear  
3           waste, are developed;

4           “(E) nuclear research infrastructure is  
5           maintained or constructed, such as—

6                   “(i) currently operational research re-  
7                   actors at the National Laboratories and in-  
8                   stitutions of higher education;

9                   “(ii) hot cell research facilities;

10                   “(iii) a versatile fast neutron source;

11                   and

12                   “(iv) a molten salt testing facility;

13           “(F) basic knowledge of non-light water  
14           coolant physics and chemistry is improved;

15           “(G) advanced sensors and control systems  
16           are developed; and

17           “(H) advanced manufacturing and ad-  
18           vanced construction techniques and materials  
19           are investigated to reduce the cost of advanced  
20           nuclear reactors.”.

21           (b) TABLE OF CONTENTS.—The table of contents of  
22           the Energy Policy Act of 2005 (Public Law 109–58; 119  
23           Stat. 594; 132 Stat. 3160) is amended—

24                   (1) in the item relating to section 917, by strik-  
25                   ing “Efficiency”;

1           (2) in the items relating to each of sections  
2           957, 958, and 959 by inserting “Sec.” before the  
3           item number; and

4           (3) by inserting after the item relating to sec-  
5           tion 959 the following:

“Sec. 959A. Advanced nuclear reactor research and development goals.”.

6   **SEC. 1508. NUCLEAR ENERGY STRATEGIC PLAN.**

7           (a) IN GENERAL.—Subtitle E of title IX of the En-  
8           ergy Policy Act of 2005 (42 U.S.C. 16271 et seq.) (as  
9           amended by section 1507(a)) is amended by adding at the  
10          end the following:

11   **“SEC. 959B. NUCLEAR ENERGY STRATEGIC PLAN.**

12          “(a) IN GENERAL.—Not later than 180 days after  
13          the date of enactment of this section, the Secretary shall  
14          submit to the Committee on Energy and Natural Re-  
15          sources of the Senate and the Committees on Energy and  
16          Commerce and Science, Space, and Technology of the  
17          House of Representatives a 10-year strategic plan for the  
18          Office of Nuclear Energy of the Department, in accord-  
19          ance with this section.

20          “(b) REQUIREMENTS.—

21                  “(1) COMPONENTS.—The strategic plan under  
22          this section shall designate—

23                          “(A) programs that support the planned  
24          accomplishment of—

1 “(i) the goals established under sec-  
2 tion 959A; and

3 “(ii) the demonstration programs  
4 identified under subsection (c) of that sec-  
5 tion; and

6 “(B) programs that—

7 “(i) do not support the planned ac-  
8 complishment of demonstration programs,  
9 or the goals, referred to in subparagraph  
10 (A); but

11 “(ii) are important to the mission of  
12 the Office of Nuclear Energy, as deter-  
13 mined by the Secretary.

14 “(2) PROGRAM PLANNING.—In developing the  
15 strategic plan under this section, the Secretary shall  
16 specify expected timelines for, as applicable—

17 “(A) the accomplishment of relevant objec-  
18 tives under current programs of the Depart-  
19 ment; or

20 “(B) the commencement of new programs  
21 to accomplish those objectives.

22 “(c) UPDATES.—Not less frequently than once every  
23 2 years, the Secretary shall submit to the Committee on  
24 Energy and Natural Resources of the Senate and the  
25 Committees on Energy and Commerce and Science, Space,



1 and Technology of the House of Representatives an up-  
 2 dated 10-year strategic plan in accordance with subsection  
 3 (b), which shall identify, and provide a justification for,  
 4 any major deviation from a previous strategic plan sub-  
 5 mitted under this section.”.

6 (b) TABLE OF CONTENTS.—The table of contents of  
 7 the Energy Policy Act of 2005 (Public Law 109–58; 119  
 8 Stat. 594; 132 Stat. 3160) (as amended by section  
 9 1507(b)(3)) is amended by inserting after the item relat-  
 10 ing to section 959A the following:

“Sec. 959B. Nuclear energy strategic plan.”.

11 **SEC. 1509. ADVANCED NUCLEAR FUEL SECURITY PRO-**  
 12 **GRAM.**

13 (a) IN GENERAL.—Subtitle E of title IX of the En-  
 14 ergy Policy Act of 2005 (42 U.S.C. 16271 et seq.) (as  
 15 amended by section 1508(a)) is amended by adding at the  
 16 end the following:

17 **“SEC. 960. ADVANCED NUCLEAR FUEL SECURITY PRO-**  
 18 **GRAM.**

19 “(a) DEFINITIONS.—In this section:

20 “(1) HALEU TRANSPORTATION PACKAGE.—  
 21 The term ‘HALEU transportation package’ means a  
 22 transportation package that is suitable for trans-  
 23 porting high-assay, low-enriched uranium.

24 “(2) HIGH-ASSAY, LOW-ENRICHED URANIUM.—  
 25 The term ‘high-assay, low-enriched uranium’ means

1 uranium with an assay greater than 5 weight per-  
2 cent, but less than 20 weight percent, of the ura-  
3 nium-235 isotope.

4 “(3) HIGH-ENRICHED URANIUM.—The term  
5 ‘high-enriched uranium’ means uranium with an  
6 assay of 20 weight percent or more of the uranium-  
7 235 isotope.

8 “(b) HIGH-ASSAY, LOW-ENRICHED URANIUM PRO-  
9 GRAM FOR ADVANCED REACTORS.—

10 “(1) ESTABLISHMENT.—Not later than 1 year  
11 after the date of enactment of this section, the Sec-  
12 retary shall establish a program to make available  
13 high-assay, low-enriched uranium, through contracts  
14 for sale, resale, transfer, or lease, for use in com-  
15 mercial or noncommercial advanced nuclear reactors.

16 “(2) NUCLEAR FUEL OWNERSHIP.—Each lease  
17 under this subsection shall include a provision estab-  
18 lishing that the high-assay, low-enriched uranium  
19 that is the subject of the lease shall remain the  
20 property of the Department, including with respect  
21 to responsibility for the storage, use, or final disposi-  
22 tion of all radioactive waste created by the irradiation,  
23 processing, or purification of any leased high-  
24 assay, low-enriched uranium.

1           “(3) QUANTITY.—In carrying out the program  
2 under this subsection, the Secretary shall make  
3 available—

4           “(A) by December 31, 2022, high-assay,  
5 low-enriched uranium containing not less than  
6 2 metric tons of the uranium-235 isotope; and

7           “(B) by December 31, 2025, high-assay,  
8 low-enriched uranium containing not less than  
9 10 metric tons of the uranium-235 isotope (as  
10 determined including the quantities of the ura-  
11 nium-235 isotope made available before Decem-  
12 ber 31, 2022).

13           “(4) FACTORS FOR CONSIDERATION.—In car-  
14 rying out the program under this subsection, the  
15 Secretary shall take into consideration—

16           “(A) options for providing the high-assay,  
17 low-enriched uranium under this subsection  
18 from a stockpile of uranium owned by the De-  
19 partment (including the National Nuclear Secu-  
20 rity Administration), including—

21           “(i) fuel that—

22           “(I) directly meets the needs of  
23 an end-user; but

24           “(II) has been previously used or  
25 fabricated for another purpose;

1           “(ii) fuel that can meet the needs of  
2           an end-user after removing radioactive or  
3           other contaminants that resulted from a  
4           previous use or fabrication of the fuel for  
5           research, development, demonstration, or  
6           deployment activities of the Department  
7           (including activities of the National Nu-  
8           clear Security Administration); and

9           “(iii) fuel from a high-enriched ura-  
10          nium stockpile, which can be blended with  
11          lower-assay uranium to become high-assay,  
12          low-enriched uranium to meet the needs of  
13          an end-user; and

14          “(B) requirements to support molyb-  
15          denum-99 production under the American Med-  
16          ical Isotopes Production Act of 2012 (Public  
17          Law 112–239; 126 Stat. 2211).

18          “(5) LIMITATION.—The Secretary shall not  
19          barter or otherwise sell or transfer uranium in any  
20          form in exchange for services relating to the final  
21          disposition of radioactive waste from uranium that is  
22          the subject of a lease under this subsection.

23          “(6) SUNSET.—The program under this sub-  
24          section shall terminate on the earlier of—

25                 “(A) January 1, 2035; and

1           “(B) the date on which uranium enriched  
2           up to, but not equal to, 20 weight percent can  
3           be obtained in the commercial market from do-  
4           mestic suppliers.

5           “(c) REPORT.—

6           “(1) IN GENERAL.—Not later than 180 days  
7           after the date of enactment of this section, the Sec-  
8           retary shall submit to the appropriate committees of  
9           Congress a report that describes actions proposed to  
10          be carried out by the Secretary—

11           “(A) under the program under subsection  
12           (b); or

13           “(B) otherwise to enable the commercial  
14           use of high-assay, low-enriched uranium.

15           “(2) COORDINATION AND STAKEHOLDER  
16          INPUT.—In developing the report under this sub-  
17          section, the Secretary shall seek input from—

18           “(A) the Nuclear Regulatory Commission;

19           “(B) the National Laboratories;

20           “(C) institutions of higher education;

21           “(D) producers of medical isotopes;

22           “(E) a diverse group of entities operating  
23          in the nuclear energy industry; and

24           “(F) a diverse group of technology devel-  
25          opers.

1           “(3) COST AND SCHEDULE ESTIMATES.—The  
2 report under this subsection shall include estimated  
3 costs, budgets, and timeframes for enabling the use  
4 of high-assay, low-enriched uranium.

5           “(4) REQUIRED EVALUATIONS.—The report  
6 under this subsection shall evaluate—

7                   “(A) the costs and actions required to es-  
8 tablish and carry out the program under sub-  
9 section (b), including with respect to—

10                           “(i) proposed preliminary terms for  
11 the sale, resale, transfer, and leasing of  
12 high-assay, low-enriched uranium (includ-  
13 ing guidelines defining the roles and re-  
14 sponsibilities between the Department and  
15 the purchaser, transfer recipient, or les-  
16 see); and

17                           “(ii) the potential to coordinate with  
18 purchasers, transfer recipients, and lessees  
19 regarding—

20                                   “(I) fuel fabrication; and

21                                   “(II) fuel transport;

22                   “(B) the potential sources and fuel forms  
23 available to provide uranium for the program  
24 under subsection (b);

1           “(C) options to coordinate the program  
2           under subsection (b) with the operation of the  
3           versatile, reactor-based fast neutron source  
4           under section 959A;

5           “(D) the ability of the domestic uranium  
6           market to provide materials for advanced nu-  
7           clear reactor fuel; and

8           “(E) any associated legal, regulatory, and  
9           policy issues that should be addressed to en-  
10          able—

11                   “(i) the program under subsection (b);  
12                   and

13                   “(ii) the establishment of a domestic  
14                   industry capable of providing high-assay,  
15                   low-enriched uranium for commercial and  
16                   noncommercial purposes, including with re-  
17                   spect to the needs of—

18                           “(I) the Department;

19                           “(II) the Department of Defense;

20                           and

21                           “(III) the National Nuclear Se-  
22                           curity Administration.

23          “(d) HALEU TRANSPORTATION PACKAGE RE-  
24          SEARCH PROGRAM.—

1           “(1) IN GENERAL.—As soon as practicable  
2 after the date of enactment of this section, the Sec-  
3 retary shall establish a research, development, and  
4 demonstration program under which the Secretary  
5 shall provide financial assistance, on a competitive  
6 basis, to establish the capability to transport high-  
7 assay, low-enriched uranium.

8           “(2) REQUIREMENT.—The focus of the pro-  
9 gram under this subsection shall be to establish 1 or  
10 more HALEU transportation packages that can be  
11 certified by the Nuclear Regulatory Commission to  
12 transport high-assay, low-enriched uranium to the  
13 various facilities involved in producing or using nu-  
14 clear fuel containing high-assay, low-enriched ura-  
15 nium, such as—

16                   “(A) enrichment facilities;

17                   “(B) fuel processing facilities;

18                   “(C) fuel fabrication facilities; and

19                   “(D) nuclear reactors.”.

20           (b) CLERICAL AMENDMENT.—The table of contents  
21 of the Energy Policy Act of 2005 (Public Law 109–58;  
22 119 Stat. 594; 132 Stat. 3160) (as amended by section  
23 1508(b)) is amended by inserting after the item relating  
24 to section 959B the following:

“Sec. 960. Advanced nuclear fuel security program.”.



1 **SEC. 1510. INTERNATIONAL NUCLEAR ENERGY COOPERA-**  
2 **TION.**

3 (a) IN GENERAL.—Subtitle H of Title IX of the En-  
4 ergy Policy Act of 2005 (42 U.S.C. 16341 et seq.) is  
5 amended by adding at the end the following:

6 **“SEC. 986B. INTERNATIONAL NUCLEAR ENERGY COOPERA-**  
7 **TION.**

8 “(a) IN GENERAL.—The Secretary shall carry out a  
9 program to develop bilateral collaboration initiatives with  
10 a variety of countries through—

11 “(1) research and development agreements;

12 “(2) other relevant arrangements and action  
13 plan updates; and

14 “(3) maintaining existing multilateral coopera-  
15 tion commitments of—

16 “(A) the International Framework for Nu-  
17 clear Energy Cooperation;

18 “(B) the Generation IV International  
19 Forum;

20 “(C) the International Atomic Energy  
21 Agency; and

22 “(D) any other international collaborative  
23 effort with respect to advanced nuclear reactor  
24 operations and safety.

25 “(b) SUBPROGRAM.—

1           “(1) IN GENERAL.—In carrying out the pro-  
2           gram under subsection (a), the Secretary shall es-  
3           tablish a subprogram that shall—

4                   “(A) support diplomatic, nonproliferation,  
5                   climate, and international economic objectives  
6                   for the safe, secure, and peaceful use of nuclear  
7                   technology in countries developing nuclear en-  
8                   ergy programs, with a focus on countries that  
9                   have increased civil nuclear cooperation with  
10                  Russia and China; and

11                   “(B) be modeled after the International  
12                   Military Education and Training program of  
13                   the Department of State.

14           “(2) AUTHORIZATION OF APPROPRIATIONS.—  
15           There is authorized to be appropriated to the Sec-  
16           retary to carry out the subprogram under this sub-  
17           section \$5,500,000 for each of fiscal years 2021  
18           through 2025.

19           “(c) REQUIREMENTS.—The program under sub-  
20           section (a) shall be carried out—

21                   “(1) to facilitate, to the maximum extent prac-  
22                   ticable, workshops and expert-based exchanges to en-  
23                   gage industry, stakeholders, and foreign govern-  
24                   ments regarding international civil nuclear issues,  
25                   such as training, financing, safety, and options for

1 multinational cooperation on used nuclear fuel dis-  
2 posal; and

3 “(2) in coordination with—

4 “(A) the National Security Council;

5 “(B) the Secretary of State;

6 “(C) the Secretary of Commerce; and

7 “(D) the Nuclear Regulatory Commis-  
8 sion.”.

9 (b) CONFORMING AMENDMENT.—The table of con-  
10 tents of the Energy Policy Act of 2005 (Public Law 109–  
11 58; 119 Stat. 600) is amended by inserting after the item  
12 relating to section 986A the following:

“Sec. 986B. International nuclear energy cooperation.”.

13 **SEC. 1511. INTEGRATED ENERGY SYSTEMS PROGRAM.**

14 (a) PROGRAM.—

15 (1) ESTABLISHMENT.—

16 (A) IN GENERAL.—The Secretary shall es-  
17 tablish a program, to be known as the “Inte-  
18 grated Energy Systems Program” (referred to  
19 in this subsection as the “program”)—

20 (i) to maximize energy production and  
21 efficiency;

22 (ii) to develop energy systems involv-  
23 ing the integration of nuclear energy with  
24 renewable energy, fossil energy, and energy  
25 storage; and

1 (iii) to expand the use of emissions-re-  
2 ducing energy technologies into nonelectric  
3 sectors to achieve significant reductions in  
4 environmental emissions.

5 (B) PROGRAM ADMINISTRATION; PART-  
6 NERS.—The program shall be carried out by  
7 the Under Secretary of Energy, in partnership  
8 with—

9 (i) relevant offices within the Depart-  
10 ment;

11 (ii) National Laboratories;

12 (iii) institutions of higher education;

13 and

14 (iv) the private sector.

15 (C) GOALS AND MILESTONES.—The Sec-  
16 retary shall establish quantitative goals and  
17 milestones for the program.

18 (2) RESEARCH AREAS.—Research areas under  
19 the program may include—

20 (A) technology innovation to further the  
21 expansion of emissions-reducing energy tech-  
22 nologies to accommodate a modern, resilient  
23 grid system by—

24 (i) effectively leveraging multiple en-  
25 ergy sources;

1 (ii) enhancing and streamlining engi-  
2 neering design;

3 (iii) carrying out process demonstra-  
4 tions to optimize performance; and

5 (iv) streamlining regulatory review;

6 (B) advanced power cycles, energy extrac-  
7 tion, and processing of complex hydrocarbons to  
8 produce high-value chemicals;

9 (C) efficient use of emissions-reducing en-  
10 ergy technologies for hydrogen production to  
11 support transportation and industrial needs;

12 (D) enhancement and acceleration of do-  
13 mestic manufacturing and desalinization tech-  
14 nologies and processes by optimally using clean  
15 energy sources;

16 (E) more effective thermal energy use,  
17 transport, and storage;

18 (F) the demonstration of nuclear energy  
19 delivery for—

20 (i) the production of chemicals, met-  
21 als, and fuels;

22 (ii) the capture, use, and storage of  
23 carbon;

24 (iii) renewable integration with an in-  
25 tegrated energy system; and

1                   (iv) conversion of carbon feedstock,  
2                   such as coal, biomass, natural gas, and  
3                   refuse waste, to higher value nonelectric  
4                   commodities;

5                   (G) the development of new analysis capa-  
6                   bilities to identify the best ways—

7                   (i) to leverage multiple energy sources  
8                   in a given region; and

9                   (ii) to quantify the benefits of inte-  
10                  grated energy systems; and

11                  (H) any other area that, as determined by  
12                  the Secretary, meets the purpose and goals of  
13                  the program.

14                  (3) GRANTS.—The Secretary may award grants  
15                  under the program to support the goals of the pro-  
16                  gram.

17                  (b) REPORT ON DUPLICATIVE PROGRAMS.—Not later  
18                  than 1 year after the date of enactment of this Act, and  
19                  annually thereafter, the Secretary shall submit to Con-  
20                  gress a report identifying any program that is duplicative  
21                  of the program established under subsection (a)(1)(A).

# 1 **Subtitle F—Industrial Technologies**

## 2 **PART I—INNOVATION**

### 3 **SEC. 1601. PURPOSE.**

4 The purpose of this part and the amendments made  
5 by this part is to encourage the development and evalua-  
6 tion of innovative technologies aimed at increasing—

7 (1) the technological and economic competitive-  
8 ness of industry and manufacturing in the United  
9 States; and

10 (2) the emissions reduction of nonpower indus-  
11 trial sectors.

### 12 **SEC. 1602. COORDINATION OF RESEARCH AND DEVELOP-** 13 **MENT OF ENERGY EFFICIENT TECH-** 14 **NOLOGIES FOR INDUSTRY.**

15 Section 6(a) of the American Energy Manufacturing  
16 Technical Corrections Act (42 U.S.C. 6351(a)) is amend-  
17 ed—

18 (1) by striking “Industrial Technologies Pro-  
19 gram” each place it appears and inserting “Ad-  
20 vanced Manufacturing Office”; and

21 (2) in the matter preceding paragraph (1), by  
22 striking “Office of Energy” and all that follows  
23 through “Office of Science” and inserting “Depart-  
24 ment of Energy”.

1 **SEC. 1603. INDUSTRIAL EMISSIONS REDUCTION TECH-**  
2 **NOLOGY DEVELOPMENT PROGRAM.**

3 (a) IN GENERAL.—The Energy Independence and  
4 Security Act of 2007 is amended by inserting after section  
5 454 (as added by section 1022(b)) the following:

6 **“SEC. 455. INDUSTRIAL EMISSIONS REDUCTION TECH-**  
7 **NOLOGY DEVELOPMENT PROGRAM.**

8 “(a) DEFINITIONS.—In this section:

9 “(1) DIRECTOR.—The term ‘Director’ means  
10 the Director of the Office of Science and Technology  
11 Policy.

12 “(2) ELIGIBLE ENTITY.—The term ‘eligible en-  
13 tity’ means—

14 “(A) a scientist or other individual with  
15 knowledge and expertise in emissions reduction;

16 “(B) an institution of higher education;

17 “(C) a nongovernmental organization;

18 “(D) a National Laboratory;

19 “(E) a private entity; and

20 “(F) a partnership or consortium of 2 or  
21 more entities described in subparagraphs (B)  
22 through (E).

23 “(3) EMISSIONS REDUCTION.—

24 “(A) IN GENERAL.—The term ‘emissions  
25 reduction’ means the reduction, to the max-  
26 imum extent practicable, of net nonwater green-



1 house gas emissions to the atmosphere by en-  
2 ergy services and industrial processes.

3 “(B) EXCLUSION.—The term ‘emissions  
4 reduction’ does not include the elimination of  
5 carbon embodied in the principal products of in-  
6 dustrial manufacturing.

7 “(4) INSTITUTION OF HIGHER EDUCATION.—  
8 The term ‘institution of higher education’ has the  
9 meaning given the term in section 101 of the Higher  
10 Education Act of 1965 (20 U.S.C. 1001).

11 “(5) PROGRAM.—The term ‘program’ means  
12 the program established under subsection (b)(1).

13 “(b) INDUSTRIAL EMISSIONS REDUCTION TECH-  
14 NOLOGY DEVELOPMENT PROGRAM.—

15 “(1) IN GENERAL.—Not later than 1 year after  
16 the date of enactment of the American Energy Inno-  
17 vation Act of 2020, the Secretary, in consultation  
18 with the Director, the heads of relevant Federal  
19 agencies, National Laboratories, industry, and insti-  
20 tutions of higher education, shall establish a cross-  
21 cutting industrial emissions reduction technology de-  
22 velopment program of research, development, dem-  
23 onstration, and commercial application to further  
24 the development and commercialization of innovative  
25 technologies that—

1           “(A) increase the technological and eco-  
2           nomic competitiveness of industry and manufac-  
3           turing in the United States;

4           “(B) increase the viability and competitive-  
5           ness of United States industrial technology ex-  
6           ports; and

7           “(C) achieve emissions reduction in  
8           nonpower industrial sectors.

9           “(2) COORDINATION.—In carrying out the pro-  
10          gram, the Secretary shall—

11           “(A) coordinate with each relevant office in  
12           the Department and any other Federal agency;

13           “(B) coordinate and collaborate with the  
14           Industrial Technology Innovation Advisory  
15           Committee established under section 456; and

16           “(C) coordinate and seek to avoid duplica-  
17           tion with the energy-intensive industries pro-  
18           gram established under section 452.

19           “(3) LEVERAGE OF EXISTING RESOURCES.—In  
20          carrying out the program, the Secretary shall lever-  
21          age, to the maximum extent practicable—

22           “(A) existing resources and programs of  
23           the Department and other relevant Federal  
24           agencies; and

25           “(B) public-private partnerships.

1 “(c) FOCUS AREAS.—The program shall focus on—

2 “(1) industrial production processes, including  
3 technologies and processes that—

4 “(A) achieve emissions reduction in high-  
5 emissions industrial materials production pro-  
6 cesses, including production processes for iron,  
7 steel, steel mill products, aluminum, cement,  
8 glass, pulp, paper, and industrial ceramics;

9 “(B) achieve emissions reduction in  
10 medium- and high-temperature heat generation,  
11 including—

12 “(i) through electrification of heating  
13 processes;

14 “(ii) through renewable heat genera-  
15 tion technology;

16 “(iii) through combined heat and  
17 power; and

18 “(iv) by switching to alternative fuels,  
19 including hydrogen and nuclear energy;

20 “(C) achieve emissions reduction in chem-  
21 ical production processes, including by incor-  
22 porating, if appropriate and practicable, prin-  
23 ciples, practices, and methodologies of sustain-  
24 able, green chemistry and engineering;

1           “(D) leverage smart manufacturing tech-  
2           nologies and principles, digital manufacturing  
3           technologies, and advanced data analytics to de-  
4           velop advanced technologies and practices in in-  
5           formation, automation, monitoring, computa-  
6           tion, sensing, modeling, and networking to—

7                   “(i) model and simulate manufac-  
8                   turing production lines;

9                   “(ii) monitor and communicate pro-  
10                  duction line status;

11                  “(iii) manage and optimize energy  
12                  productivity and cost throughout produc-  
13                  tion; and

14                  “(iv) model, simulate, and optimize  
15                  the energy efficiency of manufacturing  
16                  processes;

17           “(E) minimize the negative environmental  
18           impacts of manufacturing and sustainable  
19           chemistry while conserving energy and re-  
20           sources, including—

21                   “(i) by designing products that enable  
22                   reuse, refurbishment, remanufacturing,  
23                   and recycling;

24                   “(ii) by minimizing waste from indus-  
25                   trial processes, including through the reuse

1 of waste as other resources in other indus-  
2 trial processes for mutual benefit; and

3 “(iii) by increasing resource efficiency;

4 and

5 “(F) increase the energy efficiency of in-  
6 dustrial processes;

7 “(2) alternative materials that produce fewer  
8 emissions during production and result in fewer  
9 emissions during use;

10 “(3) development of net-zero emissions liquid  
11 and gaseous fuels;

12 “(4) emissions reduction in shipping, aviation,  
13 and long distance transportation;

14 “(5) carbon capture technologies for industrial  
15 processes;

16 “(6) other technologies that achieve net-zero  
17 emissions in nonpower industrial sectors, as deter-  
18 mined by the Secretary, in consultation with the Di-  
19 rector; and

20 “(7) high-performance computing to develop ad-  
21 vanced materials and manufacturing processes con-  
22 tributing to the focus areas described in paragraphs  
23 (1) through (6), including—

1           “(A) modeling, simulation, and optimiza-  
2           tion of the design of energy efficient and sus-  
3           tainable products; and

4           “(B) the use of digital prototyping and ad-  
5           ditive manufacturing to enhance product de-  
6           sign.

7           “(d) GRANTS, CONTRACTS, COOPERATIVE AGREE-  
8           MENTS, AND DEMONSTRATION PROJECTS.—

9           “(1) GRANTS.—In carrying out the program,  
10          the Secretary shall award grants on a competitive  
11          basis to eligible entities for projects that the Sec-  
12          retary determines would best achieve the goals of the  
13          program.

14          “(2) CONTRACTS AND COOPERATIVE AGREE-  
15          MENTS.—In carrying out the program, the Secretary  
16          may enter into contracts and cooperative agreements  
17          with eligible entities and Federal agencies for  
18          projects that the Secretary determines would further  
19          the purposes of the program.

20          “(3) DEMONSTRATION PROJECTS.—In sup-  
21          porting technologies developed under this section,  
22          the Secretary shall fund demonstration projects that  
23          test and validate technologies described in subsection  
24          (c).

1           “(4) APPLICATION.—An entity seeking funding  
2 or a contract or agreement under this subsection  
3 shall submit to the Secretary an application at such  
4 time, in such manner, and containing such informa-  
5 tion as the Secretary may require.

6           “(5) COST SHARING.—In awarding funds under  
7 this section, the Secretary shall require cost sharing  
8 in accordance with section 988 of the Energy Policy  
9 Act of 2005 (42 U.S.C. 16352).”.

10          (b) TECHNICAL AMENDMENT.—The table of contents  
11 of the Energy Independence and Security Act of 2007  
12 (Public Law 110–140; 121 Stat. 1494) (as amended by  
13 section 1022(e)) is amended by inserting after the item  
14 relating to section 454 the following:

“Sec. 455. Industrial emissions reduction technology development program.”.

15 **SEC. 1604. INDUSTRIAL TECHNOLOGY INNOVATION ADVI-**  
16 **SORY COMMITTEE.**

17          (a) IN GENERAL.—The Energy Independence and  
18 Security Act of 2007 is amended by inserting after section  
19 455 (as added by section 1603(a)) the following:

20 **“SEC. 456. INDUSTRIAL TECHNOLOGY INNOVATION ADVI-**  
21 **SORY COMMITTEE.**

22          “(a) DEFINITIONS.—In this section:

23               “(1) COMMITTEE.—The term ‘Committee’  
24 means the Industrial Technology Innovation Advi-  
25 sory Committee established under subsection (b).

1           “(2) DIRECTOR.—The term ‘Director’ means  
2           the Director of the Office of Science and Technology  
3           Policy.

4           “(3) EMISSIONS REDUCTION.—The term ‘emis-  
5           sions reduction’ has the meaning given the term in  
6           section 455(a).

7           “(4) PROGRAM.—The term ‘program’ means  
8           the industrial emissions reduction technology devel-  
9           opment program established under section  
10          455(b)(1).

11          “(b) ESTABLISHMENT.—Not later than 180 days  
12          after the date of enactment of the American Energy Inno-  
13          vation Act of 2020, the Secretary, in consultation with the  
14          Director, shall establish an advisory committee, to be  
15          known as the ‘Industrial Technology Innovation Advisory  
16          Committee’.

17          “(c) MEMBERSHIP.—

18                 “(1) APPOINTMENT.—The Committee shall be  
19                 comprised of not fewer than 14 members and not  
20                 more than 18 members, who shall be appointed by  
21                 the Secretary, in consultation with the Director.

22                 “(2) REPRESENTATION.—Members appointed  
23                 pursuant to paragraph (1) shall include—



1           “(A) not less than 1 representative of each  
2 relevant Federal agency, as determined by the  
3 Secretary;

4           “(B) the Chair of the Secretary of Energy  
5 Advisory Board, if that position is filled;

6           “(C) not less than 2 representatives of  
7 labor groups;

8           “(D) not less than 3 representatives of the  
9 research community, which shall include aca-  
10 demia and National Laboratories;

11           “(E) not less than 2 representatives of  
12 nongovernmental organizations;

13           “(F) not less than 6 representatives of  
14 small- and large-scale industry, the collective  
15 expertise of which shall cover every focus area  
16 described in section 455(c); and

17           “(G) any other individuals the Secretary,  
18 in coordination with the Director, determines to  
19 be necessary to ensure that the Committee is  
20 comprised of a diverse group of representatives  
21 of industry, academia, independent researchers,  
22 and public and private entities.

23           “(3) CHAIR.—The Secretary shall designate a  
24 member of the Committee to serve as Chair.

25           “(d) DUTIES.—

1 “(1) IN GENERAL.—The Committee shall—

2 “(A) in consultation with the Secretary  
3 and the Director, propose missions and goals  
4 for the program, which shall be consistent with  
5 the purposes of the program described in sec-  
6 tion 455(b)(1); and

7 “(B) advise the Secretary with respect to  
8 the program—

9 “(i) by identifying and evaluating any  
10 technologies being developed by the private  
11 sector relating to the focus areas described  
12 in section 455(c);

13 “(ii) by identifying technology gaps in  
14 the private sector in those focus areas, and  
15 making recommendations to address those  
16 gaps;

17 “(iii) by surveying and analyzing fac-  
18 tors that prevent the adoption of emissions  
19 reduction technologies by the private sec-  
20 tor; and

21 “(iv) by recommending technology  
22 screening criteria for technology developed  
23 under the program to encourage adoption  
24 of the technology by the private sector; and

1           “(C) develop the strategic plan described  
2 in paragraph (2).

3           “(2) STRATEGIC PLAN.—

4           “(A) PURPOSE.—The purpose of the stra-  
5 tegic plan developed under paragraph (1)(C) is  
6 to achieve the goals of the program in the focus  
7 areas described in section 455(c).

8           “(B) CONTENTS.—The strategic plan de-  
9 veloped under paragraph (1)(C) shall—

10           “(i) specify near-term and long-term  
11 qualitative and quantitative objectives re-  
12 lating to each focus area described in sec-  
13 tion 455(c), including research, develop-  
14 ment, demonstration, and commercial ap-  
15 plication objectives;

16           “(ii) specify the anticipated timeframe  
17 for achieving the objectives specified under  
18 clause (i);

19           “(iii) include plans for developing  
20 emissions reduction technologies that are  
21 globally cost-competitive;

22           “(iv) identify the public and private  
23 costs of achieving the objectives specified  
24 under clause (i); and

1                   “(v) estimate the economic and em-  
2                   ployment impact in the United States of  
3                   achieving those objectives.

4           “(e) MEETINGS.—

5                   “(1) FREQUENCY.—The Committee shall meet  
6                   not less frequently than 2 times per year, at the call  
7                   of the Chair.

8                   “(2) INITIAL MEETING.—Not later than 30  
9                   days after the date on which the members are ap-  
10                  pointed under subsection (b), the Committee shall  
11                  hold its first meeting.

12          “(f) COMMITTEE REPORT.—

13                  “(1) IN GENERAL.—Not later than 2 years  
14                  after the date of enactment of the American Energy  
15                  Innovation Act of 2020, and not less frequently than  
16                  once every 3 years thereafter, the Committee shall  
17                  submit to the Secretary a report on the progress of  
18                  achieving the purposes of the program.

19                  “(2) CONTENTS.—The report under paragraph  
20                  (1) shall include—

21                          “(A) a description of any technology inno-  
22                          vation opportunities identified by the Com-  
23                          mittee;

1           “(B) a description of any technology gaps  
2 identified by the Committee under subsection  
3 (d)(1)(B)(ii);

4           “(C) recommendations for improving tech-  
5 nology screening criteria and management of  
6 the program;

7           “(D) an evaluation of the progress of the  
8 program and the research and development  
9 funded under the program;

10          “(E) any recommended changes to the  
11 focus areas of the program described in section  
12 455(c);

13          “(F) a description of the manner in which  
14 the Committee has carried out the duties de-  
15 scribed in subsection (d)(1) and any relevant  
16 findings as a result of carrying out those duties;

17          “(G) if necessary, an update to the stra-  
18 tegic plan developed by the Committee under  
19 subsection (d)(1)(C);

20          “(H) the progress made in achieving the  
21 goals set out in that strategic plan;

22          “(I) a review of the management, coordina-  
23 tion, and industry utility of the program;

24          “(J) an assessment of the extent to which  
25 progress has been made under the program in

1 developing commercial, cost-competitive tech-  
2 nologies in each focus area described in section  
3 455(c); and

4 “(K) an assessment of the effectiveness of  
5 the program in coordinating efforts within the  
6 Department and with other Federal agencies to  
7 achieve the purposes of the program.

8 “(g) REPORT TO CONGRESS.—Not later than 60 days  
9 after receiving a report from the Committee under sub-  
10 section (f), the Secretary shall submit a copy of that re-  
11 port to the Committees on Appropriations and Science,  
12 Space, and Technology of the House of Representatives,  
13 the Committees on Appropriations and Energy and Nat-  
14 ural Resources of the Senate, and any other relevant Com-  
15 mittee of Congress.

16 “(h) APPLICABILITY OF FEDERAL ADVISORY COM-  
17 MITTEE ACT.—Except as otherwise provided in this sec-  
18 tion, the Federal Advisory Committee Act (5 U.S.C. App.)  
19 shall apply to the Committee.”.

20 (b) TECHNICAL AMENDMENT.—The table of contents  
21 of the Energy Independence and Security Act of 2007  
22 (Public Law 110–140; 121 Stat. 1494) (as amended by  
23 section 1603(b)) is amended by inserting after the item  
24 relating to section 455 the following:

“Sec. 456. Industrial Technology Innovation Advisory Committee.”.

1 **SEC. 1605. TECHNICAL ASSISTANCE PROGRAM TO IMPLE-**  
2 **MENT INDUSTRIAL EMISSIONS REDUCTION.**

3 (a) IN GENERAL.—The Energy Independence and  
4 Security Act of 2007 is amended by inserting after section  
5 456 (as added by section 1604(a)) the following:

6 **“SEC. 457. TECHNICAL ASSISTANCE PROGRAM TO IMPLE-**  
7 **MENT INDUSTRIAL EMISSIONS REDUCTION.**

8 “(a) DEFINITIONS.—In this section:

9 “(1) ELIGIBLE ENTITY.—The term ‘eligible en-  
10 tity’ means—

11 “(A) a State;

12 “(B) a unit of local government;

13 “(C) a territory or possession of the  
14 United States;

15 “(D) a relevant State or local office, in-  
16 cluding an energy office;

17 “(E) a tribal organization (as defined in  
18 section 3765 of title 38, United States Code);

19 “(F) an institution of higher education;

20 and

21 “(G) a private entity.

22 “(2) EMISSIONS REDUCTION.—The term ‘emis-  
23 sions reduction’ has the meaning given the term in  
24 section 455(a).

25 “(3) INSTITUTION OF HIGHER EDUCATION.—

26 The term ‘institution of higher education’ has the

1 meaning given the term in section 101 of the Higher  
2 Education Act of 1965 (20 U.S.C. 1001).

3 “(4) PROGRAM.—The term ‘program’ means  
4 the program established under subsection (b).

5 “(b) ESTABLISHMENT.—Not later than 180 days  
6 after the date of enactment of the American Energy Inno-  
7 vation Act of 2020, the Secretary shall establish a pro-  
8 gram to provide technical assistance to eligible entities to  
9 carry out an activity described in subsection (c).

10 “(c) ACTIVITIES DESCRIBED.—An activity referred  
11 to in subsection (b) is any of the following activities car-  
12 ried out for the purpose of achieving emissions reduction  
13 in nonpower industrial sectors:

14 “(1) Adopting emissions reduction technologies.

15 “(2) Establishing goals and priorities to accel-  
16 erate the development and evaluation of relevant  
17 technologies.

18 “(3) Developing collaborations across States,  
19 local governments, and territories and possessions of  
20 the United States.

21 “(4) Reviewing the appropriate emissions re-  
22 duction technologies available for a particular eligi-  
23 ble entity.



1           “(5) Developing a roadmap for implementing  
2           emissions reduction technologies for a particular eli-  
3           gible entity.

4           “(6) Any other activity determined appropriate  
5           by the Secretary.

6           “(d) APPLICATIONS.—

7           “(1) IN GENERAL.—An eligible entity desiring  
8           technical assistance under the program shall submit  
9           to the Secretary an application at such time, in such  
10          manner, and containing such information as the Sec-  
11          retary may require.

12          “(2) APPLICATION PROCESS.—The Secretary  
13          shall seek applications for technical assistance under  
14          the program on a periodic basis, but not less fre-  
15          quently than once every 12 months.

16          “(3) FACTORS FOR CONSIDERATION.—In select-  
17          ing eligible entities for technical assistance under the  
18          program, the Secretary shall—

19                 “(A) give priority to—

20                         “(i) activities carried out with tech-  
21                         nical assistance under the program that  
22                         have the greatest potential for achieving  
23                         emissions reduction in nonpower industrial  
24                         sectors;

1           “(ii) activities carried out in a State  
2           in which there are active or inactive indus-  
3           trial facilities that may be used or retro-  
4           fitted to carry out activities under the  
5           focus areas described in section 455(c);  
6           and

7           “(iii) activities carried out in an eco-  
8           nomically distressed area (as described in  
9           section 301(a) of the Public Works and  
10          Economic Development Act of 1965 (42  
11          U.S.C. 3161(a)); and

12          “(B) ensure that—

13               “(i) there is geographic diversity  
14               among the eligible entities selected; and

15               “(ii) the activities carried out with  
16               technical assistance under the program re-  
17               flect a majority of the focus areas de-  
18               scribed in section 455(c).”.

19          (b) TECHNICAL AMENDMENT.—The table of contents  
20 of the Energy Independence and Security Act of 2007  
21 (Public Law 110–140; 121 Stat. 1494) (as amended by  
22 section 1604(b)) is amended by inserting after the item  
23 relating to section 456 the following:

“Sec. 457. Technical assistance program to implement industrial emissions re-  
duction.”.

1                   **PART II—SMART MANUFACTURING**

2   **SEC. 1611. DEFINITIONS.**

3           In this part:

4                   (1) **ENERGY MANAGEMENT SYSTEM.**—The term  
5           “energy management system” means a business  
6           management process based on standards of the  
7           American National Standards Institute that enables  
8           an organization to follow a systematic approach in  
9           achieving continual improvement of energy perform-  
10          ance, including energy efficiency, security, use, and  
11          consumption.

12                   (2) **INDUSTRIAL ASSESSMENT CENTER.**—The  
13          term “industrial assessment center” means a center  
14          located at an institution of higher education that—

15                   (A) receives funding from the Department;

16                   (B) provides an in-depth assessment of  
17          small- and medium-size manufacturer plant  
18          sites to evaluate the facilities, services, and  
19          manufacturing operations of the plant site; and

20                   (C) identifies opportunities for potential  
21          savings for small- and medium-size manufac-  
22          turer plant sites from energy efficiency improve-  
23          ments, waste minimization, pollution preven-  
24          tion, and productivity improvement.

25                   (3) **INFORMATION AND COMMUNICATION TECH-**  
26          **NOLOGY.**—The term “information and communica-

1       tion technology” means any electronic system or  
2       equipment (including the content contained in the  
3       system or equipment) used to create, convert, com-  
4       municate, or duplicate data or information, including  
5       computer hardware, firmware, software, communica-  
6       tion protocols, networks, and data interfaces.

7           (4) INSTITUTION OF HIGHER EDUCATION.—The  
8       term “institution of higher education” has the  
9       meaning given the term in section 101(a) of the  
10      Higher Education Act of 1965 (20 U.S.C. 1001(a)).

11          (5) NORTH AMERICAN INDUSTRY CLASSIFICA-  
12      TION SYSTEM.—The term “North American Indus-  
13      try Classification System” means the standard used  
14      by Federal statistical agencies in classifying business  
15      establishments for the purpose of collecting, ana-  
16      lyzing, and publishing statistical data relating to the  
17      business economy of the United States.

18          (6) SMALL AND MEDIUM MANUFACTURERS.—  
19      The term “small and medium manufacturers”  
20      means manufacturing firms—

21           (A) classified in the North American In-  
22           dustry Classification System as any of sectors  
23           31 through 33;

24           (B) with gross annual sales of less than  
25           \$100,000,000;

1 (C) with fewer than 500 employees at the  
2 plant site; and

3 (D) with annual energy bills totaling more  
4 than \$100,000 and less than \$2,500,000.

5 (7) SMART MANUFACTURING.—The term  
6 “smart manufacturing” means advanced tech-  
7 nologies in information, automation, monitoring,  
8 computation, sensing, modeling, artificial intel-  
9 ligence, analytics, and networking that—

10 (A) digitally—

11 (i) simulate manufacturing production  
12 lines;

13 (ii) operate computer-controlled man-  
14 ufacturing equipment;

15 (iii) monitor and communicate pro-  
16 duction line status; and

17 (iv) manage and optimize energy pro-  
18 ductivity and cost throughout production;

19 (B) model, simulate, and optimize the en-  
20 ergy efficiency of a factory building;

21 (C) monitor and optimize building energy  
22 performance;

23 (D) model, simulate, and optimize the de-  
24 sign of energy efficient and sustainable prod-  
25 ucts, including the use of digital prototyping

1 and additive manufacturing to enhance product  
2 design;

3 (E) connect manufactured products in net-  
4 works to monitor and optimize the performance  
5 of the networks, including automated network  
6 operations; and

7 (F) digitally connect the supply chain net-  
8 work.

9 **SEC. 1612. DEVELOPMENT OF NATIONAL SMART MANUFAC-**  
10 **TURING PLAN.**

11 (a) IN GENERAL.—Not later than 3 years after the  
12 date of enactment of this Act, the Secretary, in consulta-  
13 tion with the National Academies, shall develop and com-  
14 plete a national plan for smart manufacturing technology  
15 development and deployment to improve the productivity  
16 and energy efficiency of the manufacturing sector of the  
17 United States.

18 (b) CONTENT.—

19 (1) IN GENERAL.—The plan developed under  
20 subsection (a) shall identify areas in which agency  
21 actions by the Secretary and other heads of relevant  
22 Federal agencies would—

23 (A) facilitate quicker development, deploy-  
24 ment, and adoption of smart manufacturing  
25 technologies and processes;

1 (B) result in greater energy efficiency and  
2 lower environmental impacts for all American  
3 manufacturers; and

4 (C) enhance competitiveness and strength-  
5 en the manufacturing sectors of the United  
6 States.

7 (2) INCLUSIONS.—Agency actions identified  
8 under paragraph (1) shall include—

9 (A) an assessment of previous and current  
10 actions of the Department relating to smart  
11 manufacturing;

12 (B) the establishment of voluntary inter-  
13 connection protocols and performance stand-  
14 ards;

15 (C) the use of smart manufacturing to im-  
16 prove energy efficiency and reduce emissions in  
17 supply chains across multiple companies;

18 (D) actions to increase cybersecurity in  
19 smart manufacturing infrastructure;

20 (E) deployment of existing research re-  
21 sults;

22 (F) the leveraging of existing high-per-  
23 formance computing infrastructure; and

1                   (G) consideration of the impact of smart  
2                   manufacturing on existing manufacturing jobs  
3                   and future manufacturing jobs.

4           (c) BIENNIAL REVISIONS.—Not later than 2 years  
5 after the date on which the Secretary completes the plan  
6 under subsection (a), and not less frequently than once  
7 every 2 years thereafter, the Secretary shall revise the  
8 plan to account for advancements in information and com-  
9 munication technology and manufacturing needs.

10          (d) REPORT.—Annually until the completion of the  
11 plan under subsection (a), the Secretary shall submit to  
12 Congress a report on the progress made in developing the  
13 plan.

14          (e) FUNDING.—The Secretary shall use unobligated  
15 funds of the Department to carry out this section.

16 **SEC. 1613. LEVERAGING EXISTING AGENCY PROGRAMS TO**  
17                   **ASSIST SMALL AND MEDIUM MANUFACTUR-**  
18                   **ERS.**

19          (a) EXPANSION OF TECHNICAL ASSISTANCE PRO-  
20 GRAMS.—The Secretary shall expand the scope of tech-  
21 nologies covered by the Industrial Assessment Centers of  
22 the Department—

23                   (1) to include smart manufacturing technologies  
24                   and practices; and



1           (2) to equip the directors of the Industrial As-  
2           sessment Centers with the training and tools nec-  
3           essary to provide technical assistance in smart man-  
4           ufacturing technologies and practices, including en-  
5           ergy management systems, to manufacturers.

6           (b) FUNDING.—The Secretary shall use unobligated  
7           funds of the Department to carry out this section.

8           **SEC. 1614. LEVERAGING SMART MANUFACTURING INFRA-**  
9           **STRUCTURE AT NATIONAL LABORATORIES.**

10          (a) STUDY.—

11           (1) IN GENERAL.—Not later than 180 days  
12           after the date of enactment of this Act, the Sec-  
13           retary shall conduct a study on how the Department  
14           can increase access to existing high-performance  
15           computing resources in the National Laboratories,  
16           particularly for small and medium manufacturers.

17           (2) INCLUSIONS.—In identifying ways to in-  
18           crease access to National Laboratories under para-  
19           graph (1), the Secretary shall—

20                   (A) focus on increasing access to the com-  
21                   puting facilities of the National Laboratories;  
22                   and

23                   (B) ensure that—

24                           (i) the information from the manufac-  
25                           turer is protected; and

1                   (ii) the security of the National Lab-  
2                   oratory facility is maintained.

3           (3) REPORT.—Not later than 1 year after the  
4           date of enactment of this Act, the Secretary shall  
5           submit to Congress a report describing the results of  
6           the study.

7           (b) ACTIONS FOR INCREASED ACCESS.—The Sec-  
8           retary shall facilitate access to the National Laboratories  
9           studied under subsection (a) for small and medium manu-  
10          facturers so that small and medium manufacturers can  
11          fully use the high-performance computing resources of the  
12          National Laboratories to enhance the manufacturing com-  
13          petitiveness of the United States.

14   **SEC. 1615. STATE MANUFACTURING LEADERSHIP.**

15          (a) FINANCIAL ASSISTANCE AUTHORIZED.—The  
16          Secretary may provide financial assistance on a competi-  
17          tive basis to States for the establishment of programs to  
18          be used as models for supporting the implementation of  
19          smart manufacturing technologies.

20          (b) APPLICATIONS.—

21               (1) IN GENERAL.—To be eligible to receive fi-  
22               nancial assistance under this section, a State shall  
23               submit to the Secretary an application at such time,  
24               in such manner, and containing such information as  
25               the Secretary may require.

1           (2) CRITERIA.—The Secretary shall evaluate an  
2 application for financial assistance under this section  
3 on the basis of merit using criteria identified by the  
4 Secretary, including—

5           (A) technical merit, innovation, and im-  
6 pact;

7           (B) research approach, workplan, and  
8 deliverables;

9           (C) academic and private sector partners;  
10 and

11           (D) alternate sources of funding.

12 (c) REQUIREMENTS.—

13           (1) TERM.—The term of an award of financial  
14 assistance under this section shall not exceed 3  
15 years.

16           (2) MAXIMUM AMOUNT.—The amount of an  
17 award of financial assistance under this section shall  
18 be not more than \$2,000,000.

19           (3) MATCHING REQUIREMENT.—Each State  
20 that receives financial assistance under this section  
21 shall contribute matching funds in an amount equal  
22 to not less than 30 percent of the amount of the fi-  
23 nancial assistance.

24 (d) USE OF FUNDS.—

1           (1) IN GENERAL.—A State may use financial  
2 assistance provided under this section—

3           (A) to facilitate access to high-performance  
4 computing resources for small and medium  
5 manufacturers; and

6           (B) to provide assistance to small and me-  
7 dium manufacturers to implement smart manu-  
8 facturing technologies and practices.

9           (e) EVALUATION.—The Secretary shall conduct semi-  
10 annual evaluations of each award of financial assistance  
11 under this section—

12           (1) to determine the impact and effectiveness of  
13 programs funded with the financial assistance; and

14           (2) to provide guidance to States on ways to  
15 better execute the program of the State.

16           (f) AUTHORIZATION.—There is authorized to be ap-  
17 propriated to the Secretary to carry out this section  
18 \$10,000,000 for each of fiscal years 2021 through 2024.

19 **SEC. 1616. REPORT.**

20           The Secretary annually shall submit to Congress and  
21 make publicly available a report on the progress made in  
22 advancing smart manufacturing in the United States.

23           **Subtitle G—Vehicles**

24 **SEC. 1701. OBJECTIVES.**

25           The objectives of this subtitle are—

1           (1) to establish a consistent and consolidated  
2 authority for the vehicle technology program at the  
3 Department;

4           (2) to develop United States technologies and  
5 practices that—

6                 (A) improve the fuel efficiency and emis-  
7 sions of all vehicles produced in the United  
8 States; and

9                 (B) reduce vehicle reliance on petroleum-  
10 based fuels;

11           (3) to support domestic research, development,  
12 engineering, demonstration, and commercial applica-  
13 tion and manufacturing of advanced vehicles, en-  
14 gines, and components;

15           (4) to enable vehicles to move larger volumes of  
16 goods and more passengers with less energy and  
17 emissions;

18           (5) to develop cost-effective advanced tech-  
19 nologies for wide-scale utilization throughout the  
20 passenger, commercial, government, and transit ve-  
21 hicle sectors;

22           (6) to allow for greater consumer choice of vehi-  
23 cle technologies and fuels;

24           (7) shorten technology development and inte-  
25 gration cycles in the vehicle industry;

1           (8) to ensure a proper balance and diversity of  
2       Federal investment in vehicle technologies; and  
3           (9) to strengthen partnerships between Federal  
4       and State governmental agencies and the private  
5       and academic sectors.

6   **SEC. 1702. COORDINATION AND NONDUPLICATION.**

7       The Secretary shall ensure, to the maximum extent  
8       practicable, that the activities authorized by this subtitle  
9       do not duplicate those of other programs within the De-  
10      partment or other relevant research agencies.

11   **SEC. 1703. AUTHORIZATION OF APPROPRIATIONS.**

12      There are authorized to be appropriated to the Sec-  
13      retary for research, development, engineering, demonstra-  
14      tion, and commercial application of vehicles and related  
15      technologies in the United States, including activities au-  
16      thorized under this subtitle—

- 17           (1) for fiscal year 2021, \$313,567,000;  
18           (2) for fiscal year 2022, \$326,109,000;  
19           (3) for fiscal year 2023, \$339,154,000;  
20           (4) for fiscal year 2024, \$352,720,000; and  
21           (5) for fiscal year 2025, \$366,829,000.

22   **SEC. 1704. REPORTING.**

23      (a) **TECHNOLOGIES DEVELOPED.**—Not later than 18  
24      months after the date of enactment of this Act and annu-  
25      ally thereafter through 2025, the Secretary shall submit

1 to Congress a report regarding the technologies developed  
2 as a result of the activities authorized by this subtitle, with  
3 a particular emphasis on whether the technologies were  
4 successfully adopted for commercial applications, and if  
5 so, whether products relying on those technologies are  
6 manufactured in the United States.

7 (b) **ADDITIONAL MATTERS.**—At the end of each fis-  
8 cal year through 2025, the Secretary shall submit to the  
9 relevant Congressional committees of jurisdiction an an-  
10 nual report describing activities undertaken in the pre-  
11 vious year under this subtitle, active industry participants,  
12 the status of public-private partnerships, progress of the  
13 program in meeting goals and timelines, and a strategic  
14 plan for funding of activities across agencies.

15 **SEC. 1705. VEHICLE RESEARCH AND DEVELOPMENT.**

16 (a) **PROGRAM.**—

17 (1) **ACTIVITIES.**—The Secretary shall conduct a  
18 program of basic and applied research, development,  
19 engineering, demonstration, and commercial applica-  
20 tion activities on materials, technologies, and proc-  
21 esses with the potential to substantially reduce or  
22 eliminate petroleum use and the emissions of the  
23 passenger and commercial vehicles of the United  
24 States, including activities in the areas of—

25 (A) electrification of vehicle systems;

- 1 (B) batteries, ultracapacitors, and other  
2 energy storage devices;
- 3 (C) power electronics;
- 4 (D) vehicle, component, and subsystem  
5 manufacturing technologies and processes;
- 6 (E) engine efficiency and combustion opti-  
7 mization;
- 8 (F) waste heat recovery;
- 9 (G) transmission and drivetrains;
- 10 (H) hydrogen vehicle technologies, includ-  
11 ing fuel cells and internal combustion engines,  
12 and hydrogen infrastructure, including hydro-  
13 gen energy storage to enable renewables and  
14 provide hydrogen for fuel and power;
- 15 (I) natural gas vehicle technologies;
- 16 (J) aerodynamics, rolling resistance (in-  
17 cluding tires and wheel assemblies), and acces-  
18 sory power loads of vehicles and associated  
19 equipment;
- 20 (K) vehicle weight reduction, including  
21 lightweighting materials and the development of  
22 manufacturing processes to fabricate, assemble,  
23 and use dissimilar materials;
- 24 (L) friction and wear reduction;
- 25 (M) engine and component durability;



- 1 (N) innovative propulsion systems;
- 2 (O) advanced boosting systems;
- 3 (P) hydraulic hybrid technologies;
- 4 (Q) engine compatibility with and optimi-
- 5 zation for a variety of transportation fuels in-
- 6 cluding natural gas and other liquid and gas-
- 7 eous fuels;
- 8 (R) predictive engineering, modeling, and
- 9 simulation of vehicle and transportation sys-
- 10 tems;
- 11 (S) refueling and charging infrastructure
- 12 for alternative fueled and electric or plug-in
- 13 electric hybrid vehicles, including the unique
- 14 challenges facing rural areas;
- 15 (T) gaseous fuels storage systems and sys-
- 16 tem integration and optimization;
- 17 (U) sensing, communications, and actu-
- 18 ation technologies for vehicle, electrical grid,
- 19 and infrastructure;
- 20 (V) efficient use, substitution, and recy-
- 21 cling of potentially critical materials in vehicles,
- 22 including rare earth elements and precious met-
- 23 als, at risk of supply disruption;
- 24 (W) aftertreatment technologies;

1           (X) thermal management of battery sys-  
2           tems;

3           (Y) retrofitting advanced vehicle tech-  
4           nologies to existing vehicles;

5           (Z) development of common standards,  
6           specifications, and architectures for both trans-  
7           portation and stationary battery applications;

8           (AA) advanced internal combustion en-  
9           gines;

10          (BB) mild hybrid;

11          (CC) engine down speeding;

12          (DD) vehicle-to-vehicle, vehicle-to-pedes-  
13          trian, and vehicle-to-infrastructure technologies;  
14          and

15          (EE) other research areas as determined  
16          by the Secretary.

17          (2) TRANSFORMATIONAL TECHNOLOGY.—The  
18          Secretary shall ensure that the Department con-  
19          tinues to support research, development, engineer-  
20          ing, demonstration, and commercial application ac-  
21          tivities and maintains competency in mid- to long-  
22          term transformational vehicle technologies with po-  
23          tential to achieve reductions in emissions, including  
24          activities in the areas of—

1           (A) hydrogen vehicle technologies, includ-  
2           ing fuel cells, hydrogen storage, infrastructure,  
3           and activities in hydrogen technology validation  
4           and safety codes and standards;

5           (B) multiple battery chemistries and novel  
6           energy storage devices, including nonchemical  
7           batteries and electromechanical storage tech-  
8           nologies such as hydraulics, flywheels, and com-  
9           pressed air storage;

10          (C) communication and connectivity among  
11          vehicles, infrastructure, and the electrical grid;  
12          and

13          (D) other innovative technologies research  
14          and development, as determined by the Sec-  
15          retary.

16          (3) INDUSTRY PARTICIPATION.—

17           (A) IN GENERAL.—To the maximum ex-  
18           tent practicable, activities under this subtitle  
19           shall be carried out in partnership or collabora-  
20           tion with automotive manufacturers, heavy com-  
21           mercial, vocational, and transit vehicle manu-  
22           facturers, qualified plug-in electric vehicle man-  
23           ufacturers, compressed natural gas vehicle man-  
24           ufacturers, vehicle and engine equipment and  
25           component manufacturers, manufacturing

1 equipment manufacturers, advanced vehicle  
2 service providers, fuel producers and energy  
3 suppliers, electric utilities, universities, National  
4 Laboratories, and independent research labora-  
5 tories.

6 (B) REQUIREMENTS.—In carrying out this  
7 subtitle, the Secretary shall—

8 (i) determine whether a wide range of  
9 companies that manufacture or assemble  
10 vehicles or components in the United  
11 States are represented in ongoing public-  
12 private partnership activities, including  
13 firms that have not traditionally partici-  
14 pated in federally sponsored research and  
15 development activities, and where possible,  
16 partner with such firms that conduct sig-  
17 nificant and relevant research and develop-  
18 ment activities in the United States;

19 (ii) leverage the capabilities and re-  
20 sources of, and formalize partnerships  
21 with, industry-led stakeholder organiza-  
22 tions, nonprofit organizations, industry  
23 consortia, and trade associations with ex-  
24 pertise in the research and development of,  
25 and education and outreach activities in,

1 advanced automotive and commercial vehi-  
2 cle technologies;

3 (iii) develop more effective processes  
4 for transferring research findings and tech-  
5 nologies to industry;

6 (iv) support public-private partner-  
7 ships, dedicated to overcoming barriers in  
8 commercial application of transformational  
9 vehicle technologies, that use such indus-  
10 try-led technology development facilities of  
11 entities with demonstrated expertise in  
12 successfully designing and engineering pre-  
13 commercial generations of such trans-  
14 formational technology; and

15 (v) promote efforts to ensure that  
16 technology research, development, engi-  
17 neering, and commercial application activi-  
18 ties funded under this subtitle are carried  
19 out in the United States.

20 (4) INTERAGENCY AND INTRAAGENCY COORDI-  
21 NATION.—To the maximum extent practicable, the  
22 Secretary shall coordinate research, development,  
23 demonstration, and commercial application activities  
24 among—

1 (A) relevant programs within the Depart-  
2 ment, including—

3 (i) the Office of Energy Efficiency  
4 and Renewable Energy;

5 (ii) the Office of Science;

6 (iii) the Office of Electricity Delivery  
7 and Energy Reliability;

8 (iv) the Office of Fossil Energy;

9 (v) the Advanced Research Projects  
10 Agency—Energy; and

11 (vi) other offices as determined by the  
12 Secretary; and

13 (B) relevant technology research and devel-  
14 opment programs within other Federal agen-  
15 cies, as determined by the Secretary.

16 (5) FEDERAL DEMONSTRATION OF TECH-  
17 NOLOGIES.—The Secretary shall make information  
18 available to procurement programs of Federal agen-  
19 cies regarding the potential to demonstrate tech-  
20 nologies resulting from activities funded through  
21 programs under this subtitle.

22 (6) INTERGOVERNMENTAL COORDINATION.—  
23 The Secretary shall seek opportunities to leverage  
24 resources and support initiatives of State and local  
25 governments in developing and promoting advanced

1 vehicle technologies, manufacturing, and infrastruc-  
2 ture.

3 (7) CRITERIA.—In awarding grants under the  
4 program under this subsection, the Secretary shall  
5 give priority to those technologies (either individually  
6 or as part of a system) that—

7 (A) provide the greatest aggregate fuel  
8 savings based on the reasonable projected sales  
9 volumes of the technology; and

10 (B) provide the greatest increase in United  
11 States employment.

12 (8) SECONDARY USE APPLICATIONS.—

13 (A) IN GENERAL.—The Secretary shall  
14 carry out a research, development, and dem-  
15 onstration program that—

16 (i) builds on any work carried out  
17 under section 915 of the Energy Policy Act  
18 of 2005 (42 U.S.C. 16195);

19 (ii) identifies possible uses of a vehicle  
20 battery after the useful life of the battery  
21 in a vehicle has been exhausted;

22 (iii) conducts long-term testing to  
23 verify performance and degradation pre-  
24 dictions and lifetime valuations for sec-  
25 ondary uses;

1 (iv) evaluates innovative approaches to  
2 recycling materials from plug-in electric  
3 drive vehicles and the batteries used in  
4 plug-in electric drive vehicles;

5 (v)(I) assesses the potential for mar-  
6 kets for uses described in clause (ii) to de-  
7 velop; and

8 (II) identifies any barriers to the de-  
9 velopment of those markets; and

10 (vi) identifies the potential uses of a  
11 vehicle battery—

12 (I) with the most promise for  
13 market development; and

14 (II) for which market develop-  
15 ment would be aided by a demonstra-  
16 tion project.

17 (B) REPORT.—Not later than 1 year after  
18 the date of enactment of this Act, the Secretary  
19 shall submit to the appropriate committees of  
20 Congress an initial report on the findings of the  
21 program described in subparagraph (A), includ-  
22 ing recommendations for stationary energy stor-  
23 age and other potential applications for bat-  
24 teries used in plug-in electric drive vehicles.

25 (C) SECONDARY USE DEMONSTRATION.—



1 (i) IN GENERAL.—Based on the re-  
2 sults of the program described in subpara-  
3 graph (A), the Secretary shall develop  
4 guidelines for projects that demonstrate  
5 the secondary uses and innovative recycling  
6 of vehicle batteries.

7 (ii) PUBLICATION OF GUIDELINES.—  
8 Not later than 18 months after the date of  
9 enactment of this Act, the Secretary  
10 shall—

11 (I) publish the guidelines de-  
12 scribed in clause (i); and

13 (II) solicit applications for fund-  
14 ing for demonstration projects.

15 (iii) PILOT DEMONSTRATION PRO-  
16 GRAM.—Not later than 21 months after  
17 the date of enactment of this Act, the Sec-  
18 retary shall select proposals for grant  
19 funding under this subsection, based on an  
20 assessment of which proposals are mostly  
21 likely to contribute to the development of  
22 a secondary market for batteries.

23 (b) MANUFACTURING.—The Secretary shall carry out  
24 a research, development, engineering, demonstration, and  
25 commercial application program of advanced vehicle man-

1 manufacturing technologies and practices, including innovative  
2 processes—

3 (1) to increase the production rate and decrease  
4 the cost of advanced battery and fuel cell manufac-  
5 turing;

6 (2) to vary the capability of individual manufac-  
7 turing facilities to accommodate different battery  
8 chemistries and configurations;

9 (3) to reduce waste streams, emissions, and en-  
10 ergy intensity of vehicle, engine, advanced battery,  
11 and component manufacturing processes;

12 (4) to recycle and remanufacture used batteries  
13 and other vehicle components for reuse in vehicles or  
14 stationary applications;

15 (5) to develop manufacturing processes to effec-  
16 tively fabricate, assemble, and produce cost-effective  
17 lightweight materials such as advanced aluminum  
18 and other metal alloys, polymeric composites, and  
19 carbon fiber for use in vehicles;

20 (6) to produce lightweight high pressure storage  
21 systems for gaseous fuels;

22 (7) to design and manufacture purpose-built hy-  
23 drogen fuel cell vehicles and components;

24 (8) to improve the calendar life and cycle life of  
25 advanced batteries; and

1           (9) to produce permanent magnets for advanced  
2       vehicles.

3       **SEC. 1706. MEDIUM- AND HEAVY-DUTY COMMERCIAL AND**  
4                               **TRANSIT VEHICLES PROGRAM.**

5       The Secretary, in partnership with relevant research  
6       and development programs in other Federal agencies, and  
7       a range of appropriate industry stakeholders, shall carry  
8       out a program of cooperative research, development, dem-  
9       onstration, and commercial application activities on ad-  
10      vanced technologies for medium- to heavy-duty commer-  
11      cial, vocational, recreational, and transit vehicles, includ-  
12      ing activities in the areas of—

13           (1) engine efficiency and combustion research;

14           (2) onboard storage technologies for compressed  
15      and liquefied natural gas;

16           (3) development and integration of engine tech-  
17      nologies designed for natural gas operation of a vari-  
18      ety of vehicle platforms;

19           (4) waste heat recovery and conversion;

20           (5) improved aerodynamics and tire rolling re-  
21      sistance;

22           (6) energy and space-efficient emissions control  
23      systems;

- 1 (7) mild hybrid, heavy hybrid, hybrid hydraulic,
- 2 plug-in hybrid, and electric platforms, and energy
- 3 storage technologies;
- 4 (8) drivetrain optimization;
- 5 (9) friction and wear reduction;
- 6 (10) engine idle and parasitic energy loss reduc-
- 7 tion;
- 8 (11) electrification of accessory loads;
- 9 (12) onboard sensing and communications tech-
- 10 nologies;
- 11 (13) advanced lightweighting materials and ve-
- 12 hicle designs;
- 13 (14) increasing load capacity per vehicle;
- 14 (15) thermal management of battery systems;
- 15 (16) recharging infrastructure;
- 16 (17) compressed natural gas infrastructure;
- 17 (18) advanced internal combustion engines;
- 18 (19) complete vehicle and power pack modeling,
- 19 simulation, and testing;
- 20 (20) hydrogen vehicle technologies, including
- 21 fuel cells and internal combustion engines, and hy-
- 22 drogen infrastructure, including hydrogen energy
- 23 storage to enable renewables and provide hydrogen
- 24 for fuel and power;

- 1           (21) retrofitting advanced technologies onto ex-  
2           isting truck fleets;  
3           (22) advanced boosting systems;  
4           (23) engine down speeding; and  
5           (24) integration of these and other advanced  
6           systems onto a single truck and trailer platform.

7 **SEC. 1707. CLASS 8 TRUCK AND TRAILER SYSTEMS DEM-**  
8           **ONSTRATION.**

9           (a) IN GENERAL.—The Secretary shall conduct a  
10 competitive grant program to demonstrate the integration  
11 of multiple advanced technologies on Class 8 truck and  
12 trailer platforms, including a combination of technologies  
13 listed in section 1706.

14           (b) APPLICANT TEAMS.—Applicant teams may be  
15 comprised of truck and trailer manufacturers, engine and  
16 component manufacturers, fleet customers, university re-  
17 searchers, and other applicants as appropriate for the de-  
18 velopment and demonstration of integrated Class 8 truck  
19 and trailer systems.

20 **SEC. 1708. TECHNOLOGY TESTING AND METRICS.**

21           The Secretary, in coordination with the partners of  
22 the interagency research program described in section  
23 1706—

- 24           (1) shall develop standard testing procedures  
25           and technologies for evaluating the performance of

1 advanced heavy vehicle technologies under a range of  
2 representative duty cycles and operating conditions,  
3 including for heavy hybrid propulsion systems;

4 (2) shall evaluate heavy vehicle performance  
5 using work performance-based metrics other than  
6 those based on miles per gallon, including those  
7 based on units of volume and weight transported for  
8 freight applications, and appropriate metrics based  
9 on the work performed by nonroad systems; and

10 (3) may construct heavy duty truck and bus  
11 testing facilities.

12 **SEC. 1709. NONROAD SYSTEMS PILOT PROGRAM.**

13 The Secretary shall undertake a pilot program of re-  
14 search, development, demonstration, and commercial ap-  
15 plications of technologies to improve total machine or sys-  
16 tem efficiency for nonroad mobile equipment including ag-  
17 ricultural, construction, air, and sea port equipment, and  
18 shall seek opportunities to transfer relevant research find-  
19 ings and technologies between the nonroad and on-high-  
20 way equipment and vehicle sectors.

21 **SEC. 1710. REPEAL OF EXISTING AUTHORITIES.**

22 (a) IN GENERAL.—Sections 706, 711, 712, and 933  
23 of the Energy Policy Act of 2005 (42 U.S.C. 16051,  
24 16061, 16062, 16233) are repealed.

1 (b) ENERGY EFFICIENCY.—Section 911 of the En-  
2 ergy Policy Act of 2005 (42 U.S.C. 16191) is amended—

3 (1) in subsection (a)—

4 (A) in paragraph (1)(A), by striking “vehi-  
5 cles, buildings,” and inserting “buildings”; and

6 (B) in paragraph (2)—

7 (i) by striking subparagraph (A); and

8 (ii) by redesignating subparagraphs

9 (B) through (E) as subparagraphs (A)  
10 through (D), respectively; and

11 (2) in subsection (c)—

12 (A) by striking paragraph (3);

13 (B) by redesignating paragraph (4) as  
14 paragraph (3); and

15 (C) in paragraph (3) (as so redesignated),  
16 by striking “(a)(2)(D)” and inserting  
17 “(a)(2)(C)”.

## 18 **Subtitle H—Department of Energy**

### 19 **SEC. 1801. VETERANS’ HEALTH INITIATIVE.**

20 (a) PURPOSES.—The purposes of this section are to  
21 advance Department expertise in artificial intelligence and  
22 high-performance computing in order to improve health  
23 outcomes for veteran populations by—

24 (1) supporting basic research through the appli-  
25 cation of artificial intelligence, high-performance

1 computing, modeling and simulation, machine learn-  
2 ing, and large-scale data analytics to identify and  
3 solve outcome-defined challenges in the health  
4 sciences;

5 (2) maximizing the impact of the Department  
6 of Veterans Affairs' health and genomics data  
7 housed at the National Laboratories, as well as data  
8 from other sources, on science, innovation, and  
9 health care outcomes through the use and advance-  
10 ment of artificial intelligence and high-performance  
11 computing capabilities of the Department;

12 (3) promoting collaborative research through  
13 the establishment of partnerships to improve data  
14 sharing between Federal agencies, National Labora-  
15 tories, institutions of higher education, and non-  
16 profit institutions;

17 (4) establishing multiple scientific computing  
18 user facilities to house and provision available data  
19 to foster transformational outcomes; and

20 (5) driving the development of technology to im-  
21 prove artificial intelligence, high-performance com-  
22 puting, and networking relevant to mission applica-  
23 tions of the Department, including modeling, simula-  
24 tion, machine learning, and advanced data analytics.



1 (b) VETERANS HEALTH RESEARCH AND DEVELOP-  
2 MENT.—

3 (1) IN GENERAL.—The Secretary shall establish  
4 and carry out a research program in artificial intel-  
5 ligence and high-performance computing, focused on  
6 the development of tools to solve large-scale data  
7 analytics and management challenges associated  
8 with veteran’s healthcare, and to support the efforts  
9 of the Department of Veterans Affairs to identify  
10 potential health risks and challenges utilizing data  
11 on long-term healthcare, health risks, and genomic  
12 data collected from veteran populations. The Sec-  
13 retary shall carry out this program through a com-  
14 petitive, merit-reviewed process, and consider appli-  
15 cations from National Laboratories, institutions of  
16 higher education, multi-institutional collaborations,  
17 and other appropriate entities.

18 (2) PROGRAM COMPONENTS.—In carrying out  
19 the program established under paragraph (1), the  
20 Secretary may—

21 (A) conduct basic research in modeling and  
22 simulation, machine learning, large-scale data  
23 analytics, and predictive analysis in order to de-  
24 velop novel or optimized algorithms for pre-  
25 diction of disease treatment and recovery;

1 (B) develop methods to accommodate large  
2 data sets with variable quality and scale, and to  
3 provide insight and models for complex systems;

4 (C) develop new approaches and maximize  
5 the use of algorithms developed through artifi-  
6 cial intelligence, machine learning, data ana-  
7 lytics, natural language processing, modeling  
8 and simulation, and develop new algorithms  
9 suitable for high-performance computing sys-  
10 tems and large biomedical data sets;

11 (D) advance existing and construct new  
12 data enclaves capable of securely storing data  
13 sets provided by the Department of Veterans  
14 Affairs, Department of Defense, and other  
15 sources; and

16 (E) promote collaboration and data shar-  
17 ing between National Laboratories, research en-  
18 tities, and user facilities of the Department by  
19 providing the necessary access and secure data  
20 transfer capabilities.

21 (3) COORDINATION.—In carrying out the pro-  
22 gram established under paragraph (1), the Secretary  
23 is authorized—

24 (A) to enter into memoranda of under-  
25 standing in order to carry out reimbursable

1 agreements with the Department of Veterans  
2 Affairs and other entities in order to maximize  
3 the effectiveness of Department research and  
4 development to improve veterans' healthcare;

5 (B) to consult with the Department of Vet-  
6 erans Affairs and other Federal agencies as ap-  
7 propriate; and

8 (C) to ensure that data storage meets all  
9 privacy and security requirements established  
10 by the Department of Veterans Affairs, and  
11 that access to data is provided in accordance  
12 with relevant Department of Veterans Affairs  
13 data access policies, including informed consent.

14 (4) REPORT.—Not later than 2 years after the  
15 date of enactment of this Act, the Secretary shall  
16 submit to the Committee on Energy and Natural  
17 Resources and the Committee on Veterans' Affairs  
18 of the Senate, and the Committee on Science, Space,  
19 and Technology and the Committee on Veterans' Af-  
20 fairs of the House of Representatives, a report de-  
21 tailing the effectiveness of—

22 (A) the interagency coordination between  
23 each Federal agency involved in the research  
24 program carried out under this subsection;

1 (B) collaborative research achievements of  
2 the program; and

3 (C) potential opportunities to expand the  
4 technical capabilities of the Department.

5 (5) FUNDING.—There is authorized to be ap-  
6 propriated to the Secretary of Veterans Affairs to  
7 carry out this subsection \$27,000,000 during the pe-  
8 riod of fiscal years 2021 through 2025.

9 (c) INTERAGENCY COLLABORATION.—

10 (1) IN GENERAL.—The Secretary is authorized  
11 to carry out research, development, and demonstra-  
12 tion activities to develop tools to apply to big data  
13 that enable Federal agencies, institutions of higher  
14 education, nonprofit research organizations, and in-  
15 dustry to better leverage the capabilities of the De-  
16 partment to solve complex, big data challenges. The  
17 Secretary shall carry out these activities through a  
18 competitive, merit-reviewed process, and consider ap-  
19 plications from National Laboratories, institutions of  
20 higher education, multi-institutional collaborations,  
21 and other appropriate entities.

22 (2) ACTIVITIES.—In carrying out the research,  
23 development, and demonstration activities authorized  
24 under paragraph (1), the Secretary may—

1 (A) utilize all available mechanisms to pre-  
2 vent duplication and coordinate research efforts  
3 across the Department;

4 (B) establish multiple user facilities to  
5 serve as data enclaves capable of securely stor-  
6 ing data sets created by Federal agencies, insti-  
7 tutions of higher education, nonprofit organiza-  
8 tions, or industry at National Laboratories; and

9 (C) promote collaboration and data sharing  
10 between National Laboratories, research enti-  
11 ties, and user facilities of the Department by  
12 providing the necessary access and secure data  
13 transfer capabilities.

14 (3) REPORT.—Not later than 2 years after the  
15 date of enactment of this Act, the Secretary shall  
16 submit to the Committee on Energy and Natural  
17 Resources of the Senate and the Committee on  
18 Science, Space, and Technology of the House of  
19 Representatives a report evaluating the effectiveness  
20 of the activities authorized under paragraph (1).

21 (4) FUNDING.—There are authorized to be ap-  
22 propriated to the Secretary to carry out this sub-  
23 section \$15,000,000 for each of fiscal years 2021  
24 through 2025.

1 **SEC. 1802. SMALL SCALE LNG ACCESS.**

2 Section 3 of the Natural Gas Act (15 U.S.C. 717b)  
3 is amended by striking subsection (c) and inserting the  
4 following:

5 “(c) **EXPEDITED APPLICATION AND APPROVAL**  
6 **PROCESS.**—

7 “(1) **IN GENERAL.**—For purposes of subsection  
8 (a), the following shall be deemed to be consistent  
9 with the public interest, and applications for such  
10 importation or exportation shall be granted without  
11 modification or delay:

12 “(A) The importation of the natural gas  
13 referred to in subsection (b).

14 “(B) Subject to the last sentence of sub-  
15 section (a), the exportation of natural gas in a  
16 volume up to and including 51,750,000,000  
17 cubic feet per year.

18 “(C) The exportation of natural gas to a  
19 nation with which there is in effect a free trade  
20 agreement requiring national treatment for  
21 trade in natural gas.

22 “(2) **EXCLUSION.**—Subparagraphs (B) and (C)  
23 of paragraph (1) shall not apply to any nation sub-  
24 ject to sanctions imposed by the United States.”.

1 **SEC. 1803. APPALACHIAN ENERGY FOR NATIONAL SECUR-**  
2 **RITY.**

3 (a) STUDY ON BUILDING ETHANE AND OTHER NAT-  
4 URAL-GAS-LIQUIDS-RELATED PETROCHEMICAL INFRA-  
5 STRUCTURE.—

6 (1) IN GENERAL.—Not later than 1 year after  
7 the date of enactment of this Act, the Secretary, in  
8 consultation with the Secretary of Defense, the Sec-  
9 retary of the Treasury, and the heads of other rel-  
10 evant Federal departments and agencies and stake-  
11 holders, shall conduct a study assessing the potential  
12 national and economic security impacts of building  
13 ethane and other natural-gas-liquids-related petro-  
14 chemical infrastructure in the geographical vicinity  
15 of the Marcellus, Utica, and Rogersville shale plays  
16 in the United States.

17 (2) CONTENTS.—The study conducted under  
18 paragraph (1) shall include—

19 (A) the identification of potential benefits  
20 of the proposed infrastructure to national and  
21 economic security, including the identification  
22 of potential risks to national and economic se-  
23 curity of significant foreign ownership and con-  
24 trol of United States domestic petrochemical re-  
25 sources; and

1 (B) an examination of, with respect to the  
2 proposed infrastructure—

3 (i) types of additional infrastructure  
4 needed to fully optimize the potential na-  
5 tional security benefits;

6 (ii) whether geopolitical diversity in  
7 areas to which the ethane and other nat-  
8 ural gas liquids will be exported from the  
9 producing region would undermine or bol-  
10 ster national security;

11 (iii) the necessity of evaluating the  
12 public interest with respect to exports of  
13 ethane, propane, butane, and other natural  
14 gas liquids, to ensure the potential stra-  
15 tegic national and economic security bene-  
16 fits are preserved within the United States;  
17 and

18 (iv) the potential benefits, with re-  
19 spect to significant weather impacts, com-  
20 pared to other regions, of locating the pro-  
21 posed infrastructure in the geographical vi-  
22 cinity of the Marcellus, Utica, and  
23 Rogersville shale plays.

24 (b) REPORTS.—



1           (1) STATUS REPORTS.—Prior to completion of  
2 the study under subsection (a), the Committees on  
3 Energy and Natural Resources and Armed Services  
4 of the Senate and the Committees on Energy and  
5 Commerce and Armed Services of the House of Rep-  
6 resentatives, from time to time, may request and re-  
7 ceive from the Secretary status reports with respect  
8 to the study, including any findings.

9           (2) SUBMISSION AND PUBLICATION OF RE-  
10 PORT.—On completion of the study under subsection  
11 (a), the Secretary shall—

12                   (A) submit to the Committees on Energy  
13 and Natural Resources and Armed Services of  
14 the Senate and the Committees on Energy and  
15 Commerce and Armed Services of the House of  
16 Representatives a report describing the results  
17 of the study; and

18                   (B) publish the report on the website of  
19 the Department.

20 **SEC. 1804. ENERGY AND WATER FOR SUSTAINABILITY.**

21           (a) NEXUS OF ENERGY AND WATER FOR SUSTAIN-  
22 ABILITY.—

23           (1) DEFINITIONS.—In this subsection:

1 (A) ENERGY-WATER NEXUS.—The term  
2 “energy-water nexus” means the links be-  
3 tween—

4 (i) the water needed to produce fuels,  
5 electricity, and other forms of energy; and

6 (ii) the energy needed to transport,  
7 reclaim, and treat water and wastewater.

8 (B) INTERAGENCY COORDINATION COM-  
9 MITTEE.—The term “Interagency Coordination  
10 Committee” means the Committee on the  
11 Nexus of Energy and Water for Sustainability  
12 (or the “NEWS Committee”) established under  
13 paragraph (2)(A).

14 (C) NEXUS OF ENERGY AND WATER SUS-  
15 TAINABILITY OFFICE; NEWS OFFICE.—The term  
16 “Nexus of Energy and Water Sustainability Of-  
17 fice” or the “NEWS Office” means an office lo-  
18 cated at the Department and managed in co-  
19 operation with the Department of the Interior  
20 pursuant to an agreement between the 2 agen-  
21 cies to carry out leadership and administrative  
22 functions for the Interagency Coordination  
23 Committee.

24 (D) RD&D.—The term “RD&D” means  
25 research, development, and demonstration.

1           (2) INTERAGENCY COORDINATION COM-  
2           MITTEE.—

3                   (A) ESTABLISHMENT.—Not later than 180  
4           days after the date of enactment of this Act,  
5           the Secretary and the Secretary of the Interior  
6           shall establish the joint NEWS Office and  
7           Interagency Coordination Committee on the  
8           Nexus of Energy and Water for Sustainability  
9           (or the “NEWS Committee”) to carry out the  
10          duties described in subparagraph (C).

11                   (B) ADMINISTRATION.—

12                   (i) CHAIRS.—The Secretary and the  
13           Secretary of the Interior shall jointly man-  
14           age the NEWS Office and serve as co-  
15           chairs of the Interagency Coordination  
16           Committee.

17                   (ii) MEMBERSHIP; STAFFING.—Mem-  
18           bership and staffing shall be determined by  
19           the co-chairs.

20                   (C) DUTIES.—The Interagency Coordina-  
21          tion Committee shall—

22                   (i) serve as a forum for developing  
23           common Federal goals and plans on en-  
24           ergy-water nexus RD&D activities in co-

1                   ordination with the National Science and  
2                   Technology Council;

3                   (ii) not later than 1 year after the  
4                   date of enactment of this Act, and bienni-  
5                   ally thereafter, issue a strategic plan on  
6                   energy-water nexus RD&D activities prior-  
7                   ities and objectives;

8                   (iii) convene and promote coordination  
9                   of the activities of Federal departments  
10                  and agencies on energy-water nexus RD&D  
11                  activities, including the activities of—

12                               (I) the Department;

13                               (II) the Department of the Inte-  
14                               rior;

15                               (III) the Corps of Engineers;

16                               (IV) the Department of Agri-  
17                               culture;

18                               (V) the Department of Defense;

19                               (VI) the Department of State;

20                               (VII) the Environmental Protec-  
21                               tion Agency;

22                               (VIII) the Council on Environ-  
23                               mental Quality;

24                               (IX) the National Institute of  
25                               Standards and Technology;

- 1 (X) the National Oceanic and At-  
2 mospheric Administration;
- 3 (XI) the National Science Foun-  
4 dation;
- 5 (XII) the Office of Management  
6 and Budget;
- 7 (XIII) the Office of Science and  
8 Technology Policy;
- 9 (XIV) the National Aeronautics  
10 and Space Administration; and
- 11 (XV) such other Federal depart-  
12 ments and agencies as the Inter-  
13 agency Coordination Committee con-  
14 siders appropriate;
- 15 (iv)(I) coordinate and develop capa-  
16 bilities and methodologies for data collec-  
17 tion, management, and dissemination of in-  
18 formation related to energy-water nexus  
19 RD&D activities from and to other Federal  
20 departments and agencies; and
- 21 (II) promote information ex-  
22 change between Federal departments  
23 and agencies—
- 24 (aa) to identify and docu-  
25 ment Federal and non-Federal

1 programs and funding opportuni-  
2 ties that support basic and ap-  
3 plied RD&D proposals to advance  
4 energy-water nexus related  
5 science and technologies;

6 (bb) to leverage existing pro-  
7 grams by encouraging joint solici-  
8 tations, block grants, and match-  
9 ing programs with non-Federal  
10 entities; and

11 (cc) to identify opportunities  
12 for domestic and international  
13 public-private partnerships, inno-  
14 vative financing mechanisms, and  
15 information and data exchange;

16 (v) promote the integration of energy-  
17 water nexus considerations into existing  
18 Federal water, energy, and other natural  
19 resource, infrastructure, and science pro-  
20 grams at the national and regional levels  
21 and with programs administered in part-  
22 nership with non-Federal entities; and

23 (vi) not later than 1 year after the  
24 date of enactment of this Act, issue a re-  
25 port on the potential benefits and feasi-

1           bility of establishing an energy-water cen-  
2           ter of excellence within the National Lab-  
3           oratories.

4           (D) NO REGULATION.—Nothing in this  
5           paragraph grants to the Interagency Coordina-  
6           tion Committee the authority to promulgate  
7           regulations or set standards.

8           (E) ADDITIONAL PARTICIPATION.—In de-  
9           veloping the strategic plan described in sub-  
10          paragraph (C)(ii), the Secretary shall consult  
11          and coordinate with a diverse group of rep-  
12          resentatives from research and academic insti-  
13          tutions, industry, public utility commissions,  
14          and State and local governments that have ex-  
15          pertise in technologies and practices relating to  
16          the energy-water nexus.

17          (F) REVIEW; REPORT.—At the end of the  
18          5-year period beginning on the date on which  
19          the Interagency Coordination Committee and  
20          NEWS Office are established, the NEWS Office  
21          shall—

22                  (i) review the activities, relevance, and  
23                  effectiveness of the Interagency Coordina-  
24                  tion Committee; and

1 (ii) submit to the Committee on En-  
2 ergy and Natural Resources of the Senate  
3 and the Committees on Science, Space,  
4 and Technology, Energy and Commerce,  
5 and Natural Resources of the House of  
6 Representatives a report that—

7 (I) describes the results of the re-  
8 view conducted under clause (i); and

9 (II) includes a recommendation  
10 on whether the Interagency Coordina-  
11 tion Committee should continue.

12 (3) CROSSCUT BUDGET.—Not later than 30  
13 days after the President submits the budget of the  
14 United States Government under section 1105 of  
15 title 31, United States Code, the co-chairs of the  
16 Interagency Coordination Committee (acting  
17 through the NEWS Office) shall submit to the Com-  
18 mittee on Energy and Natural Resources of the Sen-  
19 ate and the Committees on Science, Space, and  
20 Technology, Energy and Commerce, and Natural  
21 Resources of the House of Representatives, an inter-  
22 agency budget crosscut report that displays at the  
23 program-, project-, and activity-level for each of the  
24 Federal agencies that carry out or support (includ-  
25 ing through grants, contracts, interagency and



1       intraagency transfers, and multiyear and no-year  
2       funds) basic and applied RD&D activities to advance  
3       the energy-water nexus related science and tech-  
4       nologies—

5               (A) the budget proposed in the budget re-  
6               quest of the President for the upcoming fiscal  
7               year;

8               (B) expenditures and obligations for the  
9               prior fiscal year; and

10              (C) estimated expenditures and obligations  
11              for the current fiscal year.

12       (4) TERMINATION.—

13              (A) IN GENERAL.—The authority provided  
14              to the NEWS Office and NEWS Committee  
15              under this subsection shall terminate on the  
16              date that is 7 years after the date of enactment  
17              of this Act.

18              (B) EFFECT.—The termination of author-  
19              ity under subparagraph (A) shall not affect on-  
20              going interagency planning, coordination, or  
21              other activities relating to the energy-water  
22              nexus.

23       (b) INTEGRATING ENERGY AND WATER RE-  
24       SEARCH.—The Secretary shall integrate water consider-

1 ations into energy research, development, and demonstra-  
 2 tion programs and projects of the Department by—

3 (1) advancing energy and energy efficiency  
 4 technologies and practices that meet the objectives  
 5 of—

6 (A) minimizing freshwater withdrawal and  
 7 consumption;

8 (B) increasing water use efficiency; and

9 (C) utilizing nontraditional water sources;

10 (2) considering the effects climate variability  
 11 may have on water supplies and quality for energy  
 12 generation and fuel production; and

13 (3) improving understanding of the energy-  
 14 water nexus (as defined in subsection (a)(1)).

15 (c) SMART ENERGY AND WATER EFFICIENCY PILOT  
 16 PROGRAM.—

17 (1) IN GENERAL.—Subtitle A of title IX of the  
 18 Energy Policy Act of 2005 (42 U.S.C. 16191 et  
 19 seq.) is amended by adding at the end the following:

20 **“SEC. 918. SMART ENERGY AND WATER EFFICIENCY PILOT**  
 21 **PROGRAM.**

22 “(a) DEFINITIONS.—In this section:

23 “(1) ELIGIBLE ENTITY.—The term ‘eligible en-  
 24 tity’ means—

25 “(A) a utility;

1 “(B) a municipality;

2 “(C) a water district;

3 “(D) an Indian tribe or Alaska Native vil-  
4 lage; and

5 “(E) any other authority that provides  
6 water, wastewater, or water reuse services.

7 “(2) SMART ENERGY AND WATER EFFICIENCY  
8 PILOT PROGRAM.—The term ‘smart energy and  
9 water efficiency pilot program’ or ‘pilot program’  
10 means the pilot program established under sub-  
11 section (b).

12 “(b) SMART ENERGY AND WATER EFFICIENCY  
13 PILOT PROGRAM.—

14 “(1) IN GENERAL.—The Secretary shall estab-  
15 lish and carry out a smart energy and water effi-  
16 ciency pilot program in accordance with this section.

17 “(2) PURPOSE.—The purpose of the smart en-  
18 ergy and water efficiency pilot program is to award  
19 grants to eligible entities to demonstrate unique, ad-  
20 vanced, or innovative technology-based solutions that  
21 will—

22 “(A) improve the net energy balance of  
23 water, wastewater, and water reuse systems;

24 “(B) improve the net energy balance of  
25 water, wastewater, and water reuse systems to

1 help communities across the United States  
2 make measurable progress in conserving water,  
3 saving energy, and reducing costs;

4 “(C) support the implementation of inno-  
5 vative and unique processes and the installation  
6 of established advanced automated systems that  
7 provide real-time data on energy and water; and

8 “(D) improve energy-water conservation  
9 and quality and predictive maintenance through  
10 technologies that utilize internet connected  
11 technologies, including sensors, intelligent gate-  
12 ways, and security embedded in hardware.

13 “(3) PROJECT SELECTION.—

14 “(A) IN GENERAL.—The Secretary shall  
15 make competitive, merit-reviewed grants under  
16 the pilot program to not less than 3, but not  
17 more than 5, eligible entities.

18 “(B) SELECTION CRITERIA.—In selecting  
19 an eligible entity to receive a grant under the  
20 pilot program, the Secretary shall consider—

21 “(i) energy and cost savings;

22 “(ii) the uniqueness, commercial via-  
23 bility, and reliability of the technology to  
24 be used;

1 “(iii) the degree to which the project  
2 integrates next-generation sensors soft-  
3 ware, analytics, and management tools;

4 “(iv) the anticipated cost-effectiveness  
5 of the pilot project through measurable en-  
6 ergy savings, water savings or reuse, and  
7 infrastructure costs averted;

8 “(v) whether the technology can be  
9 deployed in a variety of geographic regions  
10 and the degree to which the technology can  
11 be implemented in a wide range of applica-  
12 tions ranging in scale from small towns to  
13 large cities, including tribal communities;

14 “(vi) whether the technology has been  
15 successfully deployed elsewhere;

16 “(vii) whether the technology was  
17 sourced from a manufacturer based in the  
18 United States; and

19 “(viii) whether the project will be  
20 completed in 5 years or less.

21 “(C) APPLICATIONS.—

22 “(i) IN GENERAL.—Subject to clause  
23 (ii), an eligible entity seeking a grant  
24 under the pilot program shall submit to  
25 the Secretary an application at such time,

1 in such manner, and containing such infor-  
2 mation as the Secretary determines to be  
3 necessary.

4 “(ii) CONTENTS.—An application  
5 under clause (i) shall, at a minimum, in-  
6 clude—

7 “(I) a description of the project;

8 “(II) a description of the tech-  
9 nology to be used in the project;

10 “(III) the anticipated results, in-  
11 cluding energy and water savings, of  
12 the project;

13 “(IV) a comprehensive budget for  
14 the project;

15 “(V) the names of the project  
16 lead organization and any partners;

17 “(VI) the number of users to be  
18 served by the project;

19 “(VII) a description of the ways  
20 in which the proposal would meet per-  
21 formance measures established by the  
22 Secretary; and

23 “(VIII) any other information  
24 that the Secretary determines to be

1                   necessary to complete the review and  
2                   selection of a grant recipient.

3                   “(4) ADMINISTRATION.—

4                   “(A) IN GENERAL.—Not later than 1 year  
5                   after the date of enactment of this section, the  
6                   Secretary shall select grant recipients under  
7                   this section.

8                   “(B) EVALUATIONS.—

9                   “(i) ANNUAL EVALUATIONS.—The  
10                  Secretary shall annually carry out an eval-  
11                  uation of each project for which a grant is  
12                  provided under this section that meets per-  
13                  formance measures and benchmarks devel-  
14                  oped by the Secretary, consistent with the  
15                  purposes of this section.

16                  “(ii) REQUIREMENTS.—Consistent  
17                  with the performance measures and bench-  
18                  marks developed under clause (i), in car-  
19                  rying out an evaluation under that clause,  
20                  the Secretary shall—

21                               “(I) evaluate the progress and  
22                               impact of the project; and

23                               “(II) assesses the degree to  
24                               which the project is meeting the goals  
25                               of the pilot program.

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1           “(C) TECHNICAL AND POLICY ASSIST-  
2 ANCE.—On the request of a grant recipient, the  
3 Secretary shall provide technical and policy as-  
4 sistance.

5           “(D) BEST PRACTICES.—The Secretary  
6 shall make available to the public through the  
7 Internet and other means the Secretary con-  
8 siders to be appropriate—

9                   “(i) a copy of each evaluation carried  
10 out under subparagraph (B); and

11                   “(ii) a description of any best prac-  
12 tices identified by the Secretary as a result  
13 of those evaluations.

14           “(E) REPORT TO CONGRESS.—The Sec-  
15 retary shall submit to Congress a report con-  
16 taining the results of each evaluation carried  
17 out under subparagraph (B).

18           “(c) AUTHORIZATION OF APPROPRIATIONS.—There  
19 is authorized to be appropriated to the Secretary to carry  
20 out this section \$15,000,000, to remain available until ex-  
21 pended.”.

22           (2) CONFORMING AMENDMENT.—The table of  
23 contents of the Energy Policy Act of 2005 (Public  
24 Law 109–58; 119 Stat. 594) is amended by insert-



1 ing after the item relating to section 917 the fol-  
2 lowing:

“Sec. 918. Smart energy and water efficiency pilot program.”.

3 **SEC. 1805. TECHNOLOGY TRANSITIONS.**

4 (a) OFFICE OF TECHNOLOGY TRANSITIONS.—Sec-  
5 tion 1001 of the Energy Policy Act of 2005 (42 U.S.C.  
6 16391) is amended—

7 (1) by striking subsection (a) and all that fol-  
8 lows through “The Coordinator” in subsection (b)  
9 and inserting the following:

10 “(a) OFFICE OF TECHNOLOGY TRANSITIONS.—

11 “(1) ESTABLISHMENT.—There is established  
12 within the Department an Office of Technology  
13 Transitions (referred to in this section as the ‘Of-  
14 fice’).

15 “(2) MISSION.—The mission of the Office shall  
16 be—

17 “(A) to expand the commercial impact of  
18 the research investments of the Department;  
19 and

20 “(B) to focus on commercializing tech-  
21 nologies that reduce greenhouse gas emissions  
22 and technologies that support other missions of  
23 the Department.

24 “(3) GOALS.—

1           “(A) IN GENERAL.—In carrying out the  
2 mission and activities of the Office, the Chief  
3 Commercialization Officer appointed under  
4 paragraph (4) shall, with respect to commer-  
5 cialization activities, meet not less than two of  
6 the goals described in subparagraph (B) and, to  
7 the maximum extent practicable, meet all of the  
8 goals described in that subparagraph.

9           “(B) GOALS DESCRIBED.—The goals re-  
10 ferred to in subparagraph (A) are the following:

11                   “(i) Reduction of greenhouse gas  
12 emissions.

13                   “(ii) Ensuring economic competitive-  
14 ness.

15                   “(iii) Enhancement of domestic en-  
16 ergy security and national security.

17                   “(iv) Enhancement of domestic jobs.

18                   “(v) Any other missions of the De-  
19 partment, as determined by the Secretary.

20           “(4) CHIEF COMMERCIALIZATION OFFICER.—

21           “(A) IN GENERAL.—The Office shall be  
22 headed by an officer, who shall be known as the  
23 ‘Chief Commercialization Officer’, and who  
24 shall report directly to, and be appointed by,  
25 the Secretary.

1           “(B) PRINCIPAL ADVISOR.—The Chief  
2 Commercialization Officer shall be the principal  
3 advisor to the Secretary on all matters relating  
4 to technology transfer and commercialization.

5           “(C) QUALIFICATIONS.—The Chief Com-  
6 mercialization Officer”;

7 (2) in subsection (c)—

8           (A) in paragraph (1), by striking “sub-  
9 section (d)” and inserting “subsection (b)”;

10           (B) by redesignating paragraphs (1)  
11 through (4) as clauses (i) through (iv), respec-  
12 tively, and indenting appropriately; and

13           (C) by striking the subsection designation  
14 and heading and all that follows through “The  
15 Coordinator” in the matter preceding clause (i)  
16 (as so redesignated) and inserting the following:

17           “(D) DUTIES.—The Chief Commercializa-  
18 tion Officer”;

19 (3) by adding at the end of subsection (a) (as  
20 amended by paragraph (2)(C)) the following:

21           “(5) COORDINATION.—In carrying out the mis-  
22 sion and activities of the Office, the Chief Commer-  
23 cialization Officer shall coordinate with the senior  
24 leadership of the Department, other relevant pro-  
25 gram offices of the Department, National Labora-

1       tories, the Technology Transfer Working Group es-  
2       tablished under subsection (b), the Technology  
3       Transfer Policy Board, and other stakeholders (in-  
4       cluding private industry).”;

5           (4) by redesignating subsections (d) through (h)  
6       as subsections (b) through (f), respectively; and

7           (5) in subsection (f) (as so redesignated), by  
8       striking “subsection (e)” and inserting “subsection  
9       (e)”.

10       (b) REVIEW OF APPLIED ENERGY PROGRAMS.—

11           (1) IN GENERAL.—Not later than 1 year after  
12       the date of enactment of this Act, the Secretary  
13       shall conduct a review of all applied energy research  
14       and development programs under the Department  
15       that focus on researching and developing tech-  
16       nologies that reduce emissions.

17           (2) REQUIREMENTS.—In conducting the review  
18       under paragraph (1), the Secretary shall—

19           (A) identify each program described in  
20       that paragraph the mission of which is to re-  
21       search and develop technologies that reduce  
22       emissions;

23           (B) determine the type of services provided  
24       by each program identified under subparagraph  
25       (A), such as grants and technical assistance;

1 (C) determine whether there are written  
2 program goals for each program identified  
3 under subparagraph (A);

4 (D) examine the extent to which the pro-  
5 grams identified under subparagraph (A) over-  
6 lap or are duplicative; and

7 (E) develop recommendations—

8 (i) as to how any overlapping or dupli-  
9 cative programs identified under subpara-  
10 graph (D) should be restructured or con-  
11 solidated, including by any necessary legis-  
12 lation;

13 (ii) as to how to identify technologies  
14 described in subparagraph (A) that—

15 (I) are not served by a single  
16 program office at the Department; or

17 (II) the research and develop-  
18 ment of which may require collabora-  
19 tion with other Federal agencies; and

20 (iii) for methods to improve the pro-  
21 grams identified under subparagraph (A),  
22 including by establishing program goals,  
23 assessing workforce considerations and  
24 technical skills, or increasing collaboration

1                   with other Federal agencies and stake-  
2                   holders (including private industry).

3                   (3) REPORT.—Not later than 60 days after the  
4                   Secretary completes the review under paragraph (1),  
5                   the Secretary shall submit to the Committee on En-  
6                   ergy and Natural Resources of the Senate and the  
7                   Committees on Science, Space, and Technology and  
8                   Energy and Commerce of the House of Representa-  
9                   tives a report describing the results of and the rec-  
10                  ommendations developed under the review.

11 **SEC. 1806. ENERGY TECHNOLOGY COMMERCIALIZATION**  
12                   **FUND COST-SHARING.**

13                  Section 1001 of the Energy Policy Act of 2005 (42  
14 U.S.C. 16391) is amended in subsection (c) (as redesign-  
15 nated by section 1805(a)(4))—

16                  (1) in the subsection heading, by inserting “EN-  
17                  ERGY” before “TECHNOLOGY”; and

18                  (2) by striking “matching funds with private  
19                  partners” and inserting “, in accordance with the  
20                  cost-sharing requirements under section 988, funds  
21                  to private partners, including National Labora-  
22                  tories,”.

1 **SEC. 1807. STATE LOAN ELIGIBILITY.**

2 (a) DEFINITIONS.—Section 1701 of the Energy Pol-  
3 icy Act of 2005 (42 U.S.C. 16511) is amended by adding  
4 at the end the following:

5 “(6) STATE.—The term ‘State’ has the mean-  
6 ing given the term in section 202 of the Energy  
7 Conservation and Production Act (42 U.S.C. 6802).

8 “(7) STATE ENERGY FINANCING INSTITU-  
9 TION.—

10 “(A) IN GENERAL.—The term ‘State en-  
11 ergy financing institution’ means a quasi-inde-  
12 pendent entity or an entity within a State agen-  
13 cy or financing authority established by a  
14 State—

15 “(i) to provide financing support or  
16 credit enhancements, including loan guar-  
17 antees and loan loss reserves, for eligible  
18 projects; and

19 “(ii) to create liquid markets for eligi-  
20 ble projects, including warehousing and  
21 securitization, or take other steps to reduce  
22 financial barriers to the deployment of ex-  
23 isting and new eligible projects.

24 “(B) INCLUSION.—The term ‘State energy  
25 financing institution’ includes an entity or orga-  
26 nization established to achieve the purposes de-

1           scribed in clauses (i) and (ii) of subparagraph  
2           (A) by an Indian Tribal entity or an Alaska  
3           Native Corporation.”.

4           (b) TERMS AND CONDITIONS.—Section 1702 of the  
5 Energy Policy Act of 2005 (42 U.S.C. 16512) is amend-  
6 ed—

7           (1) in subsection (a), by inserting “, including  
8 projects receiving financial support or credit en-  
9 hancements from a State energy financing institu-  
10 tion,” after “for projects”;

11           (2) in subsection (d)(1), by inserting “, includ-  
12 ing a guarantee for a project receiving financial sup-  
13 port or credit enhancements from a State energy fi-  
14 nancing institution,” after “No guarantee”; and

15           (3) by adding at the end the following:

16           “(1) STATE ENERGY FINANCING INSTITUTIONS.—

17           “(1) ELIGIBILITY.—To be eligible for a guar-  
18 antee under this title, a project receiving financial  
19 support or credit enhancements from a State energy  
20 financing institution—

21           “(A) shall meet the requirements of section  
22 1703(a)(1); and

23           “(B) shall not be required to meet the re-  
24 quirements of section 1703(a)(2).



1           “(2) PARTNERSHIPS AUTHORIZED.—In car-  
2       rying out a project receiving a loan guarantee under  
3       this title, State energy financing institutions may  
4       enter into partnerships with private entities, Tribal  
5       entities, and Alaska Native corporations.

6           “(3) PROHIBITION ON USE OF APPROPRIATED  
7       FUNDS.—Amounts appropriated to the Department  
8       before the date of enactment of this subsection shall  
9       not be available to be used for the cost of loan guar-  
10      antees made to State energy financing institutions  
11      under this subsection.”.

12 **SEC. 1808. ARPA-E REAUTHORIZATION.**

13       (a) GOALS.—Section 5012(c) of the America COM-  
14      PETES Act (42 U.S.C. 16538(c)) is amended—

15           (1) in paragraph (1), by striking subparagraph  
16      (A) and inserting the following:

17                   “(A) to enhance the economic and energy  
18                   security of the United States through the devel-  
19                   opment of energy technologies that—

20                           “(i) reduce imports of energy from  
21                           foreign sources;

22                           “(ii) reduce energy-related emissions,  
23                           including greenhouse gases;

24                           “(iii) improve the energy efficiency of  
25                           all economic sectors; and

1                   “(iv) improve the resilience, reliability,  
2                   and security of infrastructure to produce,  
3                   deliver, and store energy; and”;

4                   (2) in paragraph (2), in the matter preceding  
5                   subparagraph (A), by striking “energy” and insert-  
6                   ing “advanced”.

7                   (b) RESPONSIBILITIES.—Section 5012(e)(3)(A) of  
8 the America COMPETES Act (42 U.S.C.  
9 16538(e)(3)(A)) is amended by striking “energy”.

10                  (c) AWARDS.—Section 5012(f) of the America COM-  
11 PETES Act (42 U.S.C. 16538(f)) is amended—

12                   (1) by striking “In carrying” and inserting the  
13                   following:

14                   “(1) IN GENERAL.—In carrying”; and

15                   (2) by adding at the end the following:

16                   “(2) CONSIDERATION OF PRIOR GRANTS.—In  
17                   awarding a grant under paragraph (1), the Director  
18                   shall take into account the satisfactory completion of  
19                   any project carried out by the entity applying for the  
20                   grant using any prior grant funds awarded to that  
21                   entity by the Director.”.

22                  (d) REPORTS AND ROADMAPS.—Section 5012(h) of  
23 the America COMPETES Act (42 U.S.C. 16538(h)) is  
24 amended—

25                   (1) in paragraph (1)—

1 (A) by striking “describing projects” and  
2 inserting the following: “describing—

3 “(A) projects”;

4 (B) in subparagraph (A) (as so des-  
5 ignated), by striking the period at the end and  
6 inserting “, including projects that examine top-  
7 ics and technologies closely relating to other ac-  
8 tivities funded by the Department;” and

9 (C) by adding at the end the following:

10 “(B) an analysis of whether the Director is  
11 in compliance with subsection (i)(1)(A) in sup-  
12 porting projects that examine the topics and  
13 technologies described in subparagraph (A); and

14 “(C) current, proposed, and planned  
15 projects to be carried out pursuant to sub-  
16 section (e)(3)(D).”; and

17 (2) in paragraph (2)—

18 (A) by striking “October 1, 2010, and Oc-  
19 tober 1, 2013” and inserting “October 1, 2021,  
20 and every 4 years thereafter”; and

21 (B) by striking “3” and inserting “4”.

22 (e) COORDINATION AND NONDUPLICATION.—Section  
23 5012(i)(1) of the America COMPETES Act (42 U.S.C.  
24 16538(i)(1)) is amended—

1           (1) by striking “that the activities” and insert-  
2           ing the following: “that—

3                     “(A) the activities”;

4           (2) in subparagraph (A) (as so designated), by  
5           striking the period at the end and inserting “; and”;  
6           and

7           (3) by adding at the end the following:

8                     “(B) an award is not provided for a  
9           project unless the prospective award recipient  
10           demonstrates that—

11                     “(i) the prospective award recipient  
12           has made a sufficient attempt to secure  
13           private financing, as determined by the Di-  
14           rector; or

15                     “(ii) the project is not independently  
16           commercially viable.”.

17           (f) EVALUATION.—Section 5012(l) of the America  
18           COMPETES Act (42 U.S.C. 16538(l)) is amended—

19           (1) in paragraph (1), by striking “After” and  
20           all that follows through “years” and inserting “Not  
21           later than 3 years after the date of enactment of the  
22           American Energy Innovation Act of 2020”; and

23           (2) in paragraph (2)—

1 (A) in the matter preceding subparagraph  
2 (A), by striking “shall” and inserting “may”;  
3 and

4 (B) in subparagraph (A), by striking “the  
5 recommendation of the National Academy of  
6 Sciences” and inserting “a recommendation”.

7 (g) AUTHORIZATION OF APPROPRIATIONS.—Section  
8 5012(o)(2) of the America COMPETES Act (42 U.S.C.  
9 16538(o)(2)) is amended—

10 (1) in the matter preceding subparagraph (A),  
11 by striking “paragraphs (4) and (5)” and inserting  
12 “paragraph (4)”; and

13 (2) by striking subparagraphs (A) through (E)  
14 and inserting the following:

15 “(A) \$428,000,000 for fiscal year 2021;

16 “(B) \$497,000,000 for fiscal year 2022;

17 “(C) \$567,000,000 for fiscal year 2023;

18 “(D) \$651,000,000 for fiscal year 2024;

19 and

20 “(E) \$750,000,000 for fiscal year 2025.”.

21 (h) TECHNICAL AMENDMENTS.—Section 5012 of the  
22 America COMPETES Act (42 U.S.C. 16538) is amend-  
23 ed—

1           (1) in subsection (g)(3)(A)(iii), by striking  
2           “subpart” each place it appears and inserting “sub-  
3           paragraph”; and

4           (2) in subsection (o)(4)(B), by striking  
5           “(c)(2)(D)” and inserting “(c)(2)(C)”.

6   **SEC. 1809. ADJUSTING STRATEGIC PETROLEUM RESERVE**  
7                           **MANDATED DRAWDOWNS.**

8           (a) AMERICA’S WATER INFRASTRUCTURE ACT OF  
9   2018.—Section 3009(a)(1) of the America’s Water Infra-  
10   structure Act of 2018 (42 U.S.C. 6241 note; Public Law  
11   115–270) is amended by striking “2028” and inserting  
12   “2030.”

13          (b) BIPARTISAN BUDGET ACT OF 2018.—Section  
14   30204(a)(1) of the Bipartisan Budget Act of 2018 (42  
15   U.S.C. 6241 note; Public Law 115–123) is amended—

16           (1) in subparagraph (B), by striking “2026”  
17           and inserting “2029”; and

18           (2) in subparagraph (C), by striking “2027”  
19           and inserting “2030”.

20          (c) RECONCILIATION ON THE BUDGET FOR 2018.—  
21   Section 20003(a)(1) of Public Law 115–97 (42 U.S.C.  
22   6241 note) is amended by striking “2026 through 2027”  
23   and inserting “2029 through 2030.”.

1           **TITLE II—SUPPLY CHAIN**  
2                           **SECURITY**  
3           **Subtitle A—Mineral Security**

4 **SEC. 2101. MINERAL SECURITY.**

5           (a) DEFINITIONS.—In this section:

6                   (1) BYPRODUCT.—The term “byproduct”  
7 means a critical mineral—

8                           (A) the recovery of which depends on the  
9 production of a host mineral that is not des-  
10 igned as a critical mineral; and

11                           (B) that exists in sufficient quantities to  
12 be recovered during processing or refining.

13                   (2) CRITICAL MINERAL.—

14                           (A) IN GENERAL.—The term “critical min-  
15 eral” means any mineral, element, substance, or  
16 material designated as critical by the Secretary  
17 under subsection (c).

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

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

22                                   (ii) water, ice, or snow.

23                   (3) INDIAN TRIBE.—The term “Indian tribe”  
24 has the meaning given the term in section 4 of the

1 Indian Self-Determination and Education Assistance  
2 Act (25 U.S.C. 5304).

3 (4) SECRETARY.—The term “Secretary” means  
4 the Secretary of the Interior.

5 (5) STATE.—The term “State” means—

6 (A) a State;

7 (B) the District of Columbia;

8 (C) the Commonwealth of Puerto Rico;

9 (D) Guam;

10 (E) American Samoa;

11 (F) the Commonwealth of the Northern  
12 Mariana Islands; and

13 (G) the United States Virgin Islands.

14 (b) POLICY.—

15 (1) IN GENERAL.—Section 3 of the National  
16 Materials and Minerals Policy, Research and Devel-  
17 opment Act of 1980 (30 U.S.C. 1602) is amended  
18 in the second sentence—

19 (A) by striking paragraph (3) and insert-  
20 ing the following:

21 “(3) establish an analytical and forecasting ca-  
22 pability for identifying critical mineral demand, sup-  
23 ply, and other factors to allow informed actions to  
24 be taken to avoid supply shortages, mitigate price



1 volatility, and prepare for demand growth and other  
2 market shifts;”;

3 (B) in paragraph (6), by striking “and”  
4 after the semicolon at the end; and

5 (C) by striking paragraph (7) and insert-  
6 ing the following:

7 “(7) facilitate the availability, development, and  
8 environmentally responsible production of domestic  
9 resources to meet national material or critical min-  
10 eral needs;

11 “(8) avoid duplication of effort, prevent unnec-  
12 essary paperwork, and minimize delays in the ad-  
13 ministration of applicable laws (including regula-  
14 tions) and the issuance of permits and authoriza-  
15 tions necessary to explore for, develop, and produce  
16 critical minerals and to construct critical mineral  
17 manufacturing facilities in accordance with applica-  
18 ble environmental and land management laws;

19 “(9) strengthen—

20 “(A) educational and research capabilities  
21 at not lower than the secondary school level;  
22 and

23 “(B) workforce training for exploration  
24 and development of critical minerals and critical  
25 mineral manufacturing;

1           “(10) bolster international cooperation through  
2           technology transfer, information sharing, and other  
3           means;

4           “(11) promote the efficient production, use, and  
5           recycling of critical minerals;

6           “(12) develop alternatives to critical minerals;  
7           and

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

11          (2) CONFORMING AMENDMENT.—Section 2(b)  
12          of the National Materials and Minerals Policy, Re-  
13          search and Development Act of 1980 (30 U.S.C.  
14          1601(b)) is amended by striking “(b) As used in this  
15          Act, the term” and inserting the following:

16          “(b) DEFINITIONS.—In this Act:

17                 “(1) CRITICAL MINERAL.—The term ‘critical  
18                 mineral’ means any mineral, element, substance, or  
19                 material designated as critical by the Secretary  
20                 under section 2101(c) of the American Energy Inno-  
21                 vation Act of 2020.

22                 “(2) MATERIALS.—The term”.

23          (c) CRITICAL MINERAL DESIGNATIONS.—

24                 (1) DRAFT METHODOLOGY AND LIST.—The  
25          Secretary, acting through the Director of the United

1 States Geological Survey (referred to in this sub-  
2 section as the “Secretary”), shall publish in the Fed-  
3 eral Register for public comment—

4 (A) a description of the draft methodology  
5 used to identify a draft list of critical minerals;

6 (B) a draft list of minerals, elements, sub-  
7 stances, and materials that qualify as critical  
8 minerals; and

9 (C) a draft list of critical minerals recov-  
10 ered as byproducts.

11 (2) AVAILABILITY OF DATA.—If available data  
12 is insufficient to provide a quantitative basis for the  
13 methodology developed under this subsection, quali-  
14 tative evidence may be used to the extent necessary.

15 (3) FINAL METHODOLOGY AND LIST.—After re-  
16 viewing public comments on the draft methodology  
17 and the draft lists published under paragraph (1)  
18 and updating the methodology and lists as appro-  
19 priate, not later than 45 days after the date on  
20 which the public comment period with respect to the  
21 draft methodology and draft lists closes, the Sec-  
22 retary shall publish in the Federal Register—

23 (A) a description of the final methodology  
24 for determining which minerals, elements, sub-

1 stances, and materials qualify as critical min-  
2 erals;

3 (B) the final list of critical minerals; and

4 (C) the final list of critical minerals recov-  
5 ered as byproducts.

6 (4) DESIGNATIONS.—

7 (A) IN GENERAL.—For purposes of car-  
8 rying out this subsection, the Secretary shall  
9 maintain a list of minerals, elements, sub-  
10 stances, and materials designated as critical,  
11 pursuant to the final methodology published  
12 under paragraph (3), that the Secretary deter-  
13 mines—

14 (i) are essential to the economic or  
15 national security of the United States;

16 (ii) the supply chain of which is vul-  
17 nerable to disruption (including restrictions  
18 associated with foreign political risk, ab-  
19 rupt demand growth, military conflict, vio-  
20 lent unrest, anti-competitive or protec-  
21 tionist behaviors, and other risks through-  
22 out the supply chain); and

23 (iii) serve an essential function in the  
24 manufacturing of a product (including en-  
25 ergy technology-, defense-, currency-, agri-

1 culture-, consumer electronics-, and health  
2 care-related applications), the absence of  
3 which would have significant consequences  
4 for the economic or national security of the  
5 United States.

6 (B) INCLUSIONS.—Notwithstanding the  
7 criteria under paragraph (3), the Secretary may  
8 designate and include on the list any mineral,  
9 element, substance, or material determined by  
10 another Federal agency to be strategic and crit-  
11 ical to the defense or national security of the  
12 United States.

13 (C) REQUIRED CONSULTATION.—The Sec-  
14 retary shall consult with the Secretaries of De-  
15 fense, Commerce, Agriculture, and Energy and  
16 the United States Trade Representative in des-  
17 ignating minerals, elements, substances, and  
18 materials as critical under this paragraph.

19 (5) SUBSEQUENT REVIEW.—

20 (A) IN GENERAL.—The Secretary, in con-  
21 sultation with the Secretaries of Defense, Com-  
22 merce, Agriculture, and Energy and the United  
23 States Trade Representative, shall review the  
24 methodology and list under paragraph (3) and  
25 the designations under paragraph (4) at least

1 every 3 years, or more frequently as the Sec-  
2 retary considers to be appropriate.

3 (B) REVISIONS.—Subject to paragraph  
4 (4)(A), the Secretary may—

5 (i) revise the methodology described in  
6 this subsection;

7 (ii) determine that minerals, elements,  
8 substances, and materials previously deter-  
9 mined to be critical minerals are no longer  
10 critical minerals; and

11 (iii) designate additional minerals, ele-  
12 ments, substances, or materials as critical  
13 minerals.

14 (6) NOTICE.—On finalization of the method-  
15 ology and the list under paragraph (3), or any revi-  
16 sion to the methodology or list under paragraph (5),  
17 the Secretary shall submit to Congress written no-  
18 tice of the action.

19 (d) RESOURCE ASSESSMENT.—

20 (1) IN GENERAL.—Not later than 4 years after  
21 the date of enactment of this Act, in consultation  
22 with applicable State (including geological surveys),  
23 local, academic, industry, and other entities, the Sec-  
24 retary (acting through the Director of the United  
25 States Geological Survey) or a designee of the Sec-

1       retary, shall complete a comprehensive national as-  
2       sessment of each critical mineral that—

3               (A) identifies and quantifies known critical  
4               mineral resources, using all available public and  
5               private information and datasets, including ex-  
6               ploration histories; and

7               (B) provides a quantitative and qualitative  
8               assessment of undiscovered critical mineral re-  
9               sources throughout the United States, including  
10              probability estimates of tonnage and grade,  
11              using all available public and private informa-  
12              tion and datasets, including exploration his-  
13              tories.

14             (2) SUPPLEMENTARY INFORMATION.—In car-  
15             rying out this subsection, the Secretary may carry  
16             out surveys and field work (including drilling, re-  
17             mote sensing, geophysical surveys, topographical and  
18             geological mapping, and geochemical sampling and  
19             analysis) to supplement existing information and  
20             datasets available for determining the existence of  
21             critical minerals in the United States.

22             (3) PUBLIC ACCESS.—Subject to applicable law,  
23             to the maximum extent practicable, the Secretary  
24             shall make all data and metadata collected from the  
25             comprehensive national assessment carried out

1 under paragraph (1) publically and electronically ac-  
2 cessible.

3 (4) TECHNICAL ASSISTANCE.—At the request of  
4 the Governor of a State or the head of an Indian  
5 tribe, the Secretary may provide technical assistance  
6 to State governments and Indian tribes conducting  
7 critical mineral resource assessments on non-Federal  
8 land.

9 (5) PRIORITIZATION.—

10 (A) IN GENERAL.—The Secretary may se-  
11 quence the completion of resource assessments  
12 for each critical mineral such that critical min-  
13 erals considered to be most critical under the  
14 methodology established under subsection (c)  
15 are completed first.

16 (B) REPORTING.—During the period be-  
17 ginning not later than 1 year after the date of  
18 enactment of this Act and ending on the date  
19 of completion of all of the assessments required  
20 under this subsection, the Secretary shall sub-  
21 mit to Congress on an annual basis an interim  
22 report that—

23 (i) identifies the sequence and sched-  
24 ule for completion of the assessments if the  
25 Secretary sequences the assessments; or



1 (ii) describes the progress of the as-  
2 sessments if the Secretary does not se-  
3 quence the assessments.

4 (6) UPDATES.—The Secretary may periodically  
5 update the assessments conducted under this sub-  
6 section based on—

7 (A) the generation of new information or  
8 datasets by the Federal Government; or

9 (B) the receipt of new information or  
10 datasets from critical mineral producers, State  
11 geological surveys, academic institutions, trade  
12 associations, or other persons.

13 (7) ADDITIONAL SURVEYS.—The Secretary  
14 shall complete a resource assessment for each addi-  
15 tional mineral or element subsequently designated as  
16 a critical mineral under subsection (c)(5)(B) not  
17 later than 2 years after the designation of the min-  
18 eral or element.

19 (8) REPORT.—Not later than 2 years after the  
20 date of enactment of this Act, the Secretary shall  
21 submit to Congress a report describing the status of  
22 geological surveying of Federal land for any mineral  
23 commodity—

24 (A) for which the United States was de-  
25 pendent on a foreign country for more than 25

1 percent of the United States supply, as depicted  
2 in the report issued by the United States Geo-  
3 logical Survey entitled “Mineral Commodity  
4 Summaries 2020”; but

5 (B) that is not designated as a critical  
6 mineral under subsection (c).

7 (e) PERMITTING.—

8 (1) SENSE OF CONGRESS.—It is the sense of  
9 Congress that—

10 (A) critical minerals are fundamental to  
11 the economy, competitiveness, and security of  
12 the United States;

13 (B) to the maximum extent practicable,  
14 the critical mineral needs of the United States  
15 should be satisfied by minerals responsibly pro-  
16 duced and recycled in the United States; and

17 (C) the Federal permitting process has  
18 been identified as an impediment to mineral  
19 production and the mineral security of the  
20 United States.

21 (2) PERFORMANCE IMPROVEMENTS.—To im-  
22 prove the quality and timeliness of decisions, the  
23 Secretary (acting through the Director of the Bu-  
24 reau of Land Management) and the Secretary of Ag-  
25 riculture (acting through the Chief of the Forest

1 Service) (referred to in this subsection as the “Sec-  
2 retaries”) shall, to the maximum extent practicable,  
3 with respect to critical mineral production on Fed-  
4 eral land, complete Federal permitting and review  
5 processes with maximum efficiency and effectiveness,  
6 while supporting vital economic growth, by—

7 (A) establishing and adhering to timelines  
8 and schedules for the consideration of, and final  
9 decisions regarding, applications, operating  
10 plans, leases, licenses, permits, and other use  
11 authorizations for mineral-related activities on  
12 Federal land;

13 (B) establishing clear, quantifiable, and  
14 temporal permitting performance goals and  
15 tracking progress against those goals;

16 (C) engaging in early collaboration among  
17 agencies, project sponsors, and affected stake-  
18 holders—

19 (i) to incorporate and address the in-  
20 terests of those parties; and

21 (ii) to minimize delays;

22 (D) ensuring transparency and account-  
23 ability by using cost-effective information tech-  
24 nology to collect and disseminate information

1 regarding individual projects and agency per-  
2 formance;

3 (E) engaging in early and active consulta-  
4 tion with State, local, and Indian tribal govern-  
5 ments to avoid conflicts or duplication of effort,  
6 resolve concerns, and allow for concurrent,  
7 rather than sequential, reviews;

8 (F) providing demonstrable improvements  
9 in the performance of Federal permitting and  
10 review processes, including lower costs and  
11 more timely decisions;

12 (G) expanding and institutionalizing per-  
13 mitting and review process improvements that  
14 have proven effective;

15 (H) developing mechanisms to better com-  
16 municate priorities and resolve disputes among  
17 agencies at the national, regional, State, and  
18 local levels; and

19 (I) developing other practices, such as  
20 preapplication procedures.

21 (3) REVIEW AND REPORT.—Not later than 1  
22 year after the date of enactment of this Act, the  
23 Secretaries shall submit to Congress a report that—

24 (A) identifies additional measures (includ-  
25 ing regulatory and legislative proposals, as ap-

1           appropriate) that would increase the timeliness of  
2           permitting activities for the exploration and de-  
3           velopment of domestic critical minerals;

4           (B) identifies options (including cost recov-  
5           ery paid by permit applicants) for ensuring ade-  
6           quate staffing and training of Federal entities  
7           and personnel responsible for the consideration  
8           of applications, operating plans, leases, licenses,  
9           permits, and other use authorizations for crit-  
10          ical mineral-related activities on Federal land;

11          (C) quantifies the amount of time typically  
12          required (including range derived from min-  
13          imum and maximum durations, mean, median,  
14          variance, and other statistical measures or rep-  
15          resentations) to complete each step (including  
16          those aspects outside the control of the execu-  
17          tive branch, such as judicial review, applicant  
18          decisions, or State and local government in-  
19          volvement) associated with the development and  
20          processing of applications, operating plans,  
21          leases, licenses, permits, and other use author-  
22          izations for critical mineral-related activities on  
23          Federal land, which shall serve as a baseline for  
24          the performance metric under paragraph (4);  
25          and

1 (D) describes actions carried out pursuant  
2 to paragraph (2).

3 (4) PERFORMANCE METRIC.—Not later than 90  
4 days after the date of submission of the report  
5 under paragraph (3), the Secretaries, after providing  
6 public notice and an opportunity to comment, shall  
7 develop and publish a performance metric for evalu-  
8 ating the progress made by the executive branch to  
9 expedite the permitting of activities that will in-  
10 crease exploration for, and development of, domestic  
11 critical minerals, while maintaining environmental  
12 standards.

13 (5) ANNUAL REPORTS.—Beginning with the  
14 first budget submission by the President under sec-  
15 tion 1105 of title 31, United States Code, after pub-  
16 lication of the performance metric required under  
17 paragraph (4), and annually thereafter, the Secre-  
18 taries shall submit to Congress a report that—

19 (A) summarizes the implementation of rec-  
20 ommendations, measures, and options identified  
21 in subparagraphs (A) and (B) of paragraph (3);

22 (B) using the performance metric under  
23 paragraph (4), describes progress made by the  
24 executive branch, as compared to the baseline  
25 established pursuant to paragraph (3)(C), on

1           expediting the permitting of activities that will  
2           increase exploration for, and development of,  
3           domestic critical minerals; and

4           (C) compares the United States to other  
5           countries in terms of permitting efficiency and  
6           any other criteria relevant to the globally com-  
7           petitive critical minerals industry.

8           (6) INDIVIDUAL PROJECTS.—Using data from  
9           the Secretaries generated under paragraph (5), the  
10          Director of the Office of Management and Budget  
11          shall prioritize inclusion of individual critical mineral  
12          projects on the website operated by the Office of  
13          Management and Budget in accordance with section  
14          1122 of title 31, United States Code.

15          (7) REPORT OF SMALL BUSINESS ADMINISTRA-  
16          TION.—Not later than 1 year and 300 days after the  
17          date of enactment of this Act, the Administrator of  
18          the Small Business Administration shall submit to  
19          the applicable committees of Congress a report that  
20          assesses the performance of Federal agencies with  
21          respect to—

22                 (A) complying with chapter 6 of title 5,  
23                 United States Code (commonly known as the  
24                 “Regulatory Flexibility Act”), in promulgating

1 regulations applicable to the critical minerals  
2 industry; and

3 (B) performing an analysis of regulations  
4 applicable to the critical minerals industry that  
5 may be outmoded, inefficient, duplicative, or ex-  
6 cessively burdensome.

7 (f) FEDERAL REGISTER PROCESS.—

8 (1) DEPARTMENTAL REVIEW.—Absent any ex-  
9 traordinary circumstance, and except as otherwise  
10 required by law, the Secretary and the Secretary of  
11 Agriculture shall ensure that each Federal Register  
12 notice described in paragraph (2) shall be—

13 (A) subject to any required reviews within  
14 the Department of the Interior or the Depart-  
15 ment of Agriculture; and

16 (B) published in final form in the Federal  
17 Register not later than 45 days after the date  
18 of initial preparation of the notice.

19 (2) PREPARATION.—The preparation of Federal  
20 Register notices required by law associated with the  
21 issuance of a critical mineral exploration or mine  
22 permit shall be delegated to the organizational level  
23 within the agency responsible for issuing the critical  
24 mineral exploration or mine permit.



1           (3) TRANSMISSION.—All Federal Register no-  
2           tices regarding official document availability, an-  
3           nouncements of meetings, or notices of intent to un-  
4           dertake an action shall be originated in, and trans-  
5           mitted to the Federal Register from, the office in  
6           which, as applicable—

7                   (A) the documents or meetings are held; or

8                   (B) the activity is initiated.

9           (g) RECYCLING, EFFICIENCY, AND ALTERNATIVES.—

10           (1) ESTABLISHMENT.—The Secretary of En-  
11           ergy (referred to in this subsection as the “Sec-  
12           retary”) shall conduct a program of research and de-  
13           velopment—

14                   (A) to promote the efficient production,  
15           use, and recycling of critical minerals through-  
16           out the supply chain; and

17                   (B) to develop alternatives to critical min-  
18           erals that do not occur in significant abundance  
19           in the United States.

20           (2) COOPERATION.—In carrying out the pro-  
21           gram, the Secretary shall cooperate with appro-  
22           priate—

23                   (A) Federal agencies and National Labora-  
24           tories;

25                   (B) critical mineral producers;

- 1 (C) critical mineral processors;
- 2 (D) critical mineral manufacturers;
- 3 (E) trade associations;
- 4 (F) academic institutions;
- 5 (G) small businesses; and
- 6 (H) other relevant entities or individuals.

7 (3) ACTIVITIES.—Under the program, the Sec-  
8 retary shall carry out activities that include the iden-  
9 tification and development of—

10 (A) advanced critical mineral extraction,  
11 production, separation, alloying, or processing  
12 technologies that decrease the energy consump-  
13 tion, environmental impact, and costs of those  
14 activities, including—

15 (i) efficient water and wastewater  
16 management strategies;

17 (ii) technologies and management  
18 strategies to control the environmental im-  
19 pacts of radionuclides in ore tailings;

20 (iii) technologies for separation and  
21 processing; and

22 (iv) technologies for increasing the re-  
23 covery rates of byproducts from host metal  
24 ores;

1           (B) technologies or process improvements  
2 that minimize the use, or lead to more efficient  
3 use, of critical minerals across the full supply  
4 chain;

5           (C) technologies, process improvements, or  
6 design optimizations that facilitate the recycling  
7 of critical minerals, and options for improving  
8 the rates of collection of products and scrap  
9 containing critical minerals from post-con-  
10 sumer, industrial, or other waste streams;

11           (D) commercial markets, advanced storage  
12 methods, energy applications, and other bene-  
13 ficial uses of critical minerals processing by-  
14 products;

15           (E) alternative minerals, metals, and mate-  
16 rials, particularly those available in abundance  
17 within the United States and not subject to po-  
18 tential supply restrictions, that lessen the need  
19 for critical minerals; and

20           (F) alternative energy technologies or al-  
21 ternative designs of existing energy tech-  
22 nologies, particularly those that use minerals  
23 that—

24                   (i) occur in abundance in the United  
25 States; and

1 (ii) are not subject to potential supply  
2 restrictions.

3 (4) REPORTS.—Not later than 2 years after the  
4 date of enactment of this Act, and annually there-  
5 after, the Secretary shall submit to Congress a re-  
6 port summarizing the activities, findings, and  
7 progress of the program.

8 (h) ANALYSIS AND FORECASTING.—

9 (1) CAPABILITIES.—In order to evaluate exist-  
10 ing critical mineral policies and inform future ac-  
11 tions that may be taken to avoid supply shortages,  
12 mitigate price volatility, and prepare for demand  
13 growth and other market shifts, the Secretary (act-  
14 ing through the Director of the United States Geo-  
15 logical Survey) or a designee of the Secretary, in  
16 consultation with the Energy Information Adminis-  
17 tration, academic institutions, and others in order to  
18 maximize the application of existing competencies re-  
19 lated to developing and maintaining computer-mod-  
20 els and similar analytical tools, shall conduct and  
21 publish the results of an annual report that in-  
22 cludes—

23 (A) as part of the annually published Min-  
24 eral Commodity Summaries from the United  
25 States Geological Survey, a comprehensive re-

1 view of critical mineral production, consump-  
2 tion, and recycling patterns, including—

3 (i) the quantity of each critical min-  
4 eral domestically produced during the pre-  
5 ceding year;

6 (ii) the quantity of each critical min-  
7 eral domestically consumed during the pre-  
8 ceding year;

9 (iii) market price data or other price  
10 data for each critical mineral;

11 (iv) an assessment of—

12 (I) critical mineral requirements  
13 to meet the national security, energy,  
14 economic, industrial, technological,  
15 and other needs of the United States  
16 during the preceding year;

17 (II) the reliance of the United  
18 States on foreign sources to meet  
19 those needs during the preceding year;  
20 and

21 (III) the implications of any sup-  
22 ply shortages, restrictions, or disrup-  
23 tions during the preceding year;

1 (v) the quantity of each critical min-  
2 eral domestically recycled during the pre-  
3 ceding year;

4 (vi) the market penetration during the  
5 preceding year of alternatives to each crit-  
6 ical mineral;

7 (vii) a discussion of international  
8 trends associated with the discovery, pro-  
9 duction, consumption, use, costs of produc-  
10 tion, prices, and recycling of each critical  
11 mineral as well as the development of al-  
12 ternatives to critical minerals; and

13 (viii) such other data, analyses, and  
14 evaluations as the Secretary finds are nec-  
15 essary to achieve the purposes of this sub-  
16 section; and

17 (B) a comprehensive forecast, entitled the  
18 “Annual Critical Minerals Outlook”, of pro-  
19 jected critical mineral production, consumption,  
20 and recycling patterns, including—

21 (i) the quantity of each critical min-  
22 eral projected to be domestically produced  
23 over the subsequent 1-year, 5-year, and  
24 10-year periods;

1                   (ii) the quantity of each critical min-  
2                   eral projected to be domestically consumed  
3                   over the subsequent 1-year, 5-year, and  
4                   10-year periods;

5                   (iii) an assessment of—

6                   (I) critical mineral requirements  
7                   to meet projected national security,  
8                   energy, economic, industrial, techno-  
9                   logical, and other needs of the United  
10                  States;

11                  (II) the projected reliance of the  
12                  United States on foreign sources to  
13                  meet those needs; and

14                  (III) the projected implications of  
15                  potential supply shortages, restric-  
16                  tions, or disruptions;

17                  (iv) the quantity of each critical min-  
18                  eral projected to be domestically recycled  
19                  over the subsequent 1-year, 5-year, and  
20                  10-year periods;

21                  (v) the market penetration of alter-  
22                  natives to each critical mineral projected to  
23                  take place over the subsequent 1-year, 5-  
24                  year, and 10-year periods;

1                   (vi) a discussion of reasonably foresee-  
2                   able international trends associated with  
3                   the discovery, production, consumption,  
4                   use, costs of production, and recycling of  
5                   each critical mineral as well as the develop-  
6                   ment of alternatives to critical minerals;  
7                   and

8                   (vii) such other projections relating to  
9                   each critical mineral as the Secretary de-  
10                  termines to be necessary to achieve the  
11                  purposes of this subsection.

12                  (2) PROPRIETARY INFORMATION.—In preparing  
13                  a report described in paragraph (1), the Secretary  
14                  shall ensure, consistent with section 5(f) of the Na-  
15                  tional Materials and Minerals Policy, Research and  
16                  Development Act of 1980 (30 U.S.C. 1604(f)),  
17                  that—

18                         (A) no person uses the information and  
19                         data collected for the report for a purpose other  
20                         than the development of or reporting of aggre-  
21                         gate data in a manner such that the identity of  
22                         the person or firm who supplied the information  
23                         is not discernible and is not material to the in-  
24                         tended uses of the information;



1 (B) no person discloses any information or  
2 data collected for the report unless the informa-  
3 tion or data has been transformed into a statis-  
4 tical or aggregate form that does not allow the  
5 identification of the person or firm who sup-  
6 plied particular information; and

7 (C) procedures are established to require  
8 the withholding of any information or data col-  
9 lected for the report if the Secretary determines  
10 that withholding is necessary to protect propri-  
11 etary information, including any trade secrets  
12 or other confidential information.

13 (i) EDUCATION AND WORKFORCE.—

14 (1) WORKFORCE ASSESSMENT.—Not later than  
15 1 year and 300 days after the date of enactment of  
16 this Act, the Secretary of Labor (in consultation  
17 with the Secretary, the Director of the National  
18 Science Foundation, institutions of higher education  
19 with substantial expertise in mining, institutions of  
20 higher education with significant expertise in min-  
21 erals research, including fundamental research into  
22 alternatives, and employers in the critical minerals  
23 sector) shall submit to Congress an assessment of  
24 the domestic availability of technically trained per-  
25 sonnel necessary for critical mineral exploration, de-

1       velopment, assessment, production, manufacturing,  
2       recycling, analysis, forecasting, education, and re-  
3       search, including an analysis of—

4               (A) skills that are in the shortest supply as  
5       of the date of the assessment;

6               (B) skills that are projected to be in short  
7       supply in the future;

8               (C) the demographics of the critical min-  
9       erals industry and how the demographics will  
10      evolve under the influence of factors such as an  
11      aging workforce;

12              (D) the effectiveness of training and edu-  
13      cation programs in addressing skills shortages;

14              (E) opportunities to hire locally for new  
15      and existing critical mineral activities;

16              (F) the sufficiency of personnel within rel-  
17      evant areas of the Federal Government for  
18      achieving the policies described in section 3 of  
19      the National Materials and Minerals Policy, Re-  
20      search and Development Act of 1980 (30  
21      U.S.C. 1602); and

22              (G) the potential need for new training  
23      programs to have a measurable effect on the  
24      supply of trained workers in the critical min-  
25      erals industry.

1 (2) CURRICULUM STUDY.—

2 (A) IN GENERAL.—The Secretary and the  
3 Secretary of Labor shall jointly enter into an  
4 arrangement with the National Academy of  
5 Sciences and the National Academy of Engi-  
6 neering under which the Academies shall co-  
7 ordinate with the National Science Foundation  
8 on conducting a study—

9 (i) to design an interdisciplinary pro-  
10 gram on critical minerals that will support  
11 the critical mineral supply chain and im-  
12 prove the ability of the United States to  
13 increase domestic, critical mineral explo-  
14 ration, development, production, manufac-  
15 turing, research, including fundamental re-  
16 search into alternatives, and recycling;

17 (ii) to address undergraduate and  
18 graduate education, especially to assist in  
19 the development of graduate level pro-  
20 grams of research and instruction that  
21 lead to advanced degrees with an emphasis  
22 on the critical mineral supply chain or  
23 other positions that will increase domestic,  
24 critical mineral exploration, development,  
25 production, manufacturing, research, in-

1 cluding fundamental research into alter-  
2 natives, and recycling;

3 (iii) to develop guidelines for pro-  
4 posals from institutions of higher edu-  
5 cation with substantial capabilities in the  
6 required disciplines for activities to im-  
7 prove the critical mineral supply chain and  
8 advance the capacity of the United States  
9 to increase domestic, critical mineral explo-  
10 ration, research, development, production,  
11 manufacturing, and recycling; and

12 (iv) to outline criteria for evaluating  
13 performance and recommendations for the  
14 amount of funding that will be necessary  
15 to establish and carry out the program de-  
16 scribed in paragraph (3).

17 (B) REPORT.—Not later than 2 years after  
18 the date of enactment of this Act, the Secretary  
19 shall submit to Congress a description of the re-  
20 sults of the study required under subparagraph  
21 (A).

22 (3) PROGRAM.—

23 (A) ESTABLISHMENT.—The Secretary and  
24 the Secretary of Labor shall jointly conduct a  
25 competitive grant program under which institu-

1 tions of higher education may apply for and re-  
2 ceive 4-year grants for—

3 (i) startup costs for newly designated  
4 faculty positions in integrated critical min-  
5 eral education, research, innovation, train-  
6 ing, and workforce development programs  
7 consistent with paragraph (2);

8 (ii) internships, scholarships, and fel-  
9 lowships for students enrolled in programs  
10 related to critical minerals;

11 (iii) equipment necessary for inte-  
12 grated critical mineral innovation, training,  
13 and workforce development programs; and

14 (iv) research of critical minerals and  
15 their applications, particularly concerning  
16 the manufacture of critical components  
17 vital to national security.

18 (B) RENEWAL.—A grant under this para-  
19 graph shall be renewable for up to 2 additional  
20 3-year terms based on performance criteria out-  
21 lined under paragraph (2)(A)(iv).

22 (j) NATIONAL GEOLOGICAL AND GEOPHYSICAL DATA  
23 PRESERVATION PROGRAM.—Section 351(k) of the Energy  
24 Policy Act of 2005 (42 U.S.C. 15908(k)) is amended by  
25 striking “\$30,000,000 for each of fiscal years 2006

1 through 2010” and inserting “\$5,000,000 for each of fis-  
2 cal years 2021 through 2029, to remain available until ex-  
3 pended”.

4 (k) ADMINISTRATION.—

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

8 (2) CONFORMING AMENDMENT.—Section 3(d)  
9 of the National Superconductivity and Competitive-  
10 ness Act of 1988 (15 U.S.C. 5202(d)) is amended  
11 in the first sentence by striking “, with the assist-  
12 ance of the National Critical Materials Council as  
13 specified in the National Critical Materials Act of  
14 1984 (30 U.S.C. 1801 et seq.),”.

15 (3) SAVINGS CLAUSES.—

16 (A) IN GENERAL.—Nothing in this section  
17 or an amendment made by this section modifies  
18 any requirement or authority provided by—

19 (i) the matter under the heading “**GE-**  
20 **OLOGICAL SURVEY**” of the first section  
21 of the Act of March 3, 1879 (43 U.S.C.  
22 31(a)); or

23 (ii) the first section of Public Law  
24 87–626 (43 U.S.C. 31(b)).

1 (B) EFFECT ON DEPARTMENT OF DE-  
2 FENSE.—Nothing in this section or an amend-  
3 ment made by this section affects the authority  
4 of the Secretary of Defense with respect to the  
5 work of the Department of Defense on critical  
6 material supplies in furtherance of the national  
7 defense mission of the Department of Defense.

8 (C) SECRETARIAL ORDER NOT AF-  
9 FECTED.—This section shall not apply to any  
10 mineral described in Secretarial Order No.  
11 3324, issued by the Secretary on December 3,  
12 2012, in any area to which the order applies.

13 (4) APPLICATION OF CERTAIN PROVISIONS.—

14 (A) IN GENERAL.—Subsections (e) and (f)  
15 shall apply to—

16 (i) an exploration project in which the  
17 presence of a byproduct is reasonably ex-  
18 pected, based on known mineral  
19 companionality, geologic formation, min-  
20 eralogy, or other factors; and

21 (ii) a project that demonstrates that  
22 the byproduct is of sufficient grade that,  
23 when combined with the production of a  
24 host mineral, the byproduct is economic to  
25 recover, as determined by the applicable

1 Secretary in accordance with subparagraph  
2 (B).

3 (B) REQUIREMENT.—In making the deter-  
4 mination under subparagraph (A)(ii), the appli-  
5 cable Secretary shall consider the cost effective-  
6 ness of the byproducts recovery.

7 (1) AUTHORIZATION OF APPROPRIATIONS.—There is  
8 authorized to be appropriated to carry out this section  
9 \$50,000,000 for each of fiscal years 2021 through 2029.

10 **SEC. 2102. RARE EARTH ELEMENT ADVANCED COAL TECH-**  
11 **NOLOGIES.**

12 (a) PROGRAM FOR EXTRACTION AND RECOVERY OF  
13 RARE EARTH ELEMENTS AND MINERALS FROM COAL  
14 AND COAL BYPRODUCTS.—

15 (1) IN GENERAL.—The Secretary of Energy,  
16 acting through the Assistant Secretary for Fossil  
17 Energy (referred to in this section as the “Sec-  
18 retary”), shall carry out a program under which the  
19 Secretary shall develop advanced separation tech-  
20 nologies for the extraction and recovery of rare earth  
21 elements and minerals from coal and coal byprod-  
22 ucts.

23 (2) AUTHORIZATION OF APPROPRIATIONS.—  
24 There is authorized to be appropriated to the Sec-  
25 retary to carry out the program described in para-



1 graph (1) \$23,000,000 for each of fiscal years 2021  
2 through 2027.

3 (b) REPORT.—Not later than 1 year after the date  
4 of enactment of this Act, the Secretary shall submit to  
5 the Committee on Energy and Natural Resources of the  
6 Senate and the Committee on Energy and Commerce of  
7 the House of Representatives a report evaluating the de-  
8 velopment of advanced separation technologies for the ex-  
9 traction and recovery of rare earth elements and minerals  
10 from coal and coal byproducts, including acid mine drain-  
11 age from coal mines.

## 12 **Subtitle B—Cybersecurity and Grid** 13 **Security and Modernization**

### 14 **PART I—CYBERSECURITY AND GRID SECURITY**

#### 15 **SEC. 2201. INCENTIVES FOR ADVANCED CYBERSECURITY** 16 **TECHNOLOGY INVESTMENT.**

17 Part II of the Federal Power Act is amended by in-  
18 serting after section 219 (16 U.S.C. 824s) the following:

#### 19 **“SEC. 219A. INCENTIVES FOR CYBERSECURITY INVEST-** 20 **MENTS.**

21 “(a) DEFINITIONS.—In this section:

22 “(1) ADVANCED CYBERSECURITY TECH-  
23 NOLOGY.—The term ‘advanced cybersecurity tech-  
24 nology’ means any technology, operational capability,  
25 or service, including computer hardware, software,

1 or a related asset, that enhances the security posture  
2 of public utilities through improvements in the abil-  
3 ity to protect against, detect, respond to, or recover  
4 from a cybersecurity threat (as defined in section  
5 102 of the Cybersecurity Act of 2015 (6 U.S.C.  
6 1501)).

7 “(2) ADVANCED CYBERSECURITY TECHNOLOGY  
8 INFORMATION.—The term ‘advanced cybersecurity  
9 technology information’ means information relating  
10 to advanced cybersecurity technology or proposed  
11 advanced cybersecurity technology that is generated  
12 by or provided to the Commission or another Fed-  
13 eral agency.

14 “(b) STUDY.—Not later than 180 days after the date  
15 of enactment of this section, the Commission, in consulta-  
16 tion with the Secretary of Energy, the North American  
17 Electric Reliability Corporation, the Electricity Subsector  
18 Coordinating Council, and the National Association of  
19 Regulatory Utility Commissioners, shall conduct a study  
20 to identify incentive-based, including performance-based,  
21 rate treatments for the transmission and sale of electric  
22 energy subject to the jurisdiction of the Commission that  
23 could be used to encourage—

24 “(1) investment by public utilities in advanced  
25 cybersecurity technology; and

1           “(2) participation by public utilities in cyberse-  
2           curity threat information sharing programs.

3           “(c) INCENTIVE-BASED RATE TREATMENT.—Not  
4 later than 1 year after the completion of the study under  
5 subsection (b), the Commission shall establish, by rule, in-  
6 centive-based, including performance-based, rate treat-  
7 ments for the transmission of electric energy in interstate  
8 commerce and the sale of electric energy at wholesale in  
9 interstate commerce by public utilities for the purpose of  
10 benefitting consumers by encouraging—

11           “(1) investments by public utilities in advanced  
12           cybersecurity technology; and

13           “(2) participation by public utilities in cyberse-  
14           curity threat information sharing programs.

15           “(d) FACTORS FOR CONSIDERATION.—In issuing a  
16 rule pursuant to this section, the Commission may provide  
17 additional incentives beyond those identified in subsection  
18 (c) in any case in which the Commission determines that  
19 an investment in advanced cybersecurity technology or in-  
20 formation sharing program costs will reduce cybersecurity  
21 risks to—

22           “(1) defense critical electric infrastructure (as  
23           defined in section 215A(a)) and other facilities sub-  
24           ject to the jurisdiction of the Commission that are  
25           critical to public safety, national defense, or home-

1 land security, as determined by the Commission in  
2 consultation with—

3 “(A) the Secretary of Energy; and

4 “(B) appropriate Federal agencies; and

5 “(2) facilities of small or medium-sized public  
6 utilities with limited cybersecurity resources, as de-  
7 termined by the Commission.

8 “(e) RATEPAYER PROTECTION.—

9 “(1) IN GENERAL.—Any rate approved under a  
10 rule issued pursuant to this section, including any  
11 revisions to that rule, shall be subject to the require-  
12 ments of sections 205 and 206 that all rates,  
13 charges, terms, and conditions—

14 “(A) shall be just and reasonable; and

15 “(B) shall not be unduly discriminatory or  
16 preferential.

17 “(2) PROHIBITION OF DUPLICATE RECOVERY.—

18 Any rule issued pursuant to this section shall pre-  
19 clude rate treatments that allow unjust and unrea-  
20 sonable double recovery for advanced cybersecurity  
21 technology.

22 “(f) SINGLE-ISSUE RATE FILINGS.—The Commis-  
23 sion shall permit public utilities to apply for incentive-  
24 based rate treatment under a rule issued under this sec-  
25 tion on a single-issue basis by submitting to the Commis-

1 sion a tariff schedule under section 205 that permits re-  
2 covery of costs and incentives over the depreciable life of  
3 the applicable assets, without regard to changes in receipts  
4 or other costs of the public utility.

5 “(g) PROTECTION OF INFORMATION.—Advanced cy-  
6 bersecurity technology information that is provided to,  
7 generated by, or collected by the Federal Government  
8 under subsection (b), (c), or (f) shall be considered to be  
9 critical electric infrastructure information under section  
10 215A.”.

11 **SEC. 2202. RURAL AND MUNICIPAL UTILITY ADVANCED CY-**  
12 **BERSECURITY GRANT AND TECHNICAL AS-**  
13 **SISTANCE PROGRAM.**

14 (a) DEFINITIONS.—In this section:

15 (1) **ADVANCED CYBERSECURITY TECH-**  
16 **NOLOGY.**—The term “advanced cybersecurity tech-  
17 nology” means any technology, operational capa-  
18 bility, or service, including computer hardware, soft-  
19 ware, or a related asset, that enhances the security  
20 posture of electric utilities through improvements in  
21 the ability to protect against, detect, respond to, or  
22 recover from a cybersecurity threat (as defined in  
23 section 102 of the Cybersecurity Act of 2015 (6  
24 U.S.C. 1501)).

1           (2) ELIGIBLE ENTITY.—The term “eligible enti-  
2           ty” means—

3                   (A) a rural electric cooperative;

4                   (B) a utility owned by a political subdivi-  
5                   sion of a State, such as a municipally owned  
6                   electric utility;

7                   (C) a utility owned by any agency, author-  
8                   ity, corporation, or instrumentality of 1 or more  
9                   political subdivisions of a State;

10                  (D) a not-for-profit entity that is in a part-  
11                  nership with not fewer than 6 entities described  
12                  in subparagraph (A), (B), or (C); and

13                  (E) an investor-owned electric utility that  
14                  sells less than 4,000,000 megawatt hours of  
15                  electricity per year.

16           (3) PROGRAM.—The term “Program” means  
17           the Rural and Municipal Utility Advanced Cyberse-  
18           curity Grant and Technical Assistance Program es-  
19           tablished under subsection (b).

20           (b) ESTABLISHMENT.—Not later than 180 days after  
21           the date of enactment of this Act, the Secretary, in con-  
22           sultation with the Federal Energy Regulatory Commis-  
23           sion, the North American Electric Reliability Corporation,  
24           and the Electricity Subsector Coordinating Council, shall  
25           establish a program, to be known as the “Rural and Mu-

1 nicipal Utility Advanced Cybersecurity Grant and Tech-  
2 nical Assistance Program”, to provide grants and tech-  
3 nical assistance to, and enter into cooperative agreements  
4 with, eligible entities to protect against, detect, respond  
5 to, and recover from cybersecurity threats.

6 (c) OBJECTIVES.—The objectives of the Program  
7 shall be—

8 (1) to deploy advanced cybersecurity tech-  
9 nologies for electric utility systems; and

10 (2) to increase the participation of eligible enti-  
11 ties in cybersecurity threat information sharing pro-  
12 grams.

13 (d) AWARDS.—

14 (1) IN GENERAL.—The Secretary—

15 (A) shall award grants and provide tech-  
16 nical assistance under the Program to eligible  
17 entities on a competitive basis;

18 (B) shall develop criteria and a formula for  
19 awarding grants and providing technical assist-  
20 ance under the Program;

21 (C) may enter into cooperative agreements  
22 with eligible entities that can facilitate the ob-  
23 jectives described in subsection (c); and

24 (D) shall establish a process to ensure that  
25 all eligible entities are informed about and can

1           become aware of opportunities to receive grants  
2           or technical assistance under the Program.

3           (2) PRIORITY FOR GRANTS AND TECHNICAL AS-  
4           SISTANCE.—In awarding grants and providing tech-  
5           nical assistance under the Program, the Secretary  
6           shall give priority to an eligible entity that, as deter-  
7           mined by the Secretary—

8                   (A) has limited cybersecurity resources;

9                   (B) owns assets critical to the reliability of  
10           the bulk power system; or

11                   (C) owns defense critical electric infra-  
12           structure (as defined in section 215A(a) of the  
13           Federal Power Act (16 U.S.C. 824o–1(a))).

14           (e) PROTECTION OF INFORMATION.—Information  
15           provided to, or collected by, the Federal Government  
16           under this section—

17                   (1) shall be exempt from disclosure under sec-  
18           tion 552(b)(3) of title 5, United States Code; and

19                   (2) shall not be made available by any Federal  
20           agency, State, political subdivision of a State, or  
21           Tribal authority under any applicable law requiring  
22           public disclosure of information or records.

23           (f) FUNDING.—There is authorized to be appro-  
24           priated to carry out this section \$50,000,000 for each of



1 fiscal years 2021 through 2025, to remain available until  
2 expended.

3 **SEC. 2203. STATE ENERGY SECURITY PLANS.**

4 (a) IN GENERAL.—Part D of title III of the Energy  
5 Policy and Conservation Act (42 U.S.C. 6321 et seq.) is  
6 amended by adding at the end the following:

7 **“SEC. 367. STATE ENERGY SECURITY PLANS.**

8 “(a) IN GENERAL.—Federal financial assistance  
9 made available to a State under this part may be used  
10 for the development, implementation, review, and revision  
11 of a State energy security plan that assesses the State’s  
12 existing circumstances and proposes methods to strength-  
13 en the ability of the State, in consultation with owners  
14 and operators of energy infrastructure in such State, to—

15 “(1) secure the energy infrastructure of the  
16 State against all physical and cybersecurity threats;

17 “(2) mitigate the risk of energy supply disrup-  
18 tions to the State and enhance the response to, and  
19 recovery from, energy disruptions; and

20 “(3) ensure the State has a reliable, secure, and  
21 resilient energy infrastructure.

22 “(b) CONTENTS OF PLAN.—A State energy security  
23 plan described in subsection (a) shall—

24 “(1) address all energy sources and regulated  
25 and unregulated energy providers;

1           “(2) provide a State energy profile, including  
2           an assessment of energy production, distribution,  
3           and end-use;

4           “(3) address potential hazards to each energy  
5           sector or system, including physical threats and cy-  
6           bersecurity threats and vulnerabilities;

7           “(4) provide a risk assessment of energy infra-  
8           structure and cross-sector interdependencies;

9           “(5) provide a risk mitigation approach to en-  
10          hance reliability and end-use resilience; and

11          “(6) address multi-State, Indian Tribe, and re-  
12          gional coordination planning and response, and to  
13          the extent practicable, encourage mutual assistance  
14          in cyber and physical response plans.

15          “(c) COORDINATION.—In developing or revising a  
16          State energy security plan under this section, the energy  
17          office of the State shall, to the extent practicable, coordi-  
18          nate with—

19                 “(1) the public utility or service commission of  
20                 the State;

21                 “(2) energy providers from the private and pub-  
22                 lic sectors; and

23                 “(3) other entities responsible for maintaining  
24                 fuel or electric reliability and securing energy infra-  
25                 structure.

1           “(d) FINANCIAL ASSISTANCE.—A State is not eligible  
2 to receive Federal financial assistance under this part, for  
3 any purpose, for a fiscal year unless the Governor of such  
4 State submits to the Secretary, with respect to such fiscal  
5 year—

6                   “(1) a State energy security plan described in  
7 subsection (a) that meets the requirements of sub-  
8 section (b); or

9                   “(2) after an annual review of the State energy  
10 security plan by the Governor—

11                           “(A) any necessary revisions to such plan;

12                   or

13                           “(B) a certification that no revisions to  
14 such plan are necessary.

15           “(e) TECHNICAL ASSISTANCE.—Upon request of the  
16 Governor of a State, the Secretary may provide informa-  
17 tion and technical assistance, and other assistance, in the  
18 development, implementation, or revision of a State energy  
19 security plan.

20           “(f) REQUIREMENT.—Each State receiving Federal  
21 financial assistance under this part shall provide reason-  
22 able assurance to the Secretary that the State has estab-  
23 lished policies and procedures designed to assure that the  
24 financial assistance will be used—

1           “(1) to supplement, and not to supplant, State  
2           and local funds; and

3           “(2) to the maximum extent practicable, to in-  
4           crease the amount of State and local funds that oth-  
5           erwise would be available, in the absence of the fi-  
6           nancial assistance, for the implementation of the  
7           State energy security plan under this section.

8           “(g) PROTECTION OF INFORMATION.—Information  
9           provided to, or collected by, the Federal Government  
10          under this section—

11           “(1) shall be exempt from disclosure under sec-  
12          tion 552(b)(3) of title 5, United States Code; and

13           “(2) shall not be made available by any Federal  
14          agency, State, political subdivision of a State, or  
15          Tribal authority pursuant to any Federal, State, or  
16          Tribal law, as applicable, requiring public disclosure  
17          of information or records.

18          “(h) SUNSET.—This section shall expire on October  
19          31, 2024.”.

20          (b) AUTHORIZATION OF APPROPRIATIONS.—Section  
21          365(f) of the Energy Policy and Conservation Act (42  
22          U.S.C. 6325(f)) is amended—

23           (1) by striking “\$125,000,000” and inserting  
24          “\$90,000,000”; and

1           (2) by striking “2007 through 2012” and in-  
2           serting “2021 through 2025”.

3           (c) TECHNICAL AND CONFORMING AMENDMENTS.—

4           (1) CONFORMING AMENDMENTS.—Section 363  
5           of the Energy Policy and Conservation Act (42  
6           U.S.C. 6323) is amended—

7                   (A) by striking subsection (e); and

8                   (B) by redesignating subsection (f) as sub-  
9           section (e).

10          (2) TECHNICAL AMENDMENT.—Section  
11          366(3)(B)(i) of the Energy Policy and Conservation  
12          Act (42 U.S.C. 6326(3)(B)(i)) is amended by strik-  
13          ing “approved under section 367”.

14          (3) REFERENCE.—The matter under the head-  
15          ing “ENERGY CONSERVATION” under the heading  
16          “DEPARTMENT OF ENERGY” in title II of the  
17          Department of the Interior and Related Agencies  
18          Appropriations Act, 1985 (42 U.S.C. 6323a) is  
19          amended by striking “sections 361 through 366”  
20          and inserting “sections 361 through 367”.

21          (4) TABLE OF CONTENTS.—The table of con-  
22          tents for part D of title III of the Energy Policy and  
23          Conservation Act (Public Law 94–163; 89 Stat. 872;  
24          92 Stat. 3272; 104 Stat. 1006) is amended by add-  
25          ing at the end the following:

“Sec. 367. State energy security plans.”.

1 **SEC. 2204. ENHANCING GRID SECURITY THROUGH PUBLIC-**  
2 **PRIVATE PARTNERSHIPS.**

3 (a) DEFINITIONS.—In this section:

4 (1) ELECTRIC RELIABILITY ORGANIZATION.—  
5 The term “Electric Reliability Organization” has the  
6 meaning given the term in section 215(a) of the  
7 Federal Power Act (16 U.S.C. 824o(a)).

8 (2) ELECTRIC UTILITY; STATE REGULATORY  
9 AUTHORITY.—The terms “electric utility” and  
10 “State regulatory authority” have the meanings  
11 given those terms in section 3 of the Federal Power  
12 Act (16 U.S.C. 796).

13 (b) PROGRAM TO PROMOTE AND ADVANCE PHYSICAL  
14 SECURITY AND CYBERSECURITY OF ELECTRIC UTILI-  
15 TIES.—

16 (1) ESTABLISHMENT.—The Secretary, in con-  
17 sultation with State regulatory authorities, industry  
18 stakeholders, the Electric Reliability Organization,  
19 and any other Federal agencies that the Secretary  
20 determines to be appropriate, shall carry out a pro-  
21 gram—

22 (A) to develop, and provide for voluntary  
23 implementation of, maturity models, self-assess-  
24 ments, and auditing methods for assessing the  
25 physical security and cybersecurity of electric  
26 utilities;

1 (B) to assist with threat assessment and  
2 cybersecurity training for electric utilities;

3 (C) to provide technical assistance for elec-  
4 tric utilities subject to the program;

5 (D) to provide training to electric utilities  
6 to address and mitigate cybersecurity supply  
7 chain management risks;

8 (E) to advance the cybersecurity of third-  
9 party vendors in partnerships with electric utili-  
10 ties; and

11 (F) to increase opportunities for sharing  
12 best practices and data collection within the  
13 electric sector.

14 (2) SCOPE.—In carrying out the program under  
15 paragraph (1), the Secretary shall—

16 (A) take into consideration—

17 (i) the different sizes of electric utili-  
18 ties; and

19 (ii) the regions that electric utilities  
20 serve;

21 (B) prioritize electric utilities with fewer  
22 available resources due to size or region; and

23 (C) to the maximum extent practicable,  
24 use and leverage—

1 (i) existing Department programs;

2 and

3 (ii) existing programs of the Federal  
4 agencies determined to be appropriate  
5 under paragraph (1).

6 (3) PROTECTION OF INFORMATION.—Informa-  
7 tion provided to, or collected by, the Federal Govern-  
8 ment pursuant to this subsection—

9 (A) shall be exempt from disclosure under  
10 section 552(b)(3) of title 5, United States Code;  
11 and

12 (B) shall not be made available by any  
13 Federal agency, State, political subdivision of a  
14 State, or Tribal authority pursuant to any Fed-  
15 eral, State, political subdivision of a State, or  
16 Tribal law, respectively, requiring public disclo-  
17 sure of information or records.

18 (c) REPORT ON CYBERSECURITY AND DISTRIBUTION  
19 SYSTEMS.—

20 (1) IN GENERAL.—Not later than 1 year after  
21 the date of enactment of this Act, the Secretary, in  
22 consultation with State regulatory authorities, indus-  
23 try stakeholders, and any other Federal agencies  
24 that the Secretary determines to be appropriate,  
25 shall submit to Congress a report that assesses—



1 (A) priorities, policies, procedures, and ac-  
2 tions for enhancing the physical security and  
3 cybersecurity of electricity distribution systems,  
4 including behind-the-meter generation, storage,  
5 and load management devices, to address  
6 threats to, and vulnerabilities of, electricity dis-  
7 tribution systems; and

8 (B) the implementation of the priorities,  
9 policies, procedures, and actions assessed under  
10 subparagraph (A), including—

11 (i) an estimate of potential costs and  
12 benefits of the implementation; and

13 (ii) an assessment of any public-pri-  
14 vate cost-sharing opportunities.

15 (2) PROTECTION OF INFORMATION.—Informa-  
16 tion provided to, or collected by, the Federal Govern-  
17 ment under this subsection—

18 (A) shall be exempt from disclosure under  
19 section 552(b)(3) of title 5, United States Code;  
20 and

21 (B) shall not be made available by any  
22 Federal agency, State, political subdivision of a  
23 State, or Tribal authority pursuant to any Fed-  
24 eral, State, political subdivision of a State, or

1 Tribal law, respectively, requiring public disclo-  
2 sure of information or records.

3 **SEC. 2205. ENHANCED GRID SECURITY.**

4 (a) DEFINITIONS.—In this section:

5 (1) ELECTRIC UTILITY.—The term “electric  
6 utility” has the meaning given the term in section  
7 3 of the Federal Power Act (16 U.S.C. 796).

8 (2) E-ISAC.—The term “E-ISAC” means the  
9 Electricity Sector Information Sharing and Analysis  
10 Center.

11 (b) CYBERSECURITY FOR THE ENERGY SECTOR RE-  
12 SEARCH, DEVELOPMENT, AND DEMONSTRATION PRO-  
13 GRAM.—

14 (1) IN GENERAL.—The Secretary, in consulta-  
15 tion with appropriate Federal agencies, the energy  
16 sector, the States, and other stakeholders, shall  
17 carry out a program—

18 (A) to develop advanced cybersecurity ap-  
19 plications and technologies for the energy sec-  
20 tor—

21 (i) to identify and mitigate  
22 vulnerabilities, including—

23 (I) dependencies on other critical  
24 infrastructure; and

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1 (II) impacts from weather and  
2 fuel supply; and

3 (ii) to advance the security of field de-  
4 vices and third-party control systems, in-  
5 cluding—

6 (I) systems for generation, trans-  
7 mission, distribution, end use, and  
8 market functions;

9 (II) specific electric grid elements  
10 including advanced metering, demand  
11 response, distributed generation, and  
12 electricity storage;

13 (III) forensic analysis of infected  
14 systems; and

15 (IV) secure communications;

16 (B) to leverage electric grid architecture as  
17 a means to assess risks to the energy sector, in-  
18 cluding by implementing an all-hazards ap-  
19 proach to communications infrastructure, con-  
20 trol systems architecture, and power systems  
21 architecture;

22 (C) to perform pilot demonstration projects  
23 with the energy sector to gain experience with  
24 new technologies; and

1 (D) to develop workforce development cur-  
2 ricula for energy sector-related cybersecurity.

3 (2) AUTHORIZATION OF APPROPRIATIONS.—

4 There is authorized to be appropriated to carry out  
5 this subsection \$65,000,000 for each of fiscal years  
6 2021 through 2029.

7 (c) ENERGY SECTOR COMPONENT TESTING FOR  
8 CYBERRESILIENCE PROGRAM.—

9 (1) IN GENERAL.—The Secretary shall carry  
10 out a program—

11 (A) to establish a cybertesting and mitiga-  
12 tion program to identify vulnerabilities of en-  
13 ergy sector supply chain products to known  
14 threats;

15 (B) to oversee third-party cybertesting;  
16 and

17 (C) to develop procurement guidelines for  
18 energy sector supply chain components.

19 (2) AUTHORIZATION OF APPROPRIATIONS.—

20 There is authorized to be appropriated to carry out  
21 this subsection \$15,000,000 for each of fiscal years  
22 2021 through 2029.

23 (d) ENERGY SECTOR OPERATIONAL SUPPORT FOR  
24 CYBERRESILIENCE PROGRAM.—

1           (1) IN GENERAL.—The Secretary may carry out  
2 a program—

3           (A) to enhance and periodically test—

4                 (i) the emergency response capabilities  
5 of the Department; and

6                 (ii) the coordination of the Depart-  
7 ment with other agencies, the National  
8 Laboratories, and private industry;

9           (B) to expand cooperation of the Depart-  
10 ment with the intelligence communities for en-  
11 ergy sector-related threat collection and anal-  
12 ysis;

13           (C) to enhance the tools of the Department  
14 and E-ISAC for monitoring the status of the  
15 energy sector;

16           (D) to expand industry participation in E-  
17 ISAC; and

18           (E) to provide technical assistance to small  
19 electric utilities for purposes of assessing  
20 cybermaturity level.

21           (2) AUTHORIZATION OF APPROPRIATIONS.—

22 There is authorized to be appropriated to carry out  
23 this subsection \$10,000,000 for each of fiscal years  
24 2021 through 2029.

1 (e) MODELING AND ASSESSING ENERGY INFRA-  
2 STRUCTURE RISK.—

3 (1) IN GENERAL.—The Secretary shall develop  
4 an advanced energy security program to secure en-  
5 ergy networks, including electric, natural gas, and  
6 oil exploration, transmission, and delivery.

7 (2) SECURITY AND RESILIENCY OBJECTIVE.—  
8 The objective of the program developed under para-  
9 graph (1) is to increase the functional preservation  
10 of the electric grid operations or natural gas and oil  
11 operations in the face of natural and human-made  
12 threats and hazards, including electric magnetic  
13 pulse and geomagnetic disturbances.

14 (3) ELIGIBLE ACTIVITIES.—In carrying out the  
15 program developed under paragraph (1), the Sec-  
16 retary may—

17 (A) develop capabilities to identify  
18 vulnerabilities and critical components that pose  
19 major risks to grid security if destroyed or im-  
20 paired;

21 (B) provide modeling at the national level  
22 to predict impacts from natural or human-made  
23 events;

24 (C) develop a maturity model for physical  
25 security and cybersecurity;

1 (D) conduct exercises and assessments to  
2 identify and mitigate vulnerabilities to the elec-  
3 tric grid, including providing mitigation rec-  
4 ommendations;

5 (E) conduct research hardening solutions  
6 for critical components of the electric grid;

7 (F) conduct research mitigation and recov-  
8 ery solutions for critical components of the elec-  
9 tric grid; and

10 (G) provide technical assistance to States  
11 and other entities for standards and risk anal-  
12 ysis.

13 (4) AUTHORIZATION OF APPROPRIATIONS.—  
14 There is authorized to be appropriated to carry out  
15 this subsection \$10,000,000 for each of fiscal years  
16 2021 through 2029.

17 (f) LEVERAGING EXISTING PROGRAMS.—The pro-  
18 grams established under this section shall be carried out  
19 consistent with—

20 (1) the report of the Department entitled  
21 “Roadmap to Achieve Energy Delivery Systems Cy-  
22 bersecurity” and dated 2011;

23 (2) existing programs of the Department; and

24 (3) any associated strategic framework that  
25 links together academic and National Laboratory re-

1       searchers, electric utilities, manufacturers, and any  
2       other relevant private industry organizations, includ-  
3       ing the Electricity Sub-sector Coordinating Council.

4                   **PART II—GRID MODERNIZATION**

5       **SEC. 2210. GRID STORAGE PROGRAM.**

6       (a) IN GENERAL.—The Secretary shall conduct a  
7       program of research, development, and demonstration of  
8       electric grid energy storage that addresses the principal  
9       challenges identified in the 2013 Department of Energy  
10      Strategic Plan for Grid Energy Storage.

11      (b) AREAS OF FOCUS.—The program under this sec-  
12      tion shall focus on—

13              (1) materials, electric thermal, electromechani-  
14      cal, and electrochemical systems research;

15              (2) power conversion technologies research;

16              (3) developing—

17                  (A) empirical and science-based industry  
18      standards to compare the storage capacity,  
19      cycle length and capabilities, and reliability of  
20      different types of electricity storage; and

21                  (B) validation and testing techniques;

22              (4) other fundamental and applied research  
23      critical to widespread deployment of electricity stor-  
24      age;



1           (5) device development that builds on results  
2           from research described in paragraphs (1), (2), and  
3           (4), including combinations of power electronics, ad-  
4           vanced optimizing controls, and energy storage as a  
5           general purpose element of the electric grid;

6           (6) grid-scale testing and analysis of storage  
7           devices, including test-beds and field trials;

8           (7) cost-benefit analyses that inform capital ex-  
9           penditure planning for regulators and owners and  
10          operators of components of the electric grid;

11          (8) electricity storage device safety and reli-  
12          ability, including potential failure modes, mitigation  
13          measures, and operational guidelines;

14          (9) standards for storage device performance,  
15          control interface, grid interconnection, and inter-  
16          operability; and

17          (10) maintaining a public database of energy  
18          storage projects, policies, codes, standards, and reg-  
19          ulations.

20          (c) ASSISTANCE TO STATES.—The Secretary may  
21          provide technical and financial assistance to States, Indian  
22          Tribes, or units of local government to participate in or  
23          use research, development, or demonstration of technology  
24          developed under this section.

1 (d) AUTHORIZATION OF APPROPRIATIONS.—There is  
2 authorized to be appropriated to the Secretary to carry  
3 out this section \$50,000,000 for each of fiscal years 2021  
4 through 2029.

5 (e) NO EFFECT ON OTHER PROVISIONS OF LAW.—  
6 Nothing in this Act or an amendment made by this Act  
7 authorizes regulatory actions that would duplicate or con-  
8 flict with regulatory requirements, mandatory standards,  
9 or related processes under section 215 of the Federal  
10 Power Act (16 U.S.C. 824o).

11 (f) USE OF FUNDS.—To the maximum extent prac-  
12 ticable, in carrying out this section, the Secretary shall  
13 ensure that the use of funds to carry out this section is  
14 coordinated among different offices within the Grid Mod-  
15 ernization Initiative of the Department and other pro-  
16 grams conducting energy storage research.

17 **SEC. 2211. TECHNOLOGY DEMONSTRATION ON THE DIS-**  
18 **TRIBUTION SYSTEM.**

19 (a) IN GENERAL.—The Secretary shall establish a  
20 grant program to carry out eligible projects related to the  
21 modernization of the electric grid, including the applica-  
22 tion of technologies to improve observability, advanced  
23 controls, and prediction of system performance on the dis-  
24 tribution system.

1 (b) ELIGIBLE PROJECTS.—To be eligible for a grant  
2 under subsection (a), a project shall—

3 (1) be designed to improve the performance and  
4 efficiency of the future electric grid, while ensuring  
5 the continued provision of safe, secure, reliable, and  
6 affordable power;

7 (2) demonstrate—

8 (A) secure integration and management of  
9 two or more energy resources, including distrib-  
10 uted energy generation, combined heat and  
11 power, micro-grids, energy storage, electric ve-  
12 hicles, energy efficiency, demand response, and  
13 intelligent loads; and

14 (B) secure integration and interoperability  
15 of communications and information tech-  
16 nologies; and

17 (3) be subject to the requirements of section  
18 545(a) of the Energy Security and Independence Act  
19 of 2007 (42 U.S.C. 17155(a)).

20 **SEC. 2212. MICRO-GRID AND HYBRID MICRO-GRID SYSTEMS**  
21 **PROGRAM.**

22 (a) DEFINITIONS.—In this section:

23 (1) HYBRID MICRO-GRID SYSTEM.—The term  
24 “hybrid micro-grid system” means a stand-alone  
25 electrical system that—

1 (A) is comprised of conventional generation  
2 and at least 1 alternative energy resource; and

3 (B) may use grid-scale energy storage.

4 (2) ISOLATED COMMUNITY.—The term “iso-  
5 lated community” means a community that is pow-  
6 ered by a stand-alone electric generation and dis-  
7 tribution system without the economic and reliability  
8 benefits of connection to a regional electric grid.

9 (3) MICRO-GRID SYSTEM.—The term “micro-  
10 grid system” means a standalone electrical system  
11 that uses grid-scale energy storage.

12 (4) STRATEGY.—The term “strategy” means  
13 the strategy developed pursuant to subsection  
14 (b)(2)(B).

15 (b) PROGRAM.—

16 (1) ESTABLISHMENT.—The Secretary shall es-  
17 tablish a program to promote the development of—

18 (A) hybrid micro-grid systems for isolated  
19 communities; and

20 (B) micro-grid systems to increase the re-  
21 siliance of critical infrastructure.

22 (2) PHASES.—The program established under  
23 paragraph (1) shall be divided into the following  
24 phases:

1 (A) Phase I, which shall consist of the de-  
2 velopment of a feasibility assessment for—

3 (i) hybrid micro-grid systems in iso-  
4 lated communities; and

5 (ii) micro-grid systems to enhance the  
6 resilience of critical infrastructure.

7 (B) Phase II, which shall consist of the de-  
8 velopment of an implementation strategy, in ac-  
9 cordance with paragraph (3), to promote the  
10 development of hybrid micro-grid systems for  
11 isolated communities, particularly for those  
12 communities exposed to extreme weather condi-  
13 tions and high energy costs, including elec-  
14 tricity, space heating and cooling, and transpor-  
15 tation.

16 (C) Phase III, which shall be carried out  
17 in parallel with Phase II and consist of the de-  
18 velopment of an implementation strategy to  
19 promote the development of micro-grid systems  
20 that increase the resilience of critical infrastruc-  
21 ture.

22 (D) Phase IV, which shall consist of cost-  
23 shared demonstration projects, based upon the  
24 strategies developed under subparagraph (B)  
25 that include the development of physical and cy-

1           bersecurity plans to take appropriate measures  
2           to protect and secure the electric grid.

3                   (E) Phase V, which shall establish a bene-  
4           fits analysis plan to help inform regulators, pol-  
5           icymakers, and industry stakeholders about the  
6           affordability, environmental and resilience bene-  
7           fits associated with Phases II, III, and IV.

8           (3) REQUIREMENTS FOR STRATEGY.—In devel-  
9           oping the strategy under paragraph (2)(B), the Sec-  
10          retary shall consider—

11                   (A) establishing future targets for the eco-  
12          nomic displacement of conventional generation  
13          using hybrid micro-grid systems, including dis-  
14          placement of conventional generation used for  
15          electric power generation, heating and cooling,  
16          and transportation;

17                   (B) the potential for renewable resources,  
18          including wind, solar, and hydropower, to be in-  
19          tegrated into a hybrid micro-grid system;

20                   (C) opportunities for improving the effi-  
21          ciency of existing hybrid micro-grid systems;

22                   (D) the capacity of the local workforce to  
23          operate, maintain, and repair a hybrid micro-  
24          grid system;

1 (E) opportunities to develop the capacity of  
2 the local workforce to operate, maintain, and  
3 repair a hybrid micro-grid system;

4 (F) leveraging existing capacity within  
5 local or regional research organizations, such as  
6 organizations based at institutions of higher  
7 education, to support development of hybrid  
8 micro-grid systems, including by testing novel  
9 components and systems prior to field deploy-  
10 ment;

11 (G) the need for basic infrastructure to de-  
12 velop, deploy, and sustain a hybrid micro-grid  
13 system;

14 (H) input of traditional knowledge from  
15 local leaders of isolated communities in the de-  
16 velopment of a hybrid micro-grid system;

17 (I) the impact of hybrid micro-grid systems  
18 on defense, homeland security, economic devel-  
19 opment, and environmental interests;

20 (J) opportunities to leverage existing inter-  
21 agency coordination efforts and recommenda-  
22 tions for new interagency coordination efforts to  
23 minimize unnecessary overhead, mobilization,  
24 and other project costs; and

1 (K) any other criteria the Secretary deter-  
2 mines appropriate.

3 (c) COLLABORATION.—The program established  
4 under subsection (b)(1) shall be carried out in collabora-  
5 tion with relevant stakeholders, including, as appro-  
6 priate—

7 (1) States;

8 (2) Indian Tribes;

9 (3) regional entities and regulators;

10 (4) units of local government;

11 (5) institutions of higher education; and

12 (6) private sector entities.

13 (d) REPORT.—Not later than 180 days after the date  
14 of enactment of this Act, and annually thereafter until cal-  
15 endar year 2029, the Secretary shall submit to the Com-  
16 mittee on Energy and Natural Resources of the Senate  
17 and the Committee on Energy and Commerce of the  
18 House of Representatives a report on the efforts to imple-  
19 ment the program established under subsection (b)(1) and  
20 the status of the strategy developed under subsection  
21 (b)(2)(B).

22 **SEC. 2213. ELECTRIC GRID ARCHITECTURE, SCENARIO DE-**  
23 **VELOPMENT, AND MODELING.**

24 (a) GRID ARCHITECTURE AND SCENARIO DEVELOP-  
25 MENT.—



1           (1) IN GENERAL.—Subject to paragraph (2),  
2           the Secretary shall establish and facilitate a collabo-  
3           rative process to develop model grid architecture and  
4           a set of future scenarios for the electric grid to ex-  
5           amine the impacts of different combinations of re-  
6           sources (including different quantities of distributed  
7           energy resources and large-scale, central generation)  
8           on the electric grid.

9           (2) MARKET STRUCTURE.—The grid architec-  
10          ture and scenarios developed under paragraph (1)  
11          shall account for differences in market structure, in-  
12          cluding an examination of the potential for stranded  
13          costs in each type of market structure.

14          (3) FINDINGS.—

15                (A) IN GENERAL.—Based on the findings  
16                of grid architecture developed under paragraph  
17                (1), the Secretary shall—

18                    (i) determine whether any additional  
19                    standards are necessary to ensure the  
20                    interoperability of grid systems and associ-  
21                    ated communications networks; and

22                    (ii) if the Secretary makes a deter-  
23                    mination that additional standards are  
24                    necessary under subparagraph (A), make  
25                    recommendations for additional standards,

1 including, as may be appropriate, to the  
2 Electric Reliability Organization under sec-  
3 tion 215 of the Federal Power Act (16  
4 U.S.C. 824o).

5 (B) CONSIDERATION.—The Electric Reli-  
6 ability Organization shall not be under any obli-  
7 gation to establish any process to consider the  
8 recommendations described in subparagraph  
9 (A)(ii).

10 (b) MODELING.—Subject to subsection (c), the Sec-  
11 retary shall—

12 (1) conduct modeling based on the scenarios de-  
13 veloped under subsection (a); and

14 (2) analyze and evaluate the technical and fi-  
15 nancial impacts of the models to assist States, utili-  
16 ties, and other stakeholders in—

17 (A) enhancing strategic planning efforts;

18 (B) avoiding stranded costs; and

19 (C) maximizing the cost-effectiveness of fu-  
20 ture grid-related investments.

21 (c) INPUT.—The Secretary shall develop the sce-  
22 narios and conduct the modeling and analysis under sub-  
23 sections (a) and (b) with participation or input, as appro-  
24 priate, from—

25 (1) the National Laboratories;

- 1 (2) States;
- 2 (3) State regulatory authorities;
- 3 (4) transmission organizations;
- 4 (5) representatives of all sectors of the electric
- 5 power industry;
- 6 (6) academic institutions;
- 7 (7) independent research institutes; and
- 8 (8) other entities.

9 (d) EFFECT.—Nothing in this section grants any per-  
10 son a right to receive or review confidential, proprietary,  
11 or otherwise protected information concerning grid archi-  
12 tecture or scenarios.

13 **SEC. 2214. VOLUNTARY MODEL PATHWAYS.**

14 (a) ESTABLISHMENT OF VOLUNTARY MODEL PATH-  
15 WAYS.—

16 (1) ESTABLISHMENT.—Not later than 90 days  
17 after the date of enactment of this Act, the Sec-  
18 retary, in consultation with the steering committee  
19 established under paragraph (3), shall initiate the  
20 development of voluntary model pathways for mod-  
21 ernizing the electric grid through a collaborative,  
22 public-private effort that—

23 (A) produces illustrative policy pathways  
24 encompassing a diverse range of technologies

1 that can be adapted for State and regional ap-  
2 plications by regulators and policymakers;

3 (B) facilitates the modernization of the  
4 electric grid and associated communications  
5 networks to achieve the objectives described in  
6 paragraph (2);

7 (C) ensures a reliable, resilient, affordable,  
8 safe, and secure electric grid; and

9 (D) acknowledges and accounts for dif-  
10 ferent priorities, electric systems, and rate  
11 structures across States and regions.

12 (2) OBJECTIVES.—The pathways established  
13 under paragraph (1) shall facilitate achievement of  
14 as many of the following objectives as practicable:

15 (A) Near real-time situational awareness of  
16 the electric system.

17 (B) Data visualization.

18 (C) Advanced monitoring and control of  
19 the advanced electric grid.

20 (D) Enhanced certainty of policies for in-  
21 vestment in the electric grid.

22 (E) Increased innovation.

23 (F) Greater consumer empowerment.

24 (G) Enhanced grid resilience, reliability,  
25 and robustness.

- 1 (H) Improved—  
2 (i) integration of distributed energy  
3 resources;  
4 (ii) interoperability of the electric sys-  
5 tem; and  
6 (iii) predictive modeling and capacity  
7 forecasting.  
8 (I) Reduced cost of service for consumers.  
9 (J) Diversification of generation sources.

10 (3) STEERING COMMITTEE.—Not later than 90  
11 days after the date of enactment of this Act, the  
12 Secretary shall establish a steering committee to  
13 help develop the pathways under paragraph (1), to  
14 be composed of members appointed by the Secretary,  
15 consisting of persons with appropriate expertise rep-  
16 resenting a diverse range of interests in the public,  
17 private, and academic sectors, including representa-  
18 tives of—

- 19 (A) the Federal Energy Regulatory Com-  
20 mission;  
21 (B) the National Laboratories;  
22 (C) States;  
23 (D) State regulatory authorities;  
24 (E) transmission organizations;

- 1 (F) representatives of all sectors of the  
2 electric power industry;
- 3 (G) institutions of higher education;
- 4 (H) independent research institutes; and
- 5 (I) other entities.

6 (b) TECHNICAL ASSISTANCE.—The Secretary may  
7 provide technical assistance to States, Indian Tribes, or  
8 units of local government to adopt or implement one or  
9 more elements of the pathways developed under subsection  
10 (a)(1), including on a pilot basis.

11 **SEC. 2215. PERFORMANCE METRICS FOR ELECTRICITY IN-**  
12 **FRASTRUCTURE PROVIDERS.**

13 (a) IN GENERAL.—Not later than 2 years after the  
14 date of enactment of this Act, the Secretary, in consulta-  
15 tion with the steering committee established under section  
16 2214(a)(3), shall submit to the Committee on Energy and  
17 Natural Resources of the Senate and the Committee on  
18 Energy and Commerce of the House of Representatives  
19 a report that includes—

20 (1) an evaluation of the performance of the  
21 electric grid as of the date of the report; and

22 (2) a description of the projected range of  
23 measurable costs and benefits associated with the  
24 changes evaluated under the scenarios developed  
25 under section 2213.

1 (b) CONSIDERATIONS FOR DEVELOPMENT OF  
2 METRICS.—In developing metrics for the evaluation and  
3 projections under subsection (a), the Secretary shall con-  
4 sider—

5 (1) standard methodologies for calculating im-  
6 provements or deteriorations in the performance  
7 metrics, such as reliability, grid efficiency, power  
8 quality, consumer satisfaction, sustainability, and fi-  
9 nancial incentives;

10 (2) standard methodologies for calculating po-  
11 tential costs and measurable benefits value to rate-  
12 payers, applying the performance metrics developed  
13 under paragraph (1);

14 (3) identification of tools, resources, and de-  
15 ployment models that may enable improved perform-  
16 ance through the adoption of emerging, commer-  
17 cially available or advanced grid technologies or solu-  
18 tions, including—

19 (A) multicustomer micro-grids;

20 (B) distributed energy resources;

21 (C) energy storage;

22 (D) electric vehicles;

23 (E) electric vehicle charging infrastructure;

24 (F) integrated information and commu-  
25 nications systems;

1 (G) transactive energy systems; and

2 (H) advanced demand management sys-  
3 tems; and

4 (4) the role of States and local regulatory au-  
5 thorities in enabling a robust future electric grid to  
6 ensure that—

7 (A) electric utilities remain financially via-  
8 ble;

9 (B) electric utilities make the needed in-  
10 vestments that ensure a reliable, secure, and re-  
11 siliant grid; and

12 (C) costs incurred to transform to an inte-  
13 grated grid are allocated and recovered respon-  
14 sibly, efficiently, and equitably.

15 **SEC. 2216. VOLUNTARY STATE, REGIONAL, AND LOCAL**  
16 **ELECTRICITY DISTRIBUTION PLANNING.**

17 (a) IN GENERAL.—On the request of a State, re-  
18 gional organization, or electric utility, the Secretary shall  
19 provide assistance to States, regional organizations, and  
20 electric utilities to facilitate the development of State, re-  
21 gional, and local electricity distribution plans by—

22 (1) conducting a resource assessment and anal-  
23 ysis of future demand and distribution requirements;  
24 and



1           (2) developing open source tools for State, re-  
2           gional, and local planning and operations.

3           (b) RISK AND SECURITY ANALYSIS.—The assessment  
4 under subsection (a)(1) shall include—

5           (1) the evaluation of the physical security, cy-  
6           bersecurity, and associated communications needs of  
7           an advanced distribution management system and  
8           the integration of distributed energy resources; and

9           (2) advanced use of grid architecture to analyze  
10          risks in an all-hazards approach that includes com-  
11          munications infrastructure, control systems architec-  
12          ture, and power systems architecture.

13          (c) DESIGNATION.—The information collected for the  
14 assessment and analysis under subsection (a)(1)—

15          (1) shall be considered to be critical electric in-  
16          frastructure information under section 215A of the  
17          Federal Power Act (16 U.S.C. 824o–1); and

18          (2) shall only be released in compliance with  
19          regulations implementing that section.

20          (d) TECHNICAL ASSISTANCE.—For the purpose of  
21 assisting in the development of State and regional elec-  
22 tricity distribution plans, the Secretary shall provide tech-  
23 nical assistance to—

24          (1) States;

25          (2) regional reliability entities; and

1           (3) other distribution asset owners and opera-  
2           tors.

3           (e) WITHDRAWAL.—A State or any entity that has  
4 requested technical assistance under this section may  
5 withdraw the request for technical assistance at any time,  
6 and on such withdrawal, the Secretary shall terminate all  
7 assistance efforts.

8           (f) EFFECT.—Nothing in this section authorizes the  
9 Secretary to require any State, regional organization, re-  
10 gional reliability entity, asset owner, or asset operator to  
11 adopt any model, tool, plan, analysis, or assessment.

12 **SEC. 2217. AUTHORIZATION OF APPROPRIATIONS.**

13           There is authorized to be appropriated to the Sec-  
14 retary to carry out sections 2211 through 2216  
15 \$200,000,000 for each of fiscal years 2021 through 2029.

16                           **Subtitle C—Workforce**  
17                           **Development**

18 **SEC. 2301. DEFINITIONS.**

19           In this subtitle:

20           (1) WIOA TERMS.—The terms “community-  
21 based organization”, “economic development agen-  
22 cy”, “recognized postsecondary credential”, and  
23 “State” have the meanings given the terms in sec-  
24 tion 3 of the Workforce Innovation and Opportunity  
25 Act (29 U.S.C. 3102).

1           (2) APPRENTICESHIP PROGRAM.—The term  
2           “apprenticeship program” means an apprenticeship  
3           registered under the Act of August 16, 1937 (com-  
4           monly known as the “National Apprenticeship Act”)  
5           (50 Stat. 664, chapter 663; 29 U.S.C. 50 et seq.),  
6           including, as in effect on December 30, 2019, any  
7           requirement, standard, or rule promulgated under  
8           that Act.

9           (3) AREA CAREER AND TECHNICAL EDUCATION  
10          SCHOOL.—The term “area career and technical edu-  
11          cation school” has the meaning given the term in  
12          section 3 of the Carl D. Perkins Career and Tech-  
13          nical Education Act of 2006 (20 U.S.C. 2302).

14          (4) BOARD.—The term “Board” means the  
15          21st Century Energy Workforce Advisory Board es-  
16          tablished under section 2304(a).

17          (5) COVERED FACILITY OF THE NATIONAL NU-  
18          CLEAR SECURITY ADMINISTRATION.—The term  
19          “covered facility of the National Nuclear Security  
20          Administration” means a national security labora-  
21          tory or a nuclear weapons production facility (as  
22          those terms are defined in section 4002 of the Atom-  
23          ic Energy Defense Act (50 U.S.C. 2501)).

24          (6) ELIGIBLE SPONSOR.—The term “eligible  
25          sponsor” means a public organization or an organi-

1 zation described in section 501(c) of the Internal  
2 Revenue Code of 1986 and exempt from tax under  
3 section 501(a) of that Code, that—

4 (A) with respect to an apprenticeship pro-  
5 gram, administers such program through a  
6 partnership that may include—

7 (i) a business;

8 (ii) an employer or industry associa-  
9 tion;

10 (iii) a labor-management organization;

11 (iv) a local workforce development  
12 board or State workforce development  
13 board;

14 (v) a 2- or 4-year institution of higher  
15 education that offers an educational pro-  
16 gram leading to an associate's or bach-  
17 elor's degree in conjunction with a certifi-  
18 cate of completion of apprenticeship;

19 (vi) the Armed Forces (including the  
20 National Guard and Reserves);

21 (vii) a community-based organization;

22 (viii) a labor organization with signifi-  
23 cant energy experience; or

24 (ix) an economic development agency;

25 and

1           (B) with respect to a preapprenticeship  
2           program, is a local educational agency, a sec-  
3           ondary school, an area career and technical  
4           education school, a State workforce develop-  
5           ment board, a local workforce development  
6           board, a labor organization, or a community-  
7           based organization, that administers such pro-  
8           gram with any required coordination and nec-  
9           essary approvals from the Secretary of Labor or  
10          a State department of labor.

11          (7) INDIAN TRIBE.—The term “Indian tribe”  
12          has the meaning given the term in section 4 of the  
13          Indian Self-Determination and Education Assistance  
14          Act (25 U.S.C. 5304).

15          (8) INSTITUTION OF HIGHER EDUCATION.—The  
16          term “institution of higher education” has the  
17          meaning given the term in section 101 and subpara-  
18          graphs (A) and (B) of section 102(a)(1) of the  
19          Higher Education Act of 1965 (20 U.S.C. 1001,  
20          1002(a)(1)).

21          (9) LABOR ORGANIZATION.—The term “labor  
22          organization” has the meaning given the term in  
23          section 2 of the National Labor Relations Act (29  
24          U.S.C. 152).



1 standards related to an apprenticeship pro-  
2 gram and reviewed and approved annually  
3 by sponsors of the apprenticeship program  
4 within the documented partnership that  
5 will prepare participants by teaching the  
6 skills and competencies needed to enter 1  
7 or more apprenticeship programs.

8 (ii) Hands-on training and theoretical  
9 education for participants that does not  
10 displace a paid employee.

11 (iii) A formal agreement with a spon-  
12 sor of an apprenticeship program that  
13 would enable participants who successfully  
14 complete the preapprenticeship program—

15 (I) to enter directly into the ap-  
16 prenticeship program if a place in the  
17 program is available and if the partic-  
18 ipant meets the qualifications of the  
19 apprenticeship program; and

20 (II) to earn credits towards the  
21 apprenticeship program.

22 (14) SECONDARY SCHOOL.—The term “sec-  
23 ondary school” has the meaning given the term in  
24 section 8101 of the Elementary and Secondary Edu-  
25 cation Act of 1965 (20 U.S.C. 7801).

1           (15) STATE WORKFORCE DEVELOPMENT  
2 BOARD.—The term “State workforce development  
3 board” has the meaning given the term “State  
4 board” in section 3 of the Workforce Innovation and  
5 Opportunity Act (29 U.S.C. 3102).

6           (16) TRIBAL ORGANIZATION.—The term “tribal  
7 organization” has the meaning given the term in  
8 section 3765 of title 38, United States Code.

9 **SEC. 2302. ADDRESSING INSUFFICIENT COMPENSATION OF**  
10 **EMPLOYEES AND OTHER PERSONNEL OF THE**  
11 **FEDERAL ENERGY REGULATORY COMMIS-**  
12 **SION.**

13       (a) IN GENERAL.—Section 401 of the Department of  
14 Energy Organization Act (42 U.S.C. 7171) is amended  
15 by adding at the end the following:

16       “(k) ADDRESSING INSUFFICIENT COMPENSATION OF  
17 EMPLOYEES AND OTHER PERSONNEL OF THE COMMIS-  
18 SION.—

19           “(1) IN GENERAL.—Notwithstanding any other  
20 provision of law, if the Chairman publicly certifies  
21 that compensation for a category of employees or  
22 other personnel of the Commission is insufficient to  
23 retain or attract employees and other personnel to  
24 allow the Commission to carry out the functions of  
25 the Commission in a timely, efficient, and effective



1 manner, the Chairman may fix the compensation for  
2 the category of employees or other personnel without  
3 regard to chapter 51 and subchapter III of chapter  
4 53 of title 5, United States Code, or any other civil  
5 service law.

6 “(2) CERTIFICATION REQUIREMENTS.—A cer-  
7 tification issued under paragraph (1) shall—

8 “(A) apply with respect to a category of  
9 employees or other personnel responsible for  
10 conducting work of a scientific, technological,  
11 engineering, or mathematical nature;

12 “(B) specify a maximum amount of rea-  
13 sonable compensation for the category of em-  
14 ployees or other personnel;

15 “(C) be valid for a 5-year period beginning  
16 on the date on which the certification is issued;

17 “(D) be no broader than necessary to  
18 achieve the objective of retaining or attracting  
19 employees and other personnel to allow the  
20 Commission to carry out the functions of the  
21 Commission in a timely, efficient, and effective  
22 manner; and

23 “(E) include an explanation for why the  
24 other approaches available to the Chairman for

1 retaining and attracting employees and other  
2 personnel are inadequate.

3 “(3) RENEWAL.—

4 “(A) IN GENERAL.—Not later than 90  
5 days before the date of expiration of a certifi-  
6 cation issued under paragraph (1), the Chair-  
7 man shall determine whether the certification  
8 should be renewed for a subsequent 5-year pe-  
9 riod.

10 “(B) REQUIREMENT.—If the Chairman de-  
11 termines that a certification should be renewed  
12 under subparagraph (A), the Chairman may  
13 renew the certification, subject to the certifi-  
14 cation requirements under paragraph (2) that  
15 were applicable to the initial certification.

16 “(4) NEW HIRES.—

17 “(A) IN GENERAL.—An employee or other  
18 personnel that is a member of a category of em-  
19 ployees or other personnel that would have been  
20 covered by a certification issued under para-  
21 graph (1), but was hired during a period in  
22 which the certification has expired and has not  
23 been renewed under paragraph (3) shall not be  
24 eligible for compensation at the level that would  
25 have applied to the employee or other personnel

1           if the certification had been in effect on the  
2           date on which the employee or other personnel  
3           was hired.

4           “(B) COMPENSATION OF NEW HIRES ON  
5           RENEWAL.—On renewal of a certification under  
6           paragraph (3), the Chairman may fix the com-  
7           pensation of the employees or other personnel  
8           described in subparagraph (A) at the level es-  
9           tablished for the category of employees or other  
10          personnel in the certification.

11          “(5) RETENTION OF LEVEL OF FIXED COM-  
12          PENSATION.—A category of employees or other per-  
13          sonnel, the compensation of which was fixed by the  
14          Chairman in accordance with paragraph (1), may, at  
15          the discretion of the Chairman, have the level of  
16          fixed compensation for the category of employees or  
17          other personnel retained, regardless of whether a  
18          certification described under that paragraph is in ef-  
19          fect with respect to the compensation of the category  
20          of employees or other personnel.

21          “(6) CONSULTATION REQUIRED.—The Chair-  
22          man shall consult with the Director of the Office of  
23          Personnel Management in implementing this sub-  
24          section, including in the determination of the

1 amount of compensation with respect to each cat-  
2 egory of employees or other personnel.

3 “(7) EXPERTS AND CONSULTANTS.—

4 “(A) IN GENERAL.—Subject to subpara-  
5 graph (B), the Chairman may—

6 “(i) obtain the services of experts and  
7 consultants in accordance with section  
8 3109 of title 5, United States Code;

9 “(ii) compensate those experts and  
10 consultants for each day (including travel  
11 time) at rates not in excess of the rate of  
12 pay for level IV of the Executive Schedule  
13 under section 5315 of that title; and

14 “(iii) pay to the experts and consult-  
15 ants serving away from the homes or reg-  
16 ular places of business of the experts and  
17 consultants travel expenses and per diem  
18 in lieu of subsistence at rates authorized  
19 by sections 5702 and 5703 of that title for  
20 persons in Government service employed  
21 intermittently.

22 “(B) LIMITATIONS.—The Chairman  
23 shall—

24 “(i) to the maximum extent prac-  
25 ticable, limit the use of experts and con-

1           sultants pursuant to subparagraph (A);  
2           and

3                   “(ii) ensure that the employment con-  
4           tract of each expert and consultant em-  
5           ployed pursuant to subparagraph (A) is  
6           subject to renewal not less frequently than  
7           annually.”.

8           (b) REPORTS.—

9                   (1) IN GENERAL.—Not later than 1 year after  
10          the date of enactment of this Act, and every 2 years  
11          thereafter for 10 years, the Chairman of the Federal  
12          Energy Regulatory Commission shall submit to the  
13          Committee on Energy and Commerce of the House  
14          of Representatives and the Committee on Energy  
15          and Natural Resources of the Senate a report on in-  
16          formation relating to hiring, vacancies, and com-  
17          pensation at the Federal Energy Regulatory Com-  
18          mission.

19                   (2) INCLUSIONS.—Each report under para-  
20          graph (1) shall include—

21                           (A) an analysis of any trends with respect  
22                           to hiring, vacancies, and compensation at the  
23                           Federal Energy Regulatory Commission; and

24                           (B) a description of the efforts to retain  
25                           and attract employees or other personnel re-

1           sponsible for conducting work of a scientific,  
2           technological, engineering, or mathematical na-  
3           ture at the Federal Energy Regulatory Com-  
4           mission.

5           (c) **APPLICABILITY.**—The amendment made by sub-  
6 section (a) shall apply beginning on the date that is 30  
7 days after the date of enactment of this Act.

8   **SEC. 2303. REPORT ON THE AUTHORITY OF THE SEC-**  
9                   **RETARY TO IMPLEMENT FLEXIBLE COM-**  
10                   **PENSATION MODELS.**

11           Not later than 180 days after the date of enactment  
12 of this Act, the Secretary shall submit to Congress a re-  
13 port examining the full scope of the hiring authority made  
14 available to the Secretary by the Office of Personnel Man-  
15 agement to implement flexible compensation models, in-  
16 cluding pay for performance and pay banding, throughout  
17 the Department, including at the National Laboratories,  
18 for the purposes of hiring, recruiting, and retaining em-  
19 ployees responsible for conducting work of a scientific,  
20 technological, engineering, or mathematical nature.

21   **SEC. 2304. 21ST CENTURY ENERGY WORKFORCE ADVISORY**  
22                   **BOARD.**

23           (a) **ESTABLISHMENT.**—The Secretary shall establish  
24 a board, to be known as the “21st Century Energy Work-  
25 force Advisory Board”, to develop a strategy for the De-

1 partment that, with respect to the role of the Department  
2 in the support and development of a skilled energy work-  
3 force—

4 (1) meets the current and future industry and  
5 labor needs of the energy sector;

6 (2) provides opportunities for students to be-  
7 come qualified for placement in traditional energy  
8 sector and clean energy sector jobs;

9 (3) identifies areas in which the Department  
10 can effectively utilize the technical expertise of the  
11 Department to support the workforce activities of  
12 other Federal agencies;

13 (4) strengthens and engages the workforce  
14 training programs of the Department and the Na-  
15 tional Laboratories in carrying out the Minorities in  
16 Energy Initiative of the Department and other De-  
17 partment workforce priorities;

18 (5) develops plans to support and retrain dis-  
19 placed and unemployed energy sector workers; and

20 (6) prioritizes education and job training for  
21 underrepresented groups, including racial and ethnic  
22 minorities, Indian tribes, women, veterans, and  
23 socioeconomically disadvantaged individuals.

24 (b) MEMBERSHIP.—

1           (1) IN GENERAL.—The Board shall be com-  
2           posed of not fewer than 10 and not more than 15  
3           members, with the initial members of the Board to  
4           be appointed by the Secretary not later than 1 year  
5           after the date of enactment of this Act.

6           (2) REQUIREMENT.—The Board shall include  
7           not fewer than 1 representative of a labor organiza-  
8           tion with significant energy experience who has been  
9           nominated by a national labor federation.

10          (3) QUALIFICATIONS.—Each individual ap-  
11          pointed to the Board under paragraph (1) shall have  
12          expertise in—

13                 (A) the field of economics or workforce de-  
14                 velopment;

15                 (B) relevant traditional energy industries  
16                 or clean energy industries;

17                 (C) secondary or postsecondary education;

18                 (D) energy workforce development or ap-  
19                 prenticeship programs of States or units of  
20                 local government;

21                 (E) relevant organized labor organizations;

22                 or

23                 (F) bringing underrepresented groups, in-  
24                 cluding racial and ethnic minorities, women,



1 veterans, and socioeconomically disadvantaged  
2 individuals, into the workforce.

3 (4) LIMITATION.—No individual shall be ap-  
4 pointed to the Board who is an employee or a board  
5 member of an entity applying for a grant under sec-  
6 tion 2305 or 2306.

7 (c) ADVISORY BOARD REVIEW AND RECOMMENDA-  
8 TIONS.—

9 (1) DETERMINATION BY BOARD.—In developing  
10 the strategy required under subsection (a), the  
11 Board shall—

12 (A) determine whether there are opportuni-  
13 ties to more effectively and efficiently use the  
14 capabilities of the Department in the develop-  
15 ment of a skilled energy workforce;

16 (B) identify ways in which the Department  
17 could work with other relevant Federal agen-  
18 cies, States, units of local government, institu-  
19 tions of higher education, labor organizations,  
20 Indian tribes and tribal organizations, and in-  
21 dustry in the development of a skilled energy  
22 workforce;

23 (C) identify ways in which the Department  
24 and National Laboratories can—

1 (i) increase outreach to minority-serv-  
2 ing institutions; and

3 (ii) make resources available to in-  
4 crease the number of skilled minorities and  
5 women trained to go into the energy- and  
6 manufacturing-related sectors;

7 (iii) increase outreach to displaced  
8 and unemployed energy sector workers;  
9 and

10 (iv) make resources available to pro-  
11 vide training to displaced and unemployed  
12 energy sector workers to reenter the en-  
13 ergy workforce; and

14 (D)(i) identify the energy sectors in great-  
15 est need of workforce training; and

16 (ii) in consultation with the Secretary of  
17 Labor, develop guidelines for the skills nec-  
18 essary to develop a workforce trained to work in  
19 those energy sectors.

20 (2) REQUIRED ANALYSIS.—In developing the  
21 strategy required under subsection (a), the Board  
22 shall analyze the effectiveness of—

23 (A) existing Department-directed support;  
24 and

1 (B) developing energy workforce training  
2 programs.

3 (3) REPORT.—

4 (A) IN GENERAL.—Not later than 1 year  
5 after the date on which the Board is established  
6 under this section, and biennially thereafter  
7 until the date on which the Board is terminated  
8 under subsection (g), the Board shall submit to  
9 the Secretary a report containing, with respect  
10 to the strategy required under subsection (a)—

11 (i) the findings of the Board; and

12 (ii) the proposed energy workforce  
13 strategy of the Board.

14 (B) RESPONSE OF THE SECRETARY.—Not  
15 later than 60 days after the date on which a re-  
16 port is submitted to the Secretary under sub-  
17 paragraph (A), the Secretary shall—

18 (i) submit to the Board a response to  
19 the report that—

20 (I) describes whether the Sec-  
21 retary approves or disapproves of each  
22 recommendation of the Board under  
23 subparagraph (A); and

24 (II) if the Secretary approves of  
25 a recommendation, provides an imple-

1                   mentation plan for the recommenda-  
2                   tion; and

3                   (ii) submit to Congress—

4                   (I) the report of the Board under  
5                   subparagraph (A); and

6                   (II) the response of the Secretary  
7                   under clause (i).

8                   (C) PUBLIC AVAILABILITY OF REPORT.—

9                   (i) IN GENERAL.—The Board shall  
10                  make each report under subparagraph (A)  
11                  available to the public on the earlier of—

12                  (I) the date on which the Board  
13                  receives the response of the Secretary  
14                  under subparagraph (B)(i); and

15                  (II) the date that is 90 days  
16                  after the date on which the Board  
17                  submitted the report to the Secretary.

18                  (ii) REQUIREMENT.—If the Board has  
19                  received a response to a report from the  
20                  Secretary under subparagraph (B)(i), the  
21                  Board shall make that response publicly  
22                  available with the applicable report.

23                  (d) ENERGY JOBS SURVEY AND ANALYSIS.—

1           (1) IN GENERAL.—The Secretary, acting  
2 through the Administrator of the Energy Informa-  
3 tion Administration, shall—

4           (A) conduct a voluntary survey of employ-  
5 ers in the energy, energy efficiency, and motor  
6 vehicle sectors of the economy of the United  
7 States; and

8           (B) perform an analysis of the employment  
9 figures and demographics in those sectors, in-  
10 cluding the number of personnel in each sector  
11 who devote a substantial portion of working  
12 hours, as determined by the Secretary, to com-  
13 pliance matters.

14           (2) METHODOLOGY.—In conducting the survey  
15 and analysis under paragraph (1), the Secretary  
16 shall employ a methodology that—

17           (A) was approved in 2016 by the Office of  
18 Management and Budget for use in the docu-  
19 ment entitled “OMB Control Number 1910–  
20 5179”;

21           (B) uses a representative, stratified sam-  
22 pling of businesses in the United States; and

23           (C) is designed to elicit a comparable num-  
24 ber of responses from businesses in each State  
25 and with the same North American Industry

1 Classification System codes as were received for  
2 the 2016 and 2017 reports entitled “U.S. En-  
3 ergy and Employment Report”.

4 (3) CONSULTATION.—In conducting the survey  
5 and analysis under paragraph (1), the Secretary  
6 shall consult with key stakeholders, including—

7 (A) as the Secretary determines to be ap-  
8 propriate, the heads of relevant Federal agen-  
9 cies and offices, including—

10 (i) the Secretary of Commerce;

11 (ii) the Secretary of Transportation;

12 (iii) the Director of the Bureau of the  
13 Census;

14 (iv) the Commissioner of the Bureau  
15 of Labor Statistics; and

16 (v) the Administrator of the Environ-  
17 mental Protection Agency;

18 (B) officials of State agencies responsible  
19 for maintaining State employment data;

20 (C) the State Energy Advisory Board es-  
21 tablished by section 365(g) of the Energy Pol-  
22 icy and Conservation Act (42 U.S.C. 6325(g));

23 (D) energy industry trade associations;  
24 and



1           (i) make publicly available on the  
2 website of the Department a report, to be  
3 entitled the “U.S. Energy and Employ-  
4 ment Report”, describing the employment  
5 figures and demographics in the energy,  
6 energy efficiency, and motor vehicle sectors  
7 of the United States based on the survey  
8 and analysis conducted under subsection  
9 (d); and

10           (ii) subject to the requirements of the  
11 Confidential Information Protection and  
12 Statistical Efficiency Act of 2002 (44  
13 U.S.C. 3501 note; Public Law 107–347),  
14 make the data collected under subsection  
15 (d) publicly available on the website of the  
16 Department.

17 (B) CONTENTS.—

18           (i) IN GENERAL.—The report under  
19 subparagraph (A) shall include employ-  
20 ment figures and demographic data for—

21           (I) the energy sector of the econ-  
22 omy of the United States, including—

23           (aa) the electric power gen-  
24 eration and fuels sectors; and



1 (bb) the transmission, stor-  
2 age, and distribution sectors;

3 (II) the energy efficiency sector  
4 of the economy of the United States;  
5 and

6 (III) the motor vehicle sector of  
7 the economy of the United States.

8 (ii) INCLUSION.—With respect to each  
9 sector described in clause (i), the report  
10 under subparagraph (A) shall include em-  
11 ployment figures and demographic data  
12 sorted by—

13 (I) each technology, subtech-  
14 nology, and fuel type of those sectors;  
15 and

16 (II) subject to the requirements  
17 of the Confidential Information Pro-  
18 tection and Statistical Efficiency Act  
19 of 2002 (44 U.S.C. 3501 note; Public  
20 Law 107–347)—

21 (aa) each State;

22 (bb) each territory of the  
23 United States;

24 (cc) the District of Colum-  
25 bia; and

1 (dd) to the maximum extent  
2 practicable, each county (or  
3 equivalent jurisdiction) in the  
4 United States.

5 (f) OUTREACH TO MINORITY-SERVING INSTITU-  
6 TIONS, VETERANS, AND DISPLACED AND UNEMPLOYED  
7 ENERGY WORKERS.—In developing the strategy under  
8 subsection (a), the Board shall—

9 (1) give special consideration to increasing out-  
10 reach to minority-serving institutions, veterans, and  
11 displaced and unemployed energy workers;

12 (2) make resources available to—

13 (A) minority-serving institutions, with the  
14 objective of increasing the number of skilled mi-  
15 norities and women trained to go into the en-  
16 ergy and manufacturing sectors;

17 (B) institutions that serve veterans, with  
18 the objective of increasing the number veterans  
19 in the energy industry by ensuring that vet-  
20 erans have the credentials and training nec-  
21 essary to secure careers in the energy industry;  
22 and

23 (C) institutions that serve displaced and  
24 unemployed energy workers to increase the

1           number of individuals trained for jobs in the  
2           energy industry;

3           (3) encourage the energy industry to improve  
4           the opportunities for students of minority-serving in-  
5           stitutions, veterans, and displaced and unemployed  
6           energy workers to participate in internships,  
7           preapprenticeships, and cooperative work-study pro-  
8           grams in the energy industry; and

9           (4) work with the National Laboratories to in-  
10          crease the participation of underrepresented groups,  
11          veterans, and displaced and unemployed energy  
12          workers in internships, fellowships, training pro-  
13          grams, and employment at the National Labora-  
14          tories.

15          (g) TERM.—

16           (1) IN GENERAL.—Subject to paragraph (2),  
17          the Board shall terminate on September 30, 2025.

18           (2) EXTENSIONS.—The Secretary may renew  
19          the Board for 1 or more 5-year periods by submit-  
20          ting, not later than the date described in subsection  
21          (e)(1), a report described in that subsection that  
22          contains a determination by the Secretary that the  
23          Board should be renewed.

1 **SEC. 2305. NATIONAL LABORATORY JOBS ACCESS PILOT**  
2 **PROGRAM.**

3 (a) IN GENERAL.—Not later than 1 year after the  
4 date of enactment of this Act, the Secretary, in consulta-  
5 tion with the Secretary of Labor, shall establish a pilot  
6 program to award, on a competitive basis, grants to eligi-  
7 ble entities described in subsection (c) for the Federal  
8 share of the costs of technical, skills-based  
9 preapprenticeship and apprenticeship programs that pro-  
10 vide employer-driven or recognized postsecondary creden-  
11 tials.

12 (b) REQUIREMENTS.—A program funded by a grant  
13 awarded under this section shall develop and deliver cus-  
14 tomized and competency-based training that—

15 (1) is focused on skills and qualifications need-  
16 ed to meet the immediate and on-going needs of tra-  
17 ditional and emerging technician positions (including  
18 machinists and cyber security technicians) at the  
19 National Laboratories and covered facilities of the  
20 National Nuclear Security Administration;

21 (2) creates an apprenticeship program or  
22 preapprenticeship partnership with a National Lab-  
23 oratory or covered facility of the National Nuclear  
24 Security Administration; and

25 (3) creates an apprenticeship program or  
26 preapprenticeship program with the Secretary of

1 Labor or a State department of labor in coordina-  
2 tion with a National Laboratory or covered facility  
3 of the National Nuclear Security Administration.

4 (c) ELIGIBLE ENTITIES.—To be eligible to receive a  
5 grant under this section, an entity shall be an eligible  
6 sponsor that—

7 (1) demonstrates experience in implementing  
8 and operating apprenticeship programs or  
9 preapprenticeship programs;

10 (2)(A) has a relationship with a National Lab-  
11 oratory or covered facility of the National Nuclear  
12 Security Administration;

13 (B) has knowledge of technician workforce  
14 needs of such laboratory or facility and the as-  
15 sociated security requirements of such labora-  
16 tory or facility; and

17 (C) is eligible to enter into an agreement  
18 with such laboratory or facility that would be  
19 paid for in part or entirely from grant funds re-  
20 ceived under this section;

21 (3) demonstrates the ability to recruit and sup-  
22 port individuals who plan to work in the energy in-  
23 dustry in the successful completion of relevant job  
24 training and education programs;

1           (4) provides students who complete a program  
2 funded by a grant awarded under this section with  
3 a recognized postsecondary credential; and

4           (5) demonstrates successful outcomes con-  
5 necting graduates of preapprenticeship or appren-  
6 ticeship programs to careers relevant to such pro-  
7 grams.

8           (d) APPLICATIONS.—An eligible entity desiring a  
9 grant under this section shall submit to the Secretary an  
10 application at such time, in such manner, and containing  
11 such information as the Secretary may require.

12           (e) PRIORITY.—In selecting eligible entities to receive  
13 grants under this section, the Secretary shall prioritize ap-  
14 plicants that—

15           (1) house the preapprenticeship or apprentice-  
16 ship programs in an institution of higher education  
17 that includes basic science and math education in  
18 the curriculum of the institution of higher education;

19           (2) work with the Secretary of Defense and the  
20 Secretary of Veterans Affairs or veteran service or-  
21 ganizations recognized by the Secretary of Veterans  
22 Affairs under section 5902 of title 38, United States  
23 Code, to transition members of the Armed Forces  
24 and veterans to careers in the energy sector;

25           (3) work with—

- 1 (A) Indian tribes;
- 2 (B) tribal organizations; and
- 3 (C) Native American veterans (as defined  
4 in section 3765 of title 38, United States  
5 Code), including veterans who are descendants  
6 of Natives (as defined in section 3 of the Alaska  
7 Native Claims Settlement Act (43 U.S.C.  
8 1602));
- 9 (4) apply as a State or regional consortia to le-  
10 verage best practices already available in the State  
11 or region in which an institution of higher education  
12 is located;
- 13 (5) have a State-supported entity included in  
14 the consortium applying for the grant;
- 15 (6) provide support services and career coach-  
16 ing;
- 17 (7) provide introductory energy workforce devel-  
18 opment training;
- 19 (8) work with minority-serving institutions to  
20 provide job training to increase the number of  
21 skilled minorities and women in the energy sector; or
- 22 (9) provide job training for displaced and un-  
23 employed workers in the energy sector.

1 (f) ADDITIONAL CONSIDERATION.—In making grants  
2 under this section, the Secretary shall consider regional  
3 diversity.

4 (g) LIMITATION ON APPLICATIONS.—An eligible enti-  
5 ty may not submit, either individually or as part of a joint  
6 application, more than 1 application for a grant under this  
7 section during any 1 fiscal year.

8 (h) LIMITATIONS ON AMOUNT OF GRANT.—The  
9 amount of an individual grant for any 24-month period  
10 shall not exceed \$500,000.

11 (i) FEDERAL SHARE.—The Federal share of the cost  
12 of a preapprenticeship or apprenticeship program carried  
13 out using a grant under this section shall be not greater  
14 than 50 percent.

15 (j) REPORT.—Not later than 1 year after the date  
16 on which the first grant is awarded under this section,  
17 and annually thereafter for 5 years, the Secretary shall  
18 submit to Congress and make publicly available on the  
19 website of the Department a report on the pilot program  
20 established under this section, including a description of—

21 (1) the entities receiving grants;

22 (2) the activities carried out using the grants;

23 (3) best practices used to leverage the invest-  
24 ment of the Federal Government; and



1           (4) an assessment of the results achieved by the  
2 pilot program, including the rate of employment at  
3 the National Laboratories for participants after  
4 completing a preapprenticeship or apprenticeship  
5 program carried out using a grant awarded under  
6 this section.

7           (k) AUTHORIZATION OF APPROPRIATIONS.—There is  
8 authorized to be appropriated to carry out this section  
9 \$5,000,000 for each of fiscal years 2021 through 2025.

10 **SEC. 2306. CLEAN ENERGY WORKFORCE PILOT PROGRAM.**

11           (a) DEFINITIONS.—In this section:

12           (1) ELIGIBLE ENTITY.—The term “eligible enti-  
13 ty” means a business, labor organization, or labor  
14 management organization that—

15                   (A)(i) is directly involved with energy effi-  
16 ciency, renewable energy technology, or reduc-  
17 tion in greenhouse gas emissions, as determined  
18 by the Secretary of Labor in consultation with  
19 the Secretary; or

20                   (ii) works on behalf of a business or  
21 labor management organization that is di-  
22 rectly involved with energy efficiency, re-  
23 newable energy technology, or reduction in  
24 greenhouse gas emissions, as determined

1 by the Secretary of Labor in consultation  
2 with the Secretary; or

3 (B) provides services related to—

4 (i) energy efficiency and renewable en-  
5 ergy technology deployment and mainte-  
6 nance;

7 (ii) grid modernization; or

8 (iii) reduction in greenhouse gas emis-  
9 sions through the use of other low-carbon  
10 technologies.

11 (2) LABOR MANAGEMENT ORGANIZATION.—The  
12 term “labor management organization” includes a  
13 nonprofit organization or qualified youth or con-  
14 servation corps that provides training to individuals  
15 to work for an eligible entity that is a business, or  
16 works on behalf of an eligible entity that is a busi-  
17 ness.

18 (3) PILOT PROGRAM.—The term “pilot pro-  
19 gram” means the pilot program established under  
20 subsection (b).

21 (b) ESTABLISHMENT.—The Secretary of Labor, in  
22 consultation with the Secretary and in accordance with  
23 section 169(b) of the Workforce Innovation and Oppor-  
24 tunity Act (29 U.S.C. 3224(b)), shall establish a pilot pro-

1 gram to provide competitively awarded cost-shared grants  
2 to eligible entities to pay for—

3 (1) on-the-job training of a new or existing em-  
4 ployee to work—

5 (A) in renewable energy, energy efficiency,  
6 or grid modernization; or

7 (B) on the reduction of greenhouse gas  
8 emissions; or

9 (2) preapprenticeship programs that provide a  
10 direct pathway to a career working—

11 (A) in renewable energy, energy efficiency,  
12 or grid modernization; or

13 (B) on the reduction of greenhouse gas  
14 emissions.

15 (c) GRANTS.—

16 (1) IN GENERAL.—An eligible entity desiring a  
17 grant under the pilot program shall submit to the  
18 Secretary of Labor an application at such time, in  
19 such manner, and containing such information as  
20 the Secretary of Labor may require.

21 (2) PRIORITY FOR TARGETED COMMUNITIES.—

22 In providing grants under the pilot program, the  
23 Secretary of Labor, in consultation with the Sec-  
24 retary shall give priority to an eligible entity that—

25 (A) recruits employees—

1 (i) from the 1 or more communities  
2 that are served by the eligible entity; and

3 (ii) that are minorities, women, vet-  
4 erans, or individuals who are transitioning  
5 from fossil energy sector jobs;

6 (B) provides trainees with the opportunity  
7 to obtain real-world experience;

8 (C) has fewer than 100 employees; and

9 (D) in the case of a preapprenticeship pro-  
10 gram, demonstrates—

11 (i) a multi-year record of—

12 (I) successfully recruiting minori-  
13 ties, women, and veterans for train-  
14 ing; and

15 (II) supporting those individuals  
16 in the successful completion of the  
17 preapprenticeship program; and

18 (ii) a successful multi-year record of  
19 placing the majority of the graduates of  
20 the preapprenticeship program into ap-  
21 prenticeship programs.

22 (3) USE OF GRANT FOR FEDERAL SHARE.—

23 (A) IN GENERAL.—An eligible entity shall  
24 use a grant received under the pilot program to  
25 pay the Federal share of the cost of—

1 (i) providing on-the-job training for  
2 an employee, in accordance with subpara-  
3 graph (B); or

4 (ii) in the case of a preapprenticeship  
5 program—

6 (I) recruiting minorities, women,  
7 and veterans for training;

8 (II) supporting those individuals  
9 in the successful completion of the  
10 preapprenticeship program; and

11 (III) carrying out any other ac-  
12 tivity of the preapprenticeship pro-  
13 gram, as determined to be appropriate  
14 by the Secretary of Labor, in con-  
15 sultation with the Secretary.

16 (B) FEDERAL SHARE AMOUNT.—The Fed-  
17 eral share described in subparagraph (A) shall  
18 not exceed—

19 (i) for activities described in clause (i)  
20 of that subparagraph—

21 (I) in the case of an eligible enti-  
22 ty with 20 or fewer employees, 45 per-  
23 cent of the cost of on-the-job-training  
24 for an employee;

1 (II) in the case of an eligible en-  
2 tity with not fewer than 21 employees  
3 and not more than 99 employees, 37.5  
4 percent of the cost of on-the-job-train-  
5 ing for an employee; and

6 (III) in the case of an eligible en-  
7 tity with not fewer than 100 employ-  
8 ees, 25 percent of the cost of on-the-  
9 job-training for an employee; and

10 (ii) for activities described in clause  
11 (ii) of that subparagraph, 50 percent.

12 (4) EMPLOYER PAYMENT OF NON-FEDERAL  
13 SHARE.—

14 (A) IN GENERAL.—The non-Federal share  
15 of the cost of providing on-the-job training for  
16 an employee under a grant received under the  
17 pilot program shall be paid in cash or in kind  
18 by the employer of the employee receiving the  
19 training.

20 (B) INCLUSIONS.—The non-Federal share  
21 described in subparagraph (A)(i) may include  
22 the amount of wages paid by the employer to  
23 the employee during the time that the employee  
24 is receiving on-the-job training, as fairly evalu-  
25 ated by the Secretary of Labor.



1 **SEC. 3003. REPEAL OF STATE UTILITY REGULATORY AS-**  
2 **SISTANCE.**

3 (a) REPEAL.—Section 207 of the Energy Conserva-  
4 tion and Production Act (42 U.S.C. 6807) is repealed.

5 (b) CONFORMING AMENDMENT.—The table of con-  
6 tents for the Energy Conservation and Production Act  
7 (Public Law 94–385; 90 Stat. 1126) is amended by strik-  
8 ing the item relating to section 207.

9 **SEC. 3004. REPEAL OF AUTHORIZATION OF APPROPRIA-**  
10 **TIONS PROVISION.**

11 (a) REPEAL.—Section 208 of the Energy Conserva-  
12 tion and Production Act (42 U.S.C. 6808) is repealed.

13 (b) CONFORMING AMENDMENT.—The table of con-  
14 tents for the Energy Conservation and Production Act  
15 (Public Law 94–385; 90 Stat. 1126) is amended by strik-  
16 ing the item relating to section 208.

17 **SEC. 3005. REPEAL OF RESIDENTIAL ENERGY EFFICIENCY**  
18 **STANDARDS STUDY.**

19 (a) REPEAL.—Section 253 of the National Energy  
20 Conservation Policy Act (42 U.S.C. 8232) is repealed.

21 (b) CONFORMING AMENDMENT.—The table of con-  
22 tents for the National Energy Conservation Policy Act  
23 (Public Law 95–619; 92 Stat. 3206) is amended by strik-  
24 ing the item relating to section 253.



1 **SEC. 3006. REPEAL OF WEATHERIZATION STUDY.**

2 (a) REPEAL.—Section 254 of the National Energy  
3 Conservation Policy Act (42 U.S.C. 8233) is repealed.

4 (b) CONFORMING AMENDMENT.—The table of con-  
5 tents for the National Energy Conservation Policy Act  
6 (Public Law 95–619; 92 Stat. 3206) is amended by strik-  
7 ing the item relating to section 254.

8 **SEC. 3007. REPEAL OF REPORT TO CONGRESS.**

9 (a) REPEAL.—Section 273 of the National Energy  
10 Conservation Policy Act (42 U.S.C. 8236b) is repealed.

11 (b) CONFORMING AMENDMENT.—The table of con-  
12 tents for the National Energy Conservation Policy Act  
13 (Public Law 95–619; 92 Stat. 3206) is amended by strik-  
14 ing the item relating to section 273.

15 **SEC. 3008. REPEAL OF SURVEY OF ENERGY SAVING POTEN-**  
16 **TIAL.**

17 (a) REPEAL.—Section 550 of the National Energy  
18 Conservation Policy Act (42 U.S.C. 8258b) is repealed.

19 (b) CONFORMING AMENDMENTS.—

20 (1) The table of contents for the National En-  
21 ergy Conservation Policy Act (Public Law 95–619;  
22 92 Stat. 3206; 106 Stat. 2851) is amended by strik-  
23 ing the item relating to section 550.

24 (2) Section 543(d)(2) of the National Energy  
25 Conservation Policy Act (42 U.S.C. 8253(d)(2)) is  
26 amended by striking “, incorporating any relevant

1 information obtained from the survey conducted pur-  
2 suant to section 550”.

3 **SEC. 3009. REPEAL OF REPORT BY GENERAL SERVICES AD-**  
4 **MINISTRATION.**

5 (a) REPEAL.—Section 154 of the Energy Policy Act  
6 of 1992 (42 U.S.C. 8262a) is repealed.

7 (b) CONFORMING AMENDMENTS.—

8 (1) The table of contents for the Energy Policy  
9 Act of 1992 (Public Law 102–486; 106 Stat. 2776)  
10 is amended by striking the item relating to section  
11 154.

12 (2) Section 159 of the Energy Policy Act of  
13 1992 (42 U.S.C. 8262e) is amended by striking sub-  
14 section (c).

15 **SEC. 3010. REPEAL OF INTERGOVERNMENTAL ENERGY**  
16 **MANAGEMENT PLANNING AND COORDINA-**  
17 **TION WORKSHOPS.**

18 (a) REPEAL.—Section 156 of the Energy Policy Act  
19 of 1992 (42 U.S.C. 8262b) is repealed.

20 (b) CONFORMING AMENDMENT.—The table of con-  
21 tents for the Energy Policy Act of 1992 (Public Law 102–  
22 486; 106 Stat. 2776) is amended by striking the item re-  
23 lating to section 156.

1 **SEC. 3011. REPEAL OF INSPECTOR GENERAL AUDIT SUR-**  
2 **VEY AND PRESIDENT'S COUNCIL ON INTEG-**  
3 **RITY AND EFFICIENCY REPORT TO CON-**  
4 **GRESS.**

5 (a) REPEAL.—Section 160 of the Energy Policy Act  
6 of 1992 (42 U.S.C. 8262f) is amended by striking the sec-  
7 tion designation and heading and all that follows through  
8 “(c) INSPECTOR GENERAL REVIEW.—Each Inspector  
9 General” and inserting the following:

10 **“SEC. 160. INSPECTOR GENERAL REVIEW.**

11 “Each Inspector General”.

12 (b) CONFORMING AMENDMENT.—The table of con-  
13 tents for the Energy Policy Act of 1992 (Public Law 102–  
14 486; 106 Stat. 2776) is amended by striking the item re-  
15 lating to section 160 and inserting the following:

“Sec. 160. Inspector General review.”.

16 **SEC. 3012. REPEAL OF PROCUREMENT AND IDENTIFICA-**  
17 **TION OF ENERGY EFFICIENT PRODUCTS PRO-**  
18 **GRAM.**

19 (a) REPEAL.—Section 161 of the Energy Policy Act  
20 of 1992 (42 U.S.C. 8262g) is repealed.

21 (b) CONFORMING AMENDMENTS.—

22 (1) The table of contents for the Energy Policy  
23 Act of 1992 (Public Law 102–486; 106 Stat. 2776)  
24 is amended by striking the item relating to section  
25 161.

1           (2) Section 548(b) of the National Energy Con-  
2           servation Policy Act (42 U.S.C. 8258(b)) (as amend-  
3           ed by section 1033(a)) is amended—

4                   (A) in paragraph (3), by inserting “and”  
5                   after the semicolon at the end;

6                   (B) by striking paragraph (4); and

7                   (C) by redesignating paragraph (5) as  
8                   paragraph (4).

9   **SEC. 3013. REPEAL OF PHOTOVOLTAIC ENERGY PROGRAM.**

10          (a) REPEAL.—Part 4 of title V of the National En-  
11          ergy Conservation Policy Act (42 U.S.C. 8271 et seq.) is  
12          repealed.

13          (b) CONFORMING AMENDMENT.—The table of con-  
14          tents for the National Energy Conservation Policy Act  
15          (Public Law 95–619; 92 Stat. 3206) is amended—

16                   (1) by striking the item relating to part 4 of  
17                   title V; and

18                   (2) by striking the items relating to sections  
19                   561 through 570.

20   **SEC. 3014. REPEAL OF NATIONAL ACTION PLAN FOR DE-**  
21                   **MAND RESPONSE.**

22          (a) REPEAL.—Part 5 of title V of the National En-  
23          ergy Conservation Policy Act (42 U.S.C. 8279) is re-  
24          pealed.

1 (b) CONFORMING AMENDMENT.—The table of con-  
2 tents for the National Energy Conservation Policy Act  
3 (Public Law 95–619; 92 Stat. 3206; 121 Stat. 1665) is  
4 amended—

5 (1) by striking the item relating to part 5 of  
6 title V; and

7 (2) by striking the item relating to section 571.

8 **SEC. 3015. REPEAL OF ENERGY AUDITOR TRAINING AND**  
9 **CERTIFICATION.**

10 (a) REPEAL.—Subtitle F of title V of the Energy Se-  
11 curity Act (42 U.S.C. 8285 et seq.) is repealed.

12 (b) CONFORMING AMENDMENT.—The table of con-  
13 tents for the Energy Security Act (Public Law 96–294;  
14 94 Stat. 611) is amended—

15 (1) by striking the item relating to subtitle F  
16 of title V; and

17 (2) by striking the items relating to sections  
18 581 through 584.

19 **SEC. 3016. REPEAL OF NATIONAL COAL POLICY STUDY.**

20 (a) REPEAL.—Section 741 of the Powerplant and In-  
21 dustrial Fuel Use Act of 1978 (42 U.S.C. 8451) is re-  
22 pealed.

23 (b) CONFORMING AMENDMENT.—The table of con-  
24 tents for the Powerplant and Industrial Fuel Use Act of

1 1978 (Public Law 95–620; 92 Stat. 3289) is amended by  
2 striking the item relating to section 741.

3 **SEC. 3017. REPEAL OF STUDY ON COMPLIANCE PROBLEM**  
4 **OF SMALL ELECTRIC UTILITY SYSTEMS.**

5 (a) REPEAL.—Section 744 of the Powerplant and In-  
6 dustrial Fuel Use Act of 1978 (42 U.S.C. 8454) is re-  
7 pealed.

8 (b) CONFORMING AMENDMENT.—The table of con-  
9 tents for the Powerplant and Industrial Fuel Use Act of  
10 1978 (Public Law 95–620; 92 Stat. 3289) is amended by  
11 striking the item relating to section 744.

12 **SEC. 3018. REPEAL OF STUDY OF SOCIOECONOMIC IM-**  
13 **PACTS OF INCREASED COAL PRODUCTION**  
14 **AND OTHER ENERGY DEVELOPMENT.**

15 (a) REPEAL.—Section 746 of the Powerplant and In-  
16 dustrial Fuel Use Act of 1978 (42 U.S.C. 8456) is re-  
17 pealed.

18 (b) CONFORMING AMENDMENT.—The table of con-  
19 tents for the Powerplant and Industrial Fuel Use Act of  
20 1978 (Public Law 95–620; 92 Stat. 3289) is amended by  
21 striking the item relating to section 746.

1 **SEC. 3019. REPEAL OF STUDY OF THE USE OF PETROLEUM**  
2 **AND NATURAL GAS IN COMBUSTORS.**

3 (a) REPEAL.—Section 747 of the Powerplant and In-  
4 dustrial Fuel Use Act of 1978 (42 U.S.C. 8457) is re-  
5 pealed.

6 (b) CONFORMING AMENDMENT.—The table of con-  
7 tents for the Powerplant and Industrial Fuel Use Act of  
8 1978 (Public Law 95–620; 92 Stat. 3289) is amended by  
9 striking the item relating to section 747.

10 **SEC. 3020. REPEAL OF AUTHORIZATION OF APPROPRIA-**  
11 **TIONS.**

12 (a) REPEAL.—Subtitle F of title VII of the Power-  
13 plant and Industrial Fuel Use Act of 1978 (42 U.S.C.  
14 8461) is repealed.

15 (b) CONFORMING AMENDMENT.—The table of con-  
16 tents for the Powerplant and Industrial Fuel Use Act of  
17 1978 (Public Law 95–620; 92 Stat. 3289) is amended—

18 (1) by striking the item relating to subtitle F  
19 of title VII; and

20 (2) by striking the item relating to section 751.

21 **SEC. 3021. REPEAL OF SUBMISSION OF REPORTS.**

22 (a) REPEAL.—Section 807 of the Powerplant and In-  
23 dustrial Fuel Use Act of 1978 (42 U.S.C. 8483) is re-  
24 pealed.

25 (b) CONFORMING AMENDMENT.—The table of con-  
26 tents for the Powerplant and Industrial Fuel Use Act of

1 1978 (Public Law 95–620; 92 Stat. 3289) is amended by  
2 striking the item relating to section 807.

3 **SEC. 3022. REPEAL OF ELECTRIC UTILITY CONSERVATION**  
4 **PLAN.**

5 (a) REPEAL.—Section 808 of the Powerplant and In-  
6 dustrial Fuel Use Act of 1978 (42 U.S.C. 8484) is re-  
7 pealed.

8 (b) CONFORMING AMENDMENTS.—

9 (1) TABLE OF CONTENTS.—The table of con-  
10 tents for the Powerplant and Industrial Fuel Use  
11 Act of 1978 (Public Law 95–620; 92 Stat. 3289) is  
12 amended by striking the item relating to section  
13 808.

14 (2) REPORT ON IMPLEMENTATION.—Section  
15 712 of the Powerplant and Industrial Fuel Use Act  
16 of 1978 (42 U.S.C. 8422) is amended—

17 (A) by striking “(a) GENERALLY.—”; and

18 (B) by striking subsection (b).

19 **SEC. 3023. EMERGENCY ENERGY CONSERVATION REPEALS.**

20 (a) REPEALS.—

21 (1) Section 201 of the Emergency Energy Con-  
22 servation Act of 1979 (42 U.S.C. 8501) is amended  
23 by striking the section designation and heading and  
24 all that follows through “(b) PURPOSES.—The pur-  
25 poses” and inserting the following:



1 **“SEC. 201. PURPOSES.**

2 “The purposes”.

3 (2) Part B of title II of the Emergency Energy  
4 Conservation Act of 1979 (42 U.S.C. 8521 et seq.)  
5 is repealed.

6 (3) Section 241 of the Emergency Energy Con-  
7 servation Act of 1979 (42 U.S.C. 8531) is repealed.

8 (b) CONFORMING AMENDMENTS.—

9 (1) The table of contents for the Emergency  
10 Energy Conservation Act of 1979 (Public Law 96–  
11 102; 93 Stat. 749) is amended—

12 (A) by striking the item relating to section  
13 201 and inserting the following:

“Sec. 201. Purposes.”;

14 (B) by striking the item relating to part B  
15 of title II; and

16 (C) by striking the items relating to sec-  
17 tions 221, 222, and 241.

18 (2) Section 251(b) of the Emergency Energy  
19 Conservation Act of 1979 (42 U.S.C. 8541(b)) is  
20 amended—

21 (A) by striking “or 221” each place it ap-  
22 pears; and

23 (B) by striking “(as the case may be)”.

1 **SEC. 3024. ENERGY SECURITY ACT REPEALS.**

2 (a) BIOMASS ENERGY DEVELOPMENT PLANS.—Sub-  
3 title A of title II of the Energy Security Act (42 U.S.C.  
4 8811 et seq.) is repealed.

5 (b) MUNICIPAL WASTE BIOMASS ENERGY.—Subtitle  
6 B of title II of the Energy Security Act (42 U.S.C. 8831  
7 et seq.) is repealed.

8 (c) USE OF GASOHOL IN FEDERAL MOTOR VEHI-  
9 CLES.—Section 271 of the Energy Security Act (42  
10 U.S.C. 8871) is repealed.

11 (d) CONFORMING AMENDMENTS.—

12 (1) The table of contents for the Energy Secu-  
13 rity Act (Public Law 96–294; 94 Stat. 611) is  
14 amended—

15 (A) by striking the items relating to sub-  
16 title A of title II;

17 (B) by striking the items relating to sub-  
18 title B of title II;

19 (C) by striking the item relating to section  
20 204 and inserting the following:

“Sec. 204. Funding.”;

21 and

22 (D) by striking the item relating to section  
23 271.

1           (2) Section 203 of the Biomass Energy and Al-  
2           cohol Fuels Act of 1980 (42 U.S.C. 8802) is amend-  
3           ed—

4                   (A) by striking paragraph (16); and

5                   (B) by redesignating paragraphs (17)  
6           through (19) as paragraphs (16) through (18),  
7           respectively.

8           (3) Section 204 of the Energy Security Act (42  
9           U.S.C. 8803) is amended—

10                   (A) in the section heading, by striking  
11           “FOR SUBTITLES A AND B”; and

12                   (B) in subsection (a)—

13                           (i) in paragraph (1), by adding “and”  
14           after the semicolon at the end;

15                           (ii) in paragraph (2), by striking “;  
16           and” at the end and inserting a period;  
17           and

18                           (iii) by striking paragraph (3).

19   **SEC. 3025. NUCLEAR SAFETY RESEARCH, DEVELOPMENT,**  
20                   **AND DEMONSTRATION ACT OF 1980 REPEALS.**

21           Sections 5 and 6 of the Nuclear Safety Research, De-  
22           velopment, and Demonstration Act of 1980 (42 U.S.C.  
23           9704, 9705) are repealed.

1 **SEC. 3026. REPEAL OF RENEWABLE ENERGY AND ENERGY**  
2 **EFFICIENCY TECHNOLOGY COMPETITIVE-**  
3 **NESS ACT OF 1989.**

4 (a) REPEAL.—The Renewable Energy and Energy  
5 Efficiency Technology Competitiveness Act of 1989 (42  
6 U.S.C. 12001 et seq.) is repealed.

7 (b) CONFORMING AMENDMENTS.—

8 (1) Section 6(b)(3) of the Federal Nonnuclear  
9 Energy Research and Development Act of 1974 (42  
10 U.S.C. 5905(b)(3)) (as amended by section  
11 1205(c)(2)) is amended—

12 (A) in subparagraph (P), by adding “and”  
13 after the semicolon;

14 (B) by striking subparagraph (Q); and

15 (C) by redesignating subparagraph (R) as  
16 subparagraph (Q).

17 (2) Section 1204 of the Energy Policy Act of  
18 1992 (42 U.S.C. 13313) is amended—

19 (A) in subsection (b), in the matter pre-  
20 ceding paragraph (1), in the first sentence, by  
21 striking “, in consultation with” and all that  
22 follows through “under section 6 of the Renew-  
23 able Energy and Energy Efficiency Technology  
24 Competitiveness Act of 1989,”; and

25 (B) in subsection (c), by striking “, in con-  
26 sultation with the Advisory Committee,”.

1 **SEC. 3027. REPEAL OF HYDROGEN RESEARCH, DEVELOP-**  
2 **MENT, AND DEMONSTRATION PROGRAM.**

3 The Spark M. Matsunaga Hydrogen Research, Devel-  
4 opment, and Demonstration Act of 1990 (42 U.S.C.  
5 12401 et seq.) is repealed.

6 **SEC. 3028. REPEAL OF STUDY ON ALTERNATIVE FUEL USE**  
7 **IN NONROAD VEHICLES AND ENGINES.**

8 (a) IN GENERAL.—Section 412 of the Energy Policy  
9 Act of 1992 (42 U.S.C. 13238) is repealed.

10 (b) CONFORMING AMENDMENT.—The table of con-  
11 tents for the Energy Policy Act of 1992 (Public Law 102–  
12 486; 106 Stat. 2776) is amended by striking the item re-  
13 lating to section 412.

14 **SEC. 3029. REPEAL OF LOW INTEREST LOAN PROGRAM FOR**  
15 **SMALL BUSINESS FLEET PURCHASES.**

16 (a) IN GENERAL.—Section 414 of the Energy Policy  
17 Act of 1992 (42 U.S.C. 13239) is repealed.

18 (b) CONFORMING AMENDMENT.—The table of con-  
19 tents for the Energy Policy Act of 1992 (Public Law 102–  
20 486; 106 Stat. 2776) is amended by striking the item re-  
21 lating to section 414.

22 **SEC. 3030. REPEAL OF TECHNICAL AND POLICY ANALYSIS**  
23 **FOR REPLACEMENT FUEL DEMAND AND SUP-**  
24 **PLY INFORMATION.**

25 (a) IN GENERAL.—Section 506 of the Energy Policy  
26 Act of 1992 (42 U.S.C. 13256) is repealed.

1 (b) CONFORMING AMENDMENTS.—

2 (1) The table of contents for the Energy Policy  
3 Act of 1992 (Public Law 102–486; 106 Stat. 2776)  
4 is amended by striking the item relating to section  
5 506.

6 (2) Section 507(m) of the Energy Policy Act of  
7 1992 (42 U.S.C. 13257(m)) is amended by striking  
8 “and section 506”.

9 **SEC. 3031. REPEAL OF 1992 REPORT ON CLIMATE CHANGE.**

10 (a) IN GENERAL.—Section 1601 of the Energy Policy  
11 Act of 1992 (42 U.S.C. 13381) is repealed.

12 (b) CONFORMING AMENDMENTS.—

13 (1) The table of contents for the Energy Policy  
14 Act of 1992 (Public Law 102–486; 106 Stat. 2776)  
15 is amended by striking the item relating to section  
16 1601.

17 (2) Section 1602(a) of the Energy Policy Act of  
18 1992 (42 U.S.C. 13382(a)) is amended, in the mat-  
19 ter preceding paragraph (1), in the third sentence,  
20 by striking “the report required under section 1601  
21 and”.

22 **SEC. 3032. REPEAL OF DIRECTOR OF CLIMATE PROTECTOR**  
23 **ESTABLISHMENT.**

24 (a) IN GENERAL.—Section 1603 of the Energy Policy  
25 Act of 1992 (42 U.S.C. 13383) is repealed.

1 (b) CONFORMING AMENDMENT.—The table of con-  
2 tents for the Energy Policy Act of 1992 (Public Law 102–  
3 486; 106 Stat. 2776) is amended by striking the item re-  
4 lating to section 1603.

5 **SEC. 3033. REPEAL OF 1994 REPORT ON GLOBAL CLIMATE**  
6 **CHANGE EMISSIONS.**

7 (a) IN GENERAL.—Section 1604 of the Energy Policy  
8 Act of 1992 (42 U.S.C. 13384) is repealed.

9 (b) CONFORMING AMENDMENT.—The table of con-  
10 tents for the Energy Policy Act of 1992 (Public Law 102–  
11 486; 106 Stat. 2776) is amended by striking the item re-  
12 lating to section 1604.

13 **SEC. 3034. REPEAL OF TELECOMMUTING STUDY.**

14 (a) IN GENERAL.—Section 2028 of the Energy Policy  
15 Act of 1992 (42 U.S.C. 13438) is repealed.

16 (b) CONFORMING AMENDMENT.—The table of con-  
17 tents for the Energy Policy Act of 1992 (Public Law 102–  
18 486; 106 Stat. 2776) is amended by striking the item re-  
19 lating to section 2028.

20 **SEC. 3035. REPEAL OF ADVANCED BUILDINGS FOR 2005**  
21 **PROGRAM.**

22 (a) IN GENERAL.—Section 2104 of the Energy Policy  
23 Act of 1992 (42 U.S.C. 13454) is repealed.

24 (b) CONFORMING AMENDMENT.—The table of con-  
25 tents for the Energy Policy Act of 1992 (Public Law 102–

1 486; 106 Stat. 2776) is amended by striking the item re-  
2 lating to section 2104.

3 **SEC. 3036. REPEAL OF ENERGY RESEARCH, DEVELOPMENT,**  
4 **DEMONSTRATION, AND COMMERCIAL APPLI-**  
5 **CATION ADVISORY BOARD.**

6 (a) IN GENERAL.—Section 2302 of the Energy Policy  
7 Act of 1992 (42 U.S.C. 13522) is repealed.

8 (b) CONFORMING AMENDMENTS.—

9 (1) The table of contents for the Energy Policy  
10 Act of 1992 (Public Law 102–486; 106 Stat. 2776)  
11 is amended by striking the item relating to section  
12 2302.

13 (2) Section 6 of the Federal Nonnuclear Energy  
14 Research and Development Act of 1974 (42 U.S.C.  
15 5905) is amended—

16 (A) in subsection (a), in the matter pre-  
17 ceding paragraph (1), in the first sentence, by  
18 striking “, in consultation with the Advisory  
19 Board established under section 2302 of the  
20 Energy Policy Act of 1992,”;

21 (B) in subsection (b)—

22 (i) in paragraph (1), in the first sen-  
23 tence, by striking “, in consultation with  
24 the Advisory Board established under sec-



1                   tion 2302 of the Energy Policy Act of  
2                   1992,”; and

3                   (ii) in paragraph (2), in the second  
4                   sentence, by striking “, in consultation  
5                   with the Advisory Board established under  
6                   section 2302 of the Energy Policy Act of  
7                   1992,”; and

8                   (C) in subsection (c), in the first sentence,  
9                   by striking “, in consultation with the Advisory  
10                  Board established under section 2302 of the  
11                  Energy Policy Act of 1992,”.

12                  (3) Section 2011(c) of the Energy Policy Act of  
13                  1992 (42 U.S.C. 13411(c)) is amended, in the sec-  
14                  ond sentence, by striking “, and with the Advisory  
15                  Board established under section 2302”.

16                  (4) Section 2304 of the Energy Policy Act of  
17                  1992 (42 U.S.C. 13523), is amended—

18                  (A) in subsection (a), by striking “, in con-  
19                  sultation with the Advisory Board established  
20                  under section 2302,”; and

21                  (B) in subsection (c), in the matter pre-  
22                  ceding paragraph (1), in the first sentence, by  
23                  striking “, with the advice of the Advisory  
24                  Board established under section 2302 of this  
25                  Act,”.

1 **SEC. 3037. REPEAL OF STUDY ON USE OF ENERGY FUTURES**  
2 **FOR FUEL PURCHASE.**

3 (a) IN GENERAL.—Section 3014 of the Energy Policy  
4 Act of 1992 (42 U.S.C. 13552) is repealed.

5 (b) CONFORMING AMENDMENT.—The table of con-  
6 tents for the Energy Policy Act of 1992 (Public Law 102–  
7 486; 106 Stat. 2776) is amended by striking the item re-  
8 lating to section 3014.

9 **SEC. 3038. REPEAL OF ENERGY SUBSIDY STUDY.**

10 (a) IN GENERAL.—Section 3015 of the Energy Policy  
11 Act of 1992 (42 U.S.C. 13553) is repealed.

12 (b) CONFORMING AMENDMENT.—The table of con-  
13 tents for the Energy Policy Act of 1992 (Public Law 102–  
14 486; 106 Stat. 2776) is amended by striking the item re-  
15 lating to section 3015.

16 **SEC. 3039. ELIMINATION AND CONSOLIDATION OF CERTAIN**  
17 **AMERICA COMPETES PROGRAMS.**

18 (a) ELIMINATION OF PROGRAM AUTHORITIES.—

19 (1) NUCLEAR SCIENCE TALENT EXPANSION  
20 PROGRAM FOR INSTITUTIONS OF HIGHER EDU-  
21 CATION.—Section 5004 of the America COMPETES  
22 Act (42 U.S.C. 16532) is repealed.

23 (2) HYDROCARBON SYSTEMS SCIENCE TALENT  
24 EXPANSION PROGRAM FOR INSTITUTIONS OF HIGH-  
25 ER EDUCATION.—Section 5005 of the America  
26 COMPETES Act (42 U.S.C. 16533) is amended—

1 (A) by striking subsection (e); and

2 (B) in subsection (f)—

3 (i) by striking paragraph (2);

4 (ii) by striking the subsection designa-

5 tion and heading and all that follows

6 through “There are” in paragraph (1) and

7 inserting the following:

8 “(e) AUTHORIZATION OF APPROPRIATIONS.—There  
9 are”; and

10 (iii) by redesignating subparagraphs

11 (A) through (F) as paragraphs (1) through

12 (6), respectively, and indenting appro-

13 priately.

14 (3) DISCOVERY SCIENCE AND ENGINEERING IN-

15 NOVATION INSTITUTES.—Section 5008 of the Amer-

16 ica COMPETES Act (42 U.S.C. 16535) is repealed.

17 (4) ELIMINATION OF DUPLICATIVE AUTHORITY

18 FOR EDUCATION PROGRAMS.—Sections 3181 and

19 3185 of the Department of Energy Science Edu-

20 cation Enhancement Act (42 U.S.C. 7381l, 42

21 U.S.C. 7381n) are repealed.

22 (5) MENTORING PROGRAM.—Section 3195 of

23 the Department of Energy Science Education En-

24 hancement Act (42 U.S.C. 7381r) is repealed.

25 (b) REPEAL OF AUTHORIZATIONS.—



1 (ii) by inserting after subparagraph  
2 (B) the following:

3 “(C) award grants, not to exceed 5 years  
4 in duration, to institutions of higher education  
5 with existing academic degree programs in nu-  
6 clear sciences and related fields—

7 “(i) to increase the number of grad-  
8 uates in nuclear science and related fields;

9 “(ii) to enhance the teaching and re-  
10 search of advanced nuclear technologies;

11 “(iii) to undertake collaboration with  
12 industry and National Laboratories; and

13 “(iv) to bolster or sustain nuclear in-  
14 frastructure and research facilities of insti-  
15 tutions of higher education, such as re-  
16 search and training reactors and labora-  
17 tories;”.

18 (2) CONSOLIDATION OF DEPARTMENT OF EN-  
19 ERGY EARLY CAREER AWARDS FOR SCIENCE, ENGI-  
20 NEERING, AND MATHEMATICS RESEARCHERS PRO-  
21 GRAM AND DISTINGUISHED SCIENTIST PROGRAM.—

22 (A) FUNDING.—Section 971(c) of the En-  
23 ergy Policy Act of 2005 (42 U.S.C. 16311(c))  
24 is amended by adding at the end the following:

1           “(8) For the Department of Energy early ca-  
2           reer awards for science, engineering, and mathe-  
3           matics researchers program under section 5006 of  
4           the America COMPETES Act (42 U.S.C. 16534)  
5           and the distinguished scientist program under sec-  
6           tion 5011 of that Act (42 U.S.C. 16537),  
7           \$150,000,000 for each of fiscal years 2018 through  
8           2022, of which not more than 65 percent of the  
9           amount made available for a fiscal year under this  
10          paragraph may be used to carry out section 5006 or  
11          5011 of that Act.”.

12                           (B) DEPARTMENT OF ENERGY EARLY CA-  
13           REER AWARDS FOR SCIENCE, ENGINEERING,  
14           AND MATHEMATICS RESEARCHERS.—Section  
15           5006 of the America COMPETES Act (42  
16           U.S.C. 16534) is amended—

17                           (i) in subsection (b)(1)—

18                                   (I) in the matter preceding sub-  
19           paragraph (A)—

20   (aa) by inserting “average”  
21           before “amount”; and

22   (bb) by inserting “for each  
23           year” before “shall”;

551

1 (II) in subparagraph (A), by  
2 striking “\$80,000” and inserting  
3 “\$190,000”; and

4 (III) in subparagraph (B), by  
5 striking “\$125,000” and inserting  
6 “\$490,000”;

7 (ii) in subsection (c)(1)(C)—

8 (I) in clause (i)—

9 (aa) by striking “assistant  
10 professor or equivalent title” and  
11 inserting “ untenured assistant or  
12 associate professor”; and

13 (bb) by inserting “or” after  
14 the semicolon at the end;

15 (II) by striking clause (ii); and

16 (III) by redesignating clause (iii)  
17 as clause (ii);

18 (iii) in subsection (d), by striking “on  
19 a competitive, merit-reviewed basis” and  
20 inserting “through a competitive process  
21 using merit-based peer review”;

22 (iv) in subsection (e)—

23 (I) by striking the subsection  
24 designation and heading and all that  
25 follows through “To be eligible” in

1 paragraph (1) and inserting the fol-  
2 lowing:

3 “(e) SELECTION PROCESS AND CRITERIA.—To be eli-  
4 gible”; and

5 (II) by striking paragraph (2);

6 and

7 (v) in subsection (f)(1), by striking  
8 “nonprofit, nondegree-granting research  
9 organizations” and inserting “National  
10 Laboratories”.

11 (3) SCIENCE EDUCATION PROGRAMS.—Section  
12 3164 of the Department of Energy Science Edu-  
13 cation Enhancement Act (42 U.S.C. 7381a) is  
14 amended—

15 (A) in subsection (b)—

16 (i) by striking paragraphs (1) and (2)  
17 and inserting the following:

18 “(1) IN GENERAL.—The Director of the Office  
19 of Science (referred to in this subsection as the ‘Di-  
20 rector’) shall provide for appropriate coordination of  
21 science, technology, engineering, and mathematics  
22 education programs across all functions of the De-  
23 partment.

24 “(2) ADMINISTRATION.—In carrying out para-  
25 graph (1), the Director shall—



1 “(A) consult with—

2 “(i) the Assistant Secretary of Energy  
3 with responsibility for energy efficiency  
4 and renewable energy programs; and

5 “(ii) the Deputy Administrator for  
6 Defense Programs of the National Nuclear  
7 Security Administration; and

8 “(B) seek to increase the participation and  
9 advancement of women and underrepresented  
10 minorities at every level of science, technology,  
11 engineering, and mathematics education.”; and

12 (ii) in paragraph (3)—

13 (I) in subparagraph (D), by  
14 striking “and” at the end;

15 (II) by redesignating subpara-  
16 graph (E) as subparagraph (F); and

17 (III) by inserting after subpara-  
18 graph (D) the following:

19 “(E) represent the Department as the  
20 principal interagency liaison for all coordination  
21 activities under the President for science, tech-  
22 nology, engineering, and mathematics education  
23 programs; and”;

24 (B) in subsection (d)—

1 (i) by striking “The Secretary” and  
2 inserting the following:

3 “(1) IN GENERAL.—The Secretary”; and

4 (ii) by adding at the end the fol-  
5 lowing:

6 “(2) REPORT.—Not later than 180 days after  
7 the date of enactment of this paragraph, the Direc-  
8 tor shall submit a report describing the impact of  
9 the activities assisted with the Fund established  
10 under paragraph (1) to—

11 “(A) the Committee on Science, Space,  
12 and Technology of the House of Representa-  
13 tives; and

14 “(B) the Committee on Energy and Nat-  
15 ural Resources of the Senate.”.

16 (4) PROTECTING AMERICA’S COMPETITIVE  
17 EDGE (PACE) GRADUATE FELLOWSHIP PROGRAM.—  
18 Section 5009 of the America COMPETES Act (42  
19 U.S.C. 16536) is amended—

20 (A) in subsection (c)—

21 (i) in paragraph (1) by striking “, in-  
22 volving” and all that follows through “Sec-  
23 retary”; and

24 (ii) in paragraph (2), by striking sub-  
25 paragraph (B) and inserting the following:

1           “(B) to demonstrate excellent academic  
2 performance and understanding of scientific or  
3 technical subjects; and”;

4           (B) in subsection (d)(1)(B)(i), by inserting  
5 “full or partial” before “graduate tuition”; and

6           (C) in subsection (e), in the matter pre-  
7 ceding paragraph (1), by striking “Director of  
8 Science, Engineering, and Mathematics Edu-  
9 cation” and inserting “Director of the Office of  
10 Science.”.

11       (d) CONFORMING AMENDMENTS.—The table of con-  
12 tents for the America COMPETES ACT (Public Law  
13 110–69; 121 Stat. 573) is amended by striking the items  
14 relating to sections 5004 and 5008.

15 **SEC. 3040. REPEAL OF PRIOR LIMITATION ON COMPENSA-**  
16 **TION OF THE SECRETARY OF THE INTERIOR.**

17       (a) IN GENERAL.—The Joint Resolution entitled  
18 “Joint Resolution ensuring that the compensation and  
19 other emoluments attached to the office of Secretary of  
20 the Interior are those which were in effect on January 1,  
21 2005”, approved January 16, 2009 (5 U.S.C. 5312 note;  
22 Public Law 111–1), is repealed.

23       (b) EFFECTIVE DATE.—This section shall take effect  
24 as though enacted on March 2, 2017.